



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, Mech., ECE & CSE)

Accredited by NAAC with 'A' Grade)

Puttur -517583, Chittoor District, A.P. (India)

1.3.4. Number of students undertaking field projects / internships / student projects

S.No	Name of the document	Page Number
1	List of students undertaking the field projects/ internships / student projects program-wise in the last completed academic year	2-19
2	Certificates of student projects	
	i. B.Tech - Civil Engineering (CIV)	20-45
	ii. B.Tech - Electrical and Electronics Engineering (EEE)	46-63
	iii. B.Tech - Mechanical Engineering (MEC)	64-94
	iv. B.Tech - Electronics and Communication Engineering (ECE)	95-149
	v. B.Tech - Computer Science and Engineering (CSE)	150-189
	vi. B.Tech - Computer Science and Information Technology (CIT)	190-201
	vii. B.Tech - Agricultural Engineering (AGR)	202-206
	viii. Mater of Business Administration (MBA)	207-217
ix. Master of Computer Applications (MCA)	218-3099	



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, Mech., ECE & CSE)

Accredited by NAAC with 'A' Grade)

Puttur -517583, Chittoor District, A.P. (India)

List of students undertaking field projects / internships / student projects

S.No	Programme name	Program Code	Name of students undertaking field projects /internships/student projects
1	B.Tech - Civil Engineering (CIV)	1	HEMASAI M
2	B.Tech - Civil Engineering (CIV)	1	HEMAKIRAN G B
3	B.Tech - Civil Engineering (CIV)	1	MUSTHAFFA S
4	B.Tech - Civil Engineering (CIV)	1	BHARATH KUMAR S
5	B.Tech - Civil Engineering (CIV)	1	MANI B
6	B.Tech - Civil Engineering (CIV)	1	KIRAN N
7	B.Tech - Civil Engineering (CIV)	1	NEERAJ KUMAR S
8	B.Tech - Civil Engineering (CIV)	1	SURYASEKHAR VARMA T
9	B.Tech - Civil Engineering (CIV)	1	DHANUSH G
10	B.Tech - Civil Engineering (CIV)	1	KIRAN KUMAR E
11	B.Tech - Civil Engineering (CIV)	1	KISHORE KOWSHIK P
12	B.Tech - Civil Engineering (CIV)	1	VISHNU SAI REDDY
13	B.Tech - Civil Engineering (CIV)	1	AMRUTHA B
14	B.Tech - Civil Engineering (CIV)	1	CHIHNITHA K
15	B.Tech - Civil Engineering (CIV)	1	KANNA BABU P
16	B.Tech - Civil Engineering (CIV)	1	AKHIL M
17	B.Tech - Civil Engineering (CIV)	1	KIRAN KUMAR REDDY D
18	B.Tech - Civil Engineering (CIV)	1	HARSHAVARDHAN REDDY D
19	B.Tech - Civil Engineering (CIV)	1	HRISHIKESH YADAV G
20	B.Tech - Civil Engineering (CIV)	1	MOHAN KUMAR P
21	B.Tech - Civil Engineering (CIV)	1	GOVARDHAN K
22	B.Tech - Civil Engineering (CIV)	1	MOTHILAL NAIK R
23	B.Tech - Civil Engineering (CIV)	1	KALYAN B
24	B.Tech - Civil Engineering (CIV)	1	MUNISEKHAR Y
25	B.Tech - Civil Engineering (CIV)	1	KALEBU C
26	B.Tech - Civil Engineering (CIV)	1	DINESH B
27	B.Tech - Civil Engineering (CIV)	1	BHAVISHYA C
28	B.Tech - Civil Engineering (CIV)	1	MUNI VENKATARAMANA A
29	B.Tech - Civil Engineering (CIV)	1	BINDHU PREETHI N
30	B.Tech - Civil Engineering (CIV)	1	JAYANTH E
31	B.Tech - Civil Engineering (CIV)	1	DHEERAJ KUMAR P
32	B.Tech - Civil Engineering (CIV)	1	AJAY J
33	B.Tech - Civil Engineering (CIV)	1	GOURAV SHARMA S
34	B.Tech - Civil Engineering (CIV)	1	LAKSHMI NARASIMHULU K
35	B.Tech - Civil Engineering (CIV)	1	JAGADEESH K
36	B.Tech - Civil Engineering (CIV)	1	GURU PRASAD
37	B.Tech - Civil Engineering (CIV)	1	KANDHIKYA B
38	B.Tech - Civil Engineering (CIV)	1	DHANASEKHAR M
39	B.Tech - Civil Engineering (CIV)	1	GOVARDHAN K
40	B.Tech - Civil Engineering (CIV)	1	ADINARAYANA A
41	B.Tech - Civil Engineering (CIV)	1	KULADEEP V
42	B.Tech - Civil Engineering (CIV)	1	GOWTHAM B
43	B.Tech - Civil Engineering (CIV)	1	ASHOK Y
44	B.Tech - Civil Engineering (CIV)	1	MAHESWARI K
45	B.Tech - Civil Engineering (CIV)	1	MAHESH K
46	B.Tech - Civil Engineering (CIV)	1	DURGA P V
47	B.Tech - Civil Engineering (CIV)	1	DILIP T
48	B.Tech - Civil Engineering (CIV)	1	HIMATEJA R
49	B.Tech - Civil Engineering (CIV)	1	LAKSHMI DURGA K

50	B.Tech - Civil Engineering (CIV)	1	DHAMU A
51	B.Tech - Civil Engineering (CIV)	1	CHANDU G
52	B.Tech - Civil Engineering (CIV)	1	DEEPU YADAV K
53	B.Tech - Civil Engineering (CIV)	1	MOKSHAGNA P
54	B.Tech - Civil Engineering (CIV)	1	CHARAN KUMAR REDDY T
55	B.Tech - Civil Engineering (CIV)	1	MEGHANA K
56	B.Tech - Civil Engineering (CIV)	1	CHIRANJEEVI N
57	B.Tech - Civil Engineering (CIV)	1	NEEHARIKA J
58	B.Tech - Civil Engineering (CIV)	1	NIKHIL KUMAR P
59	B.Tech - Civil Engineering (CIV)	1	MANOJ KUMAR S
60	B.Tech - Civil Engineering (CIV)	1	PREETHIRANI P
61	B.Tech - Civil Engineering (CIV)	1	SAICHARAN K
62	B.Tech - Civil Engineering (CIV)	1	SIVA KRISHNA D
63	B.Tech - Civil Engineering (CIV)	1	VARSHA S
64	B.Tech - Civil Engineering (CIV)	1	SWETHASREE S
65	B.Tech - Civil Engineering (CIV)	1	SUMANTH K
66	B.Tech - Civil Engineering (CIV)	1	VINITH S
67	B.Tech - Civil Engineering (CIV)	1	VAMSI K
68	B.Tech - Civil Engineering (CIV)	1	SHYAMSHELSI V H
69	B.Tech - Civil Engineering (CIV)	1	SHAIK SHAFI
70	B.Tech - Civil Engineering (CIV)	1	SRIKANTH N
71	B.Tech - Civil Engineering (CIV)	1	RANJITH VARDHAN P
72	B.Tech - Civil Engineering (CIV)	1	REDDY KISHORE D
73	B.Tech - Civil Engineering (CIV)	1	SATISH KUMAR REDDY
74	B.Tech - Civil Engineering (CIV)	1	ROHIT A
75	B.Tech - Civil Engineering (CIV)	1	UMESH CHANDRA T
76	B.Tech - Civil Engineering (CIV)	1	SAMUEL PAUL M
77	B.Tech - Civil Engineering (CIV)	1	SUNIL A
78	B.Tech - Civil Engineering (CIV)	1	SAI DINESH B
79	B.Tech - Civil Engineering (CIV)	1	YASWANTH V
80	B.Tech - Civil Engineering (CIV)	1	YAMINI R
81	B.Tech - Civil Engineering (CIV)	1	TEJASS Y
82	B.Tech - Civil Engineering (CIV)	1	VIJAYAKUMAR T
83	B.Tech - Civil Engineering (CIV)	1	SIVAKUMAR S
84	B.Tech - Civil Engineering (CIV)	1	SANDHYA RANI S
85	B.Tech - Civil Engineering (CIV)	1	PRASANTH REDDY D
86	B.Tech - Civil Engineering (CIV)	1	YASHWANTH A
87	B.Tech - Civil Engineering (CIV)	1	SUBRAMANYAM N
88	B.Tech - Civil Engineering (CIV)	1	VISHNU KUMAR P
89	B.Tech - Civil Engineering (CIV)	1	PRASANTH M
90	B.Tech - Civil Engineering (CIV)	1	YASWANTH KUMAR N
91	B.Tech - Civil Engineering (CIV)	1	SREENIVASULU G
92	B.Tech - Civil Engineering (CIV)	1	SIVASAI K
93	B.Tech - Civil Engineering (CIV)	1	SOUNDARYA D
94	B.Tech - Civil Engineering (CIV)	1	VAMSI N
95	B.Tech - Civil Engineering (CIV)	1	SIVARAM J
96	B.Tech - Civil Engineering (CIV)	1	THYAGARAJU J
97	B.Tech - Civil Engineering (CIV)	1	SAI CHANDU S
98	B.Tech - Civil Engineering (CIV)	1	SIDDESWARA K
99	B.Tech - Civil Engineering (CIV)	1	THARUNKUMAR N
100	B.Tech - Civil Engineering (CIV)	1	POORNIMA J
101	B.Tech - Civil Engineering (CIV)	1	VIJAYAKUMAR P
102	B.Tech - Civil Engineering (CIV)	1	YASWANTH K P
103	B.Tech - Civil Engineering (CIV)	1	ROOPESH E
104	B.Tech - Civil Engineering (CIV)	1	VIKITHA V
105	B.Tech - Civil Engineering (CIV)	1	PRUDVI SAI M
106	B.Tech - Civil Engineering (CIV)	1	RAMESH D V
107	B.Tech - Civil Engineering (CIV)	1	ROHIT NARAYAN B

108	B.Tech - Electrical and Electronics Engineering (EEE)	2	S.SATISH KUMAR REDDY
109	B.Tech - Electrical and Electronics Engineering (EEE)	2	A.REDDYPRASAD REDDY
110	B.Tech - Electrical and Electronics Engineering (EEE)	2	P.PARTHIFUN REDDU
111	B.Tech - Electrical and Electronics Engineering (EEE)	2	V.RAJESH
112	B.Tech - Electrical and Electronics Engineering (EEE)	2	K.RAJESH
113	B.Tech - Electrical and Electronics Engineering (EEE)	2	B. TEJASWINI
114	B.Tech - Electrical and Electronics Engineering (EEE)	2	KANUMURI UMADEVI
115	B.Tech - Electrical and Electronics Engineering (EEE)	2	VENKATEELA RAJESH
116	B.Tech - Electrical and Electronics Engineering (EEE)	2	S.POOJYA
117	B.Tech - Electrical and Electronics Engineering (EEE)	2	A.MOHANA
118	B.Tech - Electrical and Electronics Engineering (EEE)	2	V.SASIDHAR REDDY
119	B.Tech - Electrical and Electronics Engineering (EEE)	2	YALLA PRAVALLIKA
120	B.Tech - Electrical and Electronics Engineering (EEE)	2	T.RIVAN KUMAR
121	B.Tech - Electrical and Electronics Engineering (EEE)	2	PINJARI RAHEMAN
122	B.Tech - Electrical and Electronics Engineering (EEE)	2	KATARI VENKATESH
123	B.Tech - Electrical and Electronics Engineering (EEE)	2	B. SUHASINI
124	B.Tech - Electrical and Electronics Engineering (EEE)	2	KANUMURI RUSHITHA
125	B.Tech - Electrical and Electronics Engineering (EEE)	2	K. VINODKUMAR
126	B.Tech - Electrical and Electronics Engineering (EEE)	2	P.THEJA
127	B.Tech - Electrical and Electronics Engineering (EEE)	2	A.B.VASANTH KUMAR
128	B.Tech - Electrical and Electronics Engineering (EEE)	2	D.NITHYA
129	B.Tech - Electrical and Electronics Engineering (EEE)	2	VR.VENKATESH
130	B.Tech - Electrical and Electronics Engineering (EEE)	2	K. RAJA SEKHAR REDDY
131	B.Tech - Electrical and Electronics Engineering (EEE)	2	BHUVANAGIRI ZILANI
132	B.Tech - Electrical and Electronics Engineering (EEE)	2	K. PREM KUMAR
133	B.Tech - Electrical and Electronics Engineering (EEE)	2	S.PAVAN KUMAR
134	B.Tech - Electrical and Electronics Engineering (EEE)	2	P.PAVANKUMAR
135	B.Tech - Electrical and Electronics Engineering (EEE)	2	G.SAI KUMAR
136	B.Tech - Electrical and Electronics Engineering (EEE)	2	K.UMA MAHESH
137	B.Tech - Electrical and Electronics Engineering (EEE)	2	B. UDAY KUMAR
138	B.Tech - Electrical and Electronics Engineering (EEE)	2	KAIVARAM VINAY KUMAR
139	B.Tech - Electrical and Electronics Engineering (EEE)	2	M.VIVEKANANDA REDDY
140	B.Tech - Electrical and Electronics Engineering (EEE)	2	S.SATYANARAYANA REDDY
141	B.Tech - Electrical and Electronics Engineering (EEE)	2	MUNTALA.VENKATESH
142	B.Tech - Electrical and Electronics Engineering (EEE)	2	G.SUKANYA
143	B.Tech - Electrical and Electronics Engineering (EEE)	2	ETTA SIVA SWETHA
144	B.Tech - Electrical and Electronics Engineering (EEE)	2	T.MOUNIKA
145	B.Tech - Electrical and Electronics Engineering (EEE)	2	T.NALINI
146	B.Tech - Electrical and Electronics Engineering (EEE)	2	S.MAHAMMAD SHAHEER
147	B.Tech - Electrical and Electronics Engineering (EEE)	2	O. VARUN
148	B.Tech - Electrical and Electronics Engineering (EEE)	2	K. YASWANTH KUMAR
149	B.Tech - Electrical and Electronics Engineering (EEE)	2	POTHAGANTI YUGANDHAR
150	B.Tech - Electrical and Electronics Engineering (EEE)	2	K.THOJESWAR
151	B.Tech - Electrical and Electronics Engineering (EEE)	2	P.VENKATESH
152	B.Tech - Electrical and Electronics Engineering (EEE)	2	A.CHANDANA CHARITHA
153	B.Tech - Electrical and Electronics Engineering (EEE)	2	M.BHAVYA SREE
154	B.Tech - Electrical and Electronics Engineering (EEE)	2	R.JAHNAVI
155	B.Tech - Electrical and Electronics Engineering (EEE)	2	K.ARJUN
156	B.Tech - Electrical and Electronics Engineering (EEE)	2	R.BHARGAVI
157	B.Tech - Electrical and Electronics Engineering (EEE)	2	P.GIRI PRASAD
158	B.Tech - Electrical and Electronics Engineering (EEE)	2	U M MANOJ KUMAR
159	B.Tech - Electrical and Electronics Engineering (EEE)	2	G. DILEEP
160	B.Tech - Electrical and Electronics Engineering (EEE)	2	C. CHAITHANYA
161	B.Tech - Electrical and Electronics Engineering (EEE)	2	M. ASHOK KUMAR REDDY
162	B.Tech - Electrical and Electronics Engineering (EEE)	2	K. HARISH
163	B.Tech - Electrical and Electronics Engineering (EEE)	2	P.NANDINI
164	B.Tech - Electrical and Electronics Engineering (EEE)	2	N.NAGARATHNA
165	B.Tech - Electrical and Electronics Engineering (EEE)	2	N.CHARAN

166	B.Tech - Electrical and Electronics Engineering (EEE)	2	S.JAHNAVI
167	B.Tech - Electrical and Electronics Engineering (EEE)	2	P.HARISH NAIDU
168	B.Tech - Electrical and Electronics Engineering (EEE)	2	CH. MANOHAR
169	B.Tech - Electrical and Electronics Engineering (EEE)	2	V. KOUSALYA
170	B.Tech - Electrical and Electronics Engineering (EEE)	2	D. GANGA PRASANNA
171	B.Tech - Electrical and Electronics Engineering (EEE)	2	K. AKSHAY
172	B.Tech - Electrical and Electronics Engineering (EEE)	2	C. NARESH
173	B.Tech - Electrical and Electronics Engineering (EEE)	2	R.MEGHANA
174	B.Tech - Electrical and Electronics Engineering (EEE)	2	A.KOMALA
175	B.Tech - Electrical and Electronics Engineering (EEE)	2	M.MANORMANI
176	B.Tech - Electrical and Electronics Engineering (EEE)	2	R.V.AKHIL
177	B.Tech - Electrical and Electronics Engineering (EEE)	2	G.JASWANTH
178	B.Tech - Electrical and Electronics Engineering (EEE)	2	A AMALA
179	B.Tech - Electrical and Electronics Engineering (EEE)	2	S MANIKANTA
180	B.Tech - Electrical and Electronics Engineering (EEE)	2	P.CHANDAN KUMAR
181	B.Tech - Electrical and Electronics Engineering (EEE)	2	B.CHANDRA BABU
182	B.Tech - Electrical and Electronics Engineering (EEE)	2	D.HARSHAVARDHAN
183	B.Tech - Electrical and Electronics Engineering (EEE)	2	V MUNI RAJ
184	B.Tech - Electrical and Electronics Engineering (EEE)	2	G MAHESH
185	B.Tech - Electrical and Electronics Engineering (EEE)	2	K LAVAN KUMAR
186	B.Tech - Electrical and Electronics Engineering (EEE)	2	S.B DIVYA
187	B.Tech - Electrical and Electronics Engineering (EEE)	2	N BHARGAV
188	B.Tech - Electrical and Electronics Engineering (EEE)	2	S. KARTHIK
189	B.Tech - Electrical and Electronics Engineering (EEE)	2	G. HARISH
190	B.Tech - Electrical and Electronics Engineering (EEE)	2	P. ANUSHA
191	B.Tech - Electrical and Electronics Engineering (EEE)	2	M. GANGI REDDY
192	B.Tech - Electrical and Electronics Engineering (EEE)	2	K. KUSHAL KUMAR
193	B.Tech - Electrical and Electronics Engineering (EEE)	2	S.KARISHMA CHOWDARY
194	B.Tech - Electrical and Electronics Engineering (EEE)	2	U.MANOJKUMAR
195	B.Tech - Electrical and Electronics Engineering (EEE)	2	K.CHAITANYA
196	B.Tech - Electrical and Electronics Engineering (EEE)	2	D.HARSHAVARDHAN
197	B.Tech - Electrical and Electronics Engineering (EEE)	2	B.HARSHAVARDHAN
198	B.Tech - Mechanical Engineering (MEC)	3	ASHOK KUMAR REDDY.N
199	B.Tech - Mechanical Engineering (MEC)	3	BALAJI.B
200	B.Tech - Mechanical Engineering (MEC)	3	AJAY BABU.D
201	B.Tech - Mechanical Engineering (MEC)	3	K.DINESH BABU
202	B.Tech - Mechanical Engineering (MEC)	3	P.VISHNU SAI (REJOIN)
203	B.Tech - Mechanical Engineering (MEC)	3	BALACHANDRA REDDY.M
204	B.Tech - Mechanical Engineering (MEC)	3	LOKESH G
205	B.Tech - Mechanical Engineering (MEC)	3	CHARAN KUMAR.O G
206	B.Tech - Mechanical Engineering (MEC)	3	G.ANIL KUMAR
207	B.Tech - Mechanical Engineering (MEC)	3	ARAVIND.M
208	B.Tech - Mechanical Engineering (MEC)	3	BHARATH KUMAR REDDY.N
209	B.Tech - Mechanical Engineering (MEC)	3	CHANDRA BABU NAIDU.B
210	B.Tech - Mechanical Engineering (MEC)	3	DEVENDRA.K C
211	B.Tech - Mechanical Engineering (MEC)	3	BHARATH.C
212	B.Tech - Mechanical Engineering (MEC)	3	AJITH.B
213	B.Tech - Mechanical Engineering (MEC)	3	GUNASEKHAR.V
214	B.Tech - Mechanical Engineering (MEC)	3	DEEPAK KUMAR.N K
215	B.Tech - Mechanical Engineering (MEC)	3	CHANDU.C
216	B.Tech - Mechanical Engineering (MEC)	3	DINESH.B
217	B.Tech - Mechanical Engineering (MEC)	3	GANESH REDDY.A
218	B.Tech - Mechanical Engineering (MEC)	3	DINESH.P M
219	B.Tech - Mechanical Engineering (MEC)	3	CHARAN.S
220	B.Tech - Mechanical Engineering (MEC)	3	DINESH.T
221	B.Tech - Mechanical Engineering (MEC)	3	LIKESH.V
222	B.Tech - Mechanical Engineering (MEC)	3	LIKHITH K
223	B.Tech - Mechanical Engineering (MEC)	3	GNANESWAR YADAV.S

224	B.Tech - Mechanical Engineering (MEC)	3	CHIRANJEEVI.K
225	B.Tech - Mechanical Engineering (MEC)	3	JAGADEESH.J V
226	B.Tech - Mechanical Engineering (MEC)	3	HARIPRAKSH RAJU.B
227	B.Tech - Mechanical Engineering (MEC)	3	GNANESHWAR.S.K
228	B.Tech - Mechanical Engineering (MEC)	3	JAYAPRAKASH REDDY.N
229	B.Tech - Mechanical Engineering (MEC)	3	KARTHIK.K
230	B.Tech - Mechanical Engineering (MEC)	3	JAI PRAKASH.M
231	B.Tech - Mechanical Engineering (MEC)	3	HEMENDER SINGH
232	B.Tech - Mechanical Engineering (MEC)	3	LALITH SAI KRISHNA.V J S
233	B.Tech - Mechanical Engineering (MEC)	3	KARTHICK.D
234	B.Tech - Mechanical Engineering (MEC)	3	CHANDRASEKHAR.D
235	B.Tech - Mechanical Engineering (MEC)	3	JAYASANKAR.P
236	B.Tech - Mechanical Engineering (MEC)	3	DHAMU.P
237	B.Tech - Mechanical Engineering (MEC)	3	DIVAKAR.M
238	B.Tech - Mechanical Engineering (MEC)	3	LEELADHAR.V
239	B.Tech - Mechanical Engineering (MEC)	3	Y.DINESH
240	B.Tech - Mechanical Engineering (MEC)	3	KRISHNA MOORTHI.K
241	B.Tech - Mechanical Engineering (MEC)	3	G.DINESH
242	B.Tech - Mechanical Engineering (MEC)	3	M.GANESH
243	B.Tech - Mechanical Engineering (MEC)	3	G.GNANASEKHAR
244	B.Tech - Mechanical Engineering (MEC)	3	KRISHNA VAMSI.B
245	B.Tech - Mechanical Engineering (MEC)	3	MURALIDHAR REDDY.G
246	B.Tech - Mechanical Engineering (MEC)	3	MUNI SEKHAR.C
247	B.Tech - Mechanical Engineering (MEC)	3	PAVAN KALYAN.K
248	B.Tech - Mechanical Engineering (MEC)	3	PUNEETH.K
249	B.Tech - Mechanical Engineering (MEC)	3	MANOJ SAI.N
250	B.Tech - Mechanical Engineering (MEC)	3	NAGENDRA.K
251	B.Tech - Mechanical Engineering (MEC)	3	L.KIRAN SAI
252	B.Tech - Mechanical Engineering (MEC)	3	RAJ KUMAR.A
253	B.Tech - Mechanical Engineering (MEC)	3	NAVEEN KUMAR.K
254	B.Tech - Mechanical Engineering (MEC)	3	REVANTH.R
255	B.Tech - Mechanical Engineering (MEC)	3	NAVEEN.B
256	B.Tech - Mechanical Engineering (MEC)	3	U.HARSHAVARDHAN
257	B.Tech - Mechanical Engineering (MEC)	3	RAKESH.T
258	B.Tech - Mechanical Engineering (MEC)	3	PAVAN.K
259	B.Tech - Mechanical Engineering (MEC)	3	PAVAN SRINIVAS.A
260	B.Tech - Mechanical Engineering (MEC)	3	NIKHIL BABU.T
261	B.Tech - Mechanical Engineering (MEC)	3	KARTHEEK N
262	B.Tech - Mechanical Engineering (MEC)	3	PAVAN KUMAR.S
263	B.Tech - Mechanical Engineering (MEC)	3	MURALI KRISHNA.J
264	B.Tech - Mechanical Engineering (MEC)	3	SAI CHAITHANYA.P
265	B.Tech - Mechanical Engineering (MEC)	3	NIKHIL.C
266	B.Tech - Mechanical Engineering (MEC)	3	REDDAIAH.N
267	B.Tech - Mechanical Engineering (MEC)	3	PREM SAI.D
268	B.Tech - Mechanical Engineering (MEC)	3	LOKESH.V
269	B.Tech - Mechanical Engineering (MEC)	3	MUNIBHARGAV.D
270	B.Tech - Mechanical Engineering (MEC)	3	NIRANJAN REDDY.A
271	B.Tech - Mechanical Engineering (MEC)	3	RAVITEJA.G
272	B.Tech - Mechanical Engineering (MEC)	3	REVANTH.E
273	B.Tech - Mechanical Engineering (MEC)	3	K.MANOJ KUMAR
274	B.Tech - Mechanical Engineering (MEC)	3	REVANTH RAO.M
275	B.Tech - Mechanical Engineering (MEC)	3	NIRANJANEESWAR REDDY.C
276	B.Tech - Mechanical Engineering (MEC)	3	HEMANTH.T
277	B.Tech - Mechanical Engineering (MEC)	3	RANJITH KUMAR.P
278	B.Tech - Mechanical Engineering (MEC)	3	MUNI GIREESH.K
279	B.Tech - Mechanical Engineering (MEC)	3	SAI CHARAN S
280	B.Tech - Mechanical Engineering (MEC)	3	NIRMAL KUMAR.J
281	B.Tech - Mechanical Engineering (MEC)	3	MUNI CHANDRA.T

282	B.Tech - Mechanical Engineering (MEC)	3	LOKESH.C
283	B.Tech - Mechanical Engineering (MEC)	3	PAVAN KUMAR REDDY.P
284	B.Tech - Mechanical Engineering (MEC)	3	KARTHICK.A
285	B.Tech - Mechanical Engineering (MEC)	3	RAGAVENDRA.V
286	B.Tech - Mechanical Engineering (MEC)	3	NARESH.P
287	B.Tech - Mechanical Engineering (MEC)	3	MANOJ KUMAR.C
288	B.Tech - Mechanical Engineering (MEC)	3	M.NAGARJUNA REDDY
289	B.Tech - Mechanical Engineering (MEC)	3	RANGAREDDY.B V
290	B.Tech - Mechanical Engineering (MEC)	3	MOHAMMED ISHAQ BAIG
291	B.Tech - Mechanical Engineering (MEC)	3	MOHANA.M
292	B.Tech - Mechanical Engineering (MEC)	3	MAHENDRA.D
293	B.Tech - Mechanical Engineering (MEC)	3	SAITEJA.K
294	B.Tech - Mechanical Engineering (MEC)	3	SAI KRISHNA.KOPANATHI
295	B.Tech - Mechanical Engineering (MEC)	3	SAI KUMAR.B
296	B.Tech - Mechanical Engineering (MEC)	3	VENKATA SAI BALAJI.G
297	B.Tech - Mechanical Engineering (MEC)	3	VAMSI KRISHNA.A
298	B.Tech - Mechanical Engineering (MEC)	3	SATHISH.D M
299	B.Tech - Mechanical Engineering (MEC)	3	SAI KUMAR REDDY.S
300	B.Tech - Mechanical Engineering (MEC)	3	SAI TEJA.G
301	B.Tech - Mechanical Engineering (MEC)	3	VINODH.P P
302	B.Tech - Mechanical Engineering (MEC)	3	SAICHAITANYA.S
303	B.Tech - Mechanical Engineering (MEC)	3	VYKUNTARAO.S
304	B.Tech - Mechanical Engineering (MEC)	3	VENKATA NITISH KUMAR.P
305	B.Tech - Mechanical Engineering (MEC)	3	SAIRAM.K
306	B.Tech - Mechanical Engineering (MEC)	3	SHAIK SADIK.A
307	B.Tech - Mechanical Engineering (MEC)	3	SHAIK MOHAMMAD ALI
308	B.Tech - Mechanical Engineering (MEC)	3	SYED WASEEM AKRAM
309	B.Tech - Mechanical Engineering (MEC)	3	SAMARA SIMHA REDDY.K
310	B.Tech - Mechanical Engineering (MEC)	3	VEERAAIAH.V
311	B.Tech - Mechanical Engineering (MEC)	3	SRAVANKUMAR REDDY.S
312	B.Tech - Mechanical Engineering (MEC)	3	VAMSI KRISHNA.G
313	B.Tech - Mechanical Engineering (MEC)	3	SAI KIRAN.G
314	B.Tech - Mechanical Engineering (MEC)	3	SANTHI SWAROOP.B
315	B.Tech - Mechanical Engineering (MEC)	3	SURESH.A
316	B.Tech - Mechanical Engineering (MEC)	3	SUKUMAR.T
317	B.Tech - Mechanical Engineering (MEC)	3	RAVI TEJESWAR.B
318	B.Tech - Mechanical Engineering (MEC)	3	SHAIK MOHAMMADSAJID
319	B.Tech - Mechanical Engineering (MEC)	3	M.VENKATARATNAM
320	B.Tech - Mechanical Engineering (MEC)	3	SHAIK ABDULLA
321	B.Tech - Mechanical Engineering (MEC)	3	SHANMUGHAM.N
322	B.Tech - Mechanical Engineering (MEC)	3	SIVA PRASAD.M
323	B.Tech - Mechanical Engineering (MEC)	3	SYED ABDUL WAZEEB ALI
324	B.Tech - Mechanical Engineering (MEC)	3	SRIDHAR.B
325	B.Tech - Mechanical Engineering (MEC)	3	S.SREENIVASULU
326	B.Tech - Mechanical Engineering (MEC)	3	VENKATESH.H
327	B.Tech - Mechanical Engineering (MEC)	3	SAI KRISHNA.KANDALA
328	B.Tech - Mechanical Engineering (MEC)	3	SHAIK MAGDOOM
329	B.Tech - Mechanical Engineering (MEC)	3	SUDHEER KUMAR.B
330	B.Tech - Mechanical Engineering (MEC)	3	M.SATHYANARAYANA
331	B.Tech - Mechanical Engineering (MEC)	3	VIGNESH.R
332	B.Tech - Mechanical Engineering (MEC)	3	UDAY KUMAR.M
333	B.Tech - Mechanical Engineering (MEC)	3	K.SUBRAMANYAM REDDY
334	B.Tech - Mechanical Engineering (MEC)	3	SUKUMAR.V
335	B.Tech - Mechanical Engineering (MEC)	3	PRATHEEP.G
336	B.Tech - Mechanical Engineering (MEC)	3	THIRUMALESU.M
337	B.Tech - Mechanical Engineering (MEC)	3	PUMAMAHESH
338	B.Tech - Mechanical Engineering (MEC)	3	SYED THOUSIF ALI
339	B.Tech - Mechanical Engineering (MEC)	3	S .SAI REVANTH

340	B.Tech - Mechanical Engineering (MEC)	3	POORNA CHANDRA.S
341	B.Tech - Mechanical Engineering (MEC)	3	THULASIMADHAV.K J
342	B.Tech - Mechanical Engineering (MEC)	3	VAMSI KUMAR REDDY.K
343	B.Tech - Electronics and Communicarion Engineering (ECE)	4	B.DHARANI
344	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SOPPA BHOOMIKA
345	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MEKALA GANESH KUMAR YADAV
346	B.Tech - Electronics and Communicarion Engineering (ECE)	4	E.HARISH
347	B.Tech - Electronics and Communicarion Engineering (ECE)	4	R.P.AMITH KUMAR
348	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VALAJA GEETHA
349	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHOLARAJU BHARGAVARAJU
350	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PATTHURI DUSHYANTH REDDY
351	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KONETI.HARSHA VARDHAN RAO
352	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VUNNAM AKHILA
353	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BOYELLA HARSHITHA
354	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHITTEPU DIVYA
355	B.Tech - Electronics and Communicarion Engineering (ECE)	4	JABBIREDDY BRUNDHA REDDY
356	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PALLIPATTU AJAY
357	B.Tech - Electronics and Communicarion Engineering (ECE)	4	ANNALADEVI BALAJI
358	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MULLAMURI GAYATHRI
359	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KOTHURU HARIKA
360	B.Tech - Electronics and Communicarion Engineering (ECE)	4	POOLI DURGA
361	B.Tech - Electronics and Communicarion Engineering (ECE)	4	YARRASANI CHARAN REDDY
362	B.Tech - Electronics and Communicarion Engineering (ECE)	4	AKSHAY KUMAR PANIGRAHI
363	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DORANADULA CHANDANA
364	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KAKARLA CHAITHANYA KUMAR
365	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GADDAM BHAVITHA
366	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GAMPA BALAJI
367	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VALIGATTAHEMANTHKUMAR
368	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KAMBHAM HUNILA
369	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KUNDELU BALAJI
370	B.Tech - Electronics and Communicarion Engineering (ECE)	4	USURUPATI HEMANTH
371	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VATHALA GOWTHAMI
372	B.Tech - Electronics and Communicarion Engineering (ECE)	4	A BHARGAV
373	B.Tech - Electronics and Communicarion Engineering (ECE)	4	R K INDRANEEL
374	B.Tech - Electronics and Communicarion Engineering (ECE)	4	V.B.CHETHAN
375	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KUCHI ADARSH
376	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KATAMANI GANESH YADAV
377	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PUTHA HEMANTH KUMAR REDDY
378	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MUPPALA HARSHITHA
379	B.Tech - Electronics and Communicarion Engineering (ECE)	4	R G BHAVANA
380	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PAIDALA AFRIN
381	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SETU CHARAN KUMAR
382	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KOLALA HARINADHAM
383	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SAVANA ANUSHA
384	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BEERAKAM GOWTHAMI
385	B.Tech - Electronics and Communicarion Engineering (ECE)	4	K DIVYA
386	B.Tech - Electronics and Communicarion Engineering (ECE)	4	ANUPALLI CHARAN KUMAR
387	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MITTURU DILLIP KUMAR
388	B.Tech - Electronics and Communicarion Engineering (ECE)	4	C.DHARANI
389	B.Tech - Electronics and Communicarion Engineering (ECE)	4	D.BHARATHI SUDHA
390	B.Tech - Electronics and Communicarion Engineering (ECE)	4	TERUVAI HARITHA KESINI
391	B.Tech - Electronics and Communicarion Engineering (ECE)	4	AKULA BHUVANESH
392	B.Tech - Electronics and Communicarion Engineering (ECE)	4	NIMMAKAYALA DILEEP KUMAR
393	B.Tech - Electronics and Communicarion Engineering (ECE)	4	TATAMCHETTY CHANDIPRIYA
394	B.Tech - Electronics and Communicarion Engineering (ECE)	4	YERRABOLU HARSHITHA
395	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BATTINA DEEPA
396	B.Tech - Electronics and Communicarion Engineering (ECE)	4	G DILLI PRASAD
397	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DUDYALA CHARAN KUMAR

398	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PANNURU BHAVYA LATHA
399	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHAMARTHI HARITHA
400	B.Tech - Electronics and Communicarion Engineering (ECE)	4	YANAMALA BABITHA
401	B.Tech - Electronics and Communicarion Engineering (ECE)	4	THATHAGARI ANITHA
402	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MADARAJULA CHANDU
403	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KANCHERLA BENERJEE CHOWDARY
404	B.Tech - Electronics and Communicarion Engineering (ECE)	4	G.ANITHA
405	B.Tech - Electronics and Communicarion Engineering (ECE)	4	R.HARITHA
406	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M BHASHMINI
407	B.Tech - Electronics and Communicarion Engineering (ECE)	4	S.DIVYA
408	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SAMMETA HARITHA
409	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VUTUKURU GOPI
410	B.Tech - Electronics and Communicarion Engineering (ECE)	4	THERUVALLI CHANDANA
411	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MITTAPALYAM JEYA SRAVANI
412	B.Tech - Electronics and Communicarion Engineering (ECE)	4	ADIMOOLAM PAVITHRA
413	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MARRI LIKITHA
414	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BASIVI REDDY NIRANJAN REDDY
415	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P.NAVEEN
416	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VEERAVALLI JITHENDRA KUMAR
417	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PEDAMALLI.KISHANTH
418	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHITTOOR PRATHIMA
419	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KANDATI MUNI SAI
420	B.Tech - Electronics and Communicarion Engineering (ECE)	4	JONAGURAKALA INDUPRIYA
421	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KAVERIGARI PALLAVI
422	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BATHENA PRASANNA
423	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M.NEEHARIKA
424	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PAKALA NAVEEN KUMAR
425	B.Tech - Electronics and Communicarion Engineering (ECE)	4	B.PAVAN KUMAR
426	B.Tech - Electronics and Communicarion Engineering (ECE)	4	REDDEPALLI MAMATHA
427	B.Tech - Electronics and Communicarion Engineering (ECE)	4	NAVEEN KUMAR REDDY V
428	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M.A.MANOJ KUMAR
429	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PALURU KRISHNA MOHAN
430	B.Tech - Electronics and Communicarion Engineering (ECE)	4	K.PAVANKALYAN
431	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BHEEMA MUNI BHARGAV
432	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PIDI MANISHA
433	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KADIRI NAVEEN
434	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KAVYASREE.V
435	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KANDALA JAGADISH
436	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DOMMARAJU KUSUMA
437	B.Tech - Electronics and Communicarion Engineering (ECE)	4	K.NIKITHA
438	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P.NAGA SAI
439	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SINGIRI MAHESH BABU
440	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KAVALI MANOJKUMAR
441	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KONETI PAVITHRA
442	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M.LEELAVATHI
443	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BOJJA MOUNIKA
444	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MANDYAM MAHESH
445	B.Tech - Electronics and Communicarion Engineering (ECE)	4	RALLAPALLI LAVANYA
446	B.Tech - Electronics and Communicarion Engineering (ECE)	4	YEDHULA MANJU
447	B.Tech - Electronics and Communicarion Engineering (ECE)	4	A.NOMESWAR
448	B.Tech - Electronics and Communicarion Engineering (ECE)	4	S.LAVANYA
449	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KOPPEDU NARENDRA
450	B.Tech - Electronics and Communicarion Engineering (ECE)	4	THUMMALA PAVAN KUMAR
451	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KONDURU LALITYA
452	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KOTIREDDY NIMISHA REDDY
453	B.Tech - Electronics and Communicarion Engineering (ECE)	4	REKKALA PALLAVI
454	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MULAVAGILI LIKHITHA
455	B.Tech - Electronics and Communicarion Engineering (ECE)	4	K.MAHESH

456	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GADIRAJU PALLAVI
457	B.Tech - Electronics and Communicarion Engineering (ECE)	4	IKKURTHI MAHESWARI
458	B.Tech - Electronics and Communicarion Engineering (ECE)	4	N.NIKHIL KUMAR
459	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P.NAGA PRAVALLIKA
460	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GANDHAM KUMARASWAMY
461	B.Tech - Electronics and Communicarion Engineering (ECE)	4	E.NIHARIKA
462	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DAYAKAR POOJITHA
463	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SANGARAJU JYOTHI PRAKASH
464	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KOLLURI NARESH
465	B.Tech - Electronics and Communicarion Engineering (ECE)	4	N.SASIDHAR REDDY
466	B.Tech - Electronics and Communicarion Engineering (ECE)	4	R .JAVID
467	B.Tech - Electronics and Communicarion Engineering (ECE)	4	D.KAVITHA
468	B.Tech - Electronics and Communicarion Engineering (ECE)	4	POOJARI MUNIVARMA
469	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KANAMALLAMBEDU KADESH
470	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M.MOHITH
471	B.Tech - Electronics and Communicarion Engineering (ECE)	4	E JEEVITHA
472	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VELCHURU.LOKITHA
473	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHILEKAMPALLI MANASAIREDDY
474	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P LOKESH
475	B.Tech - Electronics and Communicarion Engineering (ECE)	4	K.LAHARI
476	B.Tech - Electronics and Communicarion Engineering (ECE)	4	A.MUNIESWAR
477	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GUNDRAJU PRAFUL KUMAR RAJU
478	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHEMURU JYOTHIPRAKASH
479	B.Tech - Electronics and Communicarion Engineering (ECE)	4	K SAI MAHESH
480	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DURGIRALA REDDY VIKRAM
481	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P SIVA KUMAR
482	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SK MUNEER AHAMED
483	B.Tech - Electronics and Communicarion Engineering (ECE)	4	NUTHETI SATHISH
484	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KODIPUNJULA REDDY MEGHANA
485	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GATTAM RAMYA SREE
486	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M.RAHUL
487	B.Tech - Electronics and Communicarion Engineering (ECE)	4	T SAIKUMAR
488	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SHAIK MOHAMMAD SULTHAN
489	B.Tech - Electronics and Communicarion Engineering (ECE)	4	UTHUKOTA SHALINI
490	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BHASKARA PREETHI HARIKA
491	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DIGUVASODAM SAIKIRAN REDDY
492	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P.SAI VARA PRASAD
493	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M.S.SAI PRAKASH
494	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DAMA.PRIYANKA
495	B.Tech - Electronics and Communicarion Engineering (ECE)	4	NANDYALA SREEKANTH
496	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VUPPALA SAI CHAITHANYA
497	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PAIDIKALVA PREMSWARUP
498	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SHAIK OMAR MOHAMMAD VASEEM
499	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SINGAMSETTY SAI SINDHU
500	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P.RAJESH
501	B.Tech - Electronics and Communicarion Engineering (ECE)	4	RAVILLA RAMVILAS CHOWDARY
502	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GUNDLAPALLI S SHANMUKHA KARTHIK
503	B.Tech - Electronics and Communicarion Engineering (ECE)	4	TALLAM PRUDHVI
504	B.Tech - Electronics and Communicarion Engineering (ECE)	4	ERRAMANENI SHALINI
505	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KASALA SANTHOSH
506	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SHAIK NASAR
507	B.Tech - Electronics and Communicarion Engineering (ECE)	4	J V RAKESH
508	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BANGARU SAI MOHAN
509	B.Tech - Electronics and Communicarion Engineering (ECE)	4	NAGAPATLA RAJITHA
510	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GUNDLAPALLE RAJESH
511	B.Tech - Electronics and Communicarion Engineering (ECE)	4	A.RAJESH
512	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHANAMARLA SAI DHANUSH
513	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KONAKONDLA SREEKANTH

514	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PALAKURU RACHITHA
515	B.Tech - Electronics and Communicarion Engineering (ECE)	4	Vegappareddygarl Shalini
516	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MANNURU SPANDANA
517	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MADA SRILALITHA
518	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MOGHAL SHAHID HUSSAIN
519	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DEDDI SAI RAKSHIT
520	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KONDAMURI SRAVAN
521	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GUNDLURI PRAVEEN KUMAR
522	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KATTA SAI
523	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHALAMCHERLA SAI LIKITHA
524	B.Tech - Electronics and Communicarion Engineering (ECE)	4	THALARI PREM
525	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P SADIQ ALI
526	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SIGAMALA SIVA TEJA
527	B.Tech - Electronics and Communicarion Engineering (ECE)	4	ATHIGARI PRIYANKA
528	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHENNAMPALLI REVANTHKUMAR
529	B.Tech - Electronics and Communicarion Engineering (ECE)	4	B SOUMYA
530	B.Tech - Electronics and Communicarion Engineering (ECE)	4	AITAM RAMYA GEETHIKA
531	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SHAIK ARSHAD
532	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GUNDLURU PRUDHVI
533	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHINTHALA SAI KEERTHI
534	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PACCHARLA SAIPRAVEEN
535	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KEELAPATTU.RAMACHANDAR
536	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DANDAYUDHAPANI RAMYA
537	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BURAGALA SAI CHANDU
538	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GUDI SREEPATH
539	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MALLU SIVAPRIYA
540	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VALLURU RANJITH KUMAR
541	B.Tech - Electronics and Communicarion Engineering (ECE)	4	ROUTHU SAI KUMAR
542	B.Tech - Electronics and Communicarion Engineering (ECE)	4	THUMMALA SANKEERTH
543	B.Tech - Electronics and Communicarion Engineering (ECE)	4	ATTIPATLA SUPRAJA
544	B.Tech - Electronics and Communicarion Engineering (ECE)	4	ARAVA VENKATAJYOTHI
545	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KAPPALA UMA MADHURI
546	B.Tech - Electronics and Communicarion Engineering (ECE)	4	DONDAPATI VENKATA KIRAN KUMAR REDDY
547	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PUJARI VYSHNAVA SURYA TEJA RAMA KRISHNA
548	B.Tech - Electronics and Communicarion Engineering (ECE)	4	R.E.YASODHA
549	B.Tech - Electronics and Communicarion Engineering (ECE)	4	TELLADALA VENKATA SAINATH
550	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHERUKURU MUNEESWARI
551	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GOLOORU.ADITHYA
552	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GANDLA VENKATESH
553	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BALIREDDY SUSMITHA
554	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MITAI THEJA
555	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M.VENKATA SUMANTH KUMAR
556	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MAHASAMUDRAM YUVARAJU
557	B.Tech - Electronics and Communicarion Engineering (ECE)	4	C.YOGESH
558	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GOVINDARAJAN TEJASREE
559	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GUNDRAJU SWETHASREE
560	B.Tech - Electronics and Communicarion Engineering (ECE)	4	SRINIVASULU S
561	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P.YASHWANTH SAI REDDY
562	B.Tech - Electronics and Communicarion Engineering (ECE)	4	NALAPAREDDY SRAVANKUMAR REDDY
563	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CEEMALAPATI KUPPAREDDY SUDHA
564	B.Tech - Electronics and Communicarion Engineering (ECE)	4	TETTU YASHVANTH KUMAR
565	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MARAVAPALLI VISHNU VARDHAN REDDY
566	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BOLLAMPALLI VENKATESH
567	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P Vishnu Vardhan Reddy
568	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MUPPALA TEJA KUMAR
569	B.Tech - Electronics and Communicarion Engineering (ECE)	4	Jagu Suneel Reddy
570	B.Tech - Electronics and Communicarion Engineering (ECE)	4	E.YASWANTH KUMAR
571	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PULABHAIGARI SUNIL

572	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P.THARUN
573	B.Tech - Electronics and Communicarion Engineering (ECE)	4	P. TARACHANDU
574	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KOLAKARI.YUVADEEP REDDY
575	B.Tech - Electronics and Communicarion Engineering (ECE)	4	C R S THARUN KUMAR
576	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KORA YASWANTH
577	B.Tech - Electronics and Communicarion Engineering (ECE)	4	S.VINAY KRISHNA
578	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MUNDLA SWETHA
579	B.Tech - Electronics and Communicarion Engineering (ECE)	4	POLANKI VISHNU VARDHAN
580	B.Tech - Electronics and Communicarion Engineering (ECE)	4	R. PUNYAMOORTHY
581	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MUTTUKURU SRIRAM
582	B.Tech - Electronics and Communicarion Engineering (ECE)	4	MUMMINENI SUDHARSHAN
583	B.Tech - Electronics and Communicarion Engineering (ECE)	4	VEMPALLI UDAY
584	B.Tech - Electronics and Communicarion Engineering (ECE)	4	TIRUPATHI SRINIVASULU THARUN SAI
585	B.Tech - Electronics and Communicarion Engineering (ECE)	4	GUDI YASHWANTH
586	B.Tech - Electronics and Communicarion Engineering (ECE)	4	G TEJAESHWAR RAO
587	B.Tech - Electronics and Communicarion Engineering (ECE)	4	T SAILAKSHMAN NAIDU
588	B.Tech - Electronics and Communicarion Engineering (ECE)	4	RAJENDRAN VIDHYA
589	B.Tech - Electronics and Communicarion Engineering (ECE)	4	THULASI PRIYA
590	B.Tech - Electronics and Communicarion Engineering (ECE)	4	C UDAY KIRAN
591	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KORAKANCHI CHANDRA SEKHAR
592	B.Tech - Electronics and Communicarion Engineering (ECE)	4	YELLELA.SRIDHAR REEDY
593	B.Tech - Electronics and Communicarion Engineering (ECE)	4	CHEEKATIPALLI YAMUNA
594	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KENGANA SRINIVASULU
595	B.Tech - Electronics and Communicarion Engineering (ECE)	4	V.SRI VENKATESH
596	B.Tech - Electronics and Communicarion Engineering (ECE)	4	A VISHNU
597	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KORRU YOGA PRIYA
598	B.Tech - Electronics and Communicarion Engineering (ECE)	4	D.VIKASH
599	B.Tech - Electronics and Communicarion Engineering (ECE)	4	M.AMRUTHA
600	B.Tech - Electronics and Communicarion Engineering (ECE)	4	RUDDIRALA UMADEVI
601	B.Tech - Electronics and Communicarion Engineering (ECE)	4	KONDREDDY THANUJA
602	B.Tech - Electronics and Communicarion Engineering (ECE)	4	C.VENU GOPAL
603	B.Tech - Electronics and Communicarion Engineering (ECE)	4	J.SUNITHA
604	B.Tech - Electronics and Communicarion Engineering (ECE)	4	THANGELLA CHANDANA
605	B.Tech - Electronics and Communicarion Engineering (ECE)	4	JAJALA UMASRI
606	B.Tech - Electronics and Communicarion Engineering (ECE)	4	RENTALA SRI NIKITHA
607	B.Tech - Electronics and Communicarion Engineering (ECE)	4	PEDINEKALVA KALYAN
608	B.Tech - Electronics and Communicarion Engineering (ECE)	4	BANDARAM YOGESH
609	B.Tech - Computer Science and Engineering (CSE)	5	BHAVYA.T
610	B.Tech - Computer Science and Engineering (CSE)	5	BHARATH.K
611	B.Tech - Computer Science and Engineering (CSE)	5	BHARGAVI.V S
612	B.Tech - Computer Science and Engineering (CSE)	5	LEELA KRISHNA.P
613	B.Tech - Computer Science and Engineering (CSE)	5	DEVA MUNIKANTA REDDY A
614	B.Tech - Computer Science and Engineering (CSE)	5	BHARGAVI.K
615	B.Tech - Computer Science and Engineering (CSE)	5	CHANDRA SEKHAR.K
616	B.Tech - Computer Science and Engineering (CSE)	5	ARUN S
617	B.Tech - Computer Science and Engineering (CSE)	5	DILLI.C
618	B.Tech - Computer Science and Engineering (CSE)	5	DHARANI PRIYA.C
619	B.Tech - Computer Science and Engineering (CSE)	5	LAKSHMIPRASANNA.P
620	B.Tech - Computer Science and Engineering (CSE)	5	LAVAKUMAR.V
621	B.Tech - Computer Science and Engineering (CSE)	5	CHARISHMA.B
622	B.Tech - Computer Science and Engineering (CSE)	5	CHANDANA.A
623	B.Tech - Computer Science and Engineering (CSE)	5	JYOSHNA.K
624	B.Tech - Computer Science and Engineering (CSE)	5	HEMANTH KUMAR K B
625	B.Tech - Computer Science and Engineering (CSE)	5	AKSHAYA.B
626	B.Tech - Computer Science and Engineering (CSE)	5	ABDUL SUHANA
627	B.Tech - Computer Science and Engineering (CSE)	5	KOMAL KUMAR.R
628	B.Tech - Computer Science and Engineering (CSE)	5	ANIL KUMAR.D
629	B.Tech - Computer Science and Engineering (CSE)	5	HEMALATHA.L

630	B.Tech - Computer Science and Engineering (CSE)	5	CHANDANA.B
631	B.Tech - Computer Science and Engineering (CSE)	5	LAVANYA.S
632	B.Tech - Computer Science and Engineering (CSE)	5	HARSHAVARDHAN.N
633	B.Tech - Computer Science and Engineering (CSE)	5	ABHISHEK.B
634	B.Tech - Computer Science and Engineering (CSE)	5	BHUPATHI.P
635	B.Tech - Computer Science and Engineering (CSE)	5	JAGADEESH.C
636	B.Tech - Computer Science and Engineering (CSE)	5	JITENDRA.N
637	B.Tech - Computer Science and Engineering (CSE)	5	JAYA GANESH.G
638	B.Tech - Computer Science and Engineering (CSE)	5	GOWTHAM SAI. E K
639	B.Tech - Computer Science and Engineering (CSE)	5	CHAITHANYA.V
640	B.Tech - Computer Science and Engineering (CSE)	5	ASHOK KUMAR REDDY.M
641	B.Tech - Computer Science and Engineering (CSE)	5	HIMABINDU.G
642	B.Tech - Computer Science and Engineering (CSE)	5	JAGADEESH.K
643	B.Tech - Computer Science and Engineering (CSE)	5	IMRAN.B
644	B.Tech - Computer Science and Engineering (CSE)	5	BHARGAV.P
645	B.Tech - Computer Science and Engineering (CSE)	5	ANUGNA.B
646	B.Tech - Computer Science and Engineering (CSE)	5	FAZIL S
647	B.Tech - Computer Science and Engineering (CSE)	5	BHANUPRAKASH.S
648	B.Tech - Computer Science and Engineering (CSE)	5	AJITH KUMAR.U
649	B.Tech - Computer Science and Engineering (CSE)	5	EKAMBAR REDDY.M
650	B.Tech - Computer Science and Engineering (CSE)	5	JAHNAVI.P
651	B.Tech - Computer Science and Engineering (CSE)	5	JAYADEEP.B
652	B.Tech - Computer Science and Engineering (CSE)	5	GANESH. G S
653	B.Tech - Computer Science and Engineering (CSE)	5	HEMA.M
654	B.Tech - Computer Science and Engineering (CSE)	5	ALLABAKASH M
655	B.Tech - Computer Science and Engineering (CSE)	5	GNANI.N
656	B.Tech - Computer Science and Engineering (CSE)	5	GAUTAM.K
657	B.Tech - Computer Science and Engineering (CSE)	5	HARSHITHA.D
658	B.Tech - Computer Science and Engineering (CSE)	5	JEEVITHA.V
659	B.Tech - Computer Science and Engineering (CSE)	5	DASARADHA.M
660	B.Tech - Computer Science and Engineering (CSE)	5	BALAJI.P
661	B.Tech - Computer Science and Engineering (CSE)	5	NADIYA.M
662	B.Tech - Computer Science and Engineering (CSE)	5	MADHU.K
663	B.Tech - Computer Science and Engineering (CSE)	5	NIKITHA REDDY.B
664	B.Tech - Computer Science and Engineering (CSE)	5	NAGANJANEYA REDDY.Y
665	B.Tech - Computer Science and Engineering (CSE)	5	NAVYA SREE.K
666	B.Tech - Computer Science and Engineering (CSE)	5	NAVEEN NAIDU.L
667	B.Tech - Computer Science and Engineering (CSE)	5	SAI KIRAN.D
668	B.Tech - Computer Science and Engineering (CSE)	5	RAVITHEJA.V
669	B.Tech - Computer Science and Engineering (CSE)	5	LOKESHWARIA
670	B.Tech - Computer Science and Engineering (CSE)	5	MANOJ KUMAR REDDY.Y
671	B.Tech - Computer Science and Engineering (CSE)	5	MOUNIKA.J
672	B.Tech - Computer Science and Engineering (CSE)	5	PREM KUMAR.B
673	B.Tech - Computer Science and Engineering (CSE)	5	MYTHILI.Y
674	B.Tech - Computer Science and Engineering (CSE)	5	SADVIKA.T
675	B.Tech - Computer Science and Engineering (CSE)	5	LIKHITHSAI.V
676	B.Tech - Computer Science and Engineering (CSE)	5	PHANEENDRA SAI NAIDU.C
677	B.Tech - Computer Science and Engineering (CSE)	5	MADHAVI.Y
678	B.Tech - Computer Science and Engineering (CSE)	5	PAVITHRA MUNASWAMY.C
679	B.Tech - Computer Science and Engineering (CSE)	5	MADHAVI.R
680	B.Tech - Computer Science and Engineering (CSE)	5	PUDVI.R
681	B.Tech - Computer Science and Engineering (CSE)	5	NEERAJA.B
682	B.Tech - Computer Science and Engineering (CSE)	5	MANSOOR ALI.T
683	B.Tech - Computer Science and Engineering (CSE)	5	MURALI.R
684	B.Tech - Computer Science and Engineering (CSE)	5	RAMA SIVA.T
685	B.Tech - Computer Science and Engineering (CSE)	5	MOHAMAD IRFAN
686	B.Tech - Computer Science and Engineering (CSE)	5	NAGARJUNA.R
687	B.Tech - Computer Science and Engineering (CSE)	5	MURALI KRISHNA.S

688	B.Tech - Computer Science and Engineering (CSE)	5	PAVAN KALYAN.K
689	B.Tech - Computer Science and Engineering (CSE)	5	RAMYASREE.K
690	B.Tech - Computer Science and Engineering (CSE)	5	RUPESH.P
691	B.Tech - Computer Science and Engineering (CSE)	5	RAJENDRA.N
692	B.Tech - Computer Science and Engineering (CSE)	5	ROHITH.D
693	B.Tech - Computer Science and Engineering (CSE)	5	RAVALI.D
694	B.Tech - Computer Science and Engineering (CSE)	5	LEELASREE.A
695	B.Tech - Computer Science and Engineering (CSE)	5	NAGARJUNA REDDY.J
696	B.Tech - Computer Science and Engineering (CSE)	5	PRAVEEN KUMAR.K
697	B.Tech - Computer Science and Engineering (CSE)	5	PUNITH REDDY.R M
698	B.Tech - Computer Science and Engineering (CSE)	5	RAHUL TEJA.A
699	B.Tech - Computer Science and Engineering (CSE)	5	NAGARAJ.S
700	B.Tech - Computer Science and Engineering (CSE)	5	NITHISH KUMAR.D
701	B.Tech - Computer Science and Engineering (CSE)	5	PRASAD.C
702	B.Tech - Computer Science and Engineering (CSE)	5	NAGA JYOTHI.M
703	B.Tech - Computer Science and Engineering (CSE)	5	MUKESH.P
704	B.Tech - Computer Science and Engineering (CSE)	5	REVANTH KUMAR.C
705	B.Tech - Computer Science and Engineering (CSE)	5	MOUNIKA.A
706	B.Tech - Computer Science and Engineering (CSE)	5	PRUDHVIRAJ.B
707	B.Tech - Computer Science and Engineering (CSE)	5	MALLI KARJUNA REDDY.K
708	B.Tech - Computer Science and Engineering (CSE)	5	SAI KRISHNA.S
709	B.Tech - Computer Science and Engineering (CSE)	5	PREETHI.V
710	B.Tech - Computer Science and Engineering (CSE)	5	RAGHAVENDRA.K
711	B.Tech - Computer Science and Engineering (CSE)	5	NITHISHKUMAR.R
712	B.Tech - Computer Science and Engineering (CSE)	5	NISHANTH.K
713	B.Tech - Computer Science and Engineering (CSE)	5	SAI PRAKASH.N
714	B.Tech - Computer Science and Engineering (CSE)	5	SHEIK NOOR MOHAMMAD
715	B.Tech - Computer Science and Engineering (CSE)	5	SHALINI.M
716	B.Tech - Computer Science and Engineering (CSE)	5	N SANDEEP
717	B.Tech - Computer Science and Engineering (CSE)	5	VISHALI.R
718	B.Tech - Computer Science and Engineering (CSE)	5	SONIYA.N
719	B.Tech - Computer Science and Engineering (CSE)	5	SYED SUHA
720	B.Tech - Computer Science and Engineering (CSE)	5	YAMINI.J
721	B.Tech - Computer Science and Engineering (CSE)	5	SOMASEKHAR.G
722	B.Tech - Computer Science and Engineering (CSE)	5	SUMANTH VARMA.K
723	B.Tech - Computer Science and Engineering (CSE)	5	VAMSI KRISHNA.C
724	B.Tech - Computer Science and Engineering (CSE)	5	SREEKANTH.K
725	B.Tech - Computer Science and Engineering (CSE)	5	SIVA VAIBHAV.M
726	B.Tech - Computer Science and Engineering (CSE)	5	SAI SUDHEER.J
727	B.Tech - Computer Science and Engineering (CSE)	5	VIHARIKA.K
728	B.Tech - Computer Science and Engineering (CSE)	5	SUNANDHA.V
729	B.Tech - Computer Science and Engineering (CSE)	5	UDAY BHASKAR.M
730	B.Tech - Computer Science and Engineering (CSE)	5	SAI KUMAR.S
731	B.Tech - Computer Science and Engineering (CSE)	5	HARI PRIYA.T
732	B.Tech - Computer Science and Engineering (CSE)	5	SUPRAJA.G
733	B.Tech - Computer Science and Engineering (CSE)	5	VEDAVATHI.K
734	B.Tech - Computer Science and Engineering (CSE)	5	SURYA,T
735	B.Tech - Computer Science and Engineering (CSE)	5	VINAY KUMAR REDDY.A
736	B.Tech - Computer Science and Engineering (CSE)	5	YOGESH.R
737	B.Tech - Computer Science and Engineering (CSE)	5	SAMANA.P
738	B.Tech - Computer Science and Engineering (CSE)	5	SUMANTH.P V
739	B.Tech - Computer Science and Engineering (CSE)	5	VINAY.K
740	B.Tech - Computer Science and Engineering (CSE)	5	SUHASINI.D
741	B.Tech - Computer Science and Engineering (CSE)	5	SOWMYA.K
742	B.Tech - Computer Science and Engineering (CSE)	5	SWETHA.R
743	B.Tech - Computer Science and Engineering (CSE)	5	SREE KUMAR.E
744	B.Tech - Computer Science and Engineering (CSE)	5	SIVA SAMHITHA.I
745	B.Tech - Computer Science and Engineering (CSE)	5	VARSHA.V

746	B.Tech - Computer Science and Engineering (CSE)	5	VENKATESH.O
747	B.Tech - Computer Science and Engineering (CSE)	5	VISHNUVARDHAN.K
748	B.Tech - Computer Science and Engineering (CSE)	5	SAI LIKHITH REDDY.O
749	B.Tech - Computer Science and Engineering (CSE)	5	REDDY TANUJA.C
750	B.Tech - Computer Science and Engineering (CSE)	5	VASANTH KUMAR.R
751	B.Tech - Computer Science and Engineering (CSE)	5	SUDHEESH.G
752	B.Tech - Computer Science and Engineering (CSE)	5	VANITHA.T
753	B.Tech - Computer Science and Engineering (CSE)	5	SIVAJI.A
754	B.Tech - Computer Science and Engineering (CSE)	5	YUVAKISHORE.C
755	B.Tech - Computer Science and Engineering (CSE)	5	SRINIVASULU.P
756	B.Tech - Computer Science and Engineering (CSE)	5	SRIVIDHYA LAKSHMI.N
757	B.Tech - Computer Science and Engineering (CSE)	5	SUJATHA.K
758	B.Tech - Computer Science and Engineering (CSE)	5	SREENIVASULU.O
759	B.Tech - Computer Science and Engineering (CSE)	5	VENKATESWARULU.J
760	B.Tech - Computer Science and Engineering (CSE)	5	SUNIL KUMAR.K
761	B.Tech - Computer Science and Engineering (CSE)	5	SANDHYA.K
762	B.Tech - Computer Science and Engineering (CSE)	5	SAI SUBHANK.K
763	B.Tech - Computer Science and Engineering (CSE)	5	VENKATESH.N
764	B.Tech - Computer Science and Engineering (CSE)	5	SRINIVASA PAVAN KARTHIK.P
765	B.Tech - Computer Science and Engineering (CSE)	5	VENKATESH.G
766	B.Tech - Computer Science and Engineering (CSE)	5	VENKATA RAMANA.J
767	B.Tech - Computer Science and Engineering (CSE)	5	SAI RAJESH.M
768	B.Tech - Computer Science and Engineering (CSE)	5	SHAIK IMRAN
769	B.Tech - Computer Science and Engineering (CSE)	5	SHABARISH.K
770	B.Tech - Computer Science and Engineering (CSE)	5	SUMANTH.S
771	B.Tech - Computer Science and Information Technology (CIT)	6	PULIGUNDLA POOJITHA
772	B.Tech - Computer Science and Information Technology (CIT)	6	B.JAYASREE
773	B.Tech - Computer Science and Information Technology (CIT)	6	P.R.BHANUPRIYA
774	B.Tech - Computer Science and Information Technology (CIT)	6	DOMMARAJU SUMANTH
775	B.Tech - Computer Science and Information Technology (CIT)	6	VADLAMUDI SOHITH
776	B.Tech - Computer Science and Information Technology (CIT)	6	KADIRI HIMA BINDU
777	B.Tech - Computer Science and Information Technology (CIT)	6	PULA RUTHIK
778	B.Tech - Computer Science and Information Technology (CIT)	6	KAMASANI VAMSI KRISHNA
779	B.Tech - Computer Science and Information Technology (CIT)	6	R.YUGANDHAR
780	B.Tech - Computer Science and Information Technology (CIT)	6	KANCHARLLA POOJASREE
781	B.Tech - Computer Science and Information Technology (CIT)	6	DINDUKURTHI MADHUMITHA
782	B.Tech - Computer Science and Information Technology (CIT)	6	KAMASANI RUCHITHA
783	B.Tech - Computer Science and Information Technology (CIT)	6	BALI REDDY ANIL KUMAR REDDY
784	B.Tech - Computer Science and Information Technology (CIT)	6	MUPPALA VISHNUVARDHAN RAJU
785	B.Tech - Computer Science and Information Technology (CIT)	6	GORENTLA VIJITHA
786	B.Tech - Computer Science and Information Technology (CIT)	6	DUTTULURI NEELIMA
787	B.Tech - Computer Science and Information Technology (CIT)	6	PADIRI SAICHANDRA

788	B.Tech - Computer Science and Information Technology (CIT)	6	YERRADHODI DHARANI
789	B.Tech - Computer Science and Information Technology (CIT)	6	MURPA SAITEJA
790	B.Tech - Computer Science and Information Technology (CIT)	6	P.VISHNU
791	B.Tech - Computer Science and Information Technology (CIT)	6	KAKARLA BHUVANESHWARI
792	B.Tech - Computer Science and Information Technology (CIT)	6	P.ANUSHA
793	B.Tech - Computer Science and Information Technology (CIT)	6	N.CHARAN
794	B.Tech - Computer Science and Information Technology (CIT)	6	CHANAMARLA HARSHA
795	B.Tech - Computer Science and Information Technology (CIT)	6	YALLA VINODH KUMAR
796	B.Tech - Computer Science and Information Technology (CIT)	6	KANDULA SUSMITHA
797	B.Tech - Computer Science and Information Technology (CIT)	6	ENUGU RACHANA
798	B.Tech - Computer Science and Information Technology (CIT)	6	PUTTA SONIKA
799	B.Tech - Computer Science and Information Technology (CIT)	6	KATURU RAJESH
800	B.Tech - Computer Science and Information Technology (CIT)	6	RANGAPPAGARI KESAVULU REDDY
801	B.Tech - Computer Science and Information Technology (CIT)	6	TUMMALA RAKESH
802	B.Tech - Computer Science and Information Technology (CIT)	6	MEESALA SAMPATH KUMAR
803	B.Tech - Computer Science and Information Technology (CIT)	6	KARANAM MONISHA
804	B.Tech - Computer Science and Information Technology (CIT)	6	G.ESWAR
805	B.Tech - Computer Science and Information Technology (CIT)	6	PANDETI UPENDRA VARMA
806	B.Tech - Computer Science and Information Technology (CIT)	6	JONNAGADLA GUNA SEKHAR
807	B.Tech - Computer Science and Information Technology (CIT)	6	A.A.SATHYA
808	B.Tech - Computer Science and Information Technology (CIT)	6	BANDI NANDINI
809	B.Tech - Computer Science and Information Technology (CIT)	6	THANIKONDA MIDHUN KUMAR
810	B.Tech - Computer Science and Information Technology (CIT)	6	SHEIK SHAJAHAN
811	B.Tech - Computer Science and Information Technology (CIT)	6	ECHAMBADI PAVITHRA
812	B.Tech - Computer Science and Information Technology (CIT)	6	RUDRARAJU SONIA
813	B.Tech - Computer Science and Information Technology (CIT)	6	AYYAPPA RAJU NITHEESH
814	B.Tech - Computer Science and Information Technology (CIT)	6	P.C.BHANU KISHOR
815	B.Tech - Computer Science and Information Technology (CIT)	6	RAGHAVARAJU YAMINISREE
816	B.Tech - Computer Science and Information Technology (CIT)	6	JAYASREE DANA
817	B.Tech - Computer Science and Information Technology (CIT)	6	D.POOJITHA

818	B.Tech - Computer Science and Information Technology (CIT)	6	KOTI MONISH
819	B.Tech - Computer Science and Information Technology (CIT)	6	ARCOT SAI MAHESH REDDY
820	B.Tech - Computer Science and Information Technology (CIT)	6	ACHUKATLA.S.BHASKAR
821	B.Tech - Computer Science and Information Technology (CIT)	6	PUNNAMARAJU PRAVALIKA
822	B.Tech - Computer Science and Information Technology (CIT)	6	ALAM JAYA KRISHNA
823	B.Tech - Computer Science and Information Technology (CIT)	6	A.S.PRIYADHARSHINI
824	B.Tech - Computer Science and Information Technology (CIT)	6	M.SAI HARSHITHA
825	B.Tech - Computer Science and Information Technology (CIT)	6	PANDETI NAVEEN VARMA
826	B.Tech - Computer Science and Information Technology (CIT)	6	NARRA HARSHA
827	B.Tech - Agricultural Engineering (AGR)	7	MANOJ.N
828	B.Tech - Agricultural Engineering (AGR)	7	MUNI KUMAR.C
829	B.Tech - Agricultural Engineering (AGR)	7	SUDHARANI.J
830	B.Tech - Agricultural Engineering (AGR)	7	YASODA.K
831	B.Tech - Agricultural Engineering (AGR)	7	HARSHA VARDHAN .N
832	B.Tech - Agricultural Engineering (AGR)	7	KUSHULU KUMAR.D
833	B.Tech - Agricultural Engineering (AGR)	7	RAGHUVVEERA.C
834	B.Tech - Agricultural Engineering (AGR)	7	SAI KUMAR.T
835	B.Tech - Agricultural Engineering (AGR)	7	YUGANDHAR REDDY.B
836	B.Tech - Agricultural Engineering (AGR)	7	HEMADRI.A
837	B.Tech - Agricultural Engineering (AGR)	7	KALYAN.B
838	B.Tech - Agricultural Engineering (AGR)	7	PRATHYUSHA.T
839	B.Tech - Agricultural Engineering (AGR)	7	SAINADHA REDDY.P
840	B.Tech - Agricultural Engineering (AGR)	7	SAIPRAKASH.M
841	B.Tech - Agricultural Engineering (AGR)	7	AJAY KUMAR.K
842	B.Tech - Agricultural Engineering (AGR)	7	BHARATH KUMAR.BK
843	B.Tech - Agricultural Engineering (AGR)	7	MOHITH KUMAR.B
844	B.Tech - Agricultural Engineering (AGR)	7	PAVANI.M
845	B.Tech - Agricultural Engineering (AGR)	7	SIREESHA.R
846	B.Tech - Agricultural Engineering (AGR)	7	GOWRI.P
847	B.Tech - Agricultural Engineering (AGR)	7	SAI LALITHA DEVI.V
848	B.Tech - Agricultural Engineering (AGR)	7	SAINATH.K
849	B.Tech - Agricultural Engineering (AGR)	7	SREEKANTH.A
850	Mater of Business Administration (MBA)	1E	S V AKHILA
851	Mater of Business Administration (MBA)	1E	T ARVIND REDDY
852	Mater of Business Administration (MBA)	1E	K ASHOK
853	Mater of Business Administration (MBA)	1E	M BHARATH KUMAR REDDY
854	Mater of Business Administration (MBA)	1E	D BHUVANA CHANDRA
855	Mater of Business Administration (MBA)	1E	P CHAITHANYA KUMAR
856	Mater of Business Administration (MBA)	1E	R CHANDANA
857	Mater of Business Administration (MBA)	1E	B CHANDRA SEKHAR
858	Mater of Business Administration (MBA)	1E	D DAYANA
859	Mater of Business Administration (MBA)	1E	D DEVARAJU
860	Mater of Business Administration (MBA)	1E	K DINESH
861	Mater of Business Administration (MBA)	1E	M DIVYA CHOWDARY
862	Mater of Business Administration (MBA)	1E	C H ESWAR
863	Mater of Business Administration (MBA)	1E	S GANESH
864	Mater of Business Administration (MBA)	1E	B GANGADHAR
865	Mater of Business Administration (MBA)	1E	M C HARIKRISHNA
866	Mater of Business Administration (MBA)	1E	B HARSHITHA
867	Mater of Business Administration (MBA)	1E	S HEMA

868	Mater of Business Administration (MBA)	1E	J HEMAKUMAR GOUD
869	Mater of Business Administration (MBA)	1E	D S HEMANTH KUMAR
870	Mater of Business Administration (MBA)	1E	M HIMAMALINI
871	Mater of Business Administration (MBA)	1E	N JOSHNA
872	Mater of Business Administration (MBA)	1E	S KALYANASRI
873	Mater of Business Administration (MBA)	1E	D KARTHIK
874	Mater of Business Administration (MBA)	1E	N KIRAN KUMAR
875	Mater of Business Administration (MBA)	1E	K LAKSHMI
876	Mater of Business Administration (MBA)	1E	N RUPA LAKSHMI
877	Mater of Business Administration (MBA)	1E	C LAKSHMIPATHI
878	Mater of Business Administration (MBA)	1E	K LATHISH KUMAR
879	Mater of Business Administration (MBA)	1E	K LAVANYA
880	Mater of Business Administration (MBA)	1E	C LEELAKRISHNA
881	Mater of Business Administration (MBA)	1E	M LOKESH
882	Mater of Business Administration (MBA)	1E	B MAHESWARI
883	Mater of Business Administration (MBA)	1E	A MANIKUMAR
884	Mater of Business Administration (MBA)	1E	V MANJULA
885	Mater of Business Administration (MBA)	1E	N MANOJ KUMAR
886	Mater of Business Administration (MBA)	1E	MOHAMMED ARIF
887	Mater of Business Administration (MBA)	1E	V MOHANA
888	Mater of Business Administration (MBA)	1E	K MOORTHY
889	Mater of Business Administration (MBA)	1E	V MOUNIKA
890	Mater of Business Administration (MBA)	1E	K MUNI SEKHAR
891	Mater of Business Administration (MBA)	1E	N V NAGABHUSHANAM
892	Mater of Business Administration (MBA)	1E	NAGANJINEYULU
893	Mater of Business Administration (MBA)	1E	V NARESH
894	Mater of Business Administration (MBA)	1E	M K NAVYA SREE
895	Mater of Business Administration (MBA)	1E	S PAVANKALYAN
896	Mater of Business Administration (MBA)	1E	S PAVITHRA
897	Mater of Business Administration (MBA)	1E	S PHANI CHANDRA
898	Mater of Business Administration (MBA)	1E	T S POOJITHA
899	Mater of Business Administration (MBA)	1E	B PRAKASH
900	Mater of Business Administration (MBA)	1E	K PRATHAP
901	Mater of Business Administration (MBA)	1E	N PRIYANKA
902	Mater of Business Administration (MBA)	1E	P RAMESH
903	Mater of Business Administration (MBA)	1E	P REDDAIAH
904	Mater of Business Administration (MBA)	1E	R RESHMA
905	Mater of Business Administration (MBA)	1E	K ROOPA
906	Mater of Business Administration (MBA)	1E	K SAIKUMAR
907	Mater of Business Administration (MBA)	1E	C SAMARA SIMHA REDDY
908	Mater of Business Administration (MBA)	1E	C SAROJINI
909	Mater of Business Administration (MBA)	1E	C K SATHISH
910	Mater of Business Administration (MBA)	1E	K SHEREEN SULTHANA
911	Mater of Business Administration (MBA)	1E	G SREE RAMULU
912	Mater of Business Administration (MBA)	1E	J SRI VIDVYA
913	Mater of Business Administration (MBA)	1E	C SUDHEER KUMAR REDDT
914	Mater of Business Administration (MBA)	1E	P SUNEEL
915	Mater of Business Administration (MBA)	1E	M K SWATHI
916	Mater of Business Administration (MBA)	1E	K THEJASREE
917	Mater of Business Administration (MBA)	1E	T THEJESH
918	Mater of Business Administration (MBA)	1E	S THIRUPATHI
919	Mater of Business Administration (MBA)	1E	A UDAYAKUMAR
920	Mater of Business Administration (MBA)	1E	S UMADEVI
921	Mater of Business Administration (MBA)	1E	M UPENDRA
922	Mater of Business Administration (MBA)	1E	G USHASWINI
923	Mater of Business Administration (MBA)	1E	P VIJAY KUMAR
924	Mater of Business Administration (MBA)	1E	J VINEETHA
925	Master of Computer Applications (MCA)	1F	ANJANEYULU.B

926	Master of Computer Applications (MCA)	1F	ARUNA KUMARI.D
927	Master of Computer Applications (MCA)	1F	CHANDANA.S
928	Master of Computer Applications (MCA)	1F	CHENCHUKUMAR.Y
929	Master of Computer Applications (MCA)	1F	GANESH.K
930	Master of Computer Applications (MCA)	1F	MALLESWAR REDDY.K
931	Master of Computer Applications (MCA)	1F	NAGA ASHOKKUMAR.A
932	Master of Computer Applications (MCA)	1F	PRATHIBA.V
933	Master of Computer Applications (MCA)	1F	SANKAR KUMAR.J
934	Master of Computer Applications (MCA)	1F	SESHADRI.K
935	Master of Computer Applications (MCA)	1F	VINOD KUMAR.G
936	Master of Computer Applications (MCA)	1F	VISHNU VARDHAN.N
937	Master of Computer Applications (MCA)	1F	ATHIMAKULA AKHILA
938	Master of Computer Applications (MCA)	1F	ARUN KUMAR PALLAPU
939	Master of Computer Applications (MCA)	1F	A ARUN KUMAR
940	Master of Computer Applications (MCA)	1F	VENKATESH BHARATH
941	Master of Computer Applications (MCA)	1F	CHEREDDY BHAVYASREE
942	Master of Computer Applications (MCA)	1F	RANGINENI CHAITHANYA
943	Master of Computer Applications (MCA)	1F	S V GOPI
944	Master of Computer Applications (MCA)	1F	S HARI KRISHNA
945	Master of Computer Applications (MCA)	1F	CHINTHALA HARIKA
946	Master of Computer Applications (MCA)	1F	A JAGADEESH
947	Master of Computer Applications (MCA)	1F	V M JANANI
948	Master of Computer Applications (MCA)	1F	DIDDIGUNTA KARTHIK
949	Master of Computer Applications (MCA)	1F	VADDIMUKKALA KAVITHA
950	Master of Computer Applications (MCA)	1F	CHERUKURI MONIKA
951	Master of Computer Applications (MCA)	1F	M NIVYA
952	Master of Computer Applications (MCA)	1F	V ROJA
953	Master of Computer Applications (MCA)	1F	MUPPALA SAIKEERTHI
954	Master of Computer Applications (MCA)	1F	A C SHALINI
955	Master of Computer Applications (MCA)	1F	NAYUNICHERUVU SHARUKHKHAN
956	Master of Computer Applications (MCA)	1F	NAGAVOLU SINDHU
957	Master of Computer Applications (MCA)	1F	B SIVA KRISHNA
958	Master of Computer Applications (MCA)	1F	M SIVAKUMAR
959	Master of Computer Applications (MCA)	1F	SONI P
960	Master of Computer Applications (MCA)	1F	A SUMAN
961	Master of Computer Applications (MCA)	1F	RAYAPATI SUSMITHA
962	Master of Computer Applications (MCA)	1F	C SWAPNA
963	Master of Computer Applications (MCA)	1F	KUNCHAM VENKAI AH
964	Master of Computer Applications (MCA)	1F	JAKKAMPUDI VENKAT KALYAN
965	Master of Computer Applications (MCA)	1F	PATHI VENKATA SUBRAMANYAM
966	Master of Computer Applications (MCA)	1F	ALAGUNTA YUGANDHAR
967	Master of Computer Applications (MCA)	1F	N YUGANDHAR
968	Master of Computer Applications (MCA)	1F	N REDDY SEKHAR
969	M.Tech - Structural Engineering (SE)	20	K HEMACHANDRA REDDY
970	M.Tech - Structural Engineering (SE)	20	G HEMADRI
971	M.Tech - Structural Engineering (SE)	20	K HEMANTH KUMAR
972	M.Tech - Structural Engineering (SE)	20	S JUBERIA
973	M.Tech - Structural Engineering (SE)	20	M SAI PRIYA
974	M.Tech - Structural Engineering (SE)	20	P VASUDEV REDDY

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

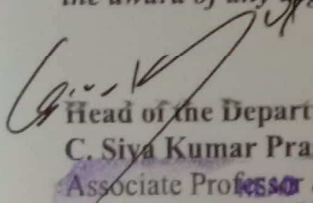
(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

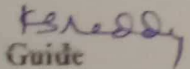
CERTIFICATE

This is to certify that the Project entitled "ASSESSMENT OF DRINKING WATER QUALITY AND ITS SUITABILITY FOR DRINKING PURPOSE IN NARAYANAVANAM MANDAL" is being submitted by

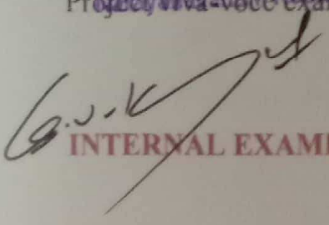
M.HEMASAI	- 17F61A0121
G.B.HEMAKIRAN	- 17F61A0120
S.MUSTHAFFA	- 15F61A0137
S.BHARATH KUMAR	- 14F61A0104

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Head of the Department
C. Siya Kumar Prasad, M.Tech, (Ph.D.)
Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR


Guide
Dr. K. Chandrasekhar Reddy, M.Tech., Ph.D.
Professor of Civil Engineering
Principal
DEPARTMENT OF CIVIL ENGINEERING
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
NARAYANAVANAM ROAD, PUTTUR

Project viva voce examination held on 26-07-21


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

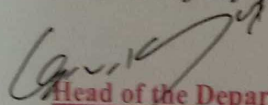
(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

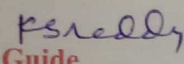
CERTIFICATE

*This is to certify that the Project entitled "A STUDY ON CRACKS IN BUILDINGS"
is being submitted by*

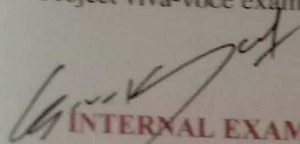
G.DHANUSH - 17F61A0110
E.KIRAN KUMAR - 17F61A0130
P.KISHORE KOWSHIK - 17F61A0132
N.VISHNU SAI REDDY - 16F61A0159

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF
ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project
work or part thereof has not been submitted to any other University or Institute for
the award of any degree.*


Head of the Department
C. Siva Kumar Prasad, M.Tech. (Ph.D.)
Associate Professor & Head
Department of Civil Engineering
SIETK, PUTTUR
Siddharth Institute of Engineering & Technology,
Narayanavanam Road, PUTTUR.


Guide
Dr. K. Chandrasekhar Reddy, M.Tech., Ph.D.
Professor of Civil Engineering
Principal
DEPARTMENT OF CIVIL ENGINEERING
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
SIETK, PUTTUR
NARAYANAVANAM ROAD, PUTTUR

Project viva-voce examination held on 26-07-21


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "STUDY ON SELF-CURING CONCRETE BY USING PEG-400" is being submitted by

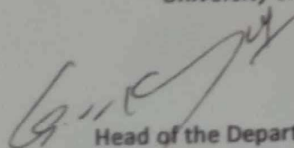
B. AMRUTHA - 18F65A0101

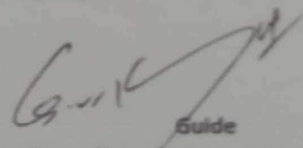
K. CHIHNITHA - 17F61A0106

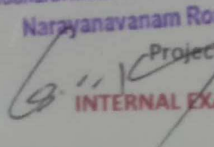
P. KANNA BABU - 17F61A0129

M.AKHIL - 16F61A0103

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree


Head of the Department
C. Siva Kumar Prasad, M.Tech, (Ph.D.)
Professor of Civil Engineering & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR


Guide
C. Siva Kumar Prasad, M.Tech, (Ph.D.)
Professor of Civil Engineering & Head
Department of Civil Engineering

Project viva-voce examination held on 17.08.2021

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

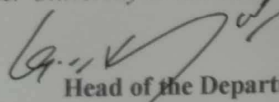
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

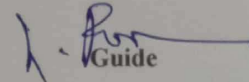
This is to certify that the project work entitled "STUDY ON PARTIAL REPLACEMENT OF COARSE AGGREGATE USING WASTE RUBBER TYRE IN LIGHT WEIGHT CONCRETE" is being submitted by

D.KIRAN KUMAR REDDY	18F65A0108
D.HARSHAVARDHAN REDDY	18F65A0106
G.HRISHIKESH YADAV	17F61A0123
P.MOHAN KUMAR	17F61A0137

in partial fulfilment of the requirement for the Award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

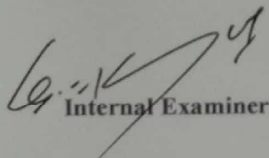

Head of the Department

Mr.C.SIVA KUMAR PRASAD, M. Tech., (Ph.D.)
Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.


Guide

Dr.G.PRABHAKARAN, M.E., Ph.D.,
Professor
Department of Civil Engineering

Project viva-voce examination held on 17.7.21


Internal Examiner

External Examiner

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

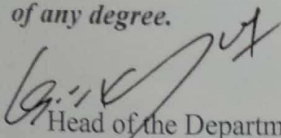
CERTIFICATE

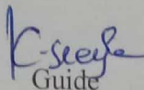
*This is to certify that the Project entitled "COCONUT FIBRE REINFORCED
CONCRETE" is being submitted*

by

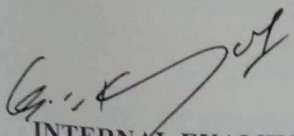
K. GOVARDHAN	- 17F61A0117
B. KALYAN	- 17F61A0127
Y. MUNI SEKHAR	- 17F61A0140
R. MOTHILAL NAIK	- 18F65A0114

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF
ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work
or part thereof has not been submitted to any other University or Institute for the award
of any degree.*


Head of the Department
C. Siva Kumar Prasad, M.Tech, (Ph.D.)
Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.


Guide
MS.K.SREEJA, M.Tech.
Assistant Professor
Department of Civil Engineering

Project viva-voce examination held on 26-07-2021.


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

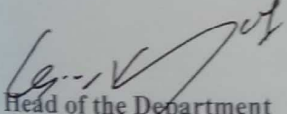
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "Application of Pervious Concrete in pavements" is being submitted by

C.KALEBU	17F61A0126
B.DINESH	17F61A0113
C.BHAVISHYA	17F61A0103
A.MUNIVENKATA RAMANA	- 17F61A0141

in partial fulfillment of the requirements for the award of *BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING* to *SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS)*. This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Head of the Department

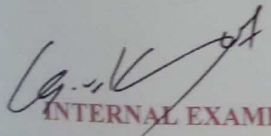
C. Siva Kumar Prasad, M.Tech, (Ph.D.)
Associate Professor & Head of the department,
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, Puttur
Department of Civil Engineering
HEAD


Guide

Mr S.VENKATARAMAN, M.Tech
Assistant Professor
Department of Civil Engineering

Project viva-voce examination held on

26-07-2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

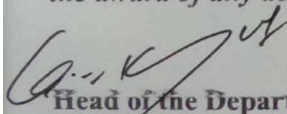
(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

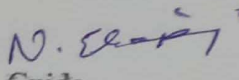
CERTIFICATE

This is to certify that the Project entitled "AN EXPERIMENTAL INVESTIGATION ON CONCRETE BY USING REPLACEMENT CEMENT BY GROUND GRANULATED BLAST FURNACE SLAG AND COURSE AGGRIGATE BY OVER BURNT BRICKS" is being submitted by

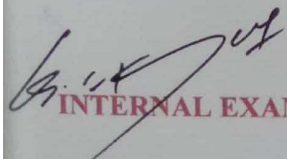
BINDHU PREETHI.N	-	17F61A0104
JAYANTH.E	-	18F65A0107
DHEERAJ KUMAR.P	-	17F61A0111
AJAY.J	-	17F61A0102

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Head of the Department
C. Siva Kumar Prasad, M.Tech, (Ph.D.)
Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology


Guide
Mr. N. Elakkiyarajan M.E.,
Assistant Professor of Civil Engineering

Project viva voce examination held on 17/7/21
Narayanavanam Road, PUTTUR.


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

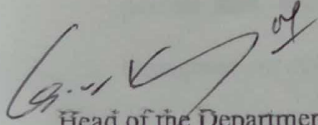
(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "STUDY ON MECHANICAL PROPERTIES OF CONVENTIONAL CONCRETE BY PARTIAL REPLACEMENT OF CEMENT WITH RICE HUSK ASH AND FINE AGGREGATE WITH QUARRY DUST" is being submitted by

S. GOURAV SHARMA	- 17F61A0115
S GURU PRASAD	- 17F61A0119
K. JAGADEESH	- 17F61A0125
K L. NARASIMHA	- 18F65A0110

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Head of the Department
C. Siva Kumar Prasad, M.Tech, (Ph.D.)

Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.


Guide

Mrs.K. ASHA LATHA M .Tech,
Asst.Professor of Civil Engineering

Project viva voce examination held on 17.07.2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for CIVIL, EEE, ECE, MECH, CSE)

(Accredited by NAAC with 'A' Grade)

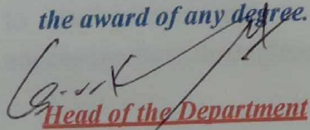
Siddharth Nagar, Narayanavanam Road, Puttur - 517583, A.P

CERTIFICATE

This is to certified that the project entitled "A STUDY ON PARTIAL REPLACEMENT OF CEMENT WITH MSWI-ASH AND SAND WITH M-SAND IN CONCRETE" is being submitted by

B.KANDHIKYA	-	17F61A0128
M.DHANASEKHAR	-	18F65A0105
K.GOVARDHAN	-	17F61A0116
A.ADHI NARAYANA	-	17F61A0101

In partial fulfillment of the requirements for the Award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other university or institute for the award of any degree.

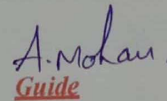

Head of the Department

Mr. C. Siva Kumar Prasad M. Tech. (Ph.D.)

Associate professor

**Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Puttur, Puttur
Narayanavanam Road, PUTTUR.**

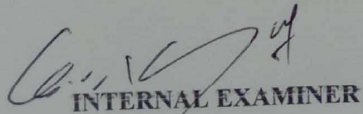
Project viva-voice examination held on 17/07/2024


Guide

Mr. A. Mohan M. Tech

Assistant professor

**Department of Civil Engineering
SIETK, Puttur**


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

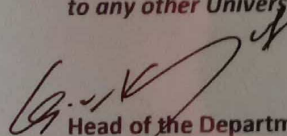
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "UTILIZATION OF PLASTIC WASTE IN CONSTRUCTION OF BITUMINOUS ROADS" is being submitted by

V.KULADEEP	18F65A0109
B. GOUTHAM	17F61A0118
K. MAHESWARI	17F61A0135
Y. ASHOK	16F61A0108

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Head of the Department

C. Siva Kumar Prasad, M. Tech, (Ph.D.)

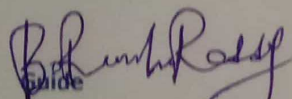
Associate Professor & Head

Department of Civil Engineering

Siddharth Institute of Engineering & Technology

Narayanavanam Road, PUTTUR

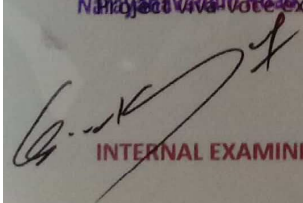
Project viva-voce examination held on 18.07.2021



Mr. B. RAJASEKHAR REDDY, M.Tech.

Assistant Professor

Department of Civil Engineering


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Anantapur) (Accredited by NBA for CIVIL,
EEE, ECE, MECH, CSE)

(Accredited by NAAC with 'A' Grade)

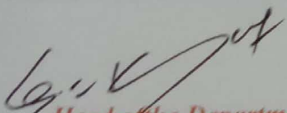
Siddharth Nagar, Narayanavanam Road, Puttur - 517583, A.P

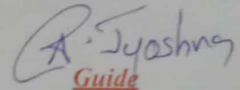
CERTIFICATE

This is to certified that the project entitled "AN EXPERIMENTAL STUDY OF ECO FRIENDLY BRICKS BY USING FLYASH, SUGARCANE BAGASSE AND GGBFS" is being submitted by

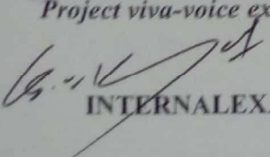
MAHESH.K	-	18F65A0111
DILIP.T	-	17F61A0112
DURGA P.V	-	17F61A0114
HIMATEJA.R	-	17F61A0122

In partial fulfillment of the requirements for the Award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other university or institute for the award of any degree.


Head of the Department
Mr. C. Siva Kumar Prasad M.Tech.,(Ph.D.)
Associate professor
Department of Civil Engineering
Engineering SIETK, Puttur
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.


Guide
Ms. A. Jyoshna M.Tech
Assistant professor
Department of Civil Engineering
Engineering SIETK, Puttur

Project viva-voice examination held on 26-07-2021


INTERNALEXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

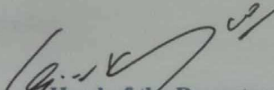
(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

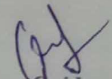
CERTIFICATE

This is to certify that the Project entitled "STUDY OF INDEX PROPERTIES ON
ENGINEERED CLAYS" is being submitted by

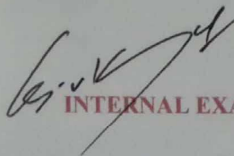
K. LAKSHMI DURGA - 17F61A0134
A. DHAMU - 17F61A0109
G. CHANDU - 17F61A0105
K. DEEPU YADAV - 17F61A0108

in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF
ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project
work or part thereof has not been submitted to any other University or Institute for
the award of any degree.


Head of the Department
C. Siva Kumar Prasad M.Tech, (Ph.D.)
Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.


Guide
C. Sailaja M.Tech,
Assistant Professor
Department of Civil Engineering
SIETK, PUTTUR- 517583.

Project viva-voce examination held on 18/07/2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF CEMENT WITH EGG SHELL POWDER IN CONCRETE"

is being submitted by

P.MOKSHAGNA -17F61A0138
T.CHARAN KUMAR REDDY -18F65A0104
K.MEGHANA -17F61A0136
M.CHIRANJEEVI -17F61A0107

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

Head of the Department

C. Siva Kumar Prasad, M.Tech, (Ph.D.)

Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, Puttur

Project viva-voce examination held on 18-07-2021

INTERNAL EXAMINER

Guide

Ms. C. SAILAJA, M.Tech

Asst. Professor of Civil Engineering

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

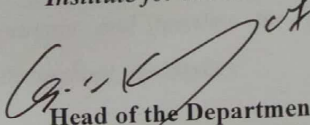
CERTIFICATE

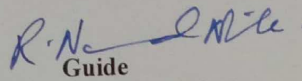
This is to certify that the Project entitled "A STUDY ON THE EFFECTS OF PARTIAL REPLACEMENT OF CEMENT BY MICRO SILICA AND GROUND GRANULATED BLAST FURNACE (GGBFS) ON THE PROPERTIES OF CONCRETE" is being submitted

by

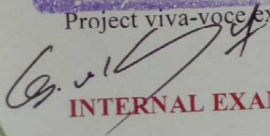
J. NEEHARIKA	-	17F61A0143
S. MANOJ KUMAR	-	18F65A0113
P. NIKHIL KUMAR	-	17F61A0145

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Head of the Department
C. Siva Kumar Prasad, M. Tech, (Ph.D.)
Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.


Guide
R. Nanda Naik, M. Tech
Assistant Professor
Department of Civil

Project viva-voce examination held on 17-07-2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "EFFECT OF GRAPHENE OXIDE
ON FRESH, HARDENED AND MECHANICAL PROPERTIES OF CEMENT
MORTAR" is being submitted*

by

P. PREETHIRANI	- 18F65A0119
S. VARSHA	- 17F61A0180
K. SAICHARAN	- 17F61A0157
D. SIVA KRISHNA	- 18F65A0123

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF
ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work
or part thereof has not been submitted to any other University or Institute for the award
of any degree.*

Head of the Department
C. Siva Kumar Prasad, M.Tech, (Ph.D.)

Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Siddharth Nagar, Puttur

Narayanavanam Road, PUTTUR.
Project viva-voce examination held on 18-07-21

Guide
Dr. K. Chandrasekhar Reddy M.Tech., Ph.D.,
Professor & Principal
DEPARTMENT OF CIVIL ENGINEERING
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
SIDDHARTH NAGAR, PUTTUR
NARAYANAVANAM ROAD, PUTTUR

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "EXPERIMENTAL INVESTIGATION ON
SUITABILITY OF FLY ASH AGGREGATE FOR COMPLETE REPLACEMENT*

FOR M30 CONCRETE" is being submitted by

S SWETHASREE	- 17F61A0173
K SUMANTH	- 17F61A0171
S VINITH	- 17F61A0184
K VAMSI	- 17F61A0178

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF
ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project
work or part thereof has not been submitted to any other University or Institute for
the award of any degree.*

[Signature]
Head of the Department
C. Siva Kumar Prasad, M.Tech, (Ph.D.)
Associate Professor & Head
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, Puttur

Project viva voce examination held on

18.07.2021

INTERNAL EXAMINER

[Signature]
Guide
C. Siva Kumar Prasad, M.Tech (Ph.D.)
Associate Professor & Head
Department of Civil Engineering

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

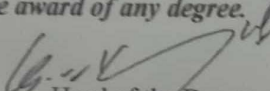
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

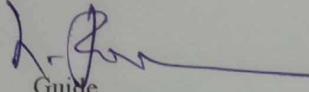
CERTIFICATE

This is to certify that the Project entitled "ENHANCING CONCRETE STRENGTH BY PARTIAL REPLACEMENT OF FINE AGGREGATE USING COPPER SLAG WITH NYLONFIBRE" is being submitted by

V.H.SHYAM SHELSHI	- 17F61A0162
SHAIK SHAFI	- 17F61A0161
N.SRIKANTH	- 17F61A0167
P.RANJITH VARDHAN	- 17F61A0151

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

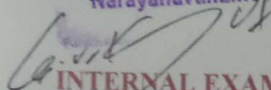

Head of the Department


Guide

Mr. C. Siva Kumar Prasad, M.Tech, (Ph.D), Dr. G. Prabhakaran, M.E., Ph.D.,
Associate Professor & Head Professor of Civil Engineering

Department of Civil Engineering
Siddharth Institute of Engineering & Technology

Project viva voce examination held on 18-7-2021
Narayanavanam Road, PUTTUR


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY,
PUTTUR (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for CIVIL, EEE, ECE, MECH, CSE)

(Accredited by NAAC with 'A' Grade)

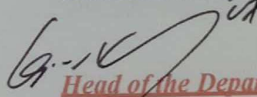
Siddharth Nagar, Narayanavanam Road, Puttur - 517583, A.P

CERTIFICATE

This is to certified that the project entitled "A STUDY USE OF GRANITE POLISHING WASTENAS PARTIAL SUBSTITUTE TO CEMENT IN CONCRETE " is being submitted by

D. REDDY KISHOR	-	18F65A0121
N. SATISH KUMR	-	17F61A0160
A. ROHITH	-	17F61A0153
T. UMESH CHANDRA	-	17F61A0177

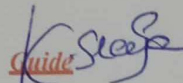
In partial fulfillment of the requirements for the Award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other university or institute for the award of any degree.


Head of the Department

Mr. C. Siva Kumar Prasad M. Tech, (Ph.D.)

Associate professor & Head

HEAD
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
SIETK, Puttur
Narayanavanam Road, PUTTUR.


Guide

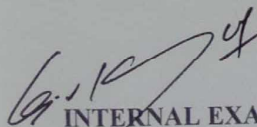
Ms. K. SREEJA M. Tech

Assistant professor

Department of Civil Engineering

SIETK, Puttur

Project viva-voice examination held on 26-07-2021.


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Anantapur)

(Accredited by NBA for CIVIL, EEE, ECE, MECH, CSE)

(Accredited by NAAC with 'A' Grade)

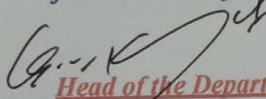
Siddharth Nagar, Narayanavanam Road, Puttur - 517583, A.P

CERTIFICATE

This is to certified that the project entitled "ANALYSIS AND DESIGN OD AT
MARKET JUNCTION(Proddutur-Kadapa)" is being submitted by

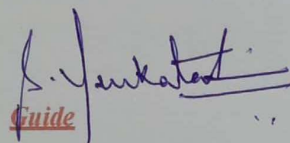
M.SAMUEL PAUL	-	17F61A0158
B.SAI DINESH	-	17F61A0155
A. SUNIL	-	17F61A0172
V.YASWANTH	-	17F61A0188

In partial fulfillment of the requirements for the Award of BACHELOR OF
TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF
ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This
project
work or part thereof has not been submitted to any other university or institute
for the award of any degree.


Head of the Department

Mr. C. Siva Kumar Prasad M. Tech, (Ph.D.)

Associate professor
Department of Civil Engineering
Siddharth Institute of Engineering
Engineering, SIE TK, Puttur.


Guide

Mr. S. Venkataraman M. Tech

Assistant professor

Department of Civil
SIE TK, Puttur

Project viva-voice examination held on 18-07-2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY,
PUTTUR
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for CIVIL, EEE, ECE, MECH, CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur - 517583, A.P

CERTIFICATE

This is to certify that the Project entitled "EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF CEMENT WITH SILICA FUME AND FINE AGGREGATES WITH SCRAP TYRE IN CONCRETE" is being submitted by

R.YAMINI	- 17F61A0185
Y.THEJASS	- 18F65A0125
S.SIVA KUMAR	- 17F61A0164
T.VIJAYA KUMAR	- 17F61A0181

In partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY,PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

Head of the Department

Mr.C. Siva Kumar Prasad, M.Tech,(Ph.D.)
Associate Professor & Head
Department of Civil Engineering, SIETK
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.

Project viva-voce examination held on

18-07-21

Guide

Mr.N.ElakkiyaRajan, M.E.,
Assistant Professor
Department of Civil Engineering, SIETK

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for CIVIL, EEE, ECE, MECH, CSE)

(Accredited by NAAC with 'A' Grade)

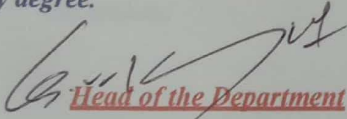
Siddharth Nagar, Narayanavanam Road, Puttur - 517583, A.P

CERTIFICATE

This is to certified that the project entitled "A STUDY ON PARTIAL REPLACEMENT OF CEMENT WITH NANO-SILICA AND SAND WITH M-SAND IN CONCRETE " is being submitted by

S.SANDHYA RANI	-17F61A0159
D.PRASANTH REDDY	-18F65A0118
A.YESWANTH	-17F61A0187
M.SUBRAMANAYAM	-17F61A0170

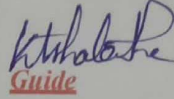
In partial fulfillment of the requirements for the Award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other university or institute for the award of any degree.


Head of the Department

Mr. C. Siva Kumar Prasad M. Tech, (Ph.D.)

Associate professor

Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.

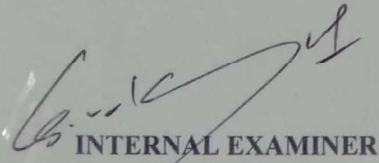

Guide

Ms. K. ASHA LATHA M. Tech

Assistant professor

Department of Civil
SIETK, Puttur

Project viva-voice examination held on 18-07-2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for CIVIL, EEE, ECE, MECH, CSE)

(Accredited by NAAC with 'A' Grade)

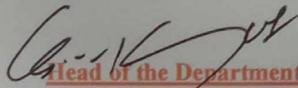
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "**EXPERIMENTAL STUDY ON BEHAVIOR OF AIR ENTRAINING AND ACCELERATING ADMIXTURES IN CONCRETE UNDER FREEZING CONDITIONS**" is being submitted by

P.VISHNU KUMAR - 18F65A0127
M.PRASANTH - 17F61A0147
G.SREENIVASULU - 17F61A0186
N.YASWANTH KUMAR - 17F61A0168

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.



Head of the Department

Mr. C. Siva Kumar Prasad M.Tech, (Ph.D.)

Associate Professor & Head

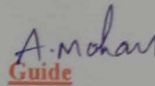
Department of Civil Engineering

Siddharth Institute of Engineering & Technology

Narayanavanam Road, PUTTUR.

Project viva-voce examination held on 18/07/2021


INTERNAL EXAMINER



Guide

Mr. A. Mohan M.Tech.

Assistant Professor

Department of Civil Engineering

SIETK, Puttur

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF PLASTIC WASTE WITH COARSE AGGREGATE IN CONCRETE" is being submitted by

K. SIVA SAI	18F65A0124
N. VAMSI	17F61A0179
D. SOUNDARYA	17F61A0166
J. SIVA RAM	17F61A0165

In partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

B. B. Reddy
Guide

Mr. B. RAJASEKHAR REDDY M.Tech.
Assistant professor & Head
Department of Civil Engineering
SIETK, Puttur

G. V. Prasad
Head of the Department

Mr. C. SIVA KUMAR PRASAD M.Tech.(Ph.D.)
Associate Professor
Department of Civil Engineering
SIETK, Puttur
Narayanavanam Road, PUTTUR,
SIETK, Puttur

Project viva-voice examination held on 18/07/2021

G. V. Prasad
INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

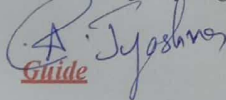
(Approved by AICTE & Affiliated to JNTUA,
Ananthapuramu) (Accredited by NBA for Civil,
EEE, ECE, MECH & CSE) (Accredited by NAAC
with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "EXPERIMENTAL STUDY ON CELLULAR LIGHT WEIGHT CONCRETE" is being submitted by

N. THARUN KUMAR	17F61A0175
J. THYAGARAJU	17F61A0176
S. SAI CHANDU	17F61A0154
K. SIDDESWARA	17F61A0163

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Guide

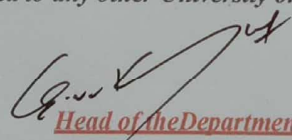
Mrs. A. JYOSHNA M.Tech,

Assistant professor

Department of Civil Engineering

SIETK, Puttur

Project viva-voice examination held on

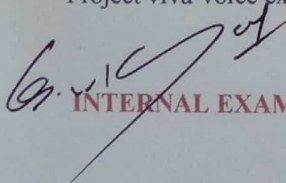

Head of the Department

Mr. C. SIVA KUMAR PRASAD M.Tech, (Ph.D.)

Associate Professor & Head
HEAD

Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR.

18-07-2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY,
PUTTUR (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for CIVIL, EEE, ECE, MECH, CSE)

(Accredited by NAAC with 'A' Grade)

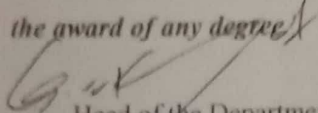
Siddharth Nagar, Narayanavanam Road, Puttur - 517583, A.P

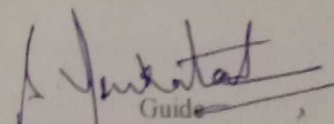
CERTIFICATE

This is to certified that the project entitled "ACCIDENT AND TRAFFIC ANALYSIS USING QGIS-CASE STUDY ON TIRUPATHI" is being submitted by

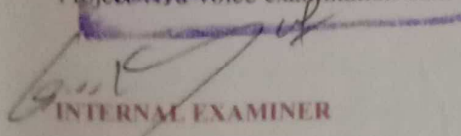
J POORNIMA	-	17F61A0146
P VIJAY KUMAR	-	18F65A0126
K P YASWANTH	-	18F65A0128
E ROOPESH	-	18F65A0122

In partial fulfillment of the requirements for the Award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project Work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Head of the Department
C. Siva Kumar Prasad, M. Tech, (Ph.D.)
Associate Professor
Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR


Guide
S. Venkata Raman, M.Tech.
Assistant Professor
Department of Civil Engineering

Project viva voce examination held on 18.07.2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF CIVIL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY,
PUTTUR (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for CIVIL, EEE, ECE, MECH, CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur - 517583, A.P

CERTIFICATE

This is to certified that the project entitled "EXPERIMENTAL STUDY ON FLY ASH BRICKS USING PARTIAL REPLACEMENT OF CEMENT BY WHITE CEMENT AND FULL REPLACEMENT OF COARSE SAND WITH M-SAND" is being submitted by

V. VIKITHA	-	17F61A0182
M. PRUDHVI SAI	-	17F61A0148
D.V. RAMESH	-	17F61A0150
B. ROHITH NARAYAN	-	17F61A0152

In partial fulfillment of the requirements for the Award of BACHELOR OF TECHNOLOGY in CIVIL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other university or institute for the award of any degree.

[Signature]
Head of the Department

[Signature]
Guide

Mr. C. Siva Kumar Prasad M.Tech, (Ph.D.)

Ms. C. SAILAJA M.Tech

Associate professor

Assistant professor

Department of Civil Engineering
Siddharth Institute of Engineering & Technology
Narayanavanam Road, PUTTUR,
SIETK, Puttur

Department of Civil Engineering
SIETK, Puttur

Project viva-voice examination held on 18-07-2021

[Signature]
INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "IOT BASED IRRIGATION, MONITORING AND CONTROLLING SYSTEM" that is being

submitted by

S.SATISH KUMAR REDDY	(17F61A0244)
A.REDDYPRASAD REDDY	(17F61A0239)
P.PARTHIFUN REDDY	(17F61A0232)
V.RAJESH	(18F65A0227)
K. RAJESH	(18F65A0226)

Is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

V. Manasa
Guide

Ms. V. MANASA M. Tech
Assistant Professor
Department of EEE

N. Ramesh Raju
Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor &Head
Department of EEE

Submitted for the project viva-voce examination held on 17-7-21

N. Ramesh Raju
Internal Examiner

External Examiner



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled " POWER FLOW
CONTOL OF HYBRID MICRO-GRIDS USING MODIFIED
UIPC" that is being*

submitted by

**B.TEJASWINI
K.UMADEVI
V.RAJESH
S.POOJYA
A.MOHANA**

**17F61A0249
17F61A0251
17F61A0238
18F65A0224
18F65A0219**

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING , submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS).The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

Guide

Mr.T.MADHURANTHAKA,M.Tech.,(Ph.D)
Associate Professor
Department of EEE

Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor &Head
Department of EEE

Submitted for the project viva-voce examination held on 17-7-21

Internal Examiner

External Examiner



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "DESIGN AND IMPLEMENTATION OF AUTOMATED IRRIGATION SYSTEM IN AGRICULTURAL USING WIRELESS SENSOR NETWORK" that is being

submitted by

YALLA PRAVALLIKA	17F61A0235
V.SASIDHAR REDDY	17F61A0243
THOGURU RIVAN KUMAR	17F61A0240
PINJARI RAHEMAN	18F65A0225
KARARI VENKATESH	17F61A0225

Is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

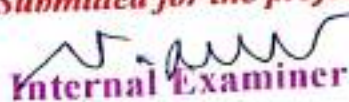

Guide

Dr. N. RameshRaju M.Tech, Ph.D
Professor &Head
Department of EEE


Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor &Head
Department of EEE

Submitted for the project viva-voce examination held on 17-7-21


Internal Examiner

External Examiner



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "A TECHCO-
ECONOMICAL STUDY ON PERFORMATIVE BAGASSE
BIOMASS COMBUSTION FOR ELECTRICITY
GENERATION" that is being*

submitted by

B.SUHASINI	17F61A0246
K.RUSHITHA	17F61A0241
K.VINODKUMAR	17F61A0259
P.TEJA	18F65A0232
AB.VASANTH KUMAR	17F61A0254

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

Rahul Bhattacharjee
Guide

Mr. RAHUL BHATTACHARJEE
Assistant Professor
Department of EEE

Dr. N. Ramesh Raju
Head of the Department

Dr. N. Ramesh Raju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 17-07-21

Internal Examiner

External Examiner



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "DECENTRALISED
FUZZY LOGIC CONTROL OF MICRO GRID FOR
ELECTRIC VEHICLE CHARGING STATION" that is being*

submitted by

K. RAJASEKHAR REDDY -
V.R VENKTESH -
D.NITHYA -
B. ZILANI -

17F61A0237
17F61A0256
17F61A0231
17F61A0263

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

Guide

Mrs. R. LAKSHMI M.E., (Ph.D.)
Assistant Professor
Department of EEE

Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 17-07-21

Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "SPEED CONTROL OF A DC MOTOR BY USING ANDROID" that is being submitted by

K. PREM KUMAR	17F61A0236
S. PAVAN KUMAR	17F61A0234
P. PAVAN KUMAR	17F61A0233
G. SAI KUMAR	18F65A0229
K. UMA MAHESH	18F65A0234

Is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Guide

Mr. P. MUNI SEKHAR, M. Tech, (Ph.D)
Assistant Professor
Department of EEE

Head of the Department

Dr. N. Ramesh Raju M. Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 17-07-21

Internal Examiner

External Examiner



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled
"IMPLEMENTATION OF SOLAR PV-BATTERY AND
DIESEL GENERATOR BASED ELECTRIC VEHICLE
CHARGING" that is being*


submitted by

B.UDAY KUMAR	17F61A0250
K.VINAY KUMAR	17F61A0258
M.VIVEKANDA REDDY	17F61A0260
S.SATYANARAYANAREDDY	18F65A0230
M.VENKATESH	18F65A0236

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*


Guide

Dr. J.GOWRI SHANKAR, M.Tech, Ph.D.
Professor
Department of EEE


Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 17-07-21


Internal Examiner


External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "CURRENT SENSOR
FAULT DIAGNOSIS AND TOLERANT CONTROL FOR VSI-
BASED INDUCTION MOTOR DRIVES" that is being
submitted by*

G. SUKANYA	17F61A0247
E. SIVA SWETHA	17F61A0245
T. MOUNIKA	18F65A0220
T. NALINI	18F65A0223
S. MAHAMMAD SHAHEER	18F65A0231

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

P. Chandra Sekhar
Guide

Mr. P. Chandra Sekhar, M.Tech., M.B.A
Associate Professor
Department of EEE

Dr. N. Ramesh Raju
Head of the Department

Dr. N. Ramesh Raju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 17-07-21

[Signature]
Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "SINGLE PHASE SEVEN LEVEL GRID CONNECTED INVERTER FOR PHOTOVOLTAIC SYSTEM" that is being submitted by

O VARUN	17F61A0253
K YASWANTH KUMAR	17F61A0261
P YUGANDHAR	17F61A0262
K THOJESWAR	18F65A0233
P VENKATESH	18F65A0235

Is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Guide

Mr. S.MUNISEKHAR, M.Tech.,(Ph.D).
Associate Professor
Department of EEE

Head of the Department

Dr. N. Ramesh Raju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 17-07-21

Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled " GRID
INTERACTIVE SOLAR PV BASED WATER PUMPING
USING BLDC MOTOR DRIVE" that is being*

submitted by

M.BHAVYA SREE -	17F61A0205
A.CHANDANA CHARITHA -	17F61A0208
R.JAHNAVI -	18F65A0213
K.ARJUN -	18F65A0203
R.BHARGAVI -	17F61A0204
P.GIRI PRASAD -	17F61A0212

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

Guide

Dr. J. GOWRI SHANKAR, M.Tech., Ph.D.
Professor
Department of EEE

Head of the Department

Dr. N. Ramesh Raju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 18-7-21

Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

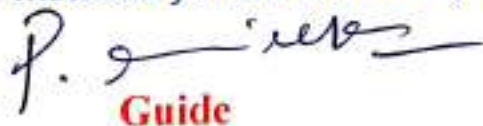
CERTIFICATE

This is to certify that the Project entitled "SMART INDUSTRIAL AUTOMATION" that is being

submitted by

U M MANOJ KUMAR	- 17F61A0224
G DILEEP	- 18F65A0207
C.CHAITHANYA	- 18F65A0205
M.LASHOK KUMAR REDDY	- 18F65A0204
K.HARISH	- 18F65A0210

Is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.



Guide

Mr. S.MUNISEKHAR, M.Tech.,(Ph.D).
Associate Professor
Department of EEE



Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 18-7-21


Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "MINIMIZING
PENALTY IN INDUSTRIAL POWER CONSUMPTION BY
ENGAGING APFC UNIT" that is being*

submitted by

P.NANDINI	- 17F61A0229
N.NAGARATHNA	- 17F61A0228
N.CHARAN	- 17F61A0209
S.JAHNAVI	- 18F65A0212
P.HARISHNAIDU	- 18F65A0209

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

V-Manasa
Guide

Ms. V. MANASA, M.Tech.,
Assistant Professor
Department of EEE

N. Ramesh Raju
Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor &Head
Department of EEE

Submitted for the project viva-voce examination held on 18-7-21

N. Ramesh Raju
External Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "TOT BASED STREET LIGHTING AND TRAFFIC MANAGEMENT SYSTEM" that is being

submitted by

CH. MANOHAR
V.KOUSALYA
D.GANGA PRASANNA
K.AKSHAY
C.NARESH

18F65A0218
17F61A0219
18F65A0208
18F65A0202
17F61A0230

Is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Guide

Mr. P.MUNI SEK HAR, M. Tech,(Ph.D)

Department of EEE

Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D

Professor &Head
Department of EEE

Submitted for the project viva-voce examination held on 18-7-21

Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "GRID CONNECTED
PV SYSTEM WITH REACTIVE POWER COMPENSATION
FOR THE GRID" that is being*

submitted by

M. MANORMANI	17F61A0225
A. KOMALA	17F61A0218
R. MEGHANA	17F61A0226
R.V. AKHIL	18F65A0201
G.JASWANTH	18F65A0214

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

Guide

Mr. T. MADHURANTHAKA M.Tech,(Ph.D.)
Associate Professor
Department of EEE

Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 18-7-21

[Signature]
Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "TESTING THE PERFORMANCE OF BATTERY ENERGY STORAGE IN A WIND ENERGY COVERSION SYSTEM" that is being

submitted by

B.CHANDRA BABU	18F65A0206
D.HARSHAVARDHAN	17F61A0215
P.CHANDAN KUMAR	17F61A0207
S.MANIKANTA	17F61A0222
A.AMALA	17F61A0201

Is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

P. Chandra Sekhar

Guide

Mr. P. Chandra Sekhar ,M.Tech., M.B.A
Associate Professor
Department of EEE

N. Ramesh Raju

Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor &Head
Department of EEE

Submitted for the project viva-voce examination held on

18-7-21

[Signature]
Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "HOME
AUTOMATION AND SECURITY USING WIRELESS
MODULES" that is being*

submitted by

N.BHARGAV

(17F61A0203)

S.B.DIVYA

(17F61A0210)

K.LAVAN KUMAR

(18F65A0216)

G.MAHESH

(18F65A0217)

V.MUNI RAJ

(17F61A0227)

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

Rahul Bhattacharjee
Guide

Mr. RAHUL BHATTACHARJEE, M. Tech
Associate Professor
Department of EEE

N. Ramesh Raju
Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on

18-07-21

N. Ramesh Raju
Internal Examiner

External Examiner



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "TRANSMISSION
LINE FAULT DETECTION USING GSM TECHNOLOGY"
that is being*

submitted by

M. GANGI REDDY	17F61A0211
P. ANUSHA	17F61A0202
G. HARISH	17F61A0213
S. KARTHIK	17F61A0217
K. KUSHAL KUMAR	18F65A0215

*Is in partial fulfillment of the requirements for the award of
BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS
ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING
& TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in
this Project report have not been submitted to any other University
or Institute for the award of any degree.*

Guide

Mrs. R. LAKSHMI M.E, (Ph. D)
Assistant Professor
Department of EEE

Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on 18-7-21

Internal Examiner

External Examiner

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "AN IOT BASED INTELLIGENT SYSTEM FOR REAL TIME PARKING MONITORING AND AUTOMATIC BILLING" that is being

submitted by

D.HARSHAVARDHAN	17F61A0214
K.CHAITANYA	17F61A0206
S.KARISHMA CHOWDARY	17F61A0216
U.MANOJ KUMAR	17F61A0223
B.HARSHAVARDHAN REDDY	18F65A0211

Is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENGINEERING, submitted to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Guide

Dr. N. RameshRaju M.Tech, Ph.D
Professor & Head
Department of EEE


Head of the Department

Dr. N. RameshRaju M.Tech, Ph.D
Professor & Head
Department of EEE

Submitted for the project viva-voce examination held on

18-7-21


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

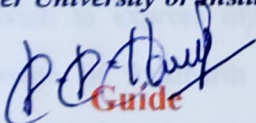
CERTIFICATE

*This is to certify that the Project entitled "MODELLING &
ANALYSIS OF LOW COST PROTOTYPE CNC MILLING
MACHINE" that is being*

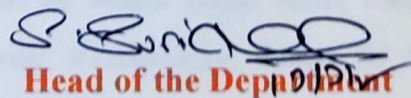
submitted by

N. ASHOK KUMAR REDDY	17F61A0305
B. BALAJI	17F61A0307
D. AJAY BABU	17F61A0301
K. DINESH BABU	18F65A0304
P. VISHNU SAI	16F61A0390

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*


Guide

Mr.K. K. Hari, M.Tech,
Assistant Professor
Department of Mechanical Engg.


Head of the Department

Dr. S.Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on _____

Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

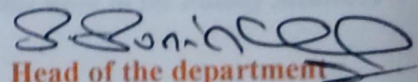
This is to certify that the Project entitled "DESIGN & MODELLING OF PNEUMATIC BEARING PULLER WITH PNEUMATIC GRIPPER" that is being submitted by

O.G. CHARAN KUMAR	17F61A0312
G. ANIL KUMAR	18F65A0301
M. BALA CHANDRA REDDY	17F61A0306
G. LOKESH	17F61A0344
M. ARAVIND	17F61A0304

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

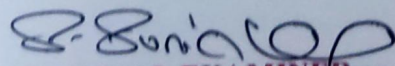

Guide

Mr. A T PRAVEEN KUMAR, M.E
Assistant professor, Department of
Mech Engg.


Head of the department

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor and Head, Department of Mech
Engg.

Project viva-voce examination held on 17-07-2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "DESIGN AND
ANALYSIS OF C LAD SIMULATION OF STAINLESS STEEL
OVER MILD STEEL" that is being*

submitted by

B. AJITH	17F61A0302
N. BHARATH KUMAR REDDY	17F61A0308
C. BHARATH	17F61A0309
B. CHANDRA BABU NAIDU	17F61A0310
K C DEVENDRA	17F61A0318

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

Guide

Mr. J. Mani, M.E, (Ph.D.)
Assistant Professor
Department of Mechanical Engg.

Head of the Department

Dr. S.Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on

17/5/21

Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

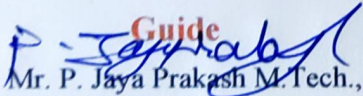
CERTIFICATE


*This is to certify that the Project entitled "EXPERIMENTAL
INVESTIGATION ON Di DIESEL ENGINE FUELLED WITH
ACACIA BIODIESEL" that is being*

submitted by

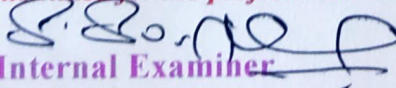
A.GANESH REDDY	(17F61A0324)
C.CHANDU	(17F61A0311)
N.K.DEEPAK KUMAR	(17F61A0315)
B.DINESH	(17F61A0319)
V.GUNASEKHAR	(18F65A0309)

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

Guide

Mr. P. Jaya Prakash M.Tech., (Ph.D.),
Assistant Professor
Department of Mechanical Engg.


Head of the Department
Dr. S. Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 17/7/2021


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled " **STUDY THE WEAR BEHAVIOR OF ALUMINUM HYBRID METAL MATRIX COMPOSITES USING STIR CASTING METHOD**" that is being

submitted by

P.M.DINESH

17F61A0321

S.CHARAN

17F61A0313

T.DINESH

17F61A0322

V.LIKESH

17F61A0342

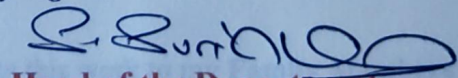
K.LIKHITH

17F61A0343

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

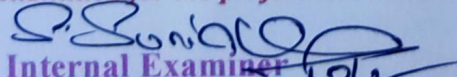

Guide

Mr. J. Suresh, M.Tech,
Assistant Professor
Department of Mechanical Engg.


Head of the Department

Dr. S. Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 17/07/21


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "FABRICATION OF DUAL AXIS SOLAR TRACKING SYSTEM USING ARDUINO" that is being submitted by

S.GNANESWAR YADAV	17F61A0325
K.CHIRANJEEVI	17F61A0314
J.V.JAGADEESH	17F61A0328
B.HARIPRAKASH RAJU	18F65A0310
S.K.GNANESHWAR	17F61A0334

In partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

GUIDE

Mr.L.SHANKAR, M.E

Assistant Professor

Dept. of Mechanical Eng.

Head of the Department

Dr. S.SUNIL KUMAR REDDY,

M.TECH, Ph.D., Professor

Dept. of Mechanical Eng.

Project viva-voce examination held on _____

INTERNAL EXAMINER

EXTERNAL EXAMINER

2017-2021

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "MODELLING & ANALYSIS OF SOLAR AGRICULTURE WEEDER" that is being submitted by

N. JAYAPRAKASH REDDY	17F61A0331
K. KARTHIK	17F61A0335
M. JAI PRAKASH	17F61A0329
HEMENDER SINGH	17F61A0327
V.J.S. LALITH SAI KRISHNA	17F61A0340

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

Mr. B.A. DEVAN, M. Tech
Assistant professor, Department of
Mech Engg.

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor and Head, Department of Mech
Engg.

Project viva-voce examination held on 17/3/21

INTERNAL EXAMINER
EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "EFFECT OF MMT
CLAY CONTENT ON THE MECHANICAL PROPERTIES
PLA BASED HYBRID NANOCOMPOSITES" that is being*

submitted by

D.KARTHICK	17F61A0333
D.CHANDRASEKHAR	18F65A0302
P. JAYA SANKAR	17F61A0332
P. DHAMU	18F65A0303
M.DIVAKAR	17F61A0323

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

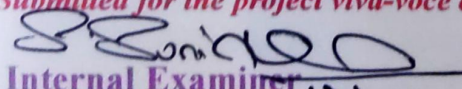

Guide

Dr.P. RAMESH, M.Tech, Ph.D,
Associate Professor
Department of Mechanical Engg.


Head of the Department

Dr. S.Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 17/7/2021


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "MODELING AND FABRICATION OF AQUA SILENCER USED FOR AUTOMOBILE ENGINES" that is being submitted by

V.LEELADHAR

17F61A0341

Y.DINESH

18F65A0306

K.KRISHNA MOORTHY

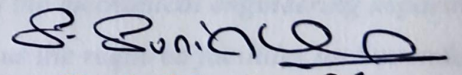
17F61A0337

G.DINESH

18F65A0305

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

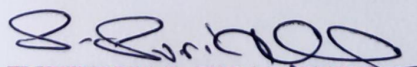

17/7/2021
Guide


Head of the department

Mrs. A. ASHA, M. TECH
Assistant professor, Department of
Mech Engg.

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor and Head, Department of Mech
Engg.

Project viva-voce examination held on 17/07/2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

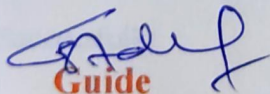
CERTIFICATE

*This is to certify that the Project entitled "MODELING AND
FABRICATION OF CAR RIM USING ABS IN FDM
MACHINE" that is being*

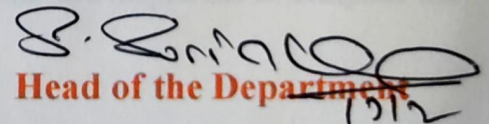
submitted by

M. GANESH	18F65A0307
G. GNANASEKHAR	18F65A0308
B. KRISHNA VAMSI	17F61A0338

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*


Guide

Mr. B. Anandan, M.E.,
Associate Professor
Department of Mechanical Engg.


Head of the Department

Dr. S. Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on _____

Internal Examiner

External Examiner



SIDDHARTH INSTITUTE OF ENGINEERING AND TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Anathapuramu)

Accredited by NBA for CIVIL, EEE, ECE, MECH & CSE

Accredited by NAAC with 'A' Grade

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "DESIGN AND FABRICATION OF GLASS FILLED NYLON BASED FIBULA BONE SCAFFOLD USING SLS TECHNIQUE" that is being submitted by

G. MURALIDHAR REDDY 17F61A0357

K. PUNEETH 17F61A0374

C. MUNISEKHAR 18F65A0316

K. PAVAN KALYAN 17F61A0368

N. MANOJSAI 17F61A0350

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been Submitted to any other University or Institute for the award of any degree.

GUIDE

Mr. K. Sai Prasad, M. Tech.

ASSOCIATE PROFESSOR

DEPARTMENT OF MECHANICAL ENGG

HEAD OF THE DEPARTMENT

Dr. S. Sunil Kumar Reddy, Ph.D.

PROFESSOR & HEAD

DEPARTMENT OF MECHANICAL ENGG

Project viva-voce examination held on 17/07/2021

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

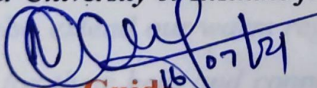
CERTIFICATE

*This is to certify that the Project entitled "INFLUENCE OF
MMT CLAY CONTENT ON MECHANICAL PROPERTIES OF
PLA/TAF HYBRID NANOBIOCOMPOSITES" that is being*

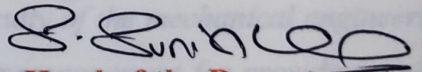
submitted by

K. NAGENDRA	17F61A0358
L. KIRAN SAI	18F65A0314
A. RAJ KUMAR	17F61A0377
K. NAVEEN KUMAR	17F61A0360
R. REVANTH	17F61A0385

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

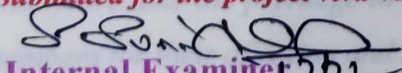

Guide

Dr.P. RAMESH, M.Tech, Ph.D,
Associate Professor
Department of Mechanical Engg.


Head of the Department

Dr. S.Sunil Kumar Reddy, M.Tech, Ph.D
Professor &Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 17-07-21


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

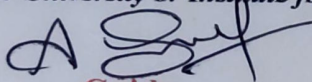
CERTIFICATE

*This is to certify that the Project entitled "MODELING AND
ANALYSIS OF TRACTOR TROLLY CHASSIS" that is being*

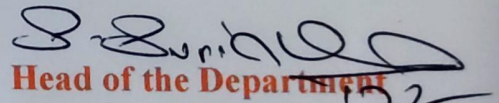
submitted by

B. NAVEEN	17F61A0361
U. HARSHAVARDHAN	18F65A0311
T. RAKESH	17F61A0378
K. PAVAN	17F61A0372
A. PAVAN SRINIVAS	17F61A0371

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

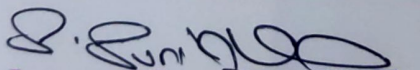

Guide

Mr. A. SURESH, M. Tech
Assistant Professor
Department of Mechanical Engg.


Head of the Department

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 17/7/21


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING AND
TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Anathapuramu)

Accredited by NBA for Civil, EEE, ECE, MECH & CSE Accredited

by NAAC with 'A' Grade

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "MODELLING OF SEMI AUTOMATIC
BRICKS MAKING MACHINE"

T.NIKHIL BABU	17F61A0362
J.MURALI KRISHNA	17F61A0356
P.SAI CHAITANYA	17F61A0386
N.KARTHIK	17F61A0388
S.PAVAN	17F61A0370

In partial fulfillment of the requirements for the award of **BACHELOR OF TECHNOLOGY** in **MECHANICAL ENGINEERING** to **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS)**. This project work or part thereof has not been Submitted to any other University or Institute for the award of any degree.

GUIDE

K.SUDHAKAR, M.E.
Associate professor
DEPARTMENT OF MECHANICAL ENGG

HEAD OF THE DEPARTMENT

DR. S. SUNIL KUMAR REDDY, Ph.d.
Head of the Department
DEPARTMENT OF MECHANICAL ENGG

Project viva-voce examination held on 18/07/21

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)


Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

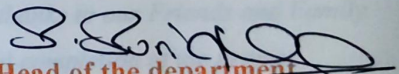
This is to certify that the Project entitled " **MODELLING OF E-HARA MACHINE** " that is being submitted by

C.NIKHIL	17F61A0363
D. PREM SAI	17F61A0373
V. LOKESH	17F61A0346
D. MUNI BHARGAV	17F61A0355
N. REDDAIAH	17F61A0383

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

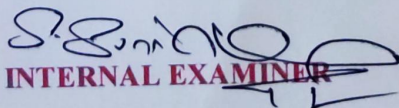

Guide 16/7/21

Mr.K.SAI SUJITH, M. Tech
Assistant Professor, Department of
Mech Engg.


Head of the department

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor and Head, Department of Mech
Engg.

Project viva-voce examination held on 17/07/21


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

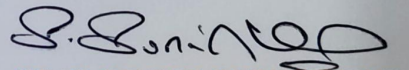
This is to certify that the Project entitled "**MODELING OF MULTIPURPOSE AGRICULTURE MACHINE**" that is being submitted by

A. NIRANJAN REDDY	17F61A0364
G. RAVITEJA	17F61A0382
E. REVANTH	17F61A0384
K. MANOJ KUMAR	18F65A0315
M. REVANTH RAO	17F61A0381

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

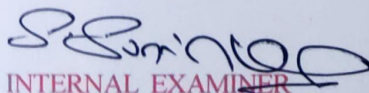

GUIDE

Mr. P. Venkata Ramana, M.Tech,(Ph.D)
ASSOCIATE PROFESSOR
DEPARTMENT OF MECHANICAL ENGG


HEAD OF THE DEPARTMENT

Dr. S. Sunil Kumar Reddy, Ph.D.
PROFESSOR & HEAD
DEPARTMENT OF MECHANICAL ENGG

Project viva-voce examination held on 18/07/21


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

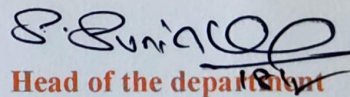
This is to certify that the Project entitled " MATH MODELING AND SIMULATION OF E - BICYCLE " that is being submitted by

C. NIRANJANESWAR REDDY	17F61A0365
THATHIREDDY HEMANTH	18F65A0312
K. MUNI GIREESH	17F61A0354
P. RANJITH KUMAR	17F61A0380
S. SAI CHARAN	17F61A0387

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Guide

Mr. D. Krishnaiah, M.Tech, (Ph.D.)
Associate professor, Department of
Mech Engg.


Head of the department

Dr. S. Sunil Kumar Reddy, Ph.D.
Professor and Head, Department of
Mech Engg.

Project viva-voce examination held on 18-7-21


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled
**"INVESTIGATION OF MECHANICAL AND MICROSTRUCTURAL
PROPERTIES OF ALUMINIUM-LITHIUM ALLOY (AA2195)
BY FRICTION STIR WELDING"** *that is being*

submitted by

J.NIRMALKUMAR	17F61A0366
T.MUNICHANDRA	17F61A0353
C.LOKESH	17F61A0345
P.PAVANKUMARREDDY	17F61A0369

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

B. Sreenivasulu

Guide

S. Sunil Kumar Reddy

Head of the Department

Mr. Bezawada Sreenivasulu, M.Tech, (Ph.D)
Associate Professor
Department of Mechanical Engg.

Dr. S. Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on

17/12/21

S. Sreenivasulu
Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

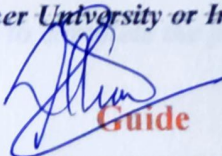
CERTIFICATE

*This is to certify that the Project entitled "DESIGN AND
MODELLING OF CHAIN TYPE FIELD BUSH CLEARENCE
MACHINERY" that is being*

submitted by

A. KARTHICK	18F65A0313
V. RAGAVENDHRA	17F61A0375
P. NARESH	17F61A0359
C. MANOJ KUMAR	17F61A0349
M.NAGARJUNA REDDY	18F65A0317

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

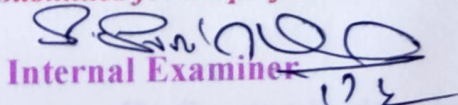

Guide

Mr. V KARTHIKEYAN, M.E,
Associate Professor
Department of Mechanical Engg.


Head of the Department

Dr. S.Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 17/7/2021


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "MODELING OF MULTIPURPOSE PORTABLE E-BIKE" that is being submitted by

MOHAMMED ISHAQ BAIG 17F61A0351

B.V. RANGA REDDY 17F61A0379

M.MOHANA 17F61A0352

D.MAHENDRA 17F61A0348

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

R. K. K.
16/7/21.
Guide

S. Sunil Kumar Reddy
Head of the department

Dr. SIVAKUMAR. K Ph.D,
Associate professor, Department of
Mech Engg.

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor and Head, Department of Mech
Engg.

Project viva-voce examination held on 18/7/2021

S. Sunil Kumar Reddy
INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by with NAAC with 'A' Grade and Accredited by NBA, New Delhi)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, AP.

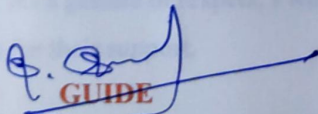


CERTIFICATE

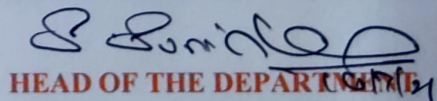
This is to certify that the project entitled “MODELLING AND FABRICATION OF POLYAMIDE 11 BASED FIBULA BONE SCAFFOLDS USING SLS TECHNIQUE” that is being submitted by

KASI GARI SAITEJA	17F61A0398
KOPANATHI SAI KRISHNA	17F61A0391
B SAI KUMAR	17F61A0393
ANNANKI VAMSI KRISHNA	17F61A03C0
G VENKATA SAI BALAJI	17F61A03C6

*in partial fulfillment of the requirements for the award of **BACHELOR OF TECHNOLOGY** in **MECHANICAL ENGINEERING** to **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS)**. This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.*


GUIDE

Dr. S. SURESH,
M.Tech., Ph.D., Professor,
Department of Mechanical Engineering


HEAD OF THE DEPARTMENT

Dr. S. SUNIL KUMAR REDDY,
M.Tech., Ph.D., Professor & Head,
Department of Mechanical Engineering

Project viva-voce examination held on _____

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

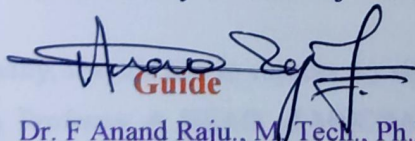
CERTIFICATE

*This is to certify that the Project entitled "EFFECTS OF
MWCNTS ON MECHANICAL PROPERTIES OF JUTE-
BANANA FIBER REINFORCED NANO COMPOSITES" that is
being*

submitted by

D M SATHISH	17F61A03A2
S SAI KUMAR REDDY	17F61A0392
G SAI TEJA	17F61A0395
P P VINODH	17F61A03D0
S SAI CHAITANYA	17F61A0396

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*


Guide

Dr. F Anand Raju., M.Tech., Ph.D.,
Professor
Department of Mechanical Engg.


Head of the Department

Dr. S. Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on

18/7/21


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "EXPERIMENTAL
INVESTIGATION ON DIESEL ENGINE POWERED BY
LEMON GRASS BIOFUEL" that is being*

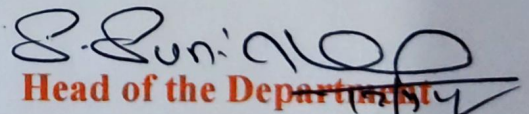
submitted by

S.VYKUNTA RAO	17F61A03D1
P. VENKATA NITISH	17F61A03C5
K. SAIRAM	17F61A0397
A.S.SADIK	17F61A03A7
S.MOHAMMED ALI	17F61A03A5

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

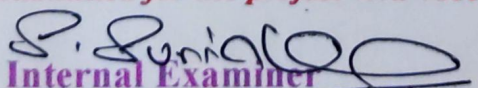

Guide

Dr. C SREEDHAR, M.Tech, Ph.D,
Professor
Department of Mechanical Engg.


Head of the Department

Dr. S.Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 18/12/21


Internal Examiner
18/12/21

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuram)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "MODELLING OF ECO FRIENDLY SOLID WASTE COLLECTOR" that is being submitted by

K.SAMARA SIMHA REDDY	17F61A0399
S.SRAVAN KUMAR REDDY	17F61A03A9
S.WASSEM AKRAM	17F61A03B7
G.VAMSI KRISHNA	17F61A03C2
V.VEERAI AH	17F61A03C4

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

Guide and Head of Department
Dr.S.Sunil Kumar Reddy, M.Tech., Ph.D.
Department of Mechanical Engineering

Project viva-voce examination held on _____

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "MODELING OF TREADMILL BICYCLE" that is being submitted by

BANDARI SANTHI SWAROOP	17F61A03A0
GOLLA SAIKIRAN	17F61A0389
AMBATI SURESH	17F61A03B4
THATIPARTHI SUKUMAR	17F61A03B2
BOJJA RAVI TEJESWAR	17F61A0394

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

Guide

Head of the department

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor & Head, Department of Mech
Engg.

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor & Head, Department of Mech
Engg.

Project viva-voce examination held on

18/12/21

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

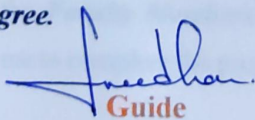
(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

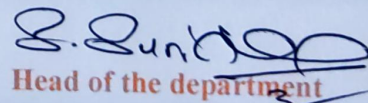
CERTIFICATE

This is to certify that the Project entitled "**EXPERIMENTAL INVESTIGATION ON GASOLINE ENGINE FUELLED WITH TERPINEOL BIO FUEL**" that is being submitted by

SHAIK MOHAMMAD SAJID	17F61A03A6
M. VENKATARATNAM	18F65A0327
SHAIK ABDULLA	17F61A03A3
N. SHANMUGHAM	18F65A0322
M. SIVA PRASAD	17F61A03A8

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

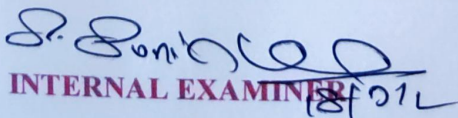

Guide


Head of the department

Dr. C. SREEDHAR M. Tech, Ph.D.
Professor, Department of Mech
Engg.

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor and Head, Department of Mech
Engg.

Project viva-voce examination held on 18/12/21


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

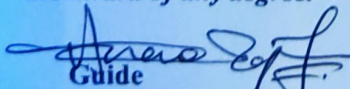
(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

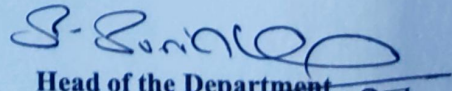
*This is to certify that the Project entitled " FABRICATION OF
AUTOMATIC TYRE PRESSURE INFLATION SYSTEM" that is being
submitted by*

S. ABDUL WAZEEB ALI	17F61A03B5
B. SRIDHAR	17F61A03B0
S. SREENIVASULU	18F65A0323
H. VENKATESH	17F65A03C7
K. SAIKRISHNA	17F61A0390

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE
OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project
work or part there of has not been submitted to any other University or Institute for
the award of any degree.*


Guide

Dr.F.Anand Raju, Ph.D.,
Professor of Mechanical Engineering



Head of the Department
Dr. S. Sunil Kumar Reddy, Ph.D.,
Professor & Head
Department of Mechanical Engg

Project viva-voce examination held on 18/07/2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

(2017 - 2021)

DEPARTMENT OF MECHANICAL ENGINEERING
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)

(Accredited by with NAAC with 'A' Grade and Accredited by NBA, New Delhi)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, AP.

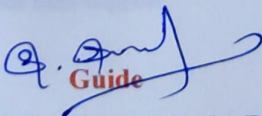


CERTIFICATE

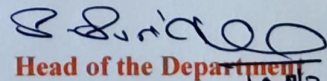
This is to certify that the project entitled “MODELLING AND FABRICATION OF POLYAMIDE 12 BASED FIBULA BONE SCAFFOLDS USING SLS TECHNIQUE” that is being submitted by

R VIGNESH	17F61A03C8
SHAIK MAGDOOM	17F61A03A4
B SUDHEER KUMAR	17F61A03B1
M SATHYANARAYANA	18F65A0321
M UDAYKUMAR	17F61A03B9

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Guide

Dr. S. Suresh, M. Tech., Ph.D.,
Professor, Department of
Mechanical Engineering


Head of the Department

Dr. S. Sunil Kumar Reddy, M. Tech., Ph.D.,
Professor & Head, Department of
Mechanical Engineering

Project viva-voce examination held on _____

INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA
for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "MODELLING OF
SOLAR ROCKER-BOGIE" that is being*

submitted by

K.SUBRAMANYAM REDDY	18F65A0324
V.SUKUMAR	17F61A03B3
G.PRATHEEP	18F65A0319
M.THIRUMALESH	18F65A0325

*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

Dr. S. Siva Kumar
Guide

Dr. Siva Kumar. K, Ph.D.,,
Associate Professor
Department of Mechanical Engg.

Dr. S. Sunil Kumar Reddy
Head of the Department

Dr. S. Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 18/7/21

Dr. S. Sunil Kumar Reddy
Internal Examiner
18/7/21

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu) (Accredited by NBA for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "MODELLING OF HOVER BOARD WITH SOLAR ENERGY" that is being

submitted by

P.UMAMAHESH

18F65A0326

S.THOSIF ALI

17F61A03B6

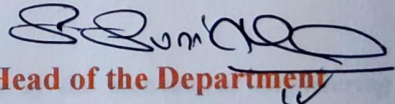
S. SAI REVANTH

18F65A0320

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

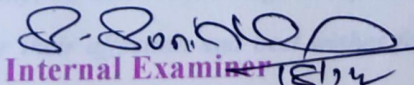

Guide

Mr. D. KRISHNAIAH M.TECH., (Ph.D)
Associate Professor
Department of Mechanical Engg.


Head of the Department

Dr. S.Sunil Kumar Reddy, M.Tech, Ph.D
Professor & Head
Department of Mechanical Engg.

Submitted for the project viva-voce examination held on 18-07-2021


Internal Examiner

External Examiner

DEPARTMENT OF MECHANICAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Antantapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

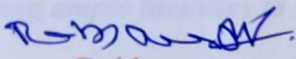
This is to certify that the Project entitled "**TRIBOLOGICAL STUDY OF AL-TIB₂ COMPOSITES FABRICATED BY WIRE ARC ADDITIVE MANUFACTURING**" that is being submitted by

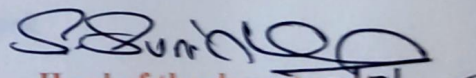
K.J THULASI MADHAV 17F61A03B8

S. POORNA CHANDRA 18F65A0318

K.VAMSI KUMAR REDDY 17F61A03C3

in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in MECHANICAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

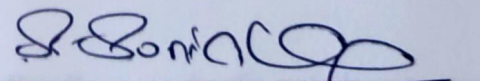

Guide


Head of the department

Mr. P. VENKATARAMANA, M.Tech, (Ph.D.),
Associate professor, Department of Mech Engg.

Dr. S. Sunil Kumar Reddy, M. Tech, Ph.D.
Professor and Head, Department of Mech Engg.

Project viva-voce examination held on 18-07-2021


INTERNAL EXAMINER
18/7/21

EXTERNAL EXAMINER

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "DESIGN AND IMPLEMENTATION OF OPEN-SOURCE MIDI CONTROLLER FOR MUSIC SYSTEMS" that is being submitted by

B.DHARANI	- 17F61A0437
R.P.AMITH KUMAR	- 17F61A0407
SOPPA BHOOMIKA	- 17F61A0423
MEKALA GANESH KUMAR YADAV	- 17F61A0447
E.HARISH	- 17F61A0457

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on

17/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

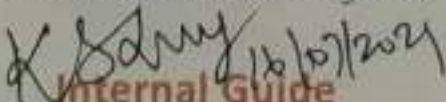


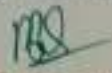
CERTIFICATE

This is to certify that the Project entitled "Implementation of Embedded Machine Learning in VLSI Environment for Tactile Data Processing" that is being submitted by

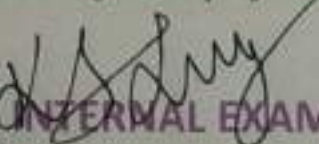
V.GEETHA	17F61A0450
C.BHARGAVARAJU	17F61A0418
P.DUSHYANTH REDDY	17F61A0446
K.HARSHAVARDHAN RAO	17F61A0462
V.AKHILA	17F61A0404

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide
Dr.P.G.Kuppusamy.,M.E.,Ph.D.


Head of the Department
Dr.P.Ratna Kamla.,M.Tech.,Ph.D.

Submitted for the project viva-voce examination held on 17.07.2021


INTERNAL EXAMINER

EXTERNAL EXAMINER

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2015 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "ARDUINO - BASED AUTOMATED WASHROOM SANITIZING SYSYTEM FOR EFFECTIVE UTILIZATION PUBLIC TOILETS" that is being submitted by

B. HARSHITHA	17F61A0463
C. DIVYA	17F61A0442
J. BRUNDHA REDDY	17F61A0425
P.AJAY	17F61A0403
A. BALAJI	17F61A0412

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide
DR. P. G. GOPINATH, M.E, Ph.D.
Professor, Department of Electronics and Communication engineering

[Signature]
Head of the Department
DR .P. RATNA KAMALA, M.Tech., Ph.D.
Professor, Head of the Department of Electronics and Communication engineering

Submitted for the project viva-voce examination held on 17-7-2021

[Signature]
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuram)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "INVESTIGATION ON IMAGE ENCRYPTION USING ARNOLD CAT MAP ALGORITHM" that is being submitted by

M. GAYATHRI 17F61A0449

K. HARIKA 17F61A0455

P. DURGA 17F61A0445

Y. CHARAN REDDY 17F61A0434

P. AKSHAY KUMAR 17F61A0405

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide

[Signature]
Head of the Department

Submitted for the project viva-voice examination held on 17-07-2021

[Signature]
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " CONTRAST ENHANCEMENT OF MEDICAL IMAGES USING STATISTICAL METHODS" that is being submitted by

D.CHANDANA	-	17F61A0427
K.CHAITHANYA KUMAR	-	17F61A0426
G.BHAVITHA	-	17F61A0421
G.BALAJI	-	17F61A0413
V.HEMANTH KUMAR	-	17F61A0469

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide

Dr. K.ELANGO VAN M.Tech., Ph.D.

[Signature]
Head of the Department

Dr. P. RATNAKAMALA, M.Tech, P.h.D

Submitted for the project viva-voce examination held on 17-07-2021

[Signature]
Internal Examiner

External Examiner

A Project Report

On

DESIGN AND IMPLEMENTATION OF AN IMPROVED PATIENT MANAGEMENT
SYSTEM IN COVID-19 USING IOT

Submitted in partial fulfillment for the award of the degree

of

Bachelor of Technology

in

Electronics & Communication Engineering

by

K.HUNILA	17F61A0471
K.BALAJI	17F61A0414
U.HEMANTH	17F61A0470
V.GOWTHAMI	17F61A0454
A.BHARGAV	17F61A0417

Under the esteemed guidance of

Dr T SENTHIL KUMAR ME., Ph.D.
Professor, Department of ECE



Department of Electronics & Communication Engineering
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

2021

A Project Report

On

COVID-19 FACE MASK DETECTION & SANITIZATION

*Submitted in partial fulfillment for the award of the degree
of*

Bachelor of Technology

in

Electronics & Communication Engineering

By

R.K INDRANEEL	- 17F61A0472
K. GANESH YADAV	- 17F61A0448
P. HEMANTH KUMAR	- 17F61A0468
V.B. CHETHAN	- 17F61A0435
K.ADARSH	- 17F61A0402

Under the esteemed guidance of

J. RAJANIKANTH M.Tech.
Associate Professor, Department of ECE



Department of Electronics & Communication Engineering

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

2021

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

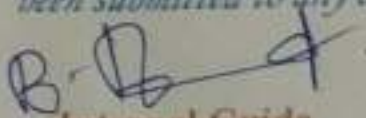


CERTIFICATE

This is to certify that the Project entitled "IMPLEMENTATION OF VIRTUAL REALITY CYCLING SIMULATOR" that is being submitted by

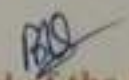
MUPPALA HARSHITHA	17F61A0464
R.G. BHAVANA	17F61A0420
PAIDALA AFRIN	17F61A0401
SETU CHARAN KUMAR	17F61A0433
KOLALA HARINADAM	17F61A0456

is in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.



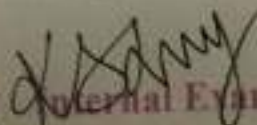
Internal Guide

B. Ravi Babu (M. Tech)


Head of the Department

Dr. P. Ratna Kamala (M.Tech., Ph.D.)

Submitted for the project viva-voce examination held on 17/07/2021


External Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " DESIGN AND IMPLEMENTATION OF COVID-19 EMERGENCY VENTILATOR SYSTEM" that is being submitted by

S. ANUSHA	17F61A0410
B. GOWTHAMI	17F61A0453
K. DIVYA	17F61A0443
A. CHARAN KUMAR	17F61A0431
M. DILLIP KUMAR	17F61A0441

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Internal Guide

Dr. C. Vijaya Bhaskar (M.Tech., Ph.D.)

Head of the Department

Dr. P. Ratna Kamala (M.Tech., Ph.D.)

Submitted for the project viva-voce examination held on

17/07/2021

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " DESIGN & IMPLEMENTATION OF BIO-FEEDBACK GLOVE SYSTEM" that is being submitted by

C DHARANI	17F61A0438
D BHARATHI SUDHA	17F61A0416
TERUVAI HARITHA KESINI	17F61A0458
AKULA BHUVANESH	17F61A0424
NIMMAKAYALA DILEEP KUMAR	17F61A0439

is in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Internal Guide

A. Rajashekar Yadav, M.Tech.

Head of the Department

Dr.P. Ratnakamala, M.Tech., Ph.D.

Submitted for the project viva-voce examination held on 17-07-2021

Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for CIVIL, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " A HIGH PERFORMANCE MAC UNIT BY INTEGRATING ADDITIONS AND ACCUMULATIONS INTO PPR PROCESS "that is being submitted by

T.CHANDI PRIYA	17F61A0429
Y.HARSHITHA	17F61A0465
B.DEEPA	17F61A0436
G.DILLI PRASAD	17F61A0440
D.CHARAN KUMAR	17F61A0432

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide

[Signature]
Head of the Department

Submitted for the project viva-voce examination held on

17/7/21

[Signature]
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

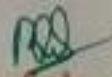
This is to certify that the Project entitled " *ADVANCED HEALTH SENSING SMART PILLOW*" that is being submitted by

P. BHAVYA LATHA	17F61A0422
C. HARITHA	17F61A0459
Y. BABITHA	17F61A0411
T. ANITHA	17F61A0409
M. CHANDU	17F61A0430

is in partial fulfillment of the requirements for the award of *BACHELOR OF TECHNOLOGY* in *ELECTRONICS & COMMUNICATION ENGINEERING* to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

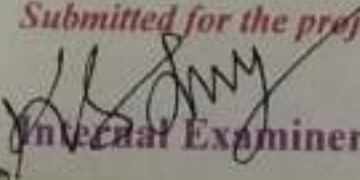

Internal Guide

U. SRINIVASULU, M.Tech


Head of the Department

Dr. P. RATNAKAMALA, M.Tech, P.h.D

Submitted for the project viva-voce examination held on 17/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " DEVELOPMENT OF SENSI GLOVE FOR CREATING SENSORY PERCEPTION" that is being submitted by

K BENERJEE CHOWDARY

17F61A0415

G ANITHA

17F61A0408

R HARITHA

17F61A0460

M BHASHMINI

17F61A0419

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

D. Muneendra

Internal Guide

D Muneendra (M.Tech)

Dr. P. Ratna Kamala

Head of the Department

Dr. P. Ratna Kamala (M.Tech , Ph.D.)

Submitted for the project viva-voice examination held on 17-07-2021

[Signature]
Internal Examiner

[Signature]
External Examiner

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

This is to certify that the Project entitled " *DESIGN AND IMPLEMENTATION OF AUTONOMOUS HEALTHCARE ROBOT USING MACHINE LEARNING* " that is being submitted by

S. DIVYA	17F61A0444
S. HARITHA	17F61A0461
T. CHANDANA	17F61A0428
V. GOPI	17F61A0451

is in partial fulfillment of the requirements for the award of *BACHELOR OF TECHNOLOGY* in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Pd
Internal Guide

P. Pavan Kumar (M.Tech.)

PR
Head of the Department

Dr. P. Ratna Kamala(M.Tech., Ph.D.)

Submitted for the project viva-voce examination held on 17/07/2021

K. Sany
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " DESIGN AND IMPLEMENTATION OF AN ADVANCED SYSTEM TO MEASURE STEROID CONTENT IN MILK AND APPLICATION IN DIARY FORMS USING IOT " that is being submitted by

M.Jeya Sravani	17F61A0477
A.Pavithra	17F61A04E0
M.Likitha	17F61A0495
B.Niranjan Reddy	17F61A04D0
P.Naveen	17F61A04C4

is in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree .

M. Shobhan
Internal Guide

P.Pavan Kumar, M.Tech.,
Assistant Professor of ECE

Dr. P. Ratna Kamala
Head of the Department

Dr.P.Ratna Kamala, M.Tech, (PhD)
Professor & Head Department of ECE

Submitted for the project viva-voice examination held on 17/7/2021

P. RATHI
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "ARTIFICIAL INTELLIGENCE BASED HOME AUTOMATION" that is being submitted by

V. JITHENDRA KUMAR	17F61A0478
P. KISHANTH	17F61A0485
C. H. PRATHIMA	17F61A04E5
K. MUNISAI	17F61A04B4
J. INDUPRIYA REDDY	17F61A0473

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Internal Guide

P Pavan Kumar, M.Tech.,
Assistant Professor of ECE

Head of the Department

Dr. P Ratna Kamala, M.Tech. (Ph.D.)
Professor & Head Department of ECE

Submitted for the project viva-voce examination held on 13/07/2021

Internal Examiner

External Examiner

A Project Report

On

**A LOW POWER HIGH SPEED SENSE AMPLIFIER BASED
FLIP FLOP IN 55nm MTCMOS**

Submitted in partial fulfillment for the award of the degree

of

Bachelor of Technology

in

Electronics & Communication Engineering

By

K. PALLAVI	17F61A04D4
B. PRASANNA	17F61A04E4
M.NEEHARIKA	17F61A04C5
P. NAVEEN KUMAR	17F61A04C2
B. PAVAN KUMAR	17F61A04D6

Under the esteemed guidance of

CH.MURALI KRISHNA

Assistant Professor, Department of ECE



**Department of Electronics & Communication Engineering
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**

(AUTONOMOUS)

**(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P**

2021

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

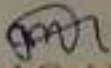



CERTIFICATE

This is to certify that the Project entitled "*ARDUINO BASED VENTILATOR AND HEALTH MONITORING SYSTEM*" that is being submitted by

B. MUNI BHARGAV	17F61A04B1
P. MANISHA	17F61A04A4
K. NAVEEN	17F61A04C3
V. KAVYASREE	17F61A0484
K. JAGADISH	17F61A0474

is in partial fulfillment of the requirements for the award of **BACHELOR OF TECHNOLOGY** in **ELECTRONICS & COMMUNICATION ENGINEERING** to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide
PMJ BALAJI, M.Tech.,
Assistant Professor,
Department of ECE


Head of the Department
Dr. P Ratna Kamala, M.Tech, (Ph.D.)
Professor & Head Department of ECE

Submitted for the project viva-voce examination held on 17-07-2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "HIGH SPEED AREA EFFICIENT VLSI ARCHITECTURE OF THREE OPERAND BINARY ADDER" that is being submitted by

YEDHULA MANJU	17F61A04A5
A NOMESWAR	17F61A04D2
S LAVANYA	17F61A0492
KOPPEDU NARENDRA	17F61A04B9
THUMMALA PAWAN KUMAR	17F61A04D7

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

D Sakunthala
Internal Guide
D Sakunthala, M.Tech.,
Assistant Professor of ECE

P.R.
Head of the Department
Dr. P Ratna Kamala, M.Tech, Ph.D
Professor & Head, Department of ECE

Submitted for the project viva-voce examination held on 17/07/2021

[Signature]
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "**MACHINE LEARNING BASED SURVILLANCE SYSTEM FOR DETECTION OF BIKE RIDERS WITHOUT HELMETS, TRIPLE RIDERS AND OVERSPEED DETECTION BILLING SYSTEM**" that is being submitted by

R.MAMATHA	17F61A04A2
V.NAVEEN KUMAR REDDY	17F61A04C1
M.A.MANOJ KUMAR	17F61A04A7
P.KRISHNA MOHAN	17F61A0486
K.PAVAN KALYAN	17F61A04D9

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Internal Guide

Nivedi Biswas, M.Tech.
Assistant Professor of ECE

Head of the Department

Dr.P Ratna Kamala, M.Tech, (Ph.D)
Professor & Head Department of ECE

Submitted for the project viva-voce examination held on 17/7/2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "TRANSMISSION OF DATA AND AUDIO SIGNAL USING LI-FI TECHNOLOGY" that is being submitted by

D.KUSUMA	-	17F61A0488
K.NIKITHA	-	17F61A04C8
P.NAGA SAI	-	17F61A04B7
S.MAHESH BABU	-	17F61A0498
K.MANOJ KUMAR	-	17F61A04A6

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to (AUTONOMOUS). The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

J. Shankar
Internal Guide

BSB
Head of the Department

Submitted for the project viva-voce examination held on 17/7/21

[Signature]
Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING &
TECHNOLOGY**

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA,
Ananthapuramu) (Accredited by NBA for Civil, EEE, ECE,
MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified
Institution) Siddharth Nagar, Narayanavanam road, Puttur-517583,
A.P

**DEPARTMENT OF ELECTRONICS & COMMUNICATION
ENGINEERING**

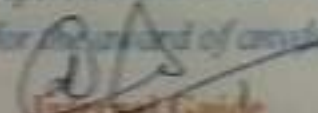



CERTIFICATE

*This is to certify that the Project titled "IOT BASED TEMPERATURE
AND MASK SCAN ENTRY SYSTEM" that is being submitted by*

K. PAVITHRA	17F61A04E1
M. LEELAVATHI	17F61A0493
B. MOUNIKA	17F61A04B0
M. MAHESH	17F61A04A0
R. LAVANYA	17F61A0491

*is in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING
to JNTUA, ANANTHAPURAMU. The results embodied in this Project
report have not been submitted to any other University or Institute
for the award of any degree.*


Internal Guide
K.D. MOHANA SUNDHARAM, M.Tech., (Ph.D)
Assistant Professor of ECE


Head of the Department
Dr. P Ratna Kamala, M.Tech., Ph.D
Professor & Head Department of ECE

Submitted for the project viva-voce examination held on 17/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "MACHINE LEARNING BASED ANIMAL HEALTH MONITORING SYSTEM" that is being submitted by

K. LALITYA - 17F61A0490

K. NIMISHA REDDY - 17F61A04C9

R. PALLAVI - 17F61A04D5

M.LIKHITHA - 17F61A0494

K.MAHESH - 17F61A0499

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

P. Chandrasekhar
Internal Guide

[Signature]
Head of the Department

Submitted for the project viva-voce examination held on 17-7-2021

[Signature]
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "HIGH-SPEED AND AREA-EFFICIENT N-BIT DIGITAL COMPARATOR" that is being submitted by

G.PALLAVI	17F61A04D3
IMAHESWARI	17F61A04A1
N.NIKHIL KUMAR	17F61A04C7
B.NAGA PRAVALLIKA	17F61A04B8
G.KUMARA SWAMY	17F61A0481

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide

G Logadevi, M.Tech
Assistant Professor of ECE

[Signature]
Head of the Department

Dr. P Ratna Kamala, M.Tech, (Ph.D.)
Professor & Head Department of ECE

Submitted for the project viva-voce examination held on 17-07-2021

[Signature]
Internal Examiner

External Examiner



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

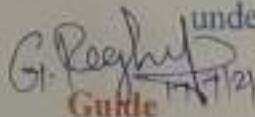
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

CERTIFICATE

E. NIHARIKA	17F61A04C6
D. POOJITHA	17F61A04E2
S. JYOTHI PRAKASH	17F61A0479
K. NARESH	17F61A04C0
N. SASIDHAR REDDY	17F61A04D1

This is to certify that the Project entitled "FRUIT GRADING USING CNN" that is being submitted is in partial fulfillment of the requirements for the award of **BACHELOR OF TECHNOLOGY** in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAM, during the period of 2020-2021 and is a record of bonafied work carried out under our vision and guidance.


Guide

Mr. G. RAGHUL, M.E
Assistant professor
Department of ECE


Head of the Department

Dr. P. RATNA KAMALA, M.Tech &
Ph.D., Professor & Head
Department of ECE

Submitted for the project viva-voce examination held on- 17/7/21


Internal Examiner

External Examiner

A Project Report

On

DPL Based Novel Time Equalized CMOS Ternary to Binary Converter

Submitted in partial fulfillment for the award of the degree

of

Bachelor of Technology

in

Electronics & Communication Engineering

by

R. JAVID	17F61A0475
D. KAVITHA	17F61A0483
P. MUNI VARMA	17F61A04B6
K. KADESH	17F61A0481
M. MOHITH	17F61A04A9

Under the esteemed guidance of

V. R. CHANDHINI M.E

Assistant Professor, Department of ECE



Department of Electronics & Communication Engineering
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

2021

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with A Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "Analysis of digital audio broadcasting system employing cyclic redundancy checker" that is being submitted by

E.JEEVITHA	17F61A0476
V.LOKITHA	17F61A0497
C.MANASAIREDY	17F61A04A3
P.LOKESH	17F61A0496

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide

**Dr.P.Ratnakamala, M.Tech, P.hd.
Professor**

[Signature]
Head of the Department

**Dr.P.Ratnakamala, M.Tech, P.hd
Professor & Head, Department of ECE**

Submitted for the project viva-voce examination held on 17/7/2021

[Signature]
Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

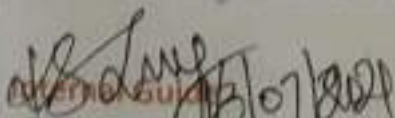


CERTIFICATE

This is to certify that the Project entitled "**FROM STOCHASTIC TO BIT STREAM
COMPUTING: ACCURATE IMPLEMENTATION OF ARITHMETIC
CIRCUITS AND APPLICATIONS IN NEURAL NETWORKS**" that is being
submitted by

K LAHARI - 17F61A0489
A MUNIESWAR - 17F61A04B2
GUNDRAJU PRAFULKUMAR RAJU - 17F61A04E3
CHEMURU JYOTHIPRAKASH - 17F61A0480

is in partial fulfillment of the requirements for the award of **BACHELOR OF
TECHNOLOGY** in **ELECTRONICS & COMMUNICATION ENGINEERING** to
JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been
submitted to any other University or Institute for the award of any degree.


Dr P.G.Kuppasamy (Ph.D.)

Head of the Department
Dr.P.Ratna Kamala (M.Tech., Ph.D.)

Submitted for the project viva-voce examination held on 17/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanaavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " *INTELLIGENT COVID-19 PANDEMIC BUS SERVICE WITH SAFETY MEASURES*" that is being submitted by

K SAI MAHESH	-	17F61A04I0
D REDDY VIKRAM	-	17F61A04H1
P SIVA KUMAR	-	17F61A04K6
SK MUNEER AHAMED	-	17F61A04J7
N SATHISH	-	17F61A04J3

is in partial fulfillment of the requirements for the award of *BACHELOR OF TECHNOLOGY* in *ELECTRONICS & COMMUNICATION ENGINEERING* to *JNTUA, ANANTHAPURAMU*. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any

degree

[Signature]
Internal Guide

Dr. P. G. GOPINATH, M.E., Ph.D.

[Signature]
Head of the Department

Dr. P. RATNAKAMALA, M.Tech, Ph.D

Submitted for the project viva-voce examination held on 17/07/2021

[Signature]
Internal Examiner 17/7/21

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING




CERTIFICATE

This is to certify that the Project entitled "Investigation of Image Steganography for Security Applications" that is being submitted by

K REDDY MEGHANA	17F61A04H0
G RAMYA SREE	17F61A04G6
M RAHUL	17F61A04F6
T SAI KUMAR	17F61A04I6
S MOHAMMAD SULTAN	17F61A04J6

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on 17/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

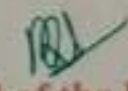
This is to certify that the Project entitled "ADVANCED PRIVACY PRESERVING ALGORITHM FOR ENCRYPTED DATA IN CLOUD COMPUTING" that is being submitted by

U SHALINI	17F61A04K2
B PREETHI HARIKA	17F61A04E7
DS SAI KIRAN REDDY	17F61A04H8
P SAI VARA PRASAD	17F61A04J0
MS SAI PRAKASH	17F61A04I8

is in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide

Dr. K. Elangovan (Ph.D)


Head of the Department

Dr. P. Ratna Kamala (M.Tech., Ph.D.)

Submitted for the project viva-voce examination held on 17-7-21


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Anantapur) (Accredited
by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

*This is to certify that the Project entitled " AN ADVANCED
CAFETERIASYSTEM USING ROBOTS "that is being submitted by*

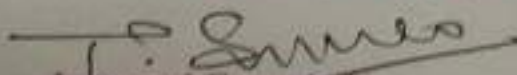
D.PRIYANKA	17F61A04F1
N. SREEKANTH	17F61A04L3
V.SAI CHAITANYA	17F61A04H4
P. PREM SWARUP	17F61A04E8
S. VASEEM	17F61A04J9

*is in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING
to JNTUA, ANANTHAPUR. The results embodied in this Project report have not
been submitted to any other University or Institute for the award of any
degree.*


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on 17/7/21


Internal Examiner

External Examiner

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by with NAAC with 'A' Grade and Accredited by NBA, New Delhi)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, AP.



CERTIFICATE

*This is to certify that the project entitled "HEART ATTACK DETECTION USING IOT"
that is being submitted by*

SINGAMSETTY SAI SINDHU	17F61A04i3
P. RAJESH	17F61A04G0
R. RAMVILAS CHOUDHARY	17F61A04G5
G.S. SHANMUKHA KARTHIK	17F61A04K4
TALLAM PRUDHVI	17F61A04F3

*in partial fulfillment of the requirements for the award of **BACHELOR OF TECHNOLOGY**
in **ELECTRONICS & COMMUNICATION ENGINEERING** to **SIDDHARTH INSTITUTE OF
ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS)**. This project work or part
thereof has not been submitted to any other University or Institute for the award of any de-
gree.*

J. Rajanikanth

INTERNAL GUIDE

Mr. J. RAJANIKANTH, M.Tech

P. Ratna Kamala

HEAD OF DEPARTMENT

Dr. P. RATNA KAMALA., M.Tech., Ph.D

T. Suresh
Project viva-voce examination held on 17/7/21

INTERNAL EXAMINER

EXTERNAL EXAMINER

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "PROJECT TITLE" that is being submitted by

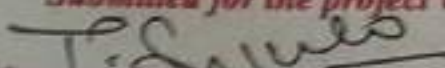
E SHALINI	17F61A04K1
K SANTHOSH	17F61A04J2
S NASAR	17F61A04J8
J V RAKESH	17F61A04G2
B SAI MOHAN	17F61A04I1

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on 17/7/21


External Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Pattur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " DATA RETENTION BASED LOW LEAKAGE POWER TCAM FOR NETWORK PACKET ROUTING" that is being submitted by

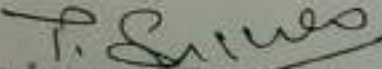
RAJITHA.N	17F61A04G1
RAJESH.G	17F61A04F9
RAJESH.A	17F61A04F8
SAI DHANUSH.C	17F61A04H6

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on 17-07-21


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "BREAST CANCER CLASSIFICATION USING CAPSULE NETWORK WITH PREPROCESSED HISTOLOGY IMAGES" that is being submitted by

SREEKANTH.K	17F61A04L2
RACHITHA.P	17F61A04F5
SHALINI.V	17F61A04K3
SPANDANA.M	17F61A04L0

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide

Rajesekhar Yadav A, M.Tech.,(Ph.D.)
Associate professor, ECE

[Signature]
Head of the Department

DR. P Ratna Kamala, M.Tech (Ph.D)
professor & HOD, ECE

Submitted for the project viva-voce examination held on 17/07/21

[Signature]
Internal Examiner

External Examiner

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by with NAAC with 'A' Grade and Accredited by NBA, New Delhi)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, AP.



CERTIFICATE

This is to certify that the project entitled "DESIGN AND DEVELOPMENT OF AGRI-BOT FOR SEEDING, WATERING AND PLOUGHING" that is being submitted by

M SRI LALITHA	17F61A04L5
M SHAHID HUSSAIN	17F61A04J4
D SAI RAKSHIT	17F61A04I2
K SRAVAN	17F61A04L1
G PRAAVEEN KUMAR	17F61A04E6

*in partial fulfillment of the requirements for the award of **BACHELOR OF TECHNOLOGY** in ELECTRONICS & COMMUNICATION ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.*

GUIDE

Dr. R. Gomalavalli., M.E., Ph.D.,
Professor, Department of ECE

HEAD OF THE DEPARTMENT

Dr. P. Ratna Kamala, M.Tech., Ph.D.,
Professor & Head, Department of ECE

Project viva-voce examination held on 17/07/21

INTERNAL EXAMINER

EXTERNAL EXAMINER

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "Design of a bio-signal based stress detection system using machine learning techniques" that is being submitted by

K.SAI	17F61A04I4
CH.SAI LIKITHA	17F61A04I7
T.PREM	17F61A04E9
P.SADIQ ALI	17F61A04H3

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Internal Guide

U.SRINIVASULU M.Tech.,
Associate professor
Department of ECE

Head of the Department

Dr. P RATNA KAMALA M.Tech.,
Professor & HOD of ECE

Submitted for the project viva-voce examination held on

17/07/21

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "SIGN LANGUAGE RECOGNITION SYSTEM USING CONVOLUTIONAL NEURAL NETWORK" that is being submitted by

S.SIVA TEJA	17F61A04K8
A.PRIYANKA	17F61A04F0
C.REVANTH KUMAR	17F61A04H2
B.SOUMYA	17F61A04K9

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

D. Muneendra
Internal Guide
D.Muneendra, M.Tech.,
Assistant Professor of ECE

Dr. P Ratna Kamala
Head of the Department
Dr. P Ratna Kamala, M.Tech, (Ph.D.)
Professor & Head Department of ECE

Submitted for the project viva-voce examination held on 17-07-21

T. S. Suresh
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

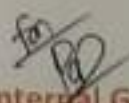


CERTIFICATE

This is to certify that the Project entitled "Energy-Spectral Efficiency Tradeoff In Cognitive Radio Networks" that is being submitted by


A. RAMYA GEETHIKA	17F61A04G8
S. ARSHAD	17F61A04J5
G. PRUDHVI	17F61A04F4
C. SAI KEERTHI	17F61A04H7
P. SAI PRAVEEN	17F61A04I9

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on 17/7/21


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled * *ARTIFICIAL LIFE IN ELECTRONIC CIRCUIT* that is being submitted by

K. RAMACHANDAR	17F61A04G3
D. RAMYA	17F61A04G7
G. SREEPATH	17F61A04L4
B. SAICHANDU	17F61A04H5

Is in partial fulfillment of the requirements for the award of **BACHELOR OF TECHNOLOGY** in **ELECTRONICS & COMMUNICATION ENGINEERING** to **JNTUA, ANANTHAPURAMU**. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

M. Shobha
Internal Guide

[Signature]
Head of the Department

Submitted for the project viva-voce examination held on 17-07-21

T.S.
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "ARTIFICIAL LIFE IN ELECTRONIC CIRCUIT" that is being submitted by

M.SIVVA PRIYA	17F61A04K7
V.RANJITH KUMAR	17F61A04G9
R.SAI KUMAR	17F61A04H9
T.SANKEERTH	17F61A04J1

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

C.H. Murali Krishna
Internal Guide

C.H. MURALI KRISHNA,
M. Tech.

P. Ratna Kamala
Head of the Department

Dr. P. Ratna kamala,
M. Tech., Ph. D.

Submitted for the project viva-voce examination held on 17-7-2021

C.H. Murali Krishna
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "AUTONOMOUS UV-C DISINFECTION ROBOT" that is being submitted by

A. SUPRAJA	-	17F61A04M6
A. VENKATA JYOTHI	-	17F61A04O6
K.UMA MADHURI	-	17F61A04O2
D.VENKATA KIRAN KUMAR REDDY	-	17F61A04O9
P.V. SURYA TEJA RAMA KRISHNA	-	17F61A04M7

is in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

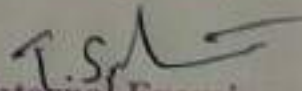

Internal Guide

P. Pavan Kumar, M.Tech.


Head of the Department

Dr.P. Ratnakamala, M.Tech., Ph.D.

Submitted for the project viva-voce examination held on 17/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "OBJECT DETECTION USING DEEP LEARNING" that is being submitted by

R.E.YASODHA	17F61A04Q4
T.VENKATA SAINATH	17F61A04O7
C.MUNESWARI	18F65A0405
G.ADITHYA	16F61A0402
G.VENKATESH	17F61A04P0

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide

Dr.R.Gomalavalli, M.E, Ph.D
Professor of Electronics and
Communication Engineering.

[Signature]
Head of the Department

Dr.P.Ratna Kamala, M.Tech, Ph.D.
Professor & Head of Department of
Electronics and Communication
Engineering

Submitted for the project viva-voce examination held on 17/07/2021

[Signature]
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by A.I.C.T.E., New Delhi Affiliated to J.N.T.U. Anantapur, Anantapuramu.)
(Accredited by NBA (EEE, Mech, ECE & CSE) & NAAC with 'A' Grade)

Siddharth nagar, Narayanavanam Road, Puttur-517583

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



Certificate

This is to certify that the Project entitled

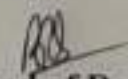
“SMART WIRELESS WATER METER USING IOT”

is being submitted by

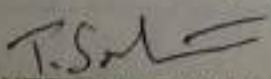
B.SUSMITHA	-17F61A04M8
M.THEJA	-18F65A0408
M.VENKATA SUMANTH KUMAR	- 17F61A0408
M.YUVARAJU	- 17F61A04R0
C.YOGESH	- 17F61A04Q9

in partial fulfillment of the requirement for the award of **BACHELOR OF TECHNOLOGY** in **Electronics and Communication Engineering** to **JNTUA, Anantapuramu**. The results embodied in this project report have not been submitted to any other university or institute for the award of any degree.


Internal Guide


Head of Department

Submitted for the project viva-voce examination held on 17/7/21


INTERNAL EXAMINER

EXTERNAL EXAMINER

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

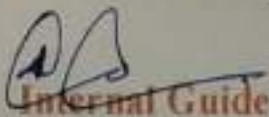


CERTIFICATE

This is to certify that the Project entitled " DETECTION OF LIVER CANCER USING U-NET ARCHITECTURE " that is being submitted by

C.K.SUDHA	17F61A04M2
T.YASHVANTH KUMAR	17F61A04Q1
M.VISHNU VARDHAN REDDY	17F61A04P6
B.VENKATESH	17F61A04P1
P.VISHNU VARDHAN REDDY	17F61A04P9

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on 17-07-2021


Internal Examiner

External Examiner

A Project Report

On

PROJECT TITLE

Accident Monitoring System Using Drone

of

Bachelor of Technology

in

Electronics & Communication Engineering

by

P.TARA CHANDU 17F61A04N1

K.YUVADEEP REDDY 17F61A04R1

C.R.S THARUN KUMAR 17F61A04N7

K.YASHWANTH 17F61A04Q6

V.VINAY KRISHNA 17F61A04P5

Under the esteemed guidance of

P.CHANDANAKALA M.Tech,
Assistant professor, Department of ECE



Department of Electronics & Communication Engineering
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P.

2021

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

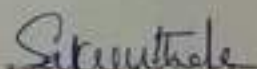



CERTIFICATE

This is to certify that the Project entitled "Diabetic Eye Retinopathy" that is being submitted by

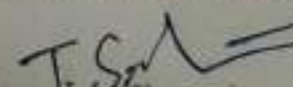
M. Teja Kumar	17F61A04N2
J. Suneel Reddy	17F61A04M3
E. Yaswanth Kumar	17F61A04Q5
P. Sunil	17F61A04M4
P. Tharun	17F61A04N9

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on 17/07/2021


External Examiner

External Examiner

A Project Report

On

WARFIELD MULTIPURPOSE ROBOT

Submitted in partial fulfillment for the award of the degree

of

Bachelor of Technology

in

Electronics & Communication Engineering

by

M. SWETHA	17F61A04M9
P. VISHNU VARDHAN	17F61A04P7
R. PUNYAMOORTHY	18F65A0406
M. SRIRAM	17F61A04M1
M. SUDHARSHAN	16F61A04K8

Under the esteemed guidance of

Dr.P. RATNA KAMALA M.Tech., Ph.D
PROFESSOR & HOD Department of ECE



Department of Electronics & Communication Engineering
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

2021

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517503, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " IOT BASED ORGANIC FARMING BY USING AQUAPONICS METHOD USING RASPBERRY PI" that is being submitted by

RAJENDRAN VIDHYA	17F61A04P3
B.THULASI PRIYA	18F65A0409
C.UDAY KIRAN	17F61A0400
K.CHANDRA SEKHAR	18F65A0403
Y.SRIDHAR REDDY	17F61A04L8

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
Internal Guide

[Signature]
Head of the Department

Submitted for the project viva-voce examination held on 17/07/2021

[Signature]
Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

*This is to certify that the Project entitled "IMPLEMENTATION OF
CASCADED ARCHITECTURE FOR MEMRISTOR CROSSBAR ARRAY
BASED NEUROMORPHIC COMPUTING" that is being submitted by*

V UDAY	17F61A0401
T S THARUN SAI	17F61A04N8
G YASHWANTH	17F61A04Q3
G TEJAESHWAR RAO	17F61A04N5
T SAI LAKSHMAN NAIDU	16F61A04I2

*is in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to
JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not
been submitted to any other University or Institute for the award of any degree.*

P.G.K.
Internal Guide
Dr P.G.Kuppusamy M.E. Ph.D

R.K.
Head of the Department
Dr.P.Ratna Kamala M.Tech. Ph.D

Submitted for the project viva-voce examination held on 17/07/2021

T.S.L.
Internal Examiner

External Examiner

A Project Report

On

INVESTIGATION OF IMAGE CLASSIFICATION USING MACHINE
LEARNING TECHNIQUES

Submitted in partial fulfillment for the award of the degree

of

Bachelor of Technology

in

Electronics & Communication Engineering

by

C. YAMUNA	17F61A04Q0
K. SRINIVASULU	17F61A04L9
V. SRI VENKATESH	17F61A04L7
A. VISHNU	17F61A04P8

Under the esteemed guidance of
DR. R. PREM KUMAR M.E., Ph.D.
Professor, Department of ECE



Department of Electronics & Communication Engineering
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

2021

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled "CUMULATIVE SUM BASED SPECTRUM SENSING IN COGNITIVE RADIO NETWORKS" that is being submitted by

KORRUYOGAPRIYA	17F61A04Q7
D.VIKASH	17F61A04P4
M.AMRUTHA	18F65A0401
RUDDIRALAUMADEVI	17F61A04O3
G.MAHESH	16F61A04A1

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

[Signature]
16/07/2021

Submitted for the project viva-voce examination held on

Internal Examiner

T. Sankar

[Signature]
Head of the Department

17/07/2021

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)
(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " CLASSIFICATION AND LOCALIZATION OF COVID-19 MARKERS IN POINT -OF-CARE LUNG ULTRASOUND USING DEEP LEARNING" that is being submitted by

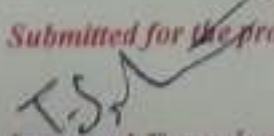
K.THANUJA	- 17F61A04N6
C.VENU GOPAL	- 17F61A04P2
J.SUNITHA	- 17F61A04M5
T.CHANDANA	- 18F65A0402

is in partial fulfilment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA , ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide
Dr.T.Senthil Kumar, M.E, Ph.D


Head of the Department
Dr.P. Ratnakamala, M.Tech ,Ph.D.

Submitted for the project viva-voce examination held on 17-7-2021


Internal Examiner

External Examiner

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



CERTIFICATE

This is to certify that the Project entitled " SMART IRRIGATION SYSTEM USING WIFI MODULE AND IOT" that is being submitted by

J. UMA SRI

17F61A04O4

R.SRI NIKITHA

17F61A04L6

P. KALYAN

18F65A0404

B. YOGESH

17F61A04Q8

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in ELECTRONICS & COMMUNICATION ENGINEERING to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

J. Raju

Internal Guide

J.Rajanikanth, M.Tech.

Dr.P. Ratnakamala

Head of the Department

Dr.P. Ratnakamala, M.Tech,Ph.D

Submitted for the project viva-voce examination held on 17-07-2021

T.S.N

Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTU, Anantapuram)
(An ISO 9001:2000 CERTIFIED INSTITUTION)
Siddharth Nagar, Narayanavanam road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE

Certified that this project report titled “**M-Health Application with Two-Level Information Safeguard Scheme Based on Visual Cryptography and QR Code With Numerous Decryptions**” is a bonafide work of

17F61A0518 - T.BHAVYA
17F61A0517 - V.S.BHARGAVI
17F61A0514 - K.BHARATH
17F61A0556 - P.LEELA KRISHNA

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Dr.B.Geethavani, M.Tech.,Ph.D.

HOD and Professor,
Department Of CSE,
SIETK.

Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D.

HOD and Professor,
Department Of CSE,
SIETK.

Submitted for the main project viva-voice examination held on 18/07/2021

Internal Examiner
HEAD OF THE DEPARTMENT,
Department of Computer Science & Engg
Siddharth Institute of Engg. & Technology
PUTTUR-517 583.

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)**

(Approved by AICTE & Affiliated to JNTU, Anantapuramu)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled “**Automatic Attendance Management System based on IoT and Face Recognition**” is a bonafide work of

17F61A0527 – ATTURU DEVA MUNIKANTA REDDY

17F61A0516 – KAKARLLA BHARGAVI

17F61A0523 – KOLLA CHANDRA SEKHAR

17F61A0508 – ARUN S

in IV B.Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Dr.S.Tamil Selvan, M.E.,Ph.D

Associate Professor,

Department of CSE,

SIETK,Puttur

Submitted for the main project viva-voce examination held on 18/07/2021

Internal Examiner

Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D

HOD & Professor,

Department of CSE,

SIETK,Puttur.

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled **“PREDICTION OF LUNG CANCER USING U-NET AND VGG ALGORITHMS”** is a bonafide work of

17F61A0529	-	C DILLI
17F61A0528	-	C DHARANI PRIYA
17F61A0553	-	P LAKSHMI PRASANNA
17F61A0554	-	V LAVAKUMAR

in IV B.Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Dr.J.Manikandan,Ph.D.

Professor

Department of CSE

SIETK


Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D

HOD & Professor

Department of CSE

SIETK

Submitted for the main project viva-voce examination held on 18/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, PUTTUR-517583, A.P
Department of Computer Science & Engineering



BONA FIDE CERTIFICATE

Certified that this project report titled "*MULTI AUTHORITY ACCESS CONTROL WITH ANONYMOUS AUTHENTICATION FOR PERSONAL HEALTH RECORDS*" is a bonafide work of

17F61A0525 - B. CHARISHMA
17F61A0521 - A. CHANDANA
17F61A0550 - K. JYOSHNA
17F61A0540 - K.B. HEMANTH KUMAR

in IV B. Tech II semester of **COMPUTER SCIENCE AND ENGINEERING**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Dr.P.M.S.S.Chandu, B.E, M.E., Ph.D
Professor,
Department Of CSE,
SIETK.


Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D.
HOD and Professor,
Department Of CSE,
SIETK.

Submitted for the main project viva-voice examination held on 18/7/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled “**Android Application For Authenticating Vehicle Documents And Vehicle Theft Alerting System**” is a bonafide work of

17F61A0504 – B.AKSHAYA
17F61A0501 – ABDUL SUHANA
17F61A0551 – R. KOMAL KUMAR
17F61A0506 – D.ANIL

in IV B.Tech II semester of **Computer Science and Engineering.**

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mrs. R.M. Mallika, M.Tech.,(Ph.D.)
Associate Professor
Department of CSE
SIETK


Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D
HOD & Professor
Department of CSE
SIETK

Submitted for the Main project viva-voce examination held on 18/7/2021


Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTU, Anantapuram)

(An ISO 9001:2000 CERTIFIED INSTITUTION)

Siddharth Nagar, Narayanavanam road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE

Certified that this project report titled “**IOT Based Gas Leakage Detection with enhanced security system and analyzing sensor data using ThingSpeak**” is a bonafide work of

17F61A0539----L.Hemalatha

17F61A0522----B.Chandana

17F61A0555----S.Lavanya

17F61A0536----N.Harsha Vardhan

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.

P. Santhosh Kumar

Project Supervisor

Dr.P.Santhosh Kumar, M.Tech.,Ph.D.

Associate Professor,

Department Of CSE,

SIETK.

B. Geethavani

Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D.

HOD and Professor,

Department Of CSE,

SIETK.

Submitted for the main project viva-voice examination held on 18/7/2021

P. Santhosh Kumar

Internal Examiner

B. Geethavani

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

**(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583**



BONAFIDE CERTIFICATE

Certified that this project report titled “**An Enhanced Wireless System For Vehicular Network To Standardize The Road Facility**” is a bonafide work on

**17F61A0502 – B.ABHISHEK
17F61A0519 – P.BHUPATHI
17F61A0543 – C.JAGADEESH
17F61A0549 – N.JITENDRA**

in IV B.Tech II semester of **Computer Science and Engineering.**

The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Mr.R.G. Kumar, M.Tech

Associate Professor,

Department of CSE,

SIETK,Puttur

Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D

HOD & Professor,

Department of CSE,

SIETK,Puttur.

Submitted for the main project viva-voce examination held on 18/07/2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled **“WIRELESS SENSOR NETWORK FOR ELECTROCARDIOGRAM HEALTH MONITORING”** is a bonafide work of

17F61A0546 – G. JAYA GANESH
17F61A0535 – E.K. GOWTHAM SAI
17F61A0520 – V. CHAITHANYA
17F61A0509 – M. ASHOK KUMAR

in **IV B.Tech II semester of Computer Science and Engineering.**

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mr.V.Samba siva, M.Tech.
Assistant Professor,
Department of CSE,
SIETK, Puttur.


Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D
HOD & Professor
Department of CSE,
SIETK, Puttur.

Submitted for the main project viva-voce examination held on 18/7/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)

(An ISO 9001:2000 CERTIFIED INSTITUTION)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P



BONAFIDE CERTIFICATE

Certified that this project report titled *“Identification and Classification of Online Toxic Comments using Deep Learning Techniques”* is a bonafide work of

17F61A0541 – G. HIMABINDU

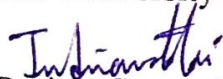
17F61A0544 – K. JAGADEESH

17F61A0515 – P. BHARGAV

17F61A0542 – B. IMRAN

in IV B. Tech II semester of **Computer Science and Engineering.**

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mrs. G. Indiravathi, M.Tech

Assistant Professor,

Department of CSE,

SIETK.


Head of the Department

Dr. B. Geethavani, M.Tech., Ph.D.

HOD & Professor,

Department of CSE,

SIETK.

Submitted for the main project viva-voce examination held on 18 July, 2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583

Department of Computer Science & Engineering



BONAFIDE CERTIFICATE

Certified that this project report titled ***“IOT BASED SMART SHOPPING
CART USING RFID”*** is a bonafide work of

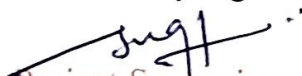
17F61A0507 – B. ANUGNA

17F61A0531 – SHAIK FAZIL

17F61A0512 – S. BHANU PRAKASH

17F61A0503 – U. AJITH KUMAR

in IV B. Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mr. G. Saravana Gokul, M.E.,
Assistant Professor,
Department of CSE,
SIETK.


Head of the Department

Dr. B. Geethavani, M.Tech., Ph.D.
HOD & Professor,
Department of CSE,
SIETK.

Submitted for the main project viva-voice examination held on 18/7/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuram)

Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled **“ONLINE CRIMEREPORTING USING ANDROID APPLICATION”** is a bonafide work of

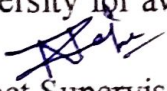
17F61A0530 – M EKAMBAR REDDY

17F61A0545 – P.JAHNAVI

17F61A0547 – B.JAYADEEP

17F61A0532 – G S GANESH

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mr.P.Nagaraju, M.Tech.,

Associate Professor,

Department of CSE,

SIETK, Puttur


Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D.

HOD & Professor,

Department of CSE,

SIETK, Puttur.

Submitted for the main project viva-voce examination held on 18/7/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "**COLLABORATIVE FILTERING METHOD FOR ONLINE COURSE CERTIFICATION USING BIG DATA**" is a bonafide work of


17F61A0538 – M.HEMA


17F61A0505 – M.ALLABAKASH

17F61A0534 – N.GNANI

17F61A0533 – K.GAUTAM

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor
Mr.A.Suresh, M.Tech.,(Ph.D)
Associate Professor,
Department of CSE,
SIETK, Puttur.


Head of the Department
Dr.B.Geethavani, M.Tech., Ph.D
HOD & Professor,
Department of CSE,
SIETK, Puttur.

Submitted for the main project viva-voce examination held on 18/7/2021

Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, PUTTUR-517583, A.P

Department of Computer Science & Engineering



BONAFIDE CERTIFICATE


Certified that this project report titled "**IDENTIFICATION OF PATIENT'S CONDITION BY USING CLUSTER BOOSTED REGRESSION WITH TEXT BASED INDEXING**" is a bonafide work of

17F61A0537 - D. HARSHITHA
17F61A0548 - V. JEEVITHA
17F61A0526 - M. DASARADHA
17F61A0511 - P. BALAJI

in IV B. Tech II semester of COMPUTER SCIENCE AND ENGINEERING. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

A.SATHISH, M.E.
Associate Professor,
Department Of CSE,
SIETK.


Head of the Department
Dr.B.Geethavani, M.Tech., Ph.D.
HOD and Professor,
Department Of CSE,
SIETK.

Submitted for the main project viva-voice examination held on 18/12/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)

Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "**SPAMMER DETECTION AND FAKE USER IDENTIFICATION ON SOCIAL NETWORKS**" is a bonafide work on

17F61A0573 – M.NADIYA

17F61A0562 – K.MADHU

17F61A0583 – B.NIKITHA REDDY

17F61A0575 – Y.NAGANJANEYA REDDY

In IV B.Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Mrs.G.Bhuvaneshwari, M.Tech

Assistant Professor,

Department of CSE,

SIETK,Puttur

Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D

HOD & Professor,

Department of CSE,

SIETK,Puttur.

Submitted for the main project viva-voice examination held on 17-07-2021

Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTU, Anantapuram)

(An ISO 9001:2000 CERTIFIED INSTITUTION)

Siddharth Nagar, Narayanavanam road, PUTTUR-517583,A.P



BONAFIDE CERTIFICATE

Certified that this project report titled "**Prediction Of Paddy Leaf Diseases Using Deep Learning**" is a bonafide work of

17F61A0581 - K NAVYA SREE
17F61A0580 - L NAVEEN NAIDU
17F61A05B1 - D SAI KIRAN
17F61A05A3 - V RAVI TEJA

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Dr.P.M.S.S Chandu M.E,Ph.D.

Professor,

Department Of CSE, SIETK.

Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D.

HOD and Professor,

Department Of CSE,

SIETK.

Submitted for the main project viva-voice examination held on 7-7-2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam road, PUTTUR-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "SECURING CORPORATE WEBSITES USING INTEGRITY VERIFICATION USING BLOCKCCHAIN" is a bonafide work of

17F61A0559 - A.LOKESHWARI
17F61A0564 - Y.MANOJ KUMAR REDDY
17F61A0568 - J.MOUNIKA
17F61A0593 - B.PREM KUMAR

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor
Mr. N.Siva, M.Tech.,
Assistant Professor,
Department of CSE,
SIETK

Head of the Department
Dr.B.Geethavani, M.Tech., PhD
HOD & Professor,
Department of CSE,
SIETK

Submitted for the main project viva-voce examination held on 17/7/2021

Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTU, Anantapuram)
(An ISO 9001:2000 CERTIFIED INSTITUTION)
Siddharth Nagar, Narayanavanam road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE


Certified that this project report titled "**Online Shopping Through Augmented Reality**" is a bonafide work of

17F61A0572 - Y.MYTHILI
17F61A05A9 - T.SADVIKA
17F61A0558 - V.LIKHITH SAI
17F61A0589 - C.PHANEENDRA SAI NAIDU

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mrs. S. Manasa, M.Tech.,
Asst. Professor,
Department Of CSE,
SIETK.


Head of the Department
Dr. B. Geethavani, M.Tech., Ph.D.
HOD and Professor,
Department Of CSE,
SIETK.

Submitted for the main project viva-voice examination held on 17-7-2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
(Accredited by NBA for CIVIL, EEE, ECE, MECH & CSE)
(Accredited by NAAC with 'A' Grade)
Siddharth Nagar, Narayanavanam road, PUTTUR-517683,A.P



BONAFIDE CERTIFICATE

This Certified that project report titled "Generalized Flight Delay Prediction Using Fuzzy C-Means Algorithm" is a bonafide work of

17F61A0561 - Y Madhavi
17F61A0588 - C Pavithra Munaswamy
17F61A0560 - R Madhavi
17F61A0595 - R Pudvi

in IV B Tech II semester of *Computer Science and Engineering*. The results embodied in this project report have not been submitted to any other University for award of any degree.



Project Supervisor
Mr. B.ASHOK, M.Tech.,
Assistant Professor,
Department of CSE,
SIETK



Head of the Department
Dr. B. Geethavani, M.Tech., Ph.D.,
HOD & Professor,
Department of CSE,
SIETK

Submitted for the main project viva-voce examination held on 17-07-2021



Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "ONLINE CONTINUOUS BLOOD PRESSURE MONITORING SYSTEM USING IOT" is a bonafide work of

17F61A0582 --- B.NEERAJA
17F61A0565 --- T.MANSOOR ALI
17F61A0571 --- R.MURALI
17F61A05A0--- T.RAMASIVA

in IV B.Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Ms.N.MONIKA, M.E
ASSISTANT PROFESSOR
Computer Science and Engineering
Siddharth institute of Engineering &
Technology


Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D
HOD & Professor
Computer Science and Engineering
Siddharth institute of Engineering &
Technology

Submitted for the main project viva-voce examination held on 17-07-2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583
Department of Computer Science & Engineering



BONAFIDE CERTIFICATE

Certified that this project report titled "*Dual Access Control for Cloud-Based Data Storage and Sharing*" is a bonafide work of

17F61A0566---MOHAMAD IRFAN
17F61A0570--- S. MURALI KRISHNA
17F61A0578---R. NAGARJUNA
17F61A0587---K. PAVAN KALYAN

in IV B.Tech II semester of *Computer Science and Engineering*.

The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Mrs. P. Jayanthi, M.Tech.,
Assistant Professor

Computer Science and Engineering
Siddharth Institute Of Engineering
& Technology(SIETK).

Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D
HOD & Professor

Computer Science and Engineering
Siddharth Institute Of Engineering
& Technology(SIETK).

Submitted for the main project viva-voce examination held on 17-07-2021

Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTU, Anantapuram)
(An ISO 9001:2000 CERTIFIED INSTITUTION)
Siddharth Nagar, Narayanavanam road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE

Certified that this project report titled “**A NOVEL METHOD OF FACE DETECTION AND RECOGNITION USING OPENCV AND HAAR CASCADE ALGORITHM**” is a bonafide work of

17F61A05A1 – K.RAMYASREE

17F61A05A7 - D.ROHITH

17F61A05A8 - P.RUPESH

17F61A0599 - N.RAJENDRA

in IV B.Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Dr.B.Geethavani, MTech.,Ph.D.
HOD and Professor,
Department Of CSE,
SIETK

Head of the Department

Dr.B.Geethavani, MTech., Ph.D.
HOD and Professor,
Department Of CSE,
SIETK

Submitted for the main project viva-voice examination held on 17-07-2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapuram)
(An ISO 9001:2000 CERTIFIED INSTITUTION)
Siddharth Nagar, Narayanavanam road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE

Certified that this project report titled "**Facial verification technology for secure money transaction in ATM machines**" is a bonafide work of

17F61A05A2 - D. RAVALI

17F61A0557 - A. LEELA SREE

17F61A0577 - J.V. NAGARJUNA REDDY

17F61A0591 - K. PRAVEEN KUMAR

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Dr.S.Tamil selvan, M.E , Ph.D.,

Associate Professor,

Department of CSE

SIETK.


Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D.

HOD & Professor,

Department of CSE,

SIETK.

Submitted for the main project viva-voce examination held on 17/7/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "**Facial Emotion Recognition for Human Behavior Analysis**" is a Bonafede work of

17F61A0596---- R.M. Punith Reddy

17F61A0598----A. Rahul Teja

17F61A0576----S.N. Nagaraj

17F61A0585----D. Nithish Kumar

in IV B. Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Dr. J. Manikandan, Ph.D
Professor
CSE, SIETK

Head of the Department

Dr. B. Geethavani, M.Tech., Ph.D.
HOD & Professor
CSE, SIETK

Submitted for the main project viva-voce examination held on 17/7/21

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)
(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "**Road Accident Prediction Using Machine Learning**" is a bonafide work on

17F61A0590 – C. PRASAD

17F61A0574 – M.NAGA JYOTHI

17F61A0569 – P.MUKESH

17F61A05A5 – C.REVANTH KUMAR

In IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Dr.P.M.S.S Chandu B.E,M.E,Ph.D

Associate Professor,

Department of CSE,

SIETK,Puttur

Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D

HOD & Professor,

Department of CSE,

SIETK,Puttur.

Submitted for the *main project viva-voce examination* held on 17/7/2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583





BONAFIDE CERTIFICATE

Certified that this project report titled **“Web Application for Detection of Melanoma using Deep Learning Techniques”** is a bonafide work of

17F61A0567 - A Mounika
17F61A0594 - B Prudhviraj
17F61A0563 - K Mallikarjuna Reddy
17F61A05B2 - S Sai Krishna

in IV B. Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor
Mrs. R.M Mallika, MTech (Ph.D.)
Associate Professor
Department of CSE
SIETK


Head of the Department
Dr. B. Geethavani, MTech., Ph.D.
HOD & Professor
Department of CSE
SIETK

Submitted for the main project viva-voice examination held on 17/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that project report titled "**Exam Hall Seating Arrangement Using Mean Stack**" is a bonafide work of

V.PREETHI -17F61A0592
K.RAGHAVENDRA -17F61A0597
R.NITHISH KUMAR -17F61A0586
K.NISHANTH -17F61A0584

in IV B.Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree

Project supervisor
Mr.R.G.KUMAR , M.Tech
Associate Professor
Department of CSE
SIETK

Head of the Department
Dr.B. GEETHAVANI , M.Tech, Ph.D
HOD & Professor
Department of CSE
SIETK

Submitted for the main project viva-voce examination held on 17-7-2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)
(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled “An Efficient Spam Detection Technique for IoT Devices Using machine Learning” is a bonafide work of


17F61A05B6 ---- N Sai Prakash
17F61A05C5 ---- S Noor Mohammad
17F61A05C4 ---- M Shalini
16F61A05C5 ---- N Sandeep
17F61A05G4 ---- R Vishali

In IV B.Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mr. V.Samba Siva, M.Tech
Assistant Professor
Computer Science and Engineering
SIETK


Head of the Department

Dr. B. Geethavani, M.Tech, Ph.D
HOD & Professor
Computer Science and Engineering
SIETK

Submitted for the main project viva-voce examination held on 17-7-2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "**Enhanced Fingerprint Technique For Secured Voting**" is a bonafide work of

17F61A05D0---- N.SONIYA
17F61A05E9---- SYED SUHA
17F61A05G6---- J.YAMINI
17F61A05C9---- G.SOMASEKHAR
17F61A05E1---- K.SUMANTH VARMA

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Ms. G.INDIRAVATHI, M.Tech

Assistant Professor

CSE,SIETK


Head of the Department

Dr.B.Geethavani, M.Tech, Ph.D

HOD & Professor

CSE,SIETK

Submitted for the main project viva-voce examination held on 17/07/21


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)
(Approved by AICTE & Affiliated to JNTU, Anantapur)
(An ISO 9001:2000 CERTIFIED INSTITUTION)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled **ADVANCED INTELLECT AGRICULTURAL CHATBOT** is a bonafide work of

C.VAMSI KRISHNA - 17F61A05F1
K.SRIKANTH - 17F61A05D3
M.SIVA VAIBHAV - 17F61A05C6
J.SAI SUDHEER - 17F61A05C8

in IV B.Tech II semester of **Computer Science and Engineering**

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mr.G.Saravana Gokul,M.E,
Assistant Professor
CSE Department
SIETK


Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D
HOD & Professor
CSE Department
SIETK

Submitted for the main project viva-voce examination held on 17/7/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuram)
Siddharth Nagar, Narayanavanam Road, Puttur-517583.

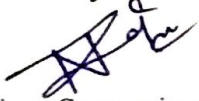



BONAFIDE CERTIFICATE

Certified that this project report titled "**Optimized Hybrid Keyword-Field Search Technique for Manufacturing Industrial Internet of Things**" is a bonafide work of

17F61A05G1	-	K.VIHARIKA
17F61A05E4	-	V.SUNANDHA
17F61A05F0	-	M.UDAYBASKHAR
17F61A05B3	-	S.SAIKUMAR

in IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor
Mr.P.NAGARAJU, M.Tech.
Associate Professor
CSE,SIETK.


Head of the Department
Dr.B.Geethavani, M.Tech., Ph.D.
HOD & Professor
CSE,SIETK.

Submitted for the main project viva-voce examination held on 17-07-2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTUA, Anantapur)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "A PREDICTION SYSTEM FOR E-COMMERCE PRODUCTS QUANTITY BASED ON DESCRIPTION" is a bonafide work of

17F61A05E6 - G SUPRAJA
17F61A05F5 - K VEDAVATHI
17F61A05E7 - T.SURYA
17F61A05G2 - K VINAY KUMAR REDDY

in IV B Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree.

Project Supervisor

Mr. A. Suresh, M.Tech (Ph.D.)

Associate Professor

CSE, SIETK.

Head of the Department

Dr. B. Geethavani, M.Tech. (Ph.D.)

HOD & Professor

CSE, SIETK.

Submitted for the main project viva-voce examination held on 17-07-2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTU, Anantapuram) (Accredited by NBA for Civil, EEE, ECE, MECH & CSE) (Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam road, PUTTUR-517583, A.P

Department of Computer Science & Engineering



BONAFIDE CERTIFICATE

This is to Certify that the project entitled "*AN ANDROID APPLICATION FOR HOUSEHOLD SERVICES*" Is being submitted by

17F61A05G7	- R.YOGESH
17F61A05B9	- P.SAMANA
17F61A05E2	- P.V.SUMANTH
17F61A05G3	- K.VINAY

In partial fulfillment of the requirements for the award of *BACHELOR OF TECHNOLOGY* in the Department of *COMPUTER SCIENCE & ENGINEERING*. The results embodied in this project report have not been submitted to any other University for award of any degree.


Internal Guide

Mr. A. SATHISH, M.E

Associate Professor,

Department of CSE,

SIETK.


Head of the Department

Dr. B. Geethavani, M.Tech, Ph.D

HOD and Professor,

Department Of CSE,

SIETK.

project viva-voicexaminationheldon 18-07-2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled "**The MEDHUNT Mobile Application**" is a bonafide work of


17F61A05D9 - D.SUHASINI
17F61A05D1 - K.SOWMYA
17F61A05E8 - R.SWETHA
17F61A05D2 - E.SREEKUMAR

in IV B.Tech II semester of **Computer Science and Engineering**.

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mrs. G. Bhuvaneshwari, M.Tech
Assistant Professor
CSE, SIETK


Head of the Department
Dr. B. Geethavani, M.Tech., Ph.D
HOD & Professor
CSE, SIETK

Submitted for the main project viva-voce examination held on 17-7-2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)

Siddharth Nagar, Narayanavanam Road, Puttur-517583

Department of Computer Science and Engineering



BONAFIDE CERTIFICATE

Certified that this project report titled " **EARLY DETECTION OF BRAIN HEMORRHAGE USING WATERSHED ALGORITHM** "is a bonafide work of

17E61A0500 - I.Siva Samhitha

17E61A0511 - V.Varsha

17E61A0519 - O.Venkatesh

17E61A0505 - K.Vishnu Vardhan

in IV B.Tech II semester of **Computer Science and Engineering**

The results embodied in this project report have not been submitted to any other University for award of any degree



Mr. R.G. Kumar, M.Tech
Associate Professor
Computer Science and Engineering
SIETK



Dr. B. Geethavani, M.Tech, Ph.D.
HOD & Professor
Computer Science and Engineering
SIETK

Submitted for the main project viva-voce examination held on 17-3-2021

Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

This is to certify that the project entitled "*Characterizing the Propagation of Situational Information in Social Media*" is being submitted by

17F61A05B4	---	O SAI LIKHITH REDDY
18F65A0501	---	C REDDY TANUJA
17F61A05D8	---	G SUDHEESH
17F61A05F4	---	R VASANTH KUMAR

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in the Department of COMPUTER SCIENCE & ENGINEERING. The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Mr. N Siva, M.Tech.,
Assistant Professor,
Computer Science and Engineering,
SIETK.


Head of the Department

Dr. B. Geethavani, M.Tech., Ph.D.,
HOD & Professor,
Computer Science and Engineering,
SIETK.

Submitted for the main project viva-voce examination held on 17/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)

Siddharth Nagar, Narayanavanam Road, Puttur-517583



BONAFIDE CERTIFICATE

Certified that this project report titled “EFFICIENT CARDIO DISEASE IDENTIFICATION TECHNIQUE USING MACHINE LEARNING CLASSIFICATION” is a bonafide work of

17F61A05E2----E.VANITHA
17F61A05C7---A.SIVAJI
17F61A05G8---C.YUVA KISHORE
17F61A05D6---P.SRINIVASULU

in IV B Tech II semester of **Computer Science and Engineering**

The results embodied in this project report have not been submitted to any other University for award of any degree.


Project Supervisor

Ms N MONIKA, M.T
ASSISTANT PROFESSOR
CSE,SIETK


Head of the Department

Dr B Geethavani, M.Tech, Ph.D
HOD & Professor
CSE,SIETK

Submitted for the main project viva-voce examination held on 17/7/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, PUTTUR-517583, A.P
Department of Computer Science & Engineering

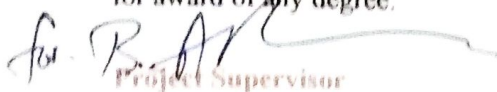


BONA FIDE CERTIFICATE

Certified that this project report titled "*IDENTIFYING AND DEPICTING UNAUTHORISED REVIEWER GROUPS IN ONLINE PRODUCT REVIEWS*" is a bonafide work of

17F61A05D7	-	N. SRIVIDHYA LAKSHMI
17F61A05E0	-	K. SUJATHA
17F61A05D4	-	O. SREENIVASULU
17F61A05G0	-	J. VENKATESWARULU

in IV B.Tech II semester of COMPUTER SCIENCE AND ENGINEERING. The results embodied in this project report have not been submitted to any other University for award of any degree.



Project Supervisor

Mrs. S. Manasa, M.Tech.,

Asst Professor,

Department Of CSE,

SIETK.



Head of the Department

Dr. B. Geethavani, M.Tech., Ph.D.

HOD and Professor,

Department Of CSE,

SIETK.

Submitted for the main project viva-voice examination held on 17.7.2021


Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTU, Anantapuram)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam road, PUTTUR-517583, A.P

Department of Computer Science & Engineering



BONAFIDE CERTIFICATE

This is to certify that the project entitled "ONLINE VOTING SYSTEM WITH AADHAR AND FACE AUTHENTICATION" is being submitted by

17F61A05E5	-	K .SUNIL KUMAR
17F61A05C1	-	K. SANDHYA
17F61A05B8	-	K. SAI SUBHANK
17F61A05F8	-	N. VENKATESH

In IV B.Tech II semester of **Computer Science and Engineering**. The results embodied in this project report have not been submitted to any other

University for award of any degree.

B.A.M.
Internal Guide

Mr.B.Ashok, M.Tech
Assistant Professor,
Department Of CSE,
SIETK.

[Signature]
Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D.
HOD and Professor,
Department Of CSE,
SIETK.

project viva-voice examination held on

17/1/2021

[Signature]
Internal Examiner

External Examiner

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "ANIMAL DETECTION AND ALERT SYSTEM USING COMPUTER VISION TECHNIQUE" is being Submitted by

P. SRINIVASA PAVAN KARTHIK

17F61A05D5

G.VENKATESH

17F61A05F7

J. VENKATARAMANA

17F61A05F6

M. SAI RAJESH

17F61A05B7

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in CSE to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

Internal Guide

Dr. P. Santhosh Kumar, M.E., Ph.D,

Assistant Professor,

Department of CSE,

SIETK, Puttur.

Head of the department

Dr. B. Geethavani, M.Tech, Ph.D,

Professor & HOD,

Department of CSE,

SIETK, Puttur.

Submitted for the main project viva-voce examination held on 17/7/2021

INTERNAL EXAMINER

EXTERNAL EXAMINER

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Autonomous)

(Approved by AICTE & Affiliated to JNTU, Anantapur)
Siddharth Nagar, Narayanavanam Road, Puttur-517583

Department of Computer Science & Engineering



BONAFIDE CERTIFICATE

This is to certify that the project entitled "*Enhancing Efficiency And Security Of Searching Over Encrypted Data On Cloud*" is a bonafide work of

- | | | |
|------------|---|-------------|
| 17F61A05C3 | - | SHAIK IMRAN |
| 17F61A05C2 | - | SHABARISHK |
| 17F61A05E3 | - | SUMANTHS |
| 16F61A0570 | - | MANOJ .C |

in IV B.Tech II semester of COMPUTER SCIENCE & ENGINEERING. The results embodied in this project report have not been submitted to any other University for award of any degree.

[Signature]
Project Supervisor

Mrs.P.Jayanthi, M.Tech.,

Assistant Professor,

Department Of CSE,

SIETK.

[Signature]
Head of the Department

Dr.B.Geethavani, M.Tech., Ph.D.,

HOD and Professor,

Department Of CSE,

SIETK.

Submitted for the main project viva-voce examination held on 18-07-2021

Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NAAC with 'A' Grade & Accredited by NBA, New Delhi)

(An ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, AP.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE

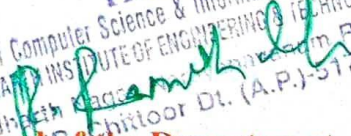
This is to certify that this Project entitled “DIGITAL IMAGE CLASSIFICATION AND ANALYSIS FOR CLINICAL DATA USING CNN”

that is being submitted by

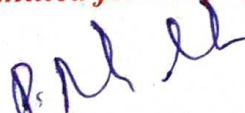
PULIGUNDLA POOJITHA	17F61A0631
BOOSAM JAYA SREE	17F61A0617
P.R. BHANUPRIYA	17F61A0604
DOMMARAJU SUMANTH	17F61A0648
VADLAMUDI SOHITH	17F61A0659

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide

HEAD
Dept. of Computer Science & Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Siddharth Nagar, Narayanavanam Road,
Puttur, Chittoor Dt. (A.P.)-517583

Head of the Department

Submitted for the project viva-voce examination held on 18/07/2021


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NAAC with 'A' Grade & Accredited by NBA, New Delhi)

(An ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE

This is to certify that the Project entitled "ADVANCED PREDICTION OF STUDENTS PERFORMANCE IN INSTITUTES USING MACHINE LEARNING" that is being submitted by


KADIRI HIMABINDU	17F61A0614
PULA RUTHIK	17F61A0638
KAMASANI VAMSI KRISHNA	17F61A0652
R.YUGANDHAR	17F61A0658
KANCHARLA POOJASREE	17F61A0629

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Head of the Department

Submitted for the project viva-voce examination held on 18/7/21


Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE


This is to certify that the Project entitled "**FORECASTING THE RESULTS OF A POLYGENIC DISEASE USING ML**" that is being submitted by

D.MADHUMITHA	-	17F61A0619
K.RUCHITHA	-	17F61A0637
G.VIJITHA	-	17F61A0653
B.ANIL KUMAR	-	17F61A0601
M.VISHNU VRADHAN RAJU	-	17F61A0656

is in partial fulfillment of the requirements for the award of **BACHELOR OF TECHNOLOGY** in **Computer Science and Information Technology** to **JNTUA, ANANTHAPURAMU**. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


Internal Examiner


HEAD
Head of the Department
Department of Computer Science and Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Chittoor Dt. (A.P.)-517583.

External Examiner

18/07/2021

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu) (Accredited
by with NAAC with 'A' Grade and Accredited by NBA, New Delhi)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, AP.



CERTIFICATE

*This is to certify that the project entitled "CLASSIFICATION ON PLANT DISEASE
DETECTION BY USING DEEP LEARNING" that is being submitted by*

D. NEELIMA	17F61A0626
P. SAI CHANDRA	17F61A0640
Y. DHARANI	17F61A0608
P. VISHNU	17F61A0655
M. SAI TEJA	17F61A0642

**In IV B.Tech II SEMESTER OF COMPUTER SCIENCE AND INFORMATION
TECHNOLOGY**

The results embodied in this project report have not been submitted to any other University for award of any degree

INTERNAL GUIDE

HEAD

Dept. of Computer Science & Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Chittoor Dt. (A.P.)-517583.

Project viva-voce examination held on 18/07/2021

INTERNAL EXAMINER

EXTERNAL EXAMINER

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NAAC with 'A' Grade & Accredited by NBA, New Delhi)

(An ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE

This is to certify that the Project entitled "DEVELOPING A WEB APPLICATION FOR DEPARTMENT USING JAVASCRIPT" that is being submitted by

K. BHUVANESHWARI	17F61A0606
P. ANUSHA	17F61A0602
N. CHARAN	17F61A0607
C. HARSHA	17F61A0612
Y. VINOD KUMAR	17F61A0654

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

Neelam
Internal Guide

Head
Dept. of Computer Science & Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Head of the Department
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Chittoor Dt. (A.P.)-517583.

Submitted for the project viva-voce examination held on 18/07/2021

Internal Examiner
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NAAC with 'A' Grade & Accredited by NBA, New Delhi)

(An ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE

This is to certify that the Project entitled "AN ENHANCED INTELLIGENT TRAFFIC PREDICTION SYSTEM USING MACHINE LEARNING" that is being submitted by

K.SUSMITHA	17F61A0649
E.RACHANA	17F61A0634
P.SONIKA	17F61A0647
K.RAJESH	17F61A0635
R.KESAVULU REDDY	17F61A0618

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

P. Ramesh
Internal Guide

HEAD
Dept. of Computer Science & Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Chittoor Dt. (A.P.)-517583.
P. Ramesh
Head of the Department

Submitted for the project viva-voce examination held on 18/07/2021

[Signature]
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NAAC with 'A' Grade & Accredited by NBA, New Delhi)

(An ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE

This is to certify that the Project entitled "ORGANIZATION FAULTS MAINTENANCE SYSTEM" that is being submitted by

TUMMALA RAKESH	17F61A0636
MEESALA SAMPATH KUMAR	17F61A0643
KARANAM MONISHA	17F61A0623
G.ESWAR	17F61A0609
PANDETI UPENDRA VARMA	17F61A0651

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

T. Sundar
Internal Guide

P. Ramesh
HEAD
Head of the Department
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Chittoor Dt. (A.P.)-517583

Submitted for the project viva-voce examination held on

P. M. W.
Internal Examiner

18/7/21
External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NAAC with 'A' Grade & Accredited by NBA, New Delhi)
(An ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

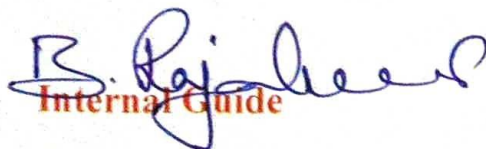


CERTIFICATE

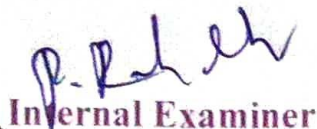
This is to certify that the Project entitled "IDENTIFICATION OF FRUIT DISEASE DETECTION USING DEEP LEARNING" that is being submitted by


JONNAGADLA GUNASEKHAR	17F61A0610
A. A. SATHYA	17F61A0644
BANDI NANDINI	17F61A0624
T. MIDHUN KUMAR	17F61A0621

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide

Submitted for the project viva-voce examination held on 18/07/2021


Internal Examiner

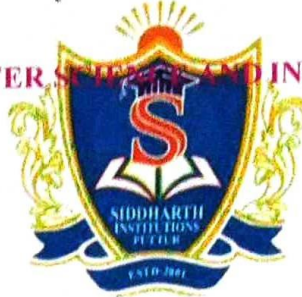

Head of the Department
Dept. of Computer Science & Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Chittoor Dt. (A.P.)-517583

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NAAC with 'A' Grade & Accredited by NBA, New Delhi)
(An ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



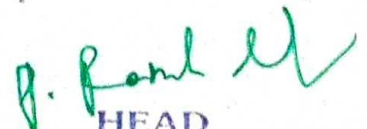
CERTIFICATE

This is to certify that the Project entitled " AI BASED PREDICTION OF CROP HARVESTING BY USING ESSENTIAL FERTILIZERS " that is being submitted by


SHAJAHAN SHEIK	17F61A0645
PAVITHRA E	17F61A0628
SONIA R	17F61A0646
NITEESH VARMA	17F61A0627
BHANU KISHOR PC	17F61A0603

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide


HEAD
Dept. of Computer Science & Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Head of the Department
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Chittoor Dt. (A.P.)-517583.

Submitted for the project viva-voce examination held on 18/07/2021


Internal Examiner

External Examiner

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(Accredited by NAAC with 'A' Grade & Accredited by NBA, New Delhi)
(An ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE

This is to certify that the Project entitled "INFORMATION MINING & ANALYSIS OF FACULTY AND STUDENT FIELD NETWORK BEHAVIOUR" that is being submitted by

RAGHAVARAJU YAMINISREE	17F61A0657
JAYASREE DANA	17F61A0616
D.POOJITHA	17F61A0630
KOTI MONISH	17F61A0622
ARCOT SAI MAHESH REDDY	17F61A0642

is in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.

G. Venkatesh
Internal Guide

P. R. H. H.
Head of the Department

Submitted for the project viva-voce examination held on 18/07/2021

P. R. H. H.
Internal Examiner

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH and CSE, New Delhi)

(Accredited by NAAC with 'A' Grade, an ISO 9001:2008 Certified Institution)

Siddharth Nagar, Narayanavanam road, Puttur-517583, A.P

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE

This is to certify that the Project entitled "MACHINE LEARNING BASED FACE IDENTIFICATION FOR ATTENDANCE"

that is being submitted by

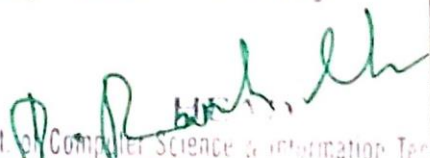
ACHUKATLA S BHASKAR - 17F61A0605
PUNNAMARAJU PRAVALIKA - 17F61A0632
ALAM JAYA KRISHNA - 17F61A0615
A S PRIYADHARSHINI - 17F61A0633

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND INFORMATION TECHNOLOGY to JNTUA, ANANTHAPURAMU. The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree.


Internal Guide

Submitted for the project viva-voce examination held on


Internal Examiner


Dept. of Computer Science & Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Puttur Dt. (A.P.)-517583

External Examiner

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapur)

(An ISO 9001:2000 CERTIFIED INSTITUTION)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, AP.

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY



CERTIFICATE

This is to certify that this project report titled "**SECURITY ANALYSIS IN HEALTH CARE SECTOR AND ARRANGEMENT OF CLOUD BASED SERVICES**" is a bonafide work of

17F61A0639 - M SAI HARSHITHA
17F61A0625 - P NAVEEN VARMA
17F61A0613 - N HARSHA

in **IV B.Tech II SEMESTER** of **COMPUTER SCIENCE AND INFORMATION TECHNOLOGY**. The results embodied in this project report have not been submitted to any other University for award of any degree.

G. Venkatesh
Internal Guide

P. Harshitha
HEAD
Head of the Department
Dept. of Computer Science & Information Technology
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
Siddharth Nagar, Narayanavanam Road,
PUTTUR, Chittoor Dt. (A.P.)-517583.
Submitted

for the main project viva-voce examination held on 18/07/2021

P. N. S.
Internal Examiner

External Examiner

DEPARTMENT OF AGRICULTURAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "STUDY ON CULTIVATION AND QUALITY EVALUATION OF MILKY MUSHROOM" is being submitted by

N.MANOJ	- 17F61A0708
C.H.MUNI KUMAR	- 17F61A0710
J.SUDHARANI	- 17F61A0722
K.YASHODA	- 17F61A0723

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in AGRICULTURAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

[Signature]
Head of the Department

Dr. Bogala Madhu M.Tech, Ph.D.

Assistant Professor & Head

Department of Agricultural Engineering

[Signature]
Guide

Dr. Bogala Madhu M.Tech, Ph.D.

Assistant Professor & Head

Department of Agricultural Engineering

Project viva-voce examination held on 17.07.2021

[Signature]
INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF AGRICULTURAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for CIVIL, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "DEVELOPMENT OF SOLAR POWER OPERATED WEEDER" is being submitted by

N. HARSHA VARDHAN - 17F61A0704

D.KUSHULU KUMAR - 17F61A0707

C.RAGHUVIERA - 17F61A0713

T.SAI KUMAR - 17F61A0715

B. YUGANDHAR REDDY - 17F61A0724

In partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in AGRICULTURAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.


Head of the Department

Dr. Bogala Madhu, M.Tech, Ph.D.

Assistant Professor & Head

Department of Agricultural Engineering


Guide

Dr. Shashikumar, M.Tech., Ph.D.

Assistant Professor of Agricultural

Engineering

Project viva voce examination held on 17-07-21


INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF AGRICULTURAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for CIVIL, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "DEVELOPMENT OF SOLAR POWER OPERATED BOOM SPRAYER" is being submitted by

A. HEMADRI	- 17F61A0705
B. KALYAN	- 17F61A0706
T. PRATHYUSHA	- 17F61A0712
P. SAINADHA REDDY	- 17F61A0717
M. SAI PRAKASH	- 17F61A0719

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in AGRICULTURAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS).

This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

Madhu
Head of the Department

Dr. Bogala Madhu, M.Tech, Ph.D
Assistant Professor & Head
Department of Agricultural Engineering

Guide

Shashi Kumar
Dr. Shashi Kumar, M.Tech., Ph.D.
Assistant Professor of Agricultural
Engineering

Project viva-voce examination held on 17-07-2021

Madhu
INTERNAL EXAMINER

EXTERNAL EXAMINER

DEPARTMENT OF AGRICULTURAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for AGE, Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

This is to certify that the Project entitled "EVALUATION OF PACKAGING MATERIALS AND METHOD OVER STORAGE OF SLICED ONION" is being submitted by

K. AJAY KUMAR	- 17F61A0701
B.K. BHARATH	- 17F61A0702
B. MOHITH KUMAR	- 17F61A0709
M. PAVANI	- 17F61A0711
R. SIREESHA	- 17F61A0720

in partial fulfillment of the requirements for the award of BACHELOR OF TECHNOLOGY in AGRICULTURAL ENGINEERING to SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR (AUTONOMOUS). This project work or part thereof has not been submitted to any other University or Institute for the award of any degree.

Head of the Department

Dr. Bogala madhu, M.Tech, (Ph.D.)

Associate Professor & Head

Department of Agricultural Engineering

Project viva-voce examination held on 17/07/2021

INTERNAL EXAMINER

Guide

G. Sindhuri, M.Tech., Ph.D.

Professor of Agricultural Engineering

EXTERNAL EXAMINER

DEPARTMENT OF AGRICULTURAL ENGINEERING



SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, ECE, MECH & CSE)

(Accredited by NAAC with 'A' Grade)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P

CERTIFICATE

*This is to certify that the Project entitled "FOREST FIRE MAPPING OF
SIMILIPAL NATIONAL PARK IN ODISHA" is being submitted by*

P. GOWRI	- 17F61A0703
V. SAI LALITHA DEVI	- 17F61A0716
K. SAINATH	- 17F61A0718
A. SREEKANTH	- 17F61A0721

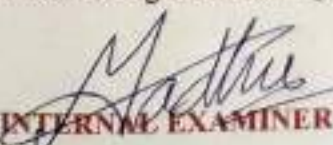
*in partial fulfillment of the requirements for the award of BACHELOR OF
TECHNOLOGY in AGRICULTURAL ENGINEERING to SIDDHARTH
INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR*

*(AUTONOMOUS). This project work or part thereof has not been submitted to any
other University or Institute for the award of any degree.*

Head of the Department


DR. BOGALA MADHU,

Assistant Professor & Head
Department of Agricultural Engineering


INTERNAL EXAMINER

Guide


Er. SOUMYA KULAKARNI & Er. MEGHA


Assistant Professor
Department of Agricultural Engineering

EXTERNAL EXAMINER

DEPARTMENT OF MANAGEMENT STUDIES

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR

(Approved by AICTE, New Delhi & Affiliated to JNTUA Anantapur)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)

Siddharth Nagar, Narayanavanam Road, PUTTUR- 517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled "A STUDY ON INVENTORY MANAGEMENT IN TIRUPATI COTTON MILLS, AT RENIGUNTA" is a bonafied work done by MR. MOHAMMED AARIF.R (Reg.No.19F61E0037) as a part of MBA IV Semester curricular activity of Siddharth Institute of Engineering & Technology, Puttur (Autonomous) Under the supervision of Mrs.N.RADHA MBA.,(Ph.D)Associate professor, department of MBA. The data has been collected by the candidate from authentic sources and results will be used for academic purpose only.

Supervisor

Mrs.N.RADHA .MBA.,(ph.D)

Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur -517583

Head of the Department

Dr. M. VANISHA, Ph.D.

Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Submitted for the project viva-voice examination held on 24/07/2021

Internal Examiner

Mohammed Aarif R

External Examiner

DEPARTMENT OF MANAGEMENT STUDIES
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(Autonomous)
(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)
Siddharth Nagar, Narayanavanam Road, PUTTUR-517583, A.P



CERTIFICATE

This is to certify that the project report entitled "A STUDY ON INVESTORS PERCEPTION TOWARDS ONLINE TRADING IN ADITHYA TRADING SOLUTIONS, AT TIRUPATI" is a bonafide work done by Mr.N.KIRAN KUMAR (Reg. No. 19F61E0025) as part of MBA IV semester curricular activity of Siddharth Institute of Engineering & Technology, Puttur (Autonomous) under the supervision of Mrs. N. RADHA, MBA,(Ph.D), Assistant Professor, Department of MBA. The data has been collected by the candidate from authentic sources and the results will be used for academic purpose only.

Supervisor

Mrs. N. RADHA,M.B.A,(Ph.D)
Department of Management Studies
Siddharth Institute of Engg &Tech
Puttur-517583

Head of the Department

Dr. M. VANI, M.B.A, Ph.D
Department of Management Studies
Siddharth Institute of Engg &Tech
Puttur-517583

Submitted for the project Viva-Voice Examination held on 94-07-2021

Internal Examiner

External Examiner

DEPARTMENT OF MANAGEMENT STUDIES
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR

(Approved by AICTE, New Delhi & Affiliated to JNTUA Anantapur)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)

Siddharth Nagar, Narayanavanam Road, PUTTUR- 517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled "A STUDY ON BRAND IMAGE TOWARDS BHARATH AIRTEL LIMITED., AT TIRUPATHI" is a bonafied work done by **MR.K.DINESH** (Reg.No.19F61E0011) as a part of MBA IV Semester curricular activity of Siddharth Institute of Engineering & Technology, Puttur (Autonomous) Under the supervision of Mrs.N.RADHA MBA.,(Ph.D)Associate professor, department of MBA. The data has been collected by the candidate from authentic sources and results will be used for academic purpose only.

Supervisor

Mrs.N.RADHA .MBA.,(ph.D)

Department of Management Studies
Siddharth Institute of Engg & Tech

Puttur -517583

Head of the Department

HEAD

Dr.M. ANANT
MBA, Ph.D, Tech
Siddharth Institute of Engg & Tech

Department of Management Studies
Siddharth Institute of Engg & Tech

Puttur-517583

Submitted for the project viva-voce examination held on 24/07/2021

Internal Examiner

External Examiner

DEPARTMENT OF MANAGEMENT STUDIES
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(Autonomous)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)

Siddharth Nagar, Narayanavanam Road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled "A STUDY ON FINANCIAL PERFORMANCE THROUGH WORKING CAPITAL MANAGEMENT IN SHIVA SHAKTHI DAIRY PVT LTD AT SADOM MANDAL (CHITTOOR)" is a bonafide work done by **Mr. M. CHIRANJEEVI** (Reg. No. 17F61E0015) as part of MBA IV semester curricular activity of **Siddharth Institute of Engineering & Technology, Puttur (Autonomous)** under the supervision of **Dr. M. VANI, MBA., Ph.D., Assistant Professor, Department of MBA.** The data has been collected by the candidate from authentic sources and the results will be used for academic purpose only

Supervisor

Dr. M. Vani
Dr. M. Vani, MBA., Ph.D.,

Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Head of the Department

Dr. P. Subramanyachary
Dr. P. SUBRAMANYACHARY
MA, MBA., Ph.D.,

Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Submitted for the project Viva-Voce Examination held on _____

M. Chiranjeevi
Internal Examiner

P. Subramanyachary
14/05/19
External Examiner

**DEPARTMENT OF MANAGEMENT STUDIES
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(Autonomous)**

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008 Certified Institution)
Siddharth Nagar, Narayanavanam Road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled "A STUDY ON EMPLOYEE WELFARE FACILITIES IN S2CINEMAS, NELLORE" is a confide work done by M.CHAMUNDESWARI (Reg.No.17F61E0013) as part of MBA IVsemester curricular activity of SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR under the supervision of Mr.R.HARIPRASAD, B.Tech, MBA., Assistant Professor Department of MBA. The data has been collected by the candidate from authentic sources and the results will be used for academic purpose only

R. Hariprasad.
Supervisor

Mr.R.HARIPRASAD ,B.Tech,MBA.,
Department of Management Studies
Siddharth Institute of Engg.&Tech.
Puttur-517583

Dr. P. Subramanyachary
Head of the Department

Dr.P.SUBRAMANYACHARY MA, MBA., Phd
Department of Management Studies
Siddharth Institute of Engg.&Tech.
Puttur-517583

Submitted for the project Viva-Voce Examination held on _____

[Signature]
Internal Examiner

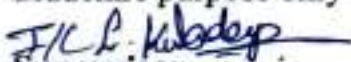
[Signature]
14/05/19
External Examiner

DEPARTMENT OF MANAGEMENT STUDIES
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(Autonomous)
(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)
Siddharth Nagar, Narayanavanam Road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled "A STUDY ON CAPITAL BUDGETING IN AMARA RAJA BAATTERIES LTD TIRUPATHI, "is a bonafide work done by Mr./Mrs.V BHASKAR (Reg. No. 17F61E0012)as part of MBA IV semester curricular activity of Siddharth Institute of Engineering & Technology, Puttur (Autonomous) under the supervision of Mrs. S.RAMESWARI,MBA. Assistant Professor, Department of MBA.The data has been collected by the candidate from authentic sources and the results will be used for academic purpose only


Supervisor

Mrs. S.RAMESWARI,MBA.

Department of Management Studies
Siddharth Institute of Engg&Tech
Puttur-517583


Head of the Department

Mr.DR.SUBRANYAMACHARY

M.A, MBA, P.hd

Department of Management Studies
Siddharth Institute of Engg&Tech
Puttur-517583

Submitted for the project Viva-Voce Examination held on 14-05-2019


Internal Examiner


External Examiner
14/05/19

DEPARTMENT OF MANAGEMENT STUDIES
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR
(Autonomous)
(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)
Siddharth Nagar, Narayanavanam Road, PUTTUR-517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled "A STUDY ON EMPLOYEE PERFORMANCE APPRAISAL OF BHARATHI CEMENTS pvt ltd, KADAPA." is a bonafide work done by Ms. K. BHARGAVI (Reg. No. 16F61E0011) as part of MBA IV semester curricular activity of Siddharth Institute of Engineering & Technology, Puttur (Autonomous) under the supervision of Mr. SAI CHANDU. K., MBA., IRDA., SAP., (Ph.D). Assistant Professor, Department of MBA. The data has been collected by the candidate from authentic sources and the results will be used for academic purpose only

Sai Chandu
Supervisor

Mr. SAI CHANDU. K
MBA., IRDA., SAP., (Ph.d)
Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Dr. Subramanyamachari
Head of the Department

Dr. SUBRAMANYAMACHARI,
MA., MBA., Ph.d
Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Submitted for the project Viva-Voce Examination held on _____

Internal Examiner

[Signature]

External Examiner

[Signature]
14/05/19

DEPARTMENT OF MANAGEMENT STUDIES

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR

(Approved by AICTE, New Delhi & Affiliated to JNTUA Anantapur)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)

Siddharth Nagar, Narayanavanam Road, PUTTUR- 517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled "A STUDY ON BRAND IMAGE TOWARDS BHARATH AIRTEL LIMITED., AT TIRUPATHI" is a bonafied work done by MR.K.DINESH (Reg.No.19F61E0011) as a part of MBA IV Semester curricular activity of Siddharth Institute of Engineering & Technology, Puttur (Autonomous) Under the supervision of Mrs.N.RADHA MBA.,(Ph.D)Associate professor, department of MBA. The data has been collected by the candidate from authentic sources and results will be used for academic purpose only.

Supervisor

Mrs.N.RADHA .MBA.,(ph.D)

Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur -517583

Head of the Department

Dr. M. VANI MBA, Ph.D.
Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Submitted for the project viva-voce examination held on 24/07/2021

Internal Examiner

External Examiner

24/07/2021

DEPARTMENT OF MANAGEMENT STUDIES

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY,PUTTUR

(Approved by AICTE, New Delhi & Affiliated to JNTUA Anantapuramu)

(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)

Siddharth Nagar, Narayanavanam Road, PUTTUR- 517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled " A STUDY ON SOLVENCY POSITION OF RATIO ANALYSIS IN DORA PLASTICS PRIVATE LIMITED., TIRUPATI" is a bonafied work done by MS. K.S.SHEREEN SULTHANA (Reg .No.19F61E0061) as a part of MBA IV Semester curricular activity of Siddharth Institute Of Engineering & Technology, Puttur (Autonomous) Under the supervision of Mrs.N.RADHA MBA., (Ph.D) Assistant professor, department of MBA .The data has been collected by the candidate from authentic sources and results will be used for academic purpose only .

Supervisor

Mrs. N.RADHA ,
MBA., (Ph.D)
Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur -517583

Head of the Department

Dr. M.VANITHA
MBA, Ph.D.
Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Submitted for the project viva-voce examination held on 24/7/21

Internal Examiner

External Examiner

DEPARTMENT OF MANAGEMENT STUDIES
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR

(Approved by AICTE, New Delhi & Affiliated to JNTUA Anantapur)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)

Siddharth Nagar, Narayanavanam Road, PUTTUR- 517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled "A STUDY ON INVENTORY MANAGEMENT IN TIRUPATI COTTON MILLS, AT RENIGUNTA" is a bonafied work done by MR. MOHAMMED AARIF.R (Reg.No.19F61E0037) as a part of MBA IV Semester curricular activity of Siddharth Institute of Engineering & Technology, Puttur (Autonomous) Under the supervision of Mrs.N.RADHA MBA.,(Ph.D)Associate professor, department of MBA. The data has been collected by the candidate from authentic sources and results will be used for academic purpose only.

Supervisor

Mrs.N.RADHA .MBA.,(ph.D)

Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur -517583

Head of the Department

Dr. M. VANITHA Ph.D.
HEAD
Department of Management Studies
Siddharth Institute of Engineering & Technology
Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Submitted for the project viva-voice examination held on 24/07/2021

Internal Examiner

Mohammed Aarif.R

External Examiner

DEPARTMENT OF MANAGEMENT STUDIES
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY,PUTTUR


(Approved by AICTE, New Delhi & Affiliated to JNTUA Anantapuramu)
(Accredited by NBA & NAAC 'A' Grade, New Delhi, An ISO 9001:2008
Certified Institution)

Siddharth Nagar, Narayanavanam Road, PUTTUR- 517583, A.P



BONAFIDE CERTIFICATE

This is to certify that the project report entitled " A STUDY ON SOLVENCY POSITION OF RATIO ANALYSIS IN DORA PLASTICS PRIVATE LIMITED., TIRUPATTI" is a bonafied work done by MS. K.S.SHEREEN SULTHANA (Reg.No.19F61E0061) as a part of MBA IV Semester curricular activity of Siddharth Institute Of Engineering & Technology, Puttur (Autonomous) Under the supervision of Mrs.N.RADHA MBA., (Ph.D) Assistant professor, department of MBA .The data has been collected by the candidate from authentic sources and results will be used for academic purpose only .

Supervisor 

Mrs. N.RADHA ,
MBA., (Ph.D)

Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur -517583

Head of the Department 

Department of Management Studies,
Siddharth Institute Of Engg. & Tech
Narayanavanam Road, PUTTUR-517583.

Dr. M.VANI
MBA, Ph.D.

Department of Management Studies
Siddharth Institute of Engg & Tech
Puttur-517583

Submitted for the project viva-voce examination held on 24/7/21

Internal Examiner

External Examiner



A

Project Report

on

**ADSHERLOCK EFFICIENT AND DEPLOYABLE CLICK FRAUD
DETECTION FOR MOBILE APPLICATIONS**

Submitted in partial fulfilment for the award of the degree of

Master of Computer Applications

Submitted by

**BYRISETTI ANJANEYULU
(Reg. No. 18F61F0001)**

Under the esteemed guidance of

Mr. P. KARTHIKEYAN, MCA., M.E.
Associate Professor, Department of MCA.



Department of Master of Computer Applications

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(NAAC Accredited with 'A' Grade, NBA Accredited Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583,

Andhra Pradesh.

2020-2021

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583,**

Andhra Pradesh.

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

*This is to certify that this project report titled **“ADSHERLOCK EFFICIENT AND DEPLOYABLE CLICK FRAUD DETECTION FOR MOBILE APPLICATIONS”** that is being submitted by **BYRISETTI ANJANEYULU (Reg. No. 18F61F0001)** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **BYRISETTI ANJANEYULU** hereby declare that the project report entitled **“ADSHERLOCK EFFICIENT AND DEPLOYABLE CLICK FRAUD DETECTION FOR MOBILE APPLICATIONS”** is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. KARTHIKEYAN**, MCA., M.E. Associate Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

Date:

BYRISETTI ANJANEYULU

Reg. No.: 18F61F0001

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. P. KARTHIKEYAN**, MCA., M.E. Associate Professor, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analyzing and testing throughout the period of projectwork.

I wish to covey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.**, HOD, Department of **MASTER OF COMPUTER APPLICATIONS** for him valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to project coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(BYRISETTI ANJANEYULU)

CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF SCREENS	II
	LIST OF ABBREVIATIONS	III
1	INTRODUCTION	1
2	SYSTEM STUDY	5
3	SYSTEM ANALYSIS	7
	3.1 EXISTING SYSTEM	7
	3.2 DIS ADVANTAGES	7
	3.3 PROPOSED SYSTEM	8
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9
5	SYSTEM ARCHITECTURE	10
6	SOFTWARE ENVIRONMENT	13
7	SYSTEM REQUIREMENTS	30
8	SYSTEM DESIGN	31
9	IMPLEMENTATION	45
10	SYSTEM TESTING	72
11	OUTPUT SCREENS	75
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

ABSTRACT

Mobile advertising plays a vital role in the mobile app ecosystem. A major threat to the sustainability of this ecosystem is click fraud, i.e., ad clicks performed by malicious code or automatic bot problems. Existing click fraud detection approaches focus on analyzing the ad requests at the server side. However, such approaches may suffer from high false negatives since the detection can be easily circumvented, e.g., when the clicks are behind proxies or globally distributed. In this paper, we present AdSherlock, an efficient and deployable click fraud detection approach at the client side (inside the application) for mobile apps. AdSherlock splits the computation-intensive operations of click request identification into an offline procedure and an online procedure. In the offline procedure, AdSherlock generates both exact patterns and probabilistic patterns based on URL (Uniform Resource Locator) tokenization. These patterns are used in the online procedure for click request identification and further used for click fraud detection together with an ad request tree model. We implement a prototype of AdSherlock and evaluate its performance using real apps. The online detector is injected into the app executable archive through binary instrumentation. Results show that AdSherlock achieves higher click fraud detection accuracy compared with state of the art, with negligible runtime overhead.

LIST OF FIGURES

S. No.	Name	Page No.
1	1.1. Structure of Service models	3
2	5.1. System Architecture	10
3	5.2. Block Diagram	32
4	6.1. Compilation & Interpretation	14
5	6.2. Execution for different platforms	14
6	6.3. Java Platform	15
7	6.4. Java IDE	17
8	6.5. TCP Connection	22
9	6.6. The 32-bit address	24
10	6.7. General J2ME Architecture	26
11	8.1. Data Flow Diagram	32
12	8.2. Activity Diagram	34
13	8.3. Activity Diagram for End User	35
14	8.4. Activity Diagram for App Developer	36
15	8.5. Use Case Diagram for Admin	37
16	8.6. Use Case Diagram for End User	38
17	8.7. Use case Diagram for App Developer	39
18	8.8. Sequence Diagram	40
19	8.9. Collaboration Diagram	41
20	8.10. Deployment Diagram	42
2	8.11. Class Diagram	43
22	8.12. E-R Notations	44

LIST OF SCREENS

S. No	SCREEN NAME	PAGENO.
1	Home Page	75
2	App Developer Register	76
3	Registration Status	77
4	Cloud Server Home Page	78
5	Authorize App Developer	79
6	Authorize Users	80
7	Add Filters	81
8	Add Category Status	82
9	All Application Details	83
10	View All Positive Reviews	84
11	View All Negative Reviews	85
12	View All Application Rank	86
13	View All Chart Results	87
14	App Developer Login	88
15	App Developer Home Page	89
16	View Profile	90
17	Add Mobile and OS	91
18	Mobile Added Successfully	92
19	Add Application Details	93
20	View All Applications	94
21	User Registration	95
22	Registration Status	96
23	User Login	97
24	All Users Authorized	98
25	User Home Page	99
26	View Profile	100
27	Search Mobile App	101
28	View Symmetric key	102

LIST OF ABBREVIATIONS

S. No.	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	SMS	Smart Meter System
10	ABSI	Adaptive Binary Splitting Inspection
11	DBMS	Database Management System
12	RMI	Remote Method Invocation
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

1. INTRODUCTION

What is cloud computing?

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services.

How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games. The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

Characteristics and Service Models:

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

- **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.
- **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).
- **Resource pooling:** The provider's computing resources are pooled to

serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

➤ **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the

consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

➤ **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

Service Models:

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layer are completed by an end user layer that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.

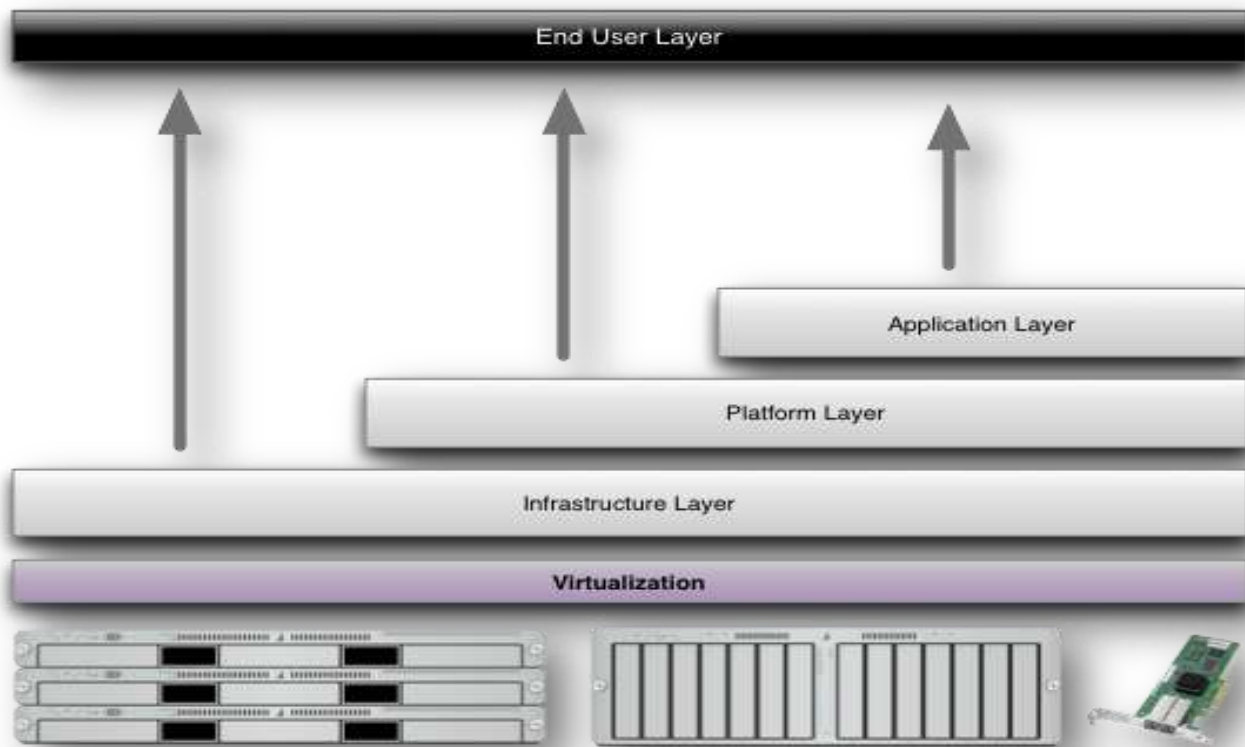


Fig 1.1: Structure of service models

Benefits of cloud computing:

- 1. Achieve economies of scale** – increase volume output or productivity with fewer people. Your cost per unit, project or product plummets.
- 2. Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
- 3. Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
- 4. Streamline processes.** Get more work done in less time with less people.
- 5. Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
- 6. Improve accessibility.** You have access anytime, anywhere,

making your life so much easier!

7. **Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
8. **Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
9. **Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
10. **Improve flexibility.** You can change direction without serious “people” or “financial” issues at stake.

Advantages

- **Price:** Pay for only the resources used.
- **Security:** Cloud instances are isolated in the network from other instances for improved security.
- **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud’s core hardware.
- **Scalability:** Auto-deploy cloud instances when needed.
- **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
- **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
- **Traffic:** Deals with spike in traffic with quick deployment of additional instances to handle the load.

2. SYSTEM STUDY

FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

In the context of Web advertising, researches on click fraud detection mainly focus on bots-driven click frauds. These approaches are usually performed at the server-side, analyzing network traffic and characterizing the features of click fraud behaviors. aggregate ad traffics across client IP address and cookie IDs to observe the client who has deviated ad traffic behaviors. Snottier detects search engine bots by looking for anomalies in query distribution. However, such server-side approaches are not robust against sophisticated bots who can vary their IP addresses and other traffic features. Different from them, AdSherlock is a client-side method exploiting the property of click events on the end device which is hard to bypass. Moreover, these server-side methods need to collect sufficient ad traffics for analysis while AdSherlock does not need. From the client-side, AdSherlock can detect and prevent click fraud promptly.

Others works such focus on detecting duplicate clicks, where a publisher inflates its clicks by clicking on the same ad many times. These server-side methods can be viewed as a supplementary on AdSherlock in that they can detect click fraud performed by real humans.

Recent years, several works are fighting on ad frauds in mobile advertising. Mad Fraud studies the in-app fraud by executing apps in Android emulators to observe deviated behavior to detect ad frauds. DECAF analyzes the UI of apps to discover display fraud such as small ads, hidden ads, intrusive ads, etc. However, both of them are investigated in a controlled environment and are hard to detect bots-driven click frauds. Different from them, AdSherlock is deployable in a production environment and performs click fraud detection in an online manner.

Another recent work aims at bots-driven click frauds is It develops an automated click generation tool Click Droid to simulate attacker and detects frauds by distinguishing human-generated touch events from program-generated touch events. It needs the Android kernel to be modified to filter out program-generated touch events. AdSherlock does not assume any modification on the Android kernel and is a more general approach that proactively targets both in-app click frauds and bots-driven click frauds.

3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, the system does not provide more efficient and effective in finding click fraud detection.
- This system is less performance due to lack of handling multiple types of requests by the end users

3.3 PROPOSED SYSTEM

The proposed system implemented AdSherlock and evaluate its performance using real apps. Results show that AdSherlock achieves higher click fraud detection accuracy compared with state of the art, with negligible runtime overhead. The contributions of this paper are summarized as follows:

System presents the design and implementation of AdSherlock, the first system which can achieve efficient and deployable click fraud detection at the client side.

The system proposes a pattern generation mechanism that generates patterns for ad requests and non-ad requests with high accuracy. We also propose an efficient method for online click fraud detection based on an ad request tree model.

The system implements AdSherlock and compare its performance with the state-of-art approach. Results show that Ad- Sherlock achieves higher detection accuracy with lower overhead

3.4 ADVANTAGES OF PROPOSED SYSTEM

- AdSherlock relies on an accurate offline pattern extractor and a lightweight online fraud detector.
- To The system is more effective due to presence of the online fraud detector as well as the generated patterns are instrumented into the app and run with the app in actual user scenarios.

4. SOFTWARE MODULES

MODULES

- Admin
- App Developer
- End user

MODULES DESCRIPTION

Admin

In this module, the admin has to login by using valid user name and password. After login successful he can do some operations, such as View App Developers and Authorize, View Users and Authorize, Add Review Filters, View All Uploaded Apps With Rank And Ratings Details , View All Apps with Review, Co Review and Recommend Details, View Symmetric Key Requests, View Click Frauds, All Application Positive Behavior, All Application Negative Behavior, View All Application Hits In Chart, View All Application Download in Chart, View all uploaded apps with rank and rating details

Apps Developer

In this module, the App Developer should register before doing some operations. After registration successful he has to login by using authorized user name and password. If the admin want add the new app, he will enter application name, app description, mobile type, users, file name, application images and click on register.

End User

In this module, User should register before doing some operations. After registration successful he has to login by using authorized user name and password. Login successful he will do some operations like My Profile, search mobile apps, Request for Symmetric Key, search topK Apps, User Recommended Applications.

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

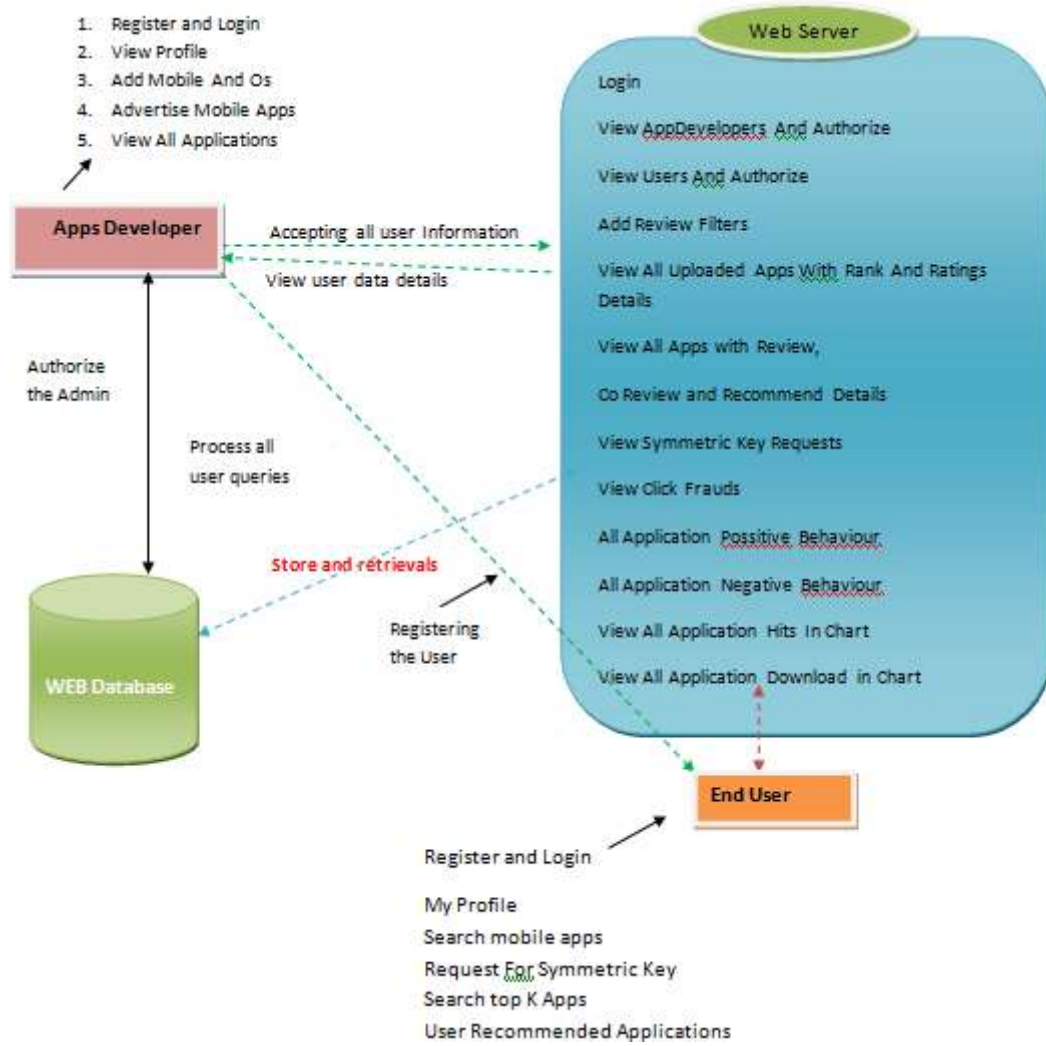


Fig 5.1 SYSTEM ARCHITECTURE

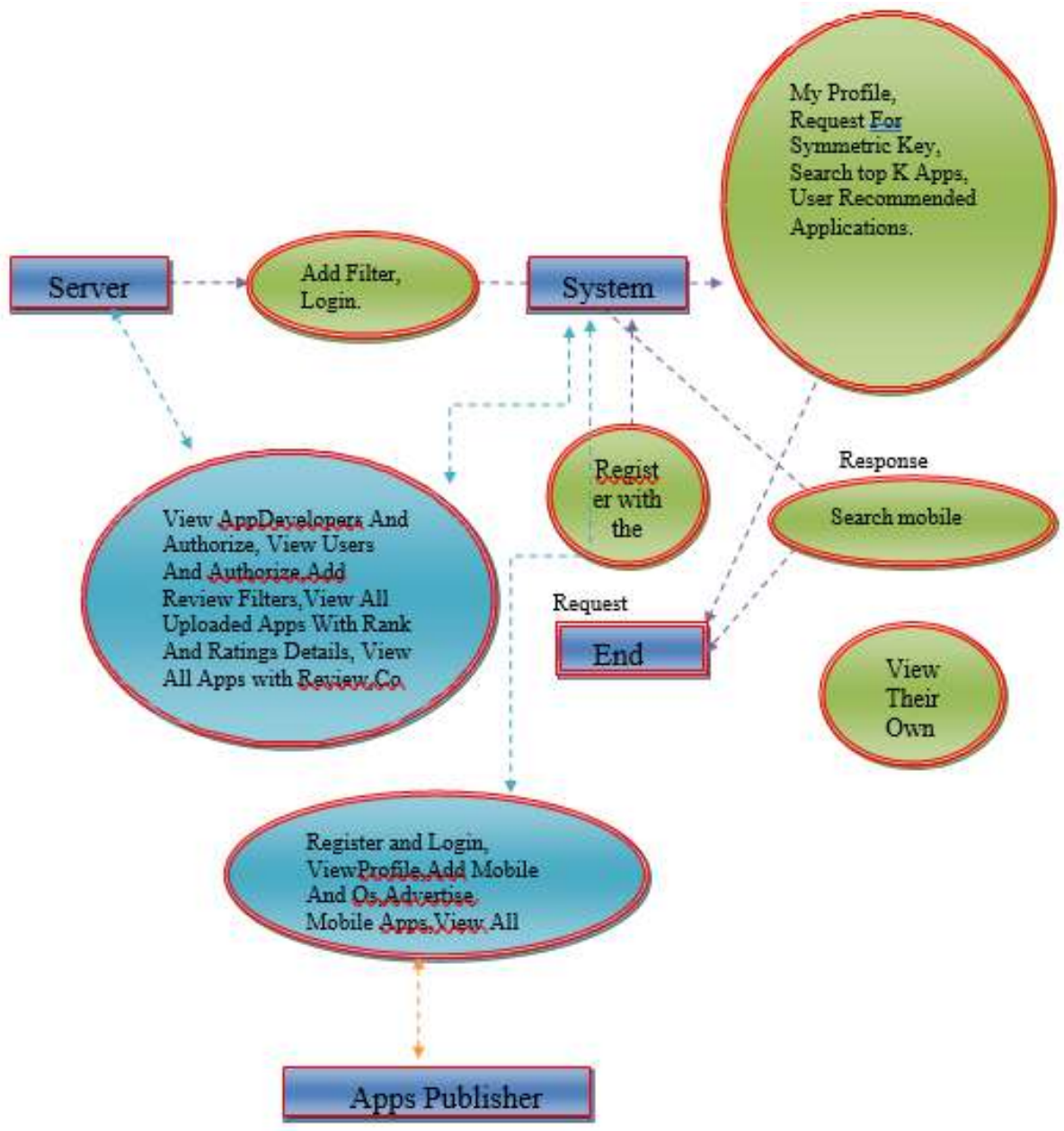


Fig 5.2 DATAFLOW DIAGRAM

6. SOFTWARE ENVIRONMENT

Java Technology

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

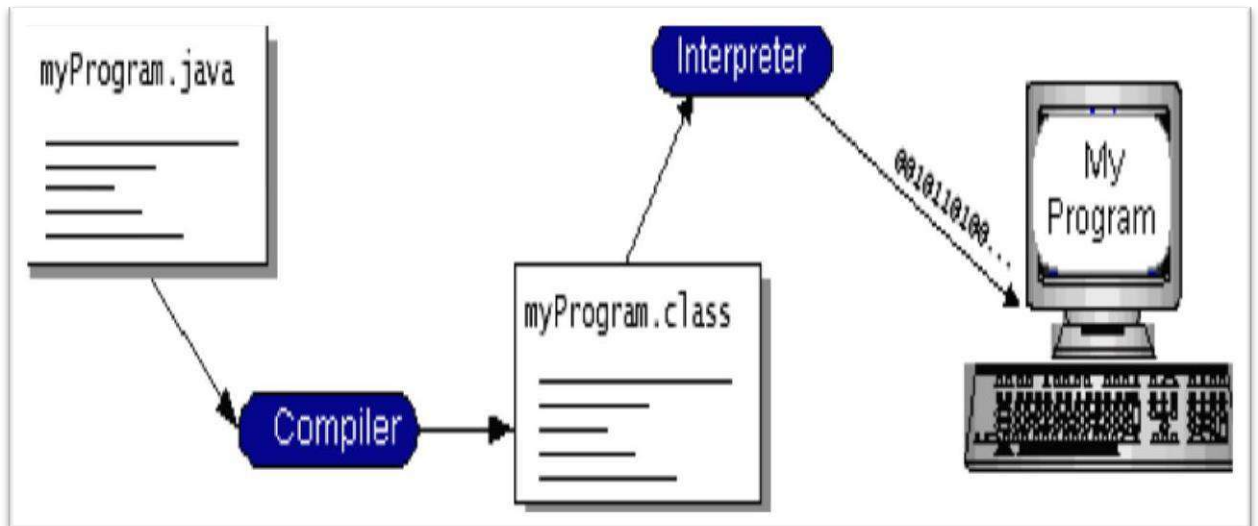


Fig 6.1: Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac. Windows 2000, a Solaris workstation, or on an iMac.

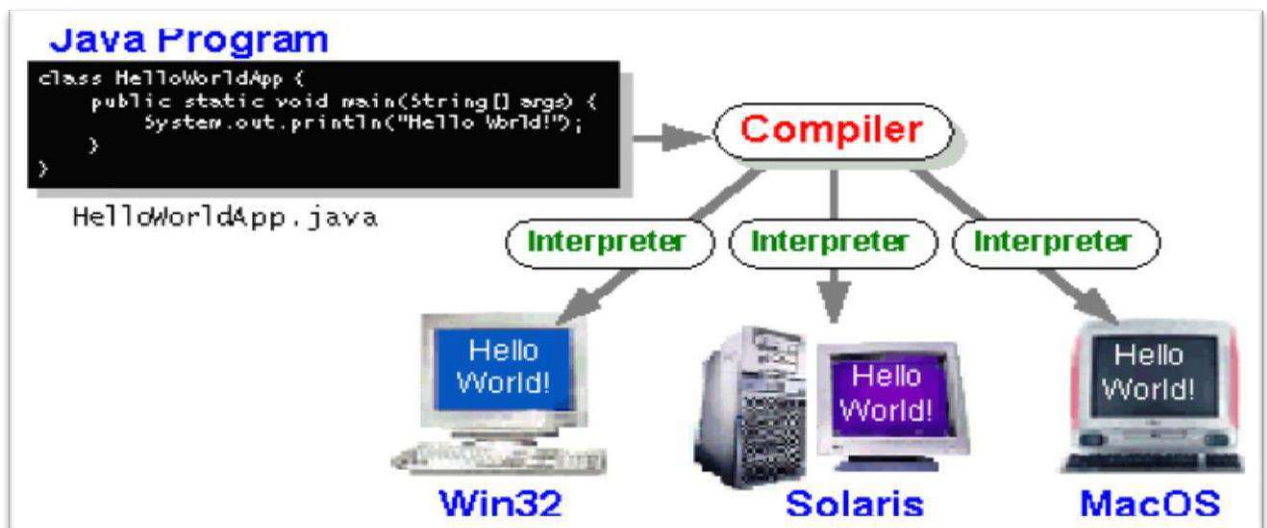


Fig 6.2: Execution for different platforms

The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

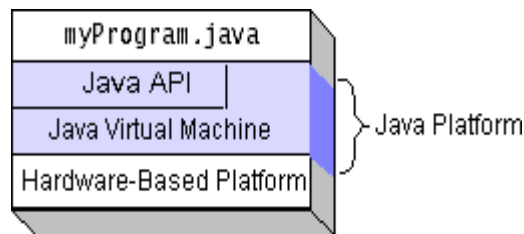


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance close to that of native code without threatening portability.

What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.
- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
- **Software components:** Known as JavaBeans, can plug into

existing component architectures.

- **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

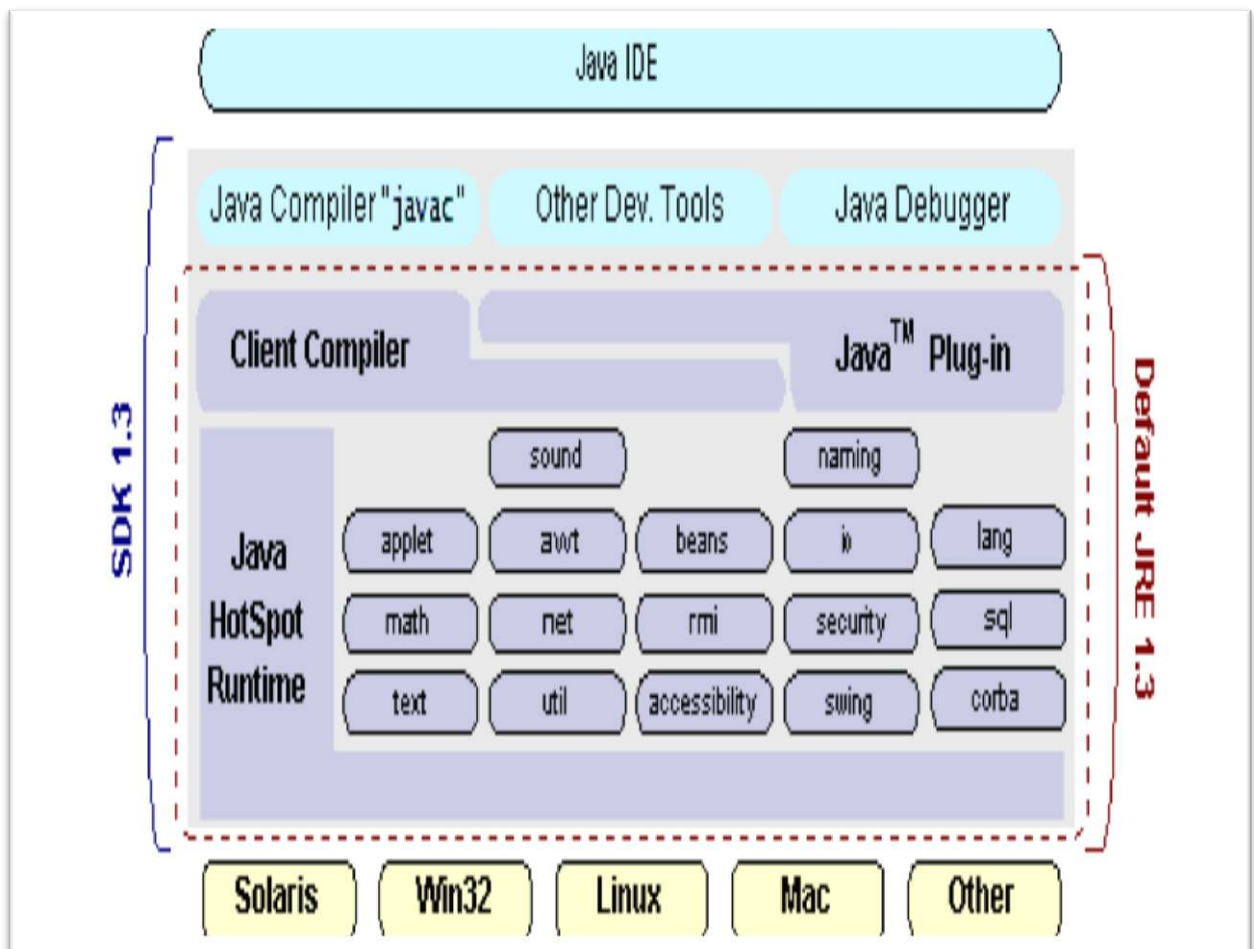


Fig 6.4: Java IDE

How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts,

method counts, and so on) suggest that a program written in the Java programming language can be many times smaller than the same program in C++.

- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a

classes to be loaded “on the fly,” without recompiling the entire program.

ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a de facto standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data

source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQLServer Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program.

In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner.

JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of “plug-in” database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC’s framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

JDBC GOALS

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

SQL LEVEL API

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.

SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

JDBC must be implemental on top of common database interfaces

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

Provide a Java interface that is consistent with the rest of the Java system

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

Keep it simple

This goal probably appears in all software design goal listings. JDBC is no exception. Sun felt that the design of JDBC should be very simple, allowing for only one method of completing a task per mechanism. Allowing duplicate functionality only serves to confuse the users of the API.

Use strong, static typing wherever possible

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

Keep the common cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally, we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compiler you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run

on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on any platform that has a Java compiler.

Networking

➤ TCP/IP stack

The TCP/IP stack is shorter than the OSI one:

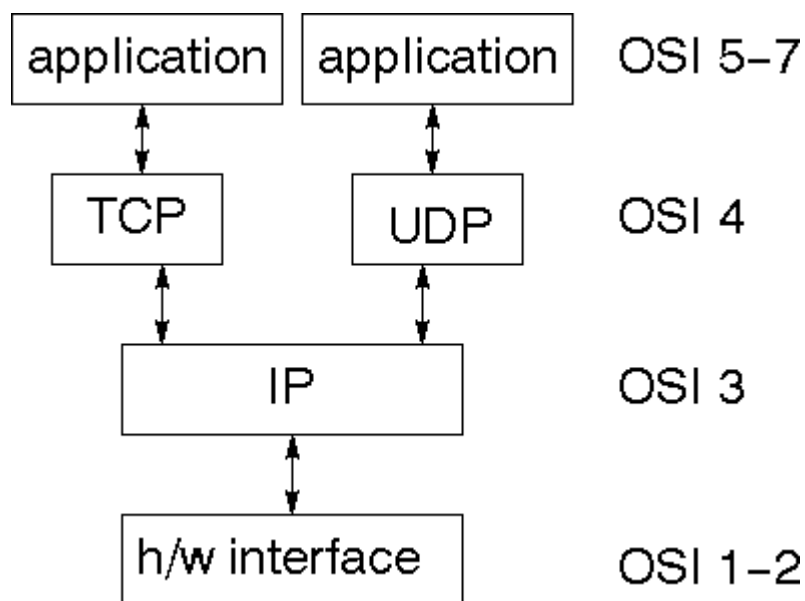


Fig 6.5: TCP is a connection-oriented protocol, UDP (User Datagram Protocol)

IP datagram's

The IP layer provides a connectionless and unreliable delivery system. It considers each datagram independently of the others. Any association between datagram must be supplied by the higher layers. The IP layer supplies a checksum that includes its own header. The header includes the source and destination addresses. The IP layer handles routing through

an Internet. It is also responsible for breaking up large datagram into smaller ones for transmission and reassembling them at the other end.

UDP

UDP is also connectionless and unreliable. What it adds to IP is a checksum for the contents of the datagram and port numbers. These are used to give a client/server model - see later.

TCP

TCP supplies logic to give a reliable connection-oriented protocol above IP. It provides a virtual circuit that two processes can use to communicate.

Internet addresses

In order to use a service, you must be able to find it. The Internet uses an address scheme for machines so that they can be located. The address is a 32 bit integer which gives the IP address. This encodes a network ID and more addressing. The network ID falls into various classes according to the size of the network address.

Network address

Class A uses 8 bits for the network address with 24 bits left over for other addressing. Class B uses 16-bit network addressing. Class C uses 24-bit network addressing and class D uses all 32.

Subnet address

Internally, the UNIX network is divided into sub networks. Building 11 is currently on one sub network and uses 10-bit addressing, allowing 1024 different hosts.

Host address

8 bits are finally used for host addresses within our subnet. This places a limit of 256 machines that can be on the subnet.

Total address

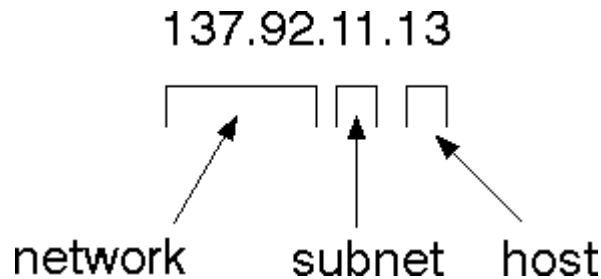


Fig 6.6: The 32-bit address is usually written as 4 integers separated by dots.

Port addresses

A service exists on a host, and is identified by its port. This is a 16 bit number. To send a message to a server, you send it to the port for that service of the host that it is running on. This is not location transparency! Certain of these ports are "well known".

SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types. h
> #include
<sys/socket.
h>
int socket (int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

JFREE CHART

JFree Chart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public License (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting some more.

Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellularphones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the Java One Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

General J2ME architecture

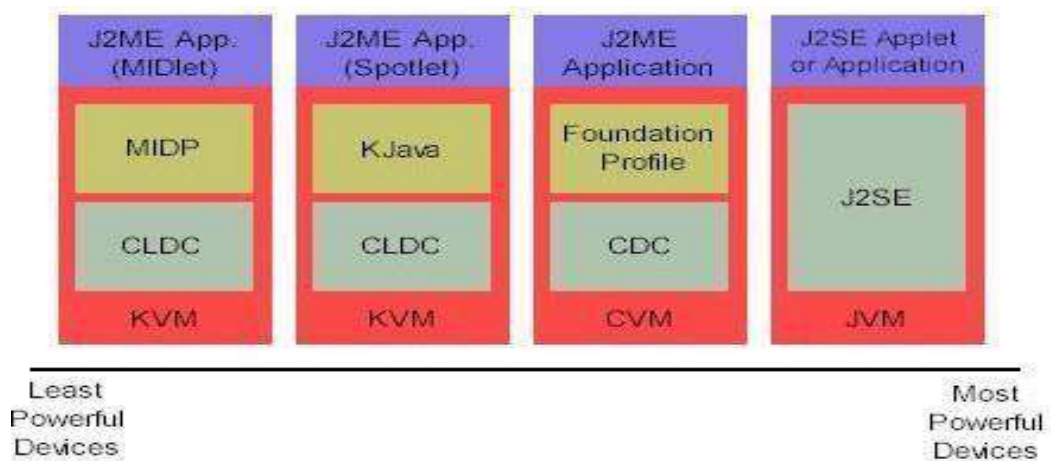


Fig 6.7: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the profile defines the application; specifically, it adds domain-specific classes to the J2ME

configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

Developing J2ME applications

Introduction In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Design considerations for small devices

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- **Keep it simple.** Remove unnecessary features, possibly making those features a separate, secondary application.
- **Smaller is better.** This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- **Minimize run-time memory use.** To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use

on small devices are to release resources quickly, reuse objects, and avoid exceptions.

Configuration's overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

J2ME PROFILES

What is a J2ME profile?

As we mentioned earlier in this tutorial, a profile defines the type of device supported. The Mobile Information Device Profile (MIDP), for example, defines classes for cellular phones. It adds domain-specific classes to the J2ME configuration to define uses for similar devices. Two profiles have been defined for J2ME and are built upon CLDC: Java and MIDP. Both Java and MIDP are associated with CLDC and smaller devices. Profiles are built on top of configurations.

Because profiles are specific to the size of the device (amount of memory) on which an application runs, certain profiles are associated with certain configurations. A skeleton profile upon which you can create your own profile, the Foundation Profile, is available for CDC.

Profile 1: KJava

Java is Sun's proprietary profile and contains the KJava API. The KJava profile is built on top of the CLDC configuration. The KJava virtual machine, KVM, accepts the same byte codes and class file format as the classic J2SE virtual machine. KJava contains a Sun-specific API that runs on the Palm OS. The KJava API has a great deal in common with the J2SE Abstract Windowing Toolkit (AWT). However, because it is not a standard J2ME package, its main package is `com.sun.kjava`. We'll learn more about the KJava API later in this tutorial when we develop some sample applications.

Profile 2: MIDP

MIDP is geared toward mobile devices such as cellular phones and pagers. The MIDP, like KJava, is built upon CLDC and provides a standard run-time environment that allows new applications and services to be deployed dynamically on end user devices. MIDP is a common, industry-standard profile for mobile devices that is not dependent on a specific vendor. It is a complete and supported foundation for mobile application development. MIDP contains the following packages, the first three of which are core CLDC packages, plus three MIDP-specific packages.

1. `java.lang`
2. `java.io`
3. `java.util`
4. `javax.microedition.io`
5. `javax.microedition.lcdui`
6. `javax.microedition.midlet`
7. `javax.microedition.rms`

7. SYSTEM REQUIREMENTS

7.1 HARDWARE REQUIREMENTS

- Processor : Intel (R) Core (TM) i3-4200U
- CPU : 1.6GHz
- RAM : 4 GB
- Hard Disk : 40 GB.

7.2 SOFTWARE REQUIREMENTS

- Operating System : windows 7 / 8.1 / 10/
- Server : Apache Tomcat
- Database : MYSQL Server 5.0
- Frontend : HTML, CSS, JS
- Backend : JSP

8.SYSTEM DESIGN

DATA FLOW DIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction. DFD may be partitioned into levels that represent increasing information flow and functional detail.

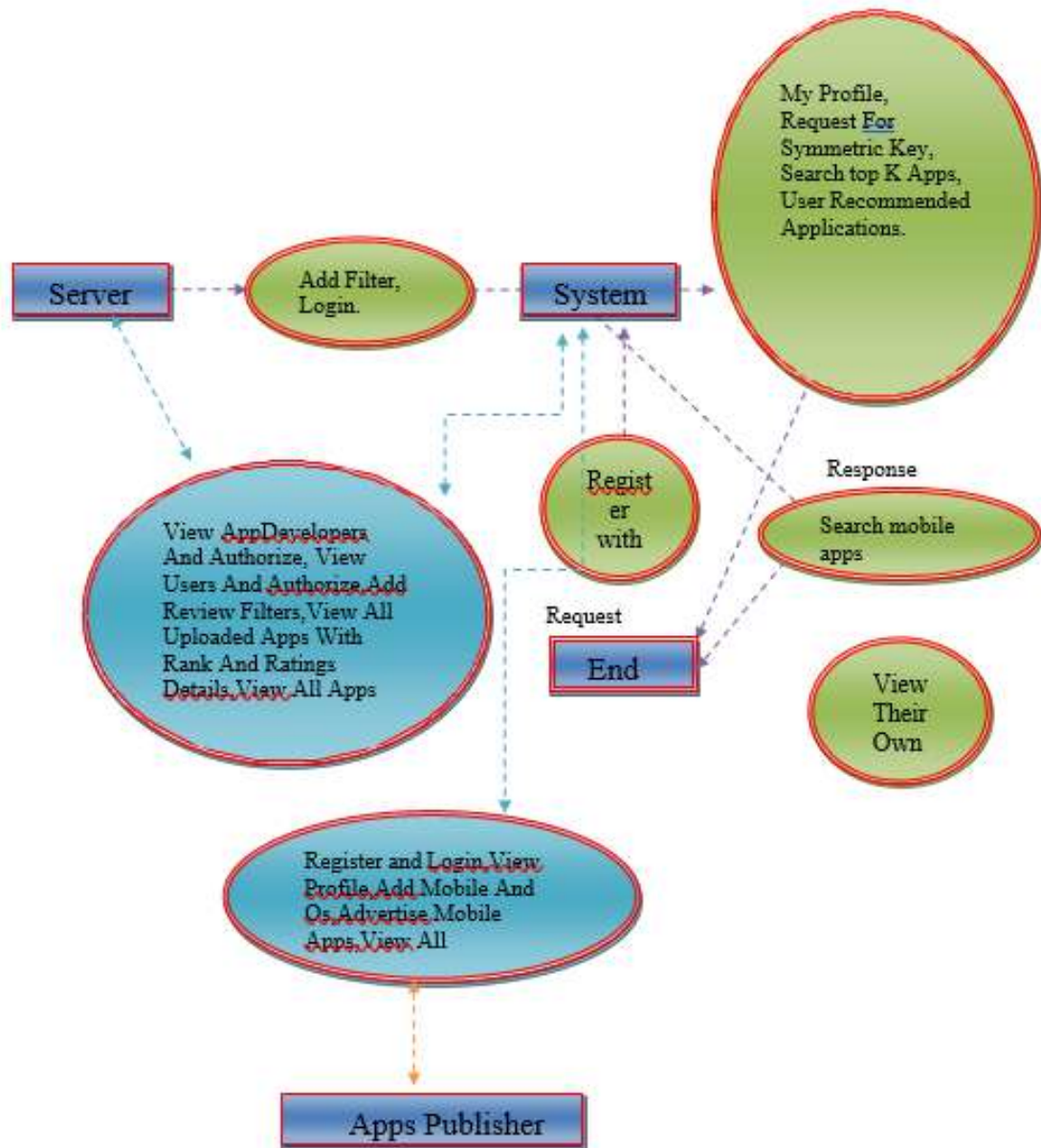


Fig 8.1 Data Flow Diagram

UML DIAGRAMS

UML stands for Unified Modelling Language. UML is a standardized general-purpose modelling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group. The goal is for UML to become a common language for creating models of object-oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artefacts of software system, as well as for business modeling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems. The UML is a very important part of developing object-oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

Goals

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.
7. Integrate best practices.

Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

Activity Diagram for Admin

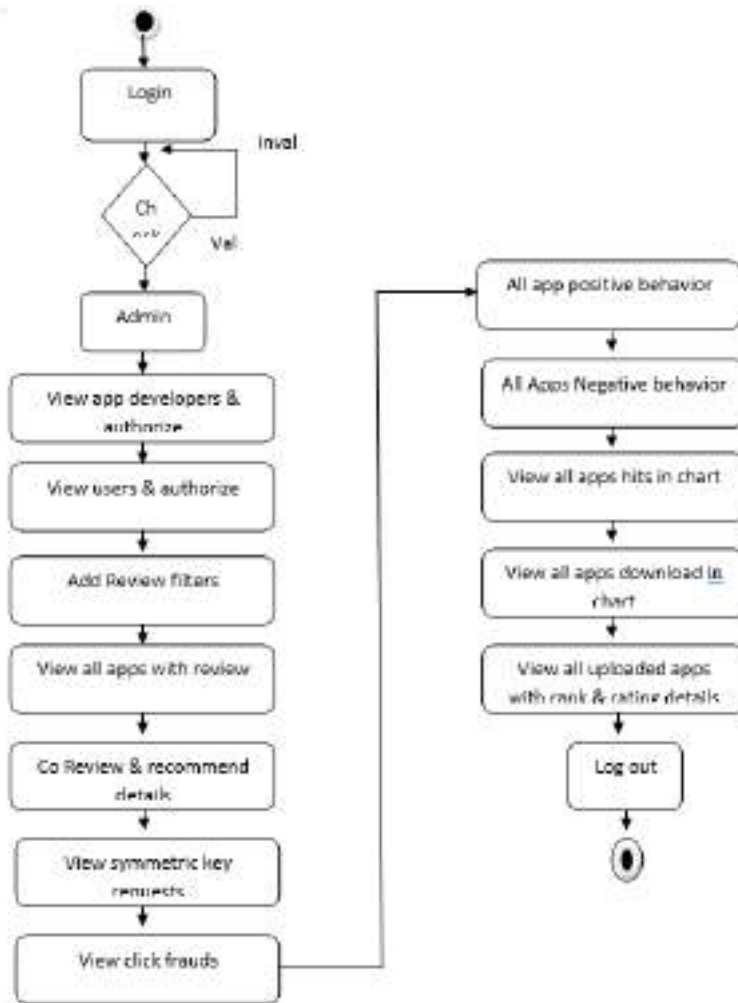


Fig 8.2 Activity Diagram for Admin

Activity Diagram for End User

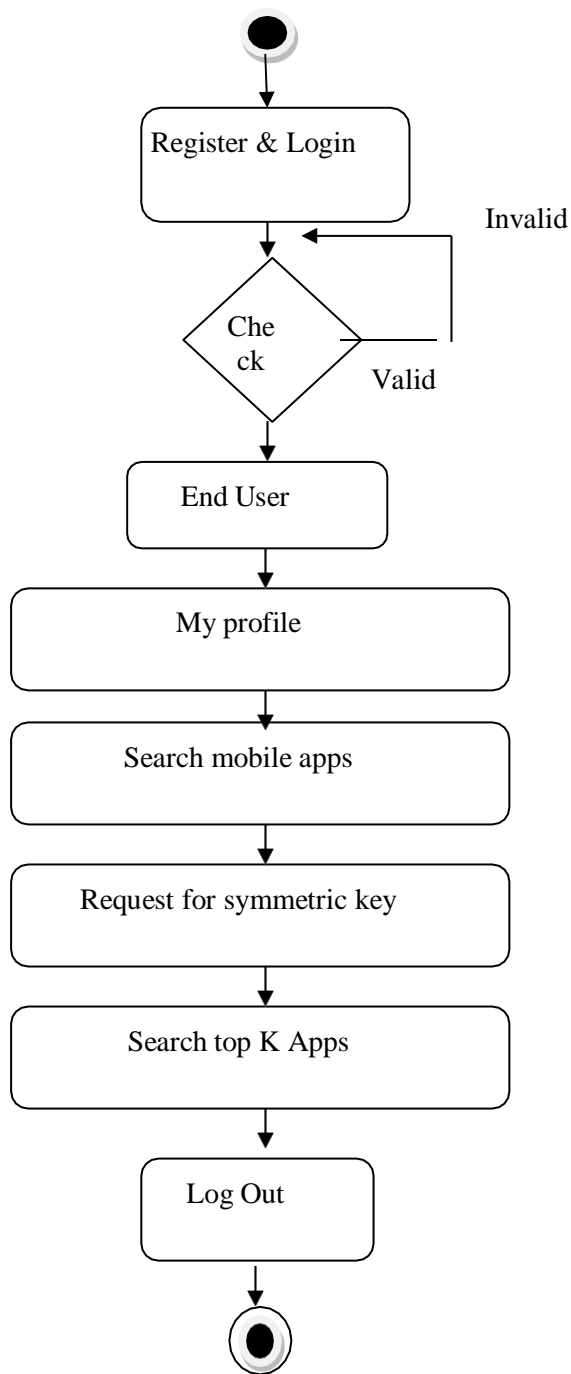


Fig 8.3 Activity Diagram for End user

Activity Diagram for App Developer

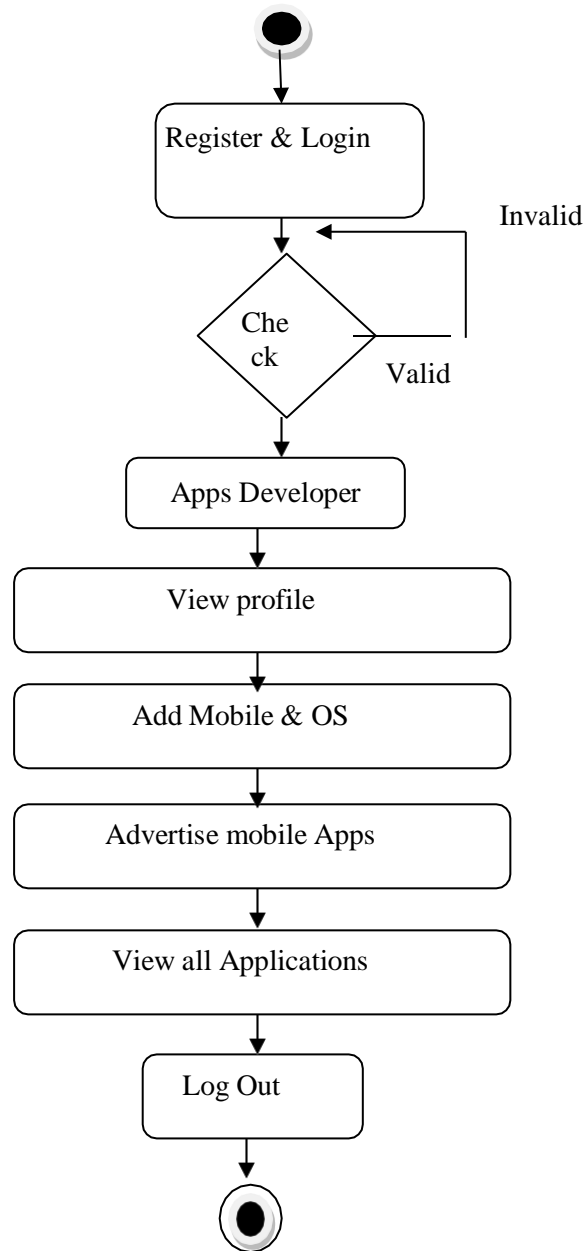


Fig 8.4 Activity Diagram for App Developer

Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

Use case Diagram for Admin

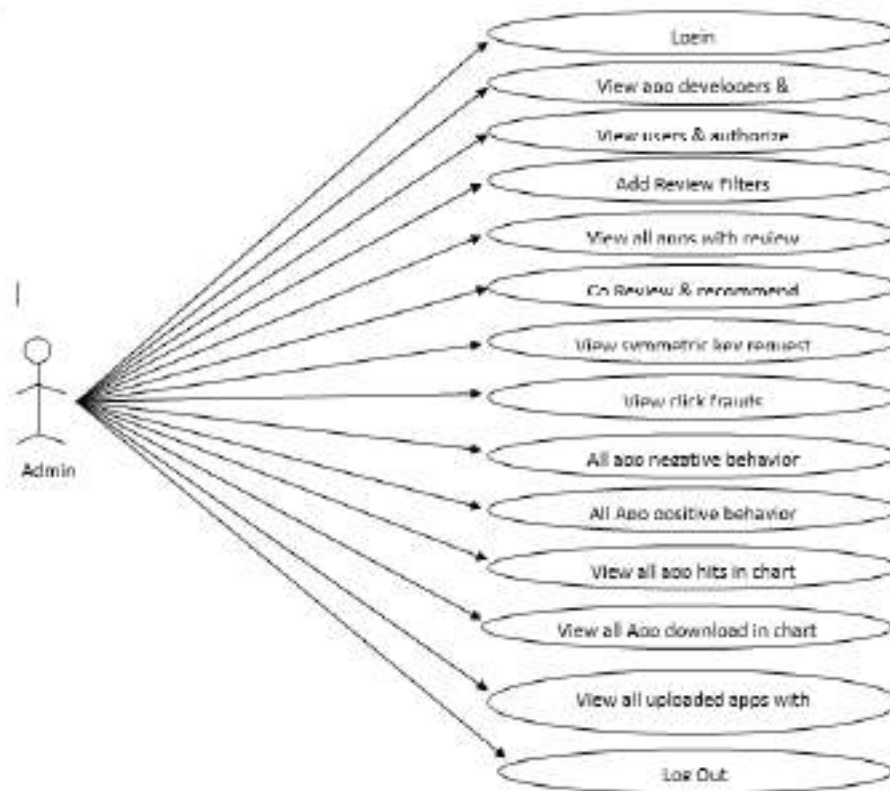


Fig 8.5 Use case Diagram for Admin

Use case Diagram for End User

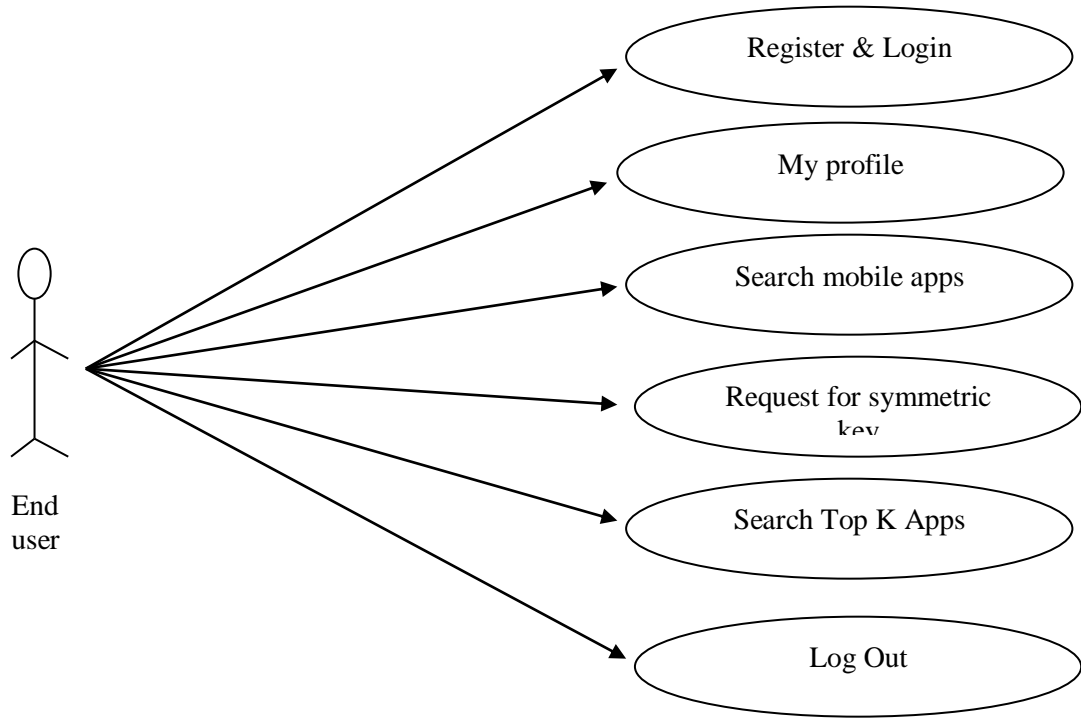


Fig 8.6 Use case Diagram for End user

Use case Diagram for App Developer

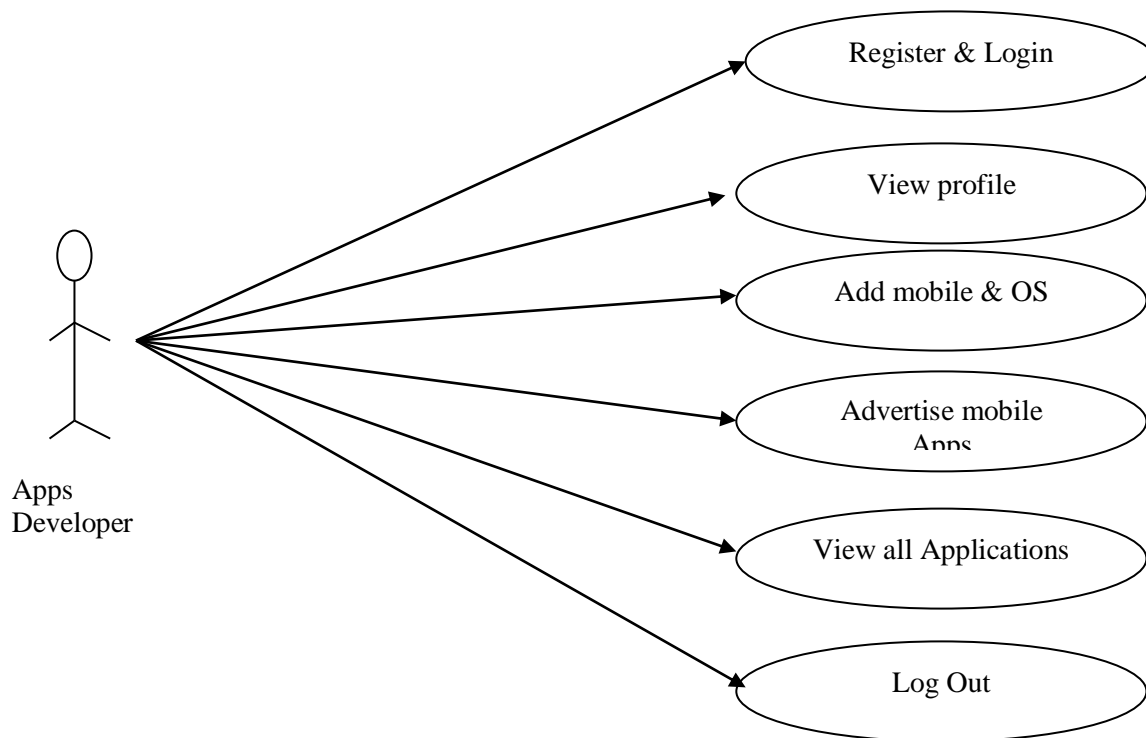


Fig 8.7 Use case Diagram for App Developer

Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

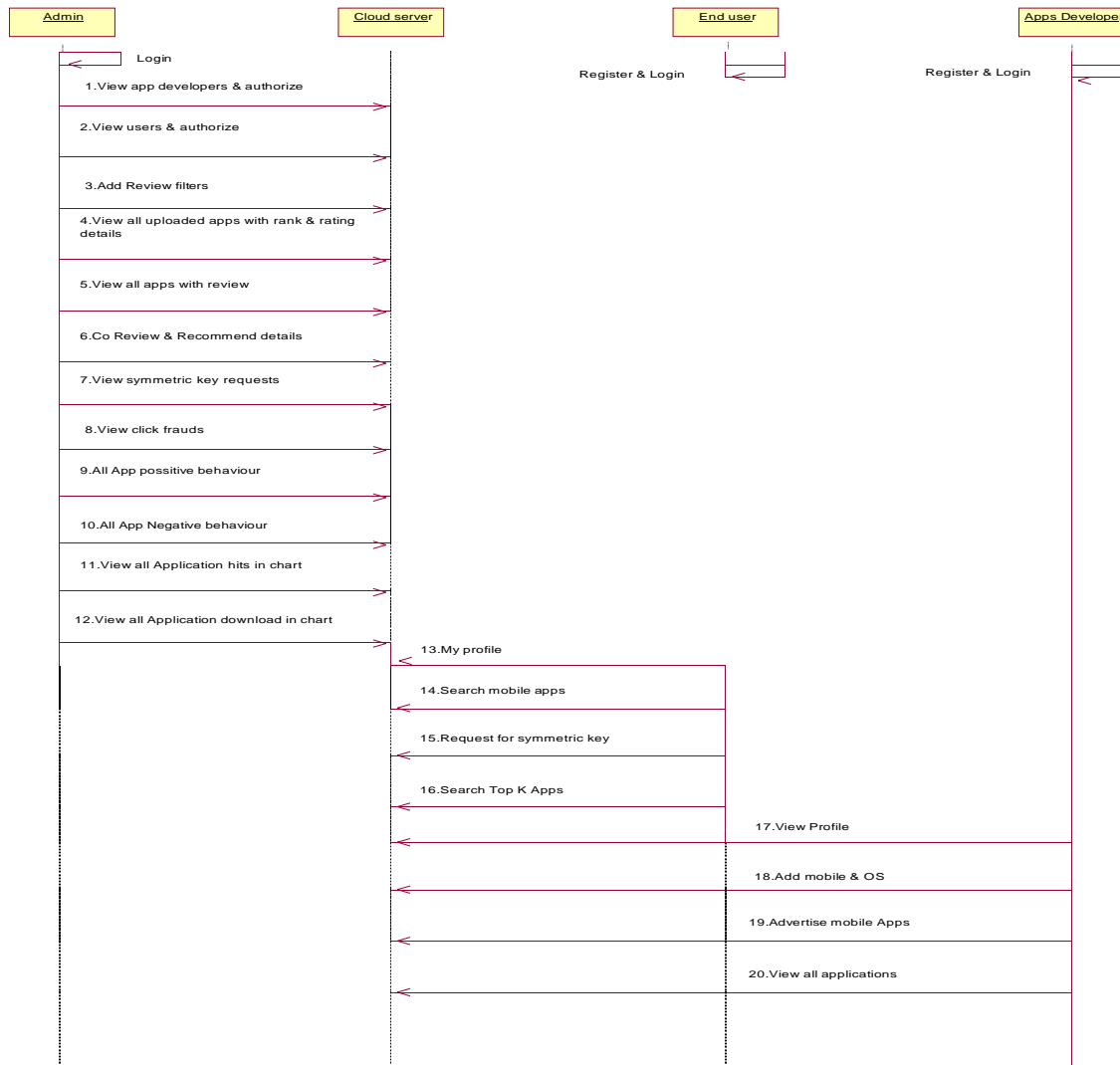


Fig 8.8 Sequence Diagram

Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

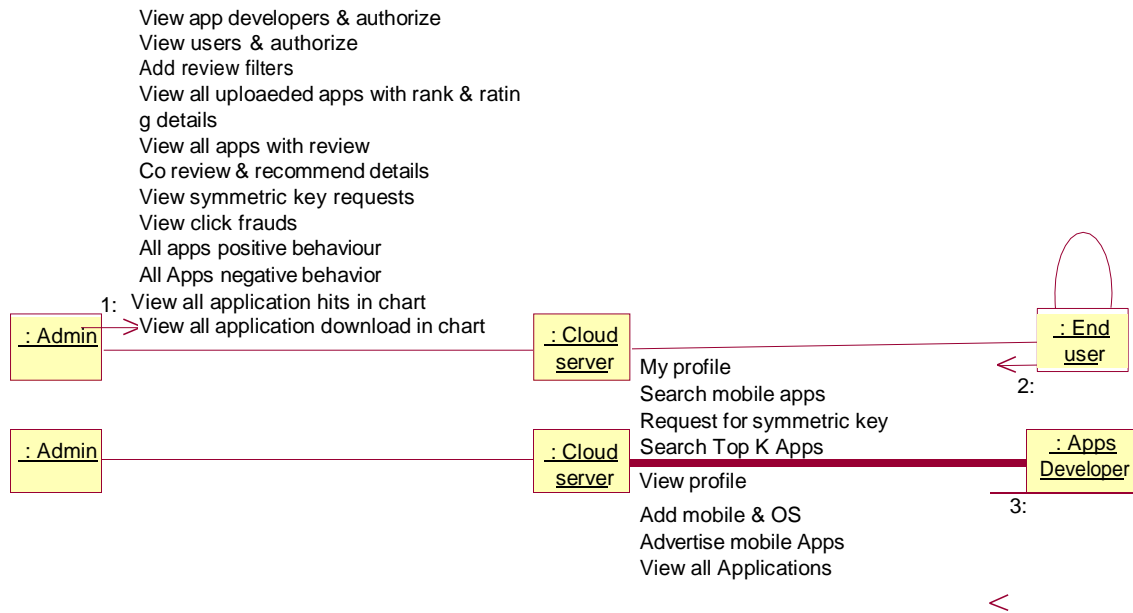


Fig8.9 Collaboration Diagram

Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

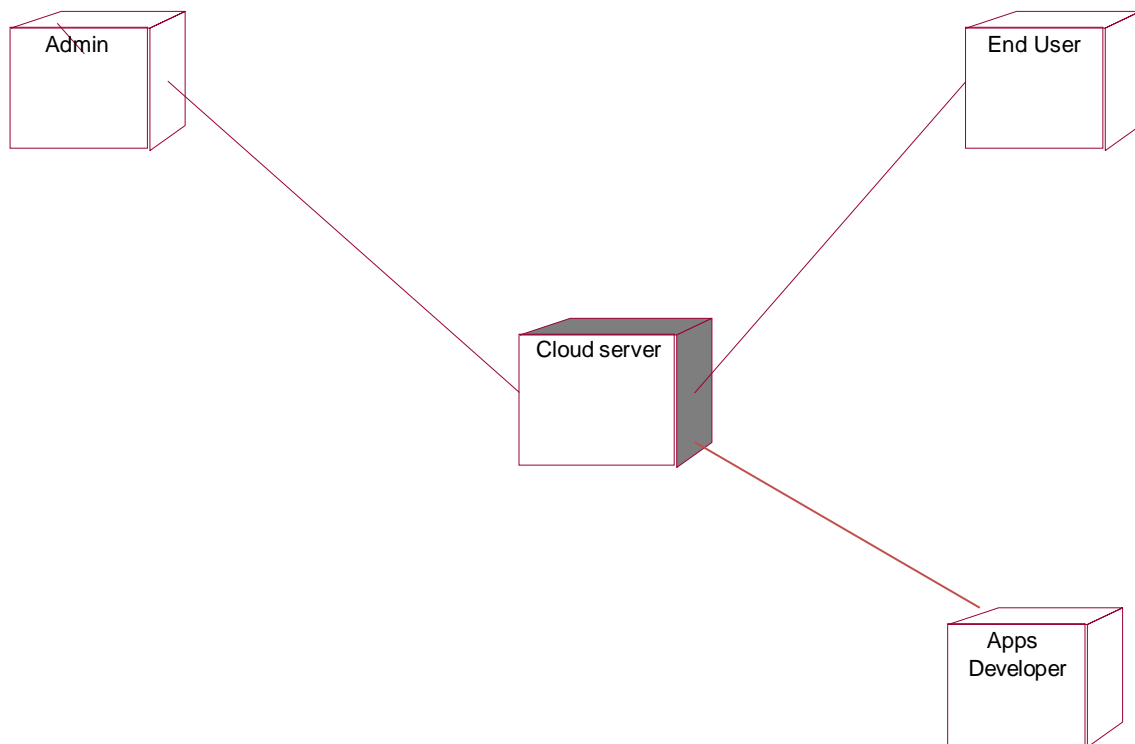


Fig 8.10 Deployment diagram

Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real-world items.

There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes, Responsibilities and Collaborators approach.

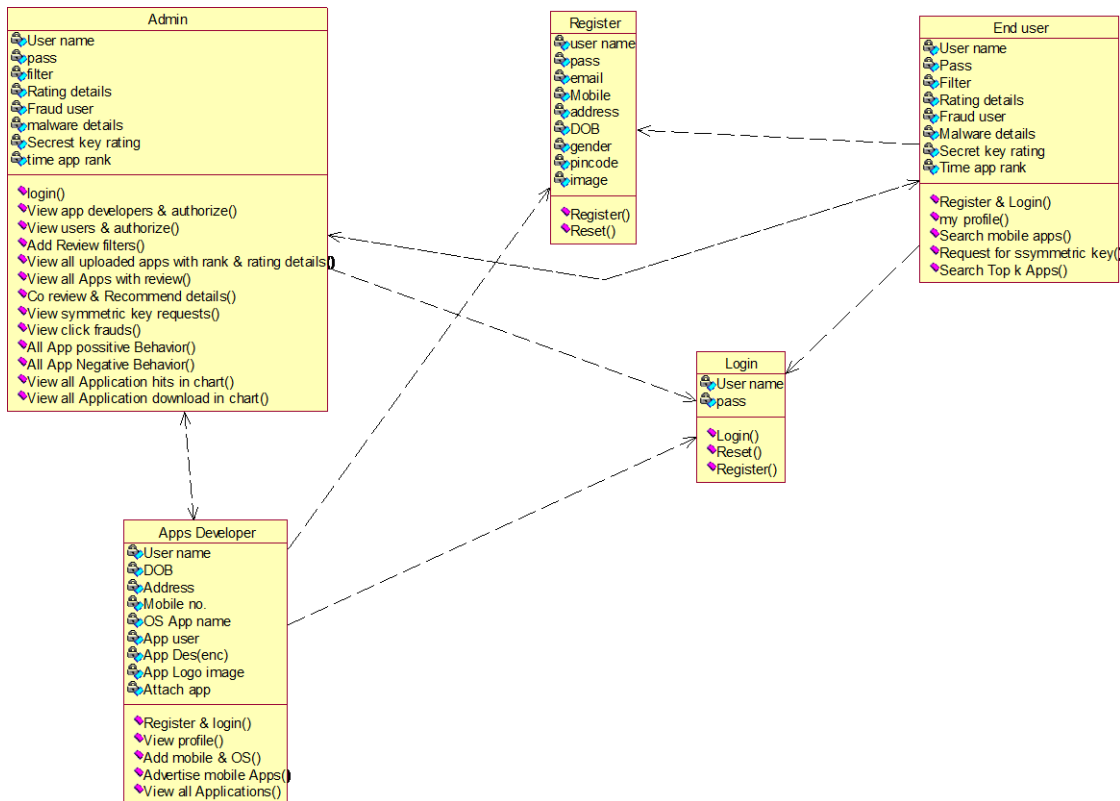


Fig 8.11 Class Diagram

E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships established using a variety of special connection lines. Let us define the symbols used in the E-R Diagram.

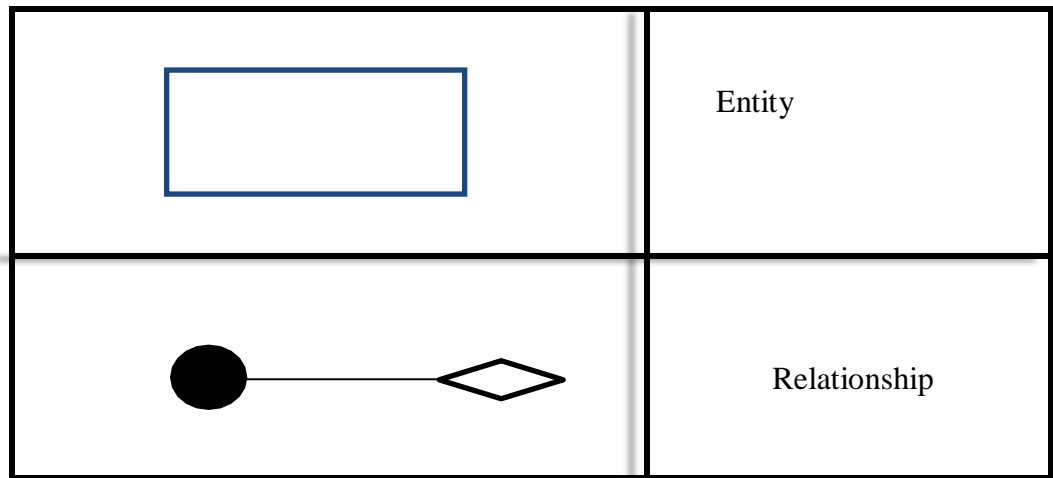


Fig 8.12 E-R Notations

9.IMPLEMENTATION

INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.
4. When the data is entered it will check for its validity. Data can be entered

with the help of screens. Appropriate messages are provided as when needed so that the user

5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
 - Convey information about past activities, current status or projections of the
 - Future.
 - Signal important events, opportunities, problems, or warnings.
 - Trigger an action.
 - Confirm an action.

CODING

Index.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>HOME Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-times.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 {      color: #FF00FF;
              font-size: 36px;
            }
.style2 {
              color: #FF0000;
              font-weight: bold;
            }
.style3 { font-size: 18px }
.style4 { color: #FF0000 }
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1><a href="index.html"><span class="style1">AdSherlock Efficient and Deployable
Click Fraud Detection for Mobile Applications</span></a></h1>
      </div>
      <div class="menu_nav">
        <ul>
```

```
<li class="active"><a href="index.html"><span>Home Page</span></a></li>
<li><a href="App_Login.jsp"><span>App Developer</span></a></li>
<li><a href="S_Login.jsp"><span>Server</span></a></li>
<li><a href="U_Login.jsp"><span>User</span></a></li>
</ul>
</div>
<div class="clr"></div>
<div class="slider">
  <div id="coin-slider"> <a href="#"></a> <a href="#"></a> <a href="#"></a> </div>
  <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">
        <h2 class="style3">Click Fraud Detection in Web Advertising</h2>
        <p class="infopost"><span class="style4"><strong>Click fraud
detection,</strong><strong>mobile advertising, adrequests identification.</strong></span></p>
        <div class="clr"></div>
        <div class="img"></div>
        <div class="post_content">
          <p align="justify" class="style2">
```

Mobile advertising plays a vital role in the mobile app ecosystem. A major threat to the sustainability of this ecosystem is click fraud, i.e., ad clicks performed by malicious code or automatic bot problems. Existing click fraud detection approaches focus on analyzing the ad requests at the server side. However, such approaches may suffer from high false negatives since the detection can be easily circumvented, e.g., when the clicks are behind proxies or globally distributed. In this paper we present AdSherlock, an efficient and deployable click fraud detection approach at the client side (inside the application) for mobile apps. AdSherlock splits the computation-intensive operations of click request identification into an offline procedure and an online procedure. In the offline procedure, AdSherlock generates both exact patterns and probabilistic patterns based on URL (Uniform Resource Locator) tokenization. These patterns are used in the online procedure for click request identification and further used for click fraud detection together with an ad request tree model.

AdSherlock: Efficient and Deployable Click Fraud Detection for Mobile Applications

We implement a prototype of AdSherlock and evaluate its performance using real apps. The online detector is injected into the app executable archive through binary instrumentation.

Results show that AdSherlock achieves higher click fraud detection accuracy compared with state of the art, with negligible runtime overhead. </p>

```
</div>
<div class="clr"></div>
</div>
<div class="article"></div>
</div>
<div class="sidebar">
  <div class="searchform"></div>
  <div class="clr"></div>
  <div class="gadget">
    <h2 class="star"><span>Home</span> Menu</h2>
    <div class="clr"></div>
    <ul class="sb_menu">
      <li><a href="index.html">Home</a></li>
      <li><a href="App_Login.jsp">App Developer</a></li>
      <li><a href="S_Login.jsp">Server</a></li>
      <li><a href="U_Login.jsp">User</a></li>
    </ul>
  </div>
  <div class="gadget">
    <h2 class="star"><span>Concepts</span></h2>
    <div class="clr"></div>
    <ul class="ex_menu">
      <li class="style4"><strong>Click fraud detection,<br />
      </strong><strong> mobile advertising, ad<br />
      requests identification.</strong></li>
      <li> </li>
    </ul>
  </div>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
```



```
</div>
</div>
<div align=center></div>
</body>
</html>
```

APP.Login.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>App Developer Login</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-times.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>

<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 {
    color: #FF00FF;
    font-size: 36px;
}
.style2 {color: #FF0000}
.style3 {font-weight: bold}
.style5 {color: #FF0000; font-weight: bold; }
-->
</style>
<script language="javascript" type="text/javascript">
function valid()
{
var na3=document.s.username.value;
if(na3=="")

{
alert("Please Enter User Name");
```

```
document.s.username.focus();
return false;
}
else
{

}
var na4=document.s.password.value;
if(na4=="")

{
alert("Please Enter Password");
document.s.password.focus();
return false;
}

}
</script>
</head>

<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1><a href="index.html"><span class="style1">AdSherlock Efficient and Deployable
Click Fraud Detection for Mobile Applications</span></a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home Page</span></a></li>
          <li class="active"><a href="App_Login.jsp"><span>App Developer</span></a></li>
          <li><a href="S_Login.jsp"><span>Server</span></a></li>
          <li><a href="U_Login.jsp"><span>User</span></a></li>
        </ul>
      </div>
      <div class="clr"></div>
      <div class="slider">
        <div id="coin-slider"> <a href="#"></a> <a href="#"></a> <a href="#"></a> </div>
  <div class="clr"></div>
</div>
  <div class="clr"></div>
</div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">

        <h2> <span class="style6">Welcome to App Developer Login</span></h2>
        <form name="s" action="Authentication.jsp?value=<%= "developerlogin"%>"
method="post" onSubmit="return valid()" ons target="_top">
          <table width="660" align="left">
            <tr>
              <td height="35" colspan="2"><div align="center"></div></td>
            </tr>

            <tr>
              <td width="168" height="35"><span class="style2 style6"><strong>User Name
(required)</strong></span></td>
              <td width="480"><input id="name" name="username" class="text" /></td>
            </tr>
            <tr>
              <td height="38"><span class="style2 style6"><strong>Password
(required)</strong></span></td>
              <td><input type="password" id="password" name="password" class="text" /></td>
            </tr>

            <tr><td></td>
            <td>
              <input name="imageField" type="submit" class="style3" id="imageField"
value="Login" />
              <span class="style5">New User?</span></span><a href="App_Register.jsp"
class="style21"> Register </a></td>
            </tr>

          </p>
        </div>
      </div>
    </div>
  </div>
</div>
```



```
        <p>&nbsp;</p>
    </table>
</form>
<div class="clr"></div>
</div>
<div class="article">
    <div class="clr"></div>
    <div class="clr"></div>
</div>
</div>
<div class="sidebar">
    <div class="searchform">
        <form id="formsearch" name="formsearch" method="post" action="#">
            <span>
                <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
            </span>
            <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
        </form>

    </div>
<div class="clr"></div>
<div class="gadget">
    <h2 class="star"><span>Sidebar</span> Menu</h2>
    <div class="clr"></div>
    <ul class="sb_menu">
        <li><a href="index.html">Home</a></li>
        <li><a href="App_Login.jsp">App Developer</a></li>
        <li><a href="S_Login.jsp">Server</a></li>
        <li><a href="U_Login.jsp">User</a></li>
    </ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
    <div class="footer_resize">
        <div style="clear:both;"></div>
```

```
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

App Register.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>App Developer Registration</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-times.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>

<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 {
    color: #FF00FF;
    font-size: 36px;
}
.style3 {color: #FFFFFF}
.style4 {color: #FF0000}
-->
</style>
<script language="javascript" type="text/javascript">    <!--Start Reg Validation Jai Siddalinga-
->
function valid()
{
var na3=document.s.userid.value;
if(na3=="")

{
alert("Please Enter User Name");
```

```
document.s.userid.focus();
return false;
}
else
{

}
var na4=document.s.pass.value;
if(na4=="")

{
alert("Please Enter Password");
document.s.pass.focus();
return false;
}

var na6=document.s.email.value;
if(na6=="")

{
alert("Please Enter the Email");
document.s.email.focus();
return false;
}

if (na6.indexOf("@", 0) < 0)
{
alert("Please enter a valid e-mail address.");
document.s.email.focus();
return false;
}

if (na6.indexOf(".", 0) < 0)
{
alert("Please enter a valid e-mail address.");
document.s.email.focus();
return false;
}
```



```
var na7=document.s.mobile.value;
if(na7.length!=10)

{
alert("Please Enter Valid Mobile number or Enter 10 Digit number");
document.s.mobile.focus();
return false;
}

if(na7=="")

{
alert("Please Enter Mobile number");
document.s.mobile.focus();
return false;
}

var na5=document.s.pic.value;
if(na5=="")

{
alert("choose profile pic");
document.s.pic.focus();
return false;
}

var dob=document.s.dob.value;
if(dob=="")

{
alert("please Enter Your Date Of Birth");
document.s.dob.focus();
return false;
}

var na8=document.s.address.value;
if(na8=="")

{
alert("Please Enter the Address ");
```

```
document.s.address.focus();
return false;
}

var na9=document.s.gender.value;
if(na9=="")

{
alert("Please Enter Your Gender");
document.s.gender.focus();
return false;
}

var na10=document.s.pincodes.value;
if(na10=="")

{

alert("please Enter Your Pincode");
document.s.T9.focus();
return false;
}

}
</script>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1><a href="index.html"><span class="style1">AdSherlock Efficient and Deployable
Click Fraud Detection for Mobile Applications</span></a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home Page</span></a></li>
          <li class="active"><a href="App_Login.jsp"><span>App Developer</span></a></li>
          <li><a href="S_Login.jsp"><span>Server</span></a></li>
          <li><a href="U_Login.jsp"><span>User</span></a></li>
        </ul>
      </div>
    </div>
  </div>
</div>
```

```
</ul>
</div>
<div class="clr"></div>
<div class="slider">
  <div id="coin-slider"> <a href="#"></a> <a href="#"></a> <a href="#"></a> </div>
  <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">

        <h2> <span class="style6">Welcome to AppDeveloper Register</span> </h2>

        <form name="s" action="App_RegIns.jsp" method="post"
enctype="multipart/form-data" onSubmit="return valid()" ons target="_top">
          <label for="name"><span class="style45"><span class="style31"><br />
(*) Required </span><br />
</span></label>
          <table width="517" height="442" border="0" cellpadding="2" cellspacing="2">
            <tr>
              <td height="103" colspan="2"><div align="center"></div></td>
            </tr>
            <tr>
              <td width="126"><span class="style33 style6 style4">
                <label for="User"><strong>Developer Name *</strong></label>
              </span></td>
              <td width="377"><span class="style45">
                <input name="userid" class="text" id="name" size="30" />
              </span></td>
            </tr>
            <tr>
              <td><span class="style33 style6 style4">
                <label for="password"><strong>Password *</strong></label>
              </span>
            </td>
          </table>
        </div>
      </div>
    </div>
  </div>
</div>
```



```
</span></td>
<td><span class="style45">
  <input name="pass" type="password" class="text" id="password" size="30" />
</span></td>
</tr>
<tr>
<td><span class="style33 style6 style4">
  <label for="Email"><strong>Email-Id<strong> *</strong></strong></label>
</span></td>
<td><span class="style45">
  <input name="email" class="text" id="email" size="30" />
</span></td>
</tr>
<tr>
<td><span class="style33 style6 style4">
  <label for="Mobile"><strong>Mobile Number <strong>*</strong>
</strong></label>

</span> </td>
<td><span class="style45">
  <input name="mobile" class="text" id="mobile" size="30" />
</span></td>
</tr>
<tr>
<td><span class="style33 style6 style4">
  <label for="address"><strong>Your Address <strong>*</strong> </strong> </label>
</span></td>
<td><textarea id="address" name="address" rows="2" cols="31"></textarea></td>
</tr>
<tr>
<td><span class="style33 style6 style4">
  <label for="gender"><strong>Date of Birth <strong>*</strong> </strong> </label>
</span></td>
<td><span class="style45">
  <input name="dob" class="text" id="dob" size="30" />
</span></td>
</tr>
<tr>
<td><span class="style33 style6 style4">
  <label for="gender"><strong>Select Gender * </strong></label>
```

```
</span> </td>
<td><span class="style38">
  <select id="s1" name="gender" style="width:224px;" class="text">
    <option>--Select--</option>
    <option>MALE</option>
    <option>FEMALE</option>
  </select>
</span></td>
</tr>
<tr>
  <td><span class="style33 style6 style4">
    <label for="label"><strong>Select Profile <strong> *</strong> </strong></label>
  </span></td>
  <td><input name="pic" type="file" class="text " id="pic" />          </td>
</tr>
<tr>
  <td colspan="2"><div align="center">
    <input name="submit" type="submit" value="REGISTER"
    style="width:170px,height:40px;font-weight:bold;background-color:#0099FF;border-
    radius:10%;" />
  </div></td>
</tr>
</table>
<p align="right"><a href="App_Login.jsp"
class="style3"><strong>Back</strong></a></p>
</form>

<p class="infopost">&nbsp;</p>
<div class="clr"></div>
<div class="clr"></div>
</div>
<div class="article">
  <div class="clr"></div>
  <div class="clr"></div>
</div>
</div>
<div class="sidebar">
  <div class="searchform">
    <form id="formsearch" name="formsearch" method="post" action="#">
    <span>
```

```
<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
</span>
<input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
<h2 class="star"><span>Sidebar</span> Menu</h2>
<div class="clr"></div>
<ul class="sb_menu">
<li><a href="index.html">Home</a></li>
<li><a href="App_Login.jsp">LogOut</a></li>
</ul>
</div>
</div>

<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
<div class="footer_resize">
<div style="clear:both;"></div>
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

login1.jsp

```
<% @ include file="connect.jsp" %>
<% @ page import="java.util.Date" %>
<% @page import="org.json.simple.JSONObject"%>
<% @page contentType="text/html; charset=UTF-8"%>
<%
String username=request.getParameter("user");

JSONObject obj=new JSONObject();
```



```
int res= out.println("failure");
    }
    obj.put("status",res);

    out.print(obj);
    out.flush();
}

catch(Exception e)
{out.print(e);}
%>
```

S Main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Server Main Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-times.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>

<style type="text/css">
<!--
.style1 {
    color: #FF00FF;
    font-size: 36px;
}
.style7 {
    color: #FF0000;
    font-weight: bold;
    font-style: italic;
    font-family: "Times New Roman", Times, serif;
    font-size: 12px;
}
}
```

```
.style9 {
    color: #FF0000;
    font-size: 12px;
}
-->
</style>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Slashdot's Menu</title>
<link rel="stylesheet" type="text/css" href="sdmenu/sdmenu.css" />
<script type="text/javascript" src="sdmenu/sdmenu.js">

</script>
<script type="text/javascript">
// 
var myMenu;
window.onload = function() {
    myMenu = new SDMenu("my_menu");
    myMenu.init();
};
// ]]&gt;
&lt;/script&gt;

&lt;/head&gt;
&lt;body&gt;

&lt;div class="main"&gt;
&lt;div class="header"&gt;
&lt;div class="header_resize"&gt;
&lt;div class="logo"&gt;
&lt;h1&gt;&lt;a href="index.html"&gt;&lt;span class="style1"&gt;AdSherlock Efficient and Deployable
Click Fraud Detection for Mobile Applications&lt;/span&gt;&lt;/a&gt;&lt;/h1&gt;
&lt;/div&gt;
&lt;div class="menu_nav"&gt;
&lt;ul&gt;
&lt;li&gt;&lt;a href="index.html"&gt;&lt;span&gt;Home Page&lt;/span&gt;&lt;/a&gt;&lt;/li&gt;
&lt;li&gt;&lt;a href="App_Login.jsp"&gt;&lt;span&gt;App Developer&lt;/span&gt;&lt;/a&gt;&lt;/li&gt;
&lt;li class="active"&gt;&lt;a href="S_Login.jsp"&gt;&lt;span&gt;Server&lt;/span&gt;&lt;/a&gt;&lt;/li&gt;
&lt;li&gt;&lt;a href="U_Login.jsp"&gt;&lt;span&gt;User&lt;/span&gt;&lt;/a&gt;&lt;/li&gt;</pre></div><div data-bbox="50 918 289 937" data-label="Page-Footer"><hr/><p>DEPARTMENT OF MCA, SIETK</p></div><div data-bbox="852 918 927 937" data-label="Page-Footer"><p>Page 63</p></div>
```

```
</ul>
</div>
<div class="clr"></div>
<div class="slider">
  <div id="coin-slider"> <a href="#"></a> <a href="#"></a> <a href="#"></a> </div>
  <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">
        <h2>Wel-Come Server</h2>
        <p>&nbsp;</p>
        <p></p>
        <p>&nbsp;</p>
        <div class="clr"></div>
      </div>
    </div>
  </div>
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

S AuthorizeUsers.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
```



```
<title>Server Authorize Users</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-times.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>

<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 {
    color: #FF00FF;
    font-size: 36px;
}
.style3 {color: #FFFF00}
.style4 {color: #FF0000}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1><a href="index.html"><span class="style1">AdSherlock Efficient and Deployable
Click Fraud Detection for Mobile Applications</span></a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home Page</span></a></li>
          <li><a href="App_Login.jsp"><span>App Developer</span></a></li>
          <li class="active"><a href="S_Login.jsp"><span>Server</span></a></li>
          <li><a href="U_Login.jsp"><span>User</span></a></li>
        </ul>
      </div>
      <div class="clr"></div>
      <div class="slider">
        <div id="coin-slider"> <a href="#"></a> <a href="#"></a> <a href="#"></a> </div>
  <div class="clr"></div>
</div>
  <div class="clr"></div>
</div>
</div>
```

```
<div class="content">
  <div class="content_resize">
    <div class="mainbar">

      <h2 class="style5 style6"> <span class="style6">View and Authorize
Users</span>..</h2>
      <p>&nbsp;</p>
      <div class="clr"></div>
      <table width="913" align="center" cellpadding="0" cellspacing="0">
        <tr>
          <td width="51" height="37" valign="middle" bgcolor="#FF0000" style="color:
#2c83b0;"><div align="center" class="style65 style105 style27
style3"><strong>ID</strong></div></td>

          <td width="157" valign="middle" bgcolor="#FF0000" style="color: #2c83b0;"><div
align="center" class="style65 style105 style27 style3"><strong>User
Image</strong></div></td>

          width="100" height="100" alt="Submit">
          </div></td>
        </tr>
        <tr>
          <td><div align="left" class="style5 style3">Ratings</div></td>
          <td><span class="style4">

          <%
          if(j==3)
          {

          }

          height="30" >
```

```
%>           type="image" src="Gallery/1.png" width="30"
<input required
name="image"   <%
               if(j>3 && j<=6)
               {
                 %>
                 <input required name="image" type="image" src="Gallery/2.png" width="80"
height="30" >
                 <%
                 }
               if(j>6 && j<=9)
               {
                 %>
                 <input required name="image" type="image" src="Gallery/3.png" width="100"
height="30" >
                 <%
                 }
               if(j>9 && j<=12)
               {
                 %>
                 <input required name="image" type="image" src="Gallery/4.png" width="120"
height="30" >
                 <%
                 }
               if(j>12 && j<=15)
               {
```



```
        if(j>15 && j<=30)
        {
            %>
            <input required name="image" type="image" src="Gallery/6.png" width="170"
height="30" >
            <%
            }
            %>
            </span></td>
        </tr>

            <%
            }

            connection.close();
        }

        catch(Exception e)
        {
            out.println(e.getMessage());
        }
    %>
        </table>

<form name="s"
action="U_CommentIns.jsp?aname=<%=s1%>&id=<%=one%>&type=<%=type%>
" method="post" onSubmit="return valid()" on target="_top">

        <table width="600" border="0" align="center" cellpadding="0"
cellspacing="0" style="border-collapse: collapse; display:inline; margin:10px 10px
10px 10px; font-family:Verdana, Arial, Helvetica, sans-serif; font-size:14px;">
            <tr>
                <td width="100" align="left"
valign="middle" height="45" style="color: #2c83b0;"><div align="left" style="margin-
left:20px;">Write Review </div></td>

                <td width="100" align="left"
valign="middle" height="45" style="color: #2c83b0;"><div align="left"><div
```

```
align="left" style="margin-left:20px;"><textarea name="com" rows="3"
cols="23"></textarea></div></td>
</tr>
<div > <tr>
<td height="45" colspan="2"
id="learn_more"align="center" style="color:#003399;"><span style="font-size:
18px">
<input type="submit" value="Add
Comment" style="width:100px; height:35px; background-color:#999999;
color:#003399;"/>
<input type="reset" name="Reset"
style="width:100px; height:35px; background-color:#999999; color:#003399;"/>
</span></td>
</tr></div>
</table>
</form>
<h2 align="right">&nbsp;</h2>
<%
if(type.equalsIgnoreCase("search")){ %>
<h3 align="right"><a
href="U_FoundApp.jsp?id=<%=one%>&type=<%=type%>&rank=<%=rank%>"
class="style4">Back</a></h3>
<% }else if(type.equalsIgnoreCase("topk")){ %>
<h3 align="right"><a
href="U_FoundApp.jsp?id=<%=one%>&type=<%=type%>&rank=<%=rank%>"
class="style4">Back</a></h3>
<% }
else if(type.equalsIgnoreCase("recommend"))
{ %>
<h3 align="right"><a
href="U_FoundApp.jsp?id=<%=one%>&type=<%=type%>&rank=<%=rank%>"
class="style4">Back</a></h3>
<% }
else if(type.equalsIgnoreCase(""))
{ %>
<h3 align="right"><a href=".jsp" class="style4">Back</a></h3>
<% }
%>
```

```
<div class="clr"></div>
<div class="clr"></div>

</div>
<div class="article">
  <p class="infopost">&nbsp;</p>
  <div class="clr"></div>
  <div class="clr"></div>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
```

U Images.jsp

```
<% @ page language="java" contentType="text/html; charset=ISO-
8859-1" pageEncoding="ISO-8859-1" %>
  <% @ include file="connect.jsp" %>
  <% @ page import="java.sql.*,java.io.*,java.util.*" %>

  <%
    int id = Integer.parseInt(request.getParameter("id"));
    Statement
    st=connection.createStatement();
    String strQuery = "select image from user where id='"+id+"' ";
    ResultSet rs = st.executeQuery(strQuery);
    String
    imgLen="";
    if(rs.next())
    {
      imgLen = rs.getString(1);
    }

    rs =
    st.executeQuery(strQuery);
    if(rs.next())
```



```
{  
  
    int len =  
    imgLen.length();byte  
    [] rb = new byte[len];  
    InputStream readImg =  
    rs.getBinaryStream(1);int  
    index=readImg.read(rb, 0, len);  
    st.close();  
    response.res  
    et();  
    response.getOutputStream().write(rb,0,len);  
    response.getOutputStream().flush();  
}  
  
%>
```

10.SYSTEM TESTING

10.1 SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

10.2 TYPES OF TESTING

Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration-oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box. you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results

All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results

All the test cases mentioned above passed successfully. No defects encountered.

11. OUTPUT SCREENS

Screen1: Home Page



The above screen represents the home page of the project

Screen2: App Developer Register

The screenshot shows a web browser window with the URL "localhost:8080/AdSherlock-Server-System-and-Deployable-Click-Fraud-Detection-for-Mobile-Applications/AdDev-Register...". The page title is "Welcome to AppDeveloper Register". A search bar is at the top right. Below it is a "REGISTER HERE" button. The registration form contains the following fields:

Developer Name *	Mharcprabsh
Password *	*****
Email *	Mharcprabsh@gmail.com
Mobile Number *	9087127028
New Address *	111, second floor, air apartments
Date of Birth *	17-06-1996
Gender *	MALE
Select Profile *	Developer

A blue "REGISTER" button is located at the bottom of the form. A "Sidebar Menu" is visible on the right side of the page, and a "Activate Windows" watermark is at the bottom right.

This screen represents app developer register page

Screen3: Registration Status



This screen represents app developer registration status.

Screen4: Cloud Server Home Page



This screen represents Cloud server home page.

Screen5: View Authorize App Developers



This screen represents view and authorize app developers.

Screen6: View Authorize Users



This screen represents view and authorize users.

Screen7: Add Filters



This screen represents how to add filters.

Screen8: Add Category Status



This screen represents add categories filters status.

Screen9: All Applications Details



This screen shows details of all applications.

Screen10: View All Positive Reviews



This screen shows all positive reviews.

Screen11: View All Negative Reviews



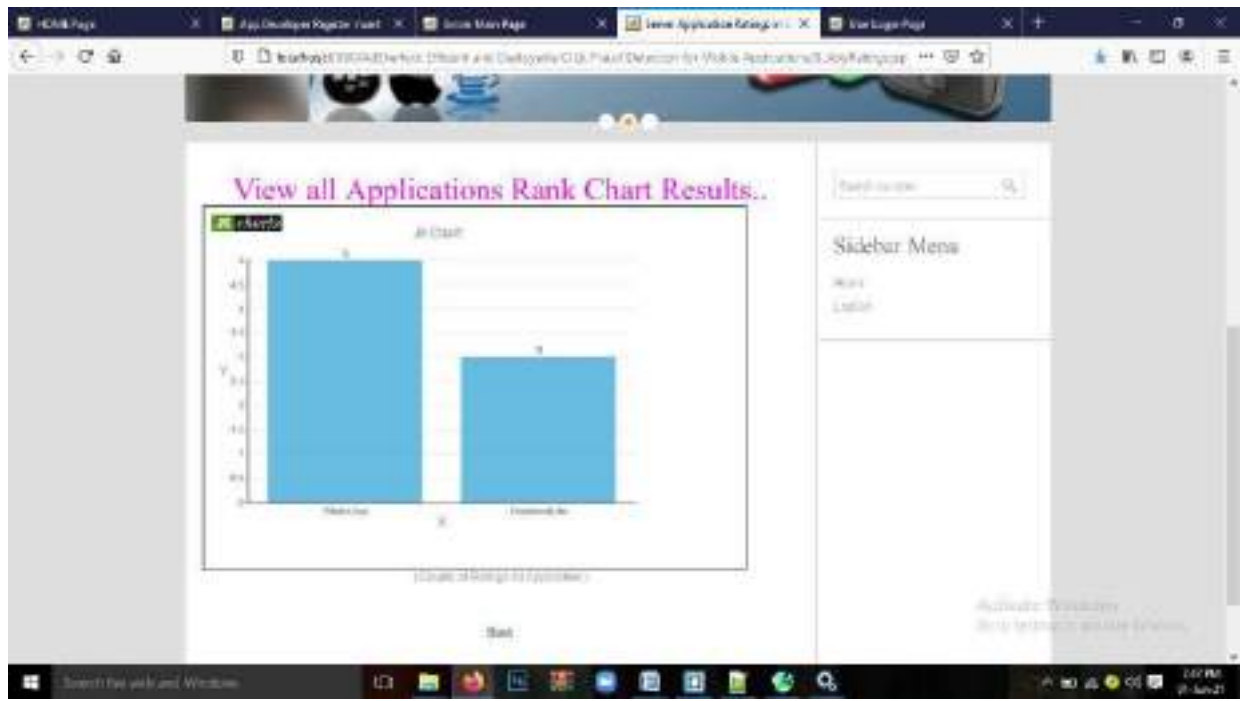
This screen shows all negative reviews details.

Screen12: View All Application Rank



This screen shows view all application rank.

Screen13: View all Chart Results



This screen represents view chat results chart.

Screen14: App Developer Log In



This screen shows app developer login page.

Screen15: App Developer Home Page



This screen shows app developer home page.

Screen16: View Profile



This screen shows the profile of the app developer.

Screen17: Add Mobile and OS



This screen shows how to add mobile and os.

Screen18: Mobile Added Successfully



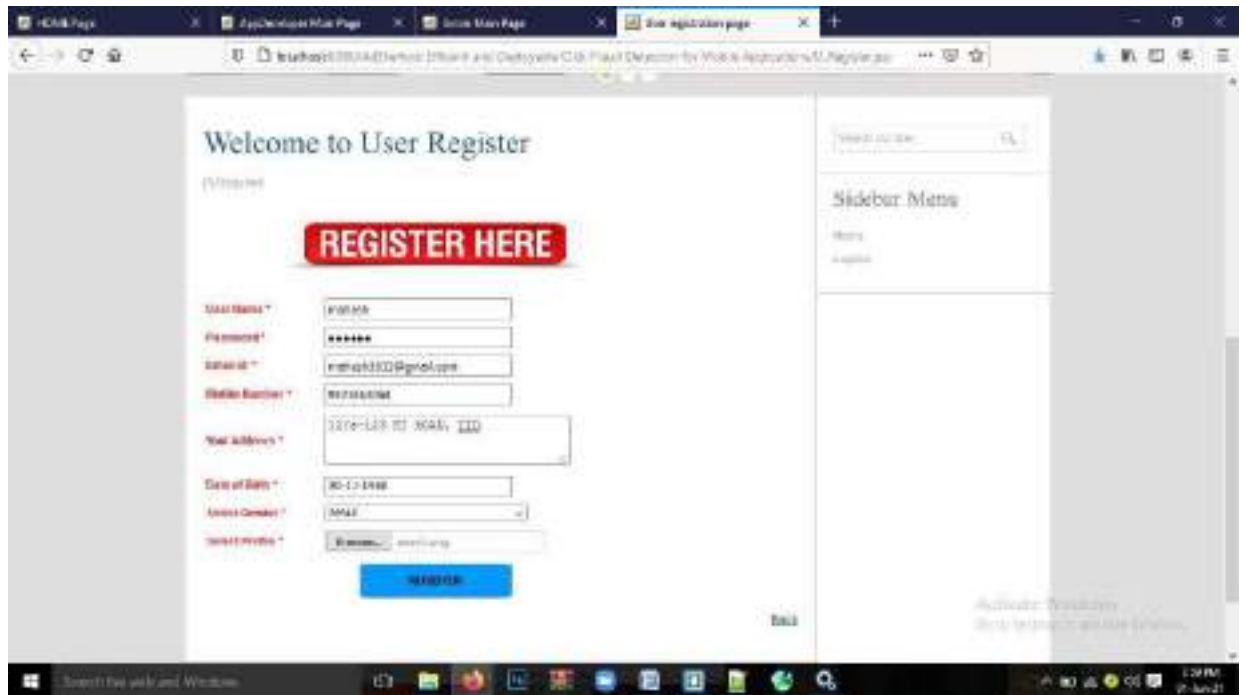
This screen shows that mobile and os added successfully.

Screen20: View All Applications



This screen displays the added applications.

Screen21: User Registration



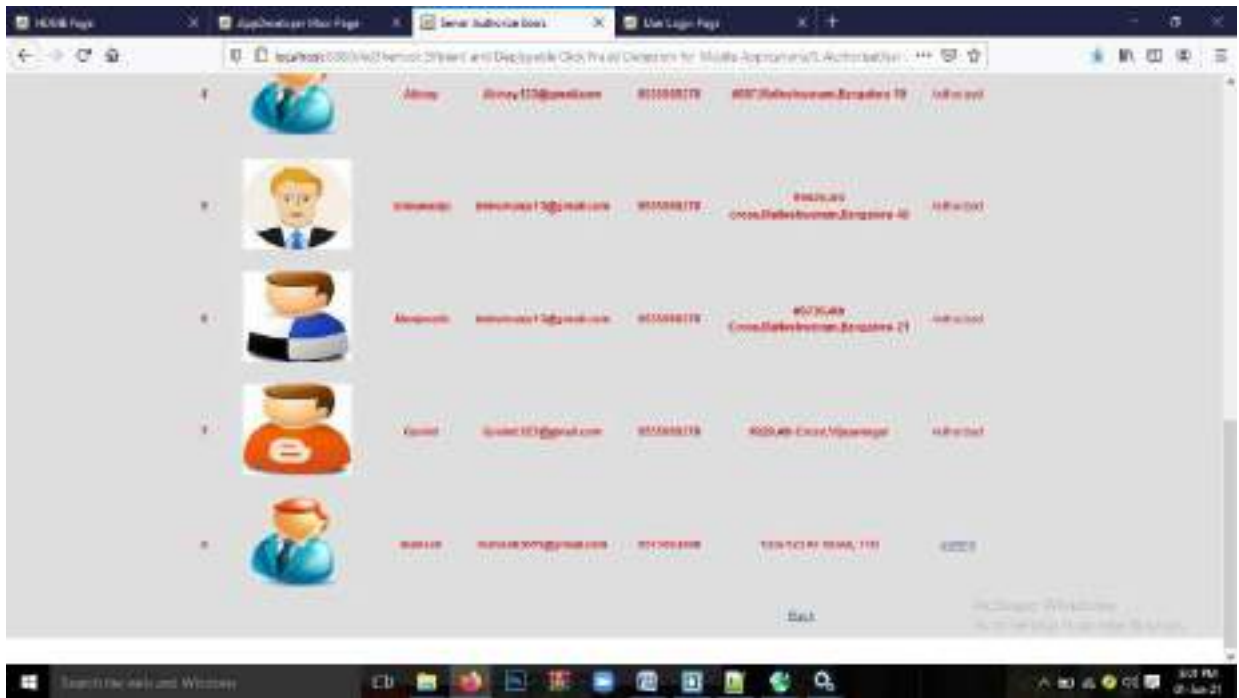
This screen represents the user registration page.

Screen22: Registration Status



This screen shows the registration status of the user.

Screen24: All Users are Authorized



This screen shows details of all the authorized users.

Screen25: User Home Page



This screen displays users home page.

Screen26: View profile



This screen displays the profile of the user.

Screen28: View Symmetric Key



This screen shows the symmetric key response.

CONCLUSION

Ad Sherlock is an efficient and deployable click fraud detection approach for mobile apps at the client side. As a client-side approach, AdSherlock is orthogonal to existing server-side approaches. It splits the computation intensive operations of click request identification into an offline process and an online process. In the offline process, AdSherlock generates both exact patterns and probabilistic patterns based on URL tokenization. These patterns are used in the online process for click request identification, and further used for click fraud detection together with an ad request tree model. Evaluation shows that AdSherlock achieves high click fraud detection accuracy with a negligible runtime overhead. In the future, we plan to combine static analysis with the traffic analysis to improve the accuracy of ad request identification and explore attacks designed to evade AdSherlock.

FUTURE ENHANCEMENT

In the future, we plan to combine static analysis with the traffic analysis to improve the accuracy of ad request identification and explore attacks designed to evade Ad-Sherlock.

REFERENCES

1. “Mobile advertising spending worldwide.” [Online]. Available: <https://www.statista.com/statistics/280640/mobile-advertising-spending-worldwide/>
2. “Google admob.” [Online]. Available: <https://apps.admob.com/>
3. M. Mahdian and K. Tomak, “Pay-per-action model for online advertising,” in Proc. of ACM ADKDD, 2007.
4. G. Cho, J. Cho, Y. Song, and H. Kim, “An empirical study of click fraud in mobile advertising networks,” in Proc. of ACM ARES, 2015.
5. J. Crussell, R. Stevens, and H. Chen, “Madfraud: Investigating ad fraud in android applications,” in Proc. of ACM MobySys, 2014.
6. R. Oentaryo, E.-P. Lim, M. Finegold, D. Lo, F. Zhu, C. Phua, E.-Y. Cheu, G.-E. Yap, K. Sim, M. N. Nguyen, K. Perera, B. Neupane, M. Faisal,
7. Z. Aung, W. L. Woon, W. Chen, D. Patel, and D. Berrar, “Detecting click fraud in online advertising: A data mining approach,” *The Journal of Machine Learning Research*, vol. 15, no. 1, pp. 99–140, 2014.
8. B. Kitts, Y. J. Zhang, G. Wu, W. Brandi, J. Beasley, K. Morrill,
9. J. Ettetdgui, S. Siddhartha, H. Yuan, F. Gao, P. Azo, and R. Mahato, *Click Fraud Detection: Adversarial Pattern Recognition over 5 Years at Microsoft*. Cham: Springer International Publishing, 2015, pp. 181–201.
10. A. Metwally, D. Agrawal, and A. El Abbadi, “Detectives: detecting coalition hit inflation attacks in advertising networks streams,” in Proc. of ACM WWW, 2007.
11. A. Metwally, D. Agrawal, A. El Abbad, and Q. Zheng, “On hit inflation techniques and detection in streams of web advertising networks,” in Proc. of IEEE ICDCS, 2007.
12. F. Yu, Y. Xie, and Q. Ke, “Sbotminer: large scale search bot detection,” in Proc. of ACM WSDM, 2010.
13. L. Zhang and Y. Guan, “Detecting click fraud in pay-per-click streams of online advertising networks,” in Proc. of IEEE ICDCS, 2008.
14. A. Metwally, D. Agrawal, and A. El Abbadi, “Duplicate detection in click streams,” in Proc. of ACM WWW, 2005.
15. M. S. Iqbal, M. Zulkernine, F. Jaafar, and Y. Gu, “Fcfraud: Fighting click-fraud from the user side,” in Proc. of IEEE HASE, 2016.

A
Project Report
on

**ATTRIBUTE BASED CLOUD DATA INTEGRITY AUDITING FOR SECURE
OUTSOURCED STORAGE**

Submitted in partial fulfillment for the award of the degree

of
Master of Computer Applications

Submitted by

DADAM ARUNA KUMARI

(Reg.No.18F61F0002)

Under the esteemed guidance of

Mr. P. BALAJI, MCA, M.Tech.
Associate Professor, Department of MCA.



Department of Master of Computer Applications

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(NAAC Accredited with 'A' Grade, NBA Accredited Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

2020-2021

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(NAAC Accredited with 'A' Grade, NBA Accredited Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

This is to certify that this project report titled "ATTRIBUTE BASED CLOUD DATA INTEGRITYAUDITING FOR SECURE OUTSOURCED STORAGE" that is being submitted by DADAM ARUNA KUMARI (Reg. No. 18F61F0002) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by her under my guidance and supervision during the academic year2020-2021.

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **DADAM ARUNA KUMARI** here by declare that the project report entitled **“ATTRIBUTE BASED CLOUD DATA INTEGRITY AUDITING FOR SECURE OUTSOURCED STORAGE”** is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. BALAJI**, MCA.,M.Tech. Associate Professor in MCA Department, **SIDDHARTH NSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

Date:

DADAM ARUNA KUMARI

Reg. No.: 18F61F0002

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful ne.

I am thankful to My Guide **Mr. P. BALAJI**, MCA, M.Tech. Associate Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance and suggestions in analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN**, MCA., M.E. HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his Valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. Chandrasekhar Reddy, Ph.D**, for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved Chairman **Dr. K. Ashok Raju, Ph.D**, and Vice Chairperson **Dr. K. Indraveni, Ph.D**, for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to project coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(DADAM ARUNA KUMARI

CONTENTS

S. No.	CHAPTERS	Page No.
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1 - 5
2	SYSTEM STUDY	6 - 7
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	8
	3.2 DISADVANTAGES	8
	3.3 PROPOSED SYSTEM	9
	3.4 ADVANTAGES	9
4	SOFTWARE MODULES	10 - 11
5	SYSTEM ARCHITECTURE	12 - 15
6	SOFTWARE ENVIRONMENT	16 – 36
7	SYSTEM REQUIREMENTS	37
8	SYSTEM DESIGN	38 - 51
9	IMPLEMENTATION	52 - 78
10	SYSTEM TESTING	79 – 82
11	OUTPUT SCREENS	83 - 93
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

ABSTRACT

Out sourced storage such as cloud storage can significantly reduce the burden of data management of data owners. Despite of a long list of merits of cloud storage, it triggers many security risks at the same time. Data integrity, one of the most burning challenges in secure cloud storage, is a fundamental and pivotal element in outsourcing services. Outsourced data auditing protocols enable a verifier to efficiently check the integrity of the outsourced files without downloading the entire file from the cloud, which can dramatically reduce the communication overhead between the cloud server and the verifier. Existing protocols are mostly based on public key infrastructure or an exact identity, which lacks flexibility of key management. In this project, we seek to address the complex key management challenge in cloud data integrity checking by introducing attribute-based cloud data auditing, where users can upload files to cloud through some customized attribute set and specify some designated auditor set to check the integrity of the outsourced data. We formalize the system model and the security model for this new primitive, and describe a concrete construction of attribute-based cloud data integrity auditing protocol. The new protocol offers desirable properties namely attribute privacy-preserving and collusion-resistance.

LIST OF FIGURES

S. No.	Name	Page No.
1	1.1 Structure of Service Models	3
2	5.1. System Architecture	13
3	5.2. Data Flow Diagram	15
4	6.1. Compilation & Interpretation	17
5	6.2. Execution for different platforms	17
6	6.3. Java Platform	18
7	6.4. Java IDE	21
8	6.5. TCP Connection	27
9	6.6. The 32-bit address	29
10	6.7. General J2ME Architecture	32
11	8.2.1 Activity Diagram	43
12	8.2.2. Use Case Diagram	46
13	8.2.3. Sequence Diagram	47
14	8.2.4. Collaboration Diagram	48
15	8.2.5. Deployment Diagram	49
16	8.2.6. Class Diagram	50
17	8.3.E-R Notations	51
18	Output Screens	83 - 93

LIST OF ABBREVIATIONS

S. No.	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	CDI	Cloud Data Integrity
11	DBMS	Database Management System
12	ABE	Attribute Based Encryption
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

1. INTRODUCTION

1.1. What is Cloud Computing?

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced.

How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer - oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.

The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

Characteristics and Service Models

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

1. On-demand self-service: A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.

2. Broad network access: Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g. mobile phones, laptops, and PDAs).

3. Resource pooling: The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network band width, and virtual machines.

4. Rapid elasticity: Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at anytime.

5. Measured service: Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

1.2. Service Models

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layer are completed by an end user layer that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance ,she can run her own applications on their sources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself .If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.

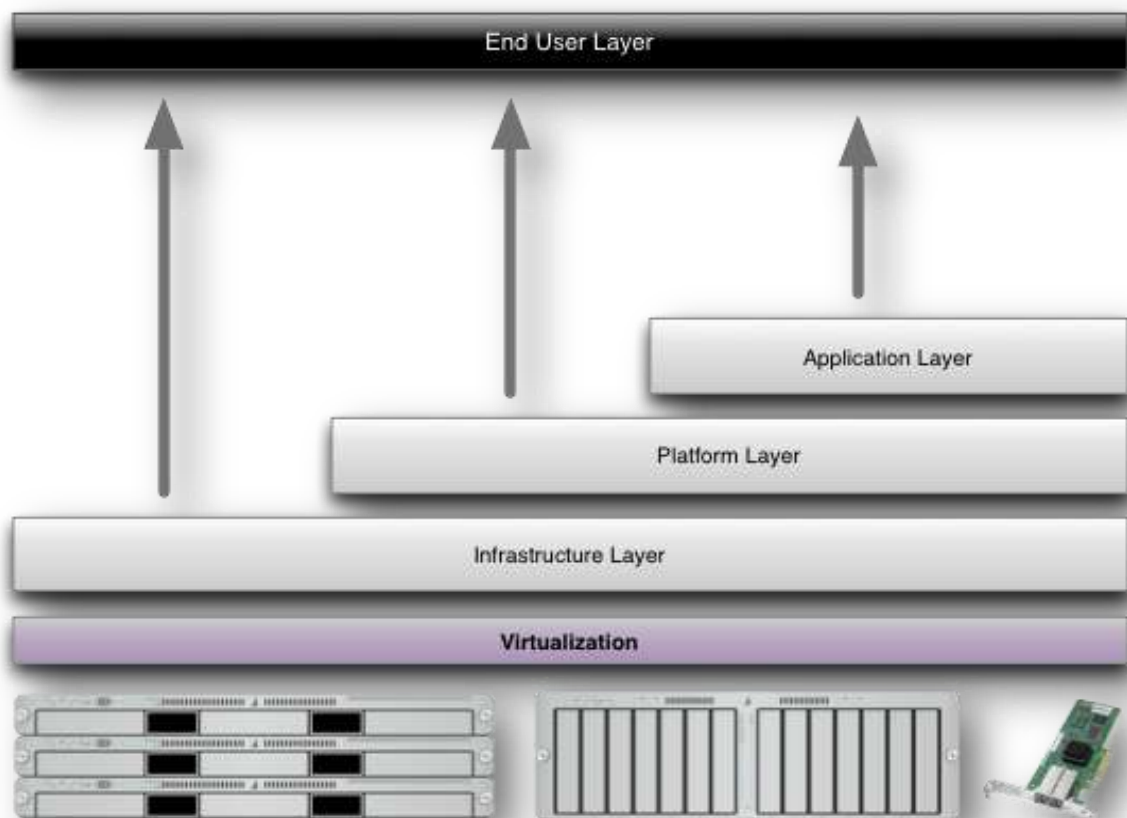


Fig 1.1 Structure of service models

Benefits of Cloud Computing

- 1. Achieve economies of scale.** Increase volume output or productivity with fewer people. Your cost per unit, project or product plummets.
- 2. Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending.

Pay as you go(weekly, quarterly or yearly), based on demand.
- 3. Globalize your workforce on the cheap.**

People worldwide can access the cloud, provided they have an Internet connection.
- 4. Streamline processes.** Get more work done in less time with less people.
- 5. Reduce capital costs.** There's no need to spend big money on hard ware, software or licensing fees.
- 6. Improve accessibility.** You have access anytime, anywhere, making your life so much easier!
- 7. Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
- 8. Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
- 9. Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
- 10. Improve flexibility.** You can change direction without serious "people" or "financial" issues at stake.

Advantages

1. **Price:** Pay for only their sources used.
2. **Security:** Cloud instances are isolated in the network from other instances for improved security.
3. **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud's core hardware.
4. **Scalability:** Auto-deploy cloud instances when needed.
5. **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
6. **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
7. **Traffic:** Deals with spike in traffic with quick deployment of additional.

2. SYSTEM STUDY

2.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

1. ECONOMICAL FEASIBILITY
2. TECHNICAL FEASIBILITY
3. SOCIAL FEASIBILITY

2.1.1 ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of found that the company can pour into there search and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achievedbecausemostof the technologiesusedarefreely available. Only the customizedproductshadtobepurchased.

2.1.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

2.1.3 SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

Deswar teet al. put forward the concept of remote data integrity checking for the first time and presented a scheme based on RSA. Filho et al. put forward a new protocol, which can greatly improve the data integrity auditing efficiency, that is, it costs 20 seconds for 1MB file. Yamamoto et al. proposed an efficient scheme by offering batch processing based on the homomorphic hash function. The similar technique was employed in Sebe, in which they proposed a Diffie-Hellman protocol based on group Z_p but the length of each data block is limited and the storage overhead of the client is $O(n)$.

Juels et al. came up with the concept of PoR and described a concrete protocol by inserting some special blocks, named sentinels, into the original file. The cloud server is challenged by verifying some sentinels. Ateniese et al. proposed a PDP protocol based on homomorphic verifiable tag (HVT). HVT can aggregate responses of n challenged blocks into a single value, which can significantly reduce the communication cost of cloud server and TPA. Erway et al. gave a framework supporting dynamic PDP by extending the protocol in [8], and proposed an efficient construction.

Shacham and Waters presented two PoR schemes using homomorphic message authentication code and BLS short signature. The previous one supports private verification, while the latter one supports public verification.

3.1 DISADVANTAGES OF EXISTING SYSTEM

1. The system is not more secure and efficient due to lack of light weight cryptography.
2. The system is not under symmetric key encryption and searchable encryption.

3.2 PROPOSED SYSTEM

In this project, the system attempts to simplify the key management issue of traditional cloud data integrity auditing protocols by incorporating attribute-based cryptography.

- 1) The system proposes the notion of attribute-based cloud data integrity auditing, where users can choose some arbitrary attributes to generate private keys and upload files to cloud server. Moreover, the data owners can specify the set of auditors who are able to check the integrity of the outsourced data.
- 2) The system formalizes the system model as well as the security model of this new primitive to ensure the security named soundness of cloud data integrity auditing.
- 3) The system describes a concrete construction of attribute based cloud data integrity auditing protocol. We then prove the security of the protocol under Shacham-Waters game-based proof framework.

3.3 ADVANTAGES OF PROPOSED SYSTEM

1. The system proposes secret sharing which is a cryptographic technique and which is more secure and efficient.
2. The system provides a formal and data integrity proof to show that the scheme is more secured and Attribute privacy-preserving is implemented for more data access.

4. SOFTWARE MODULES

4.1 MODULES

The modules of Attribute Based Cloud Data Integrity Auditing for Secure Outsourced Storage are:

1. Dataowner
2. Enduser
3. TPA
4. Cloudserver
5. KGC

4.2 MODULES DESCRIPTION

Data Owner

In this module, Data Owner logs in by using his/her user name and password. AfterLogin receiver will perform operations like Upload Data, View Your Files, Check Data integrity, Check Data Replication, Update Block.

End User

In this module, End User logs in by using his/her user name and password. After Login receiver will perform operations like Request Private Key, View Private Key Response, Download File.

TPA

In this module, the TPA (Third Party Authority) can do following operations such as View Meta Data, View All Deduplication and tpa is responsible for Data Integrity proof from the Data Owner.

Cloud Server

The Cloud Server manages a server to provide data storage service and can also do the following operations such as View Data Owners, View End Users, View Data Blocks, View Attackers, View Transactions, View Data Replication Found Details, View Time Delay Results, View Throughput Results, View Data Replication Results.

KGC

In this module, the KGC (Key Generation Center) can do following operations such as View requested private key & response.

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

5.1 SYSTEM ARCHITECTURE

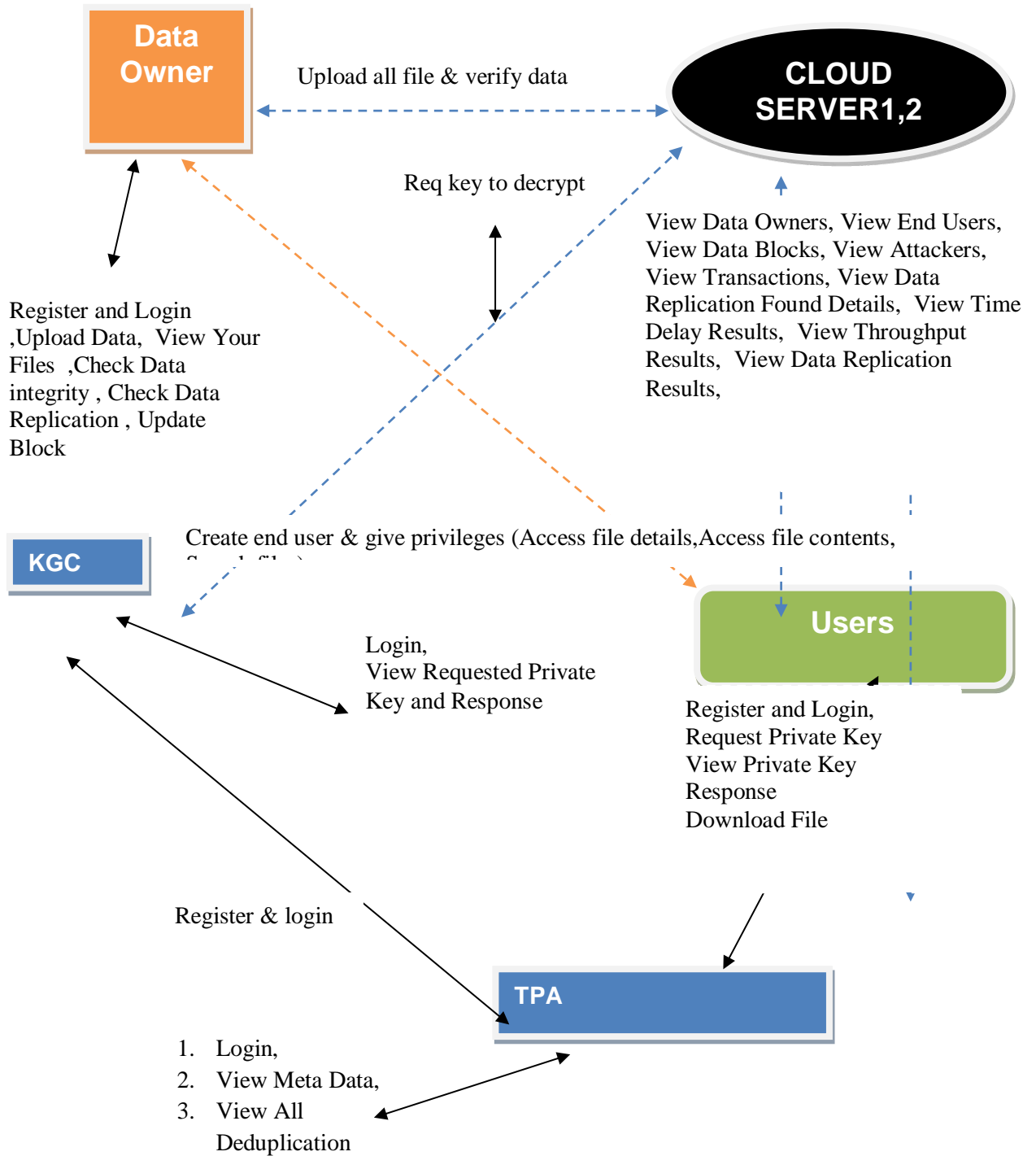
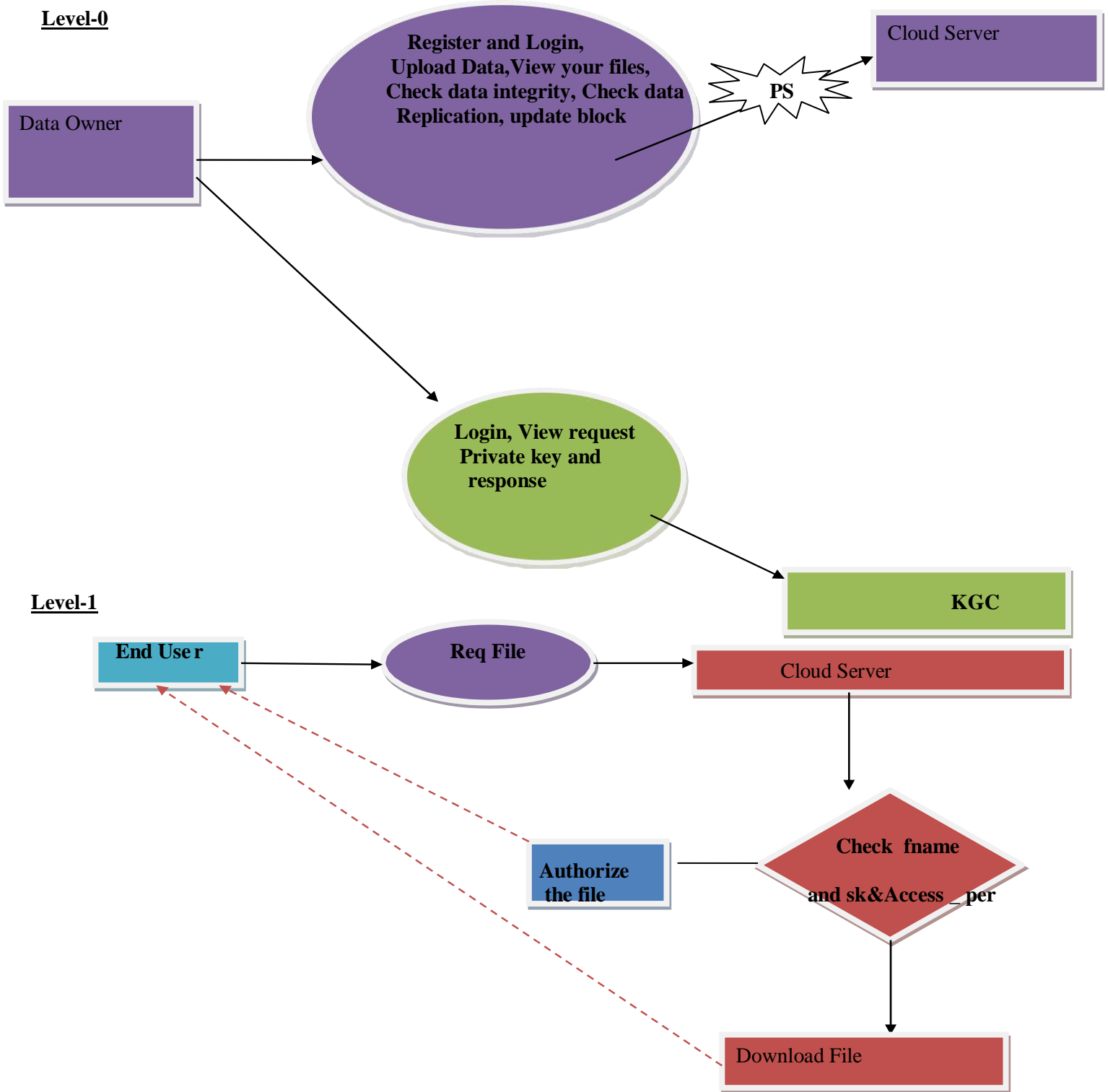


Fig 5.1 System Architecture

5.2 DATA FLOW DIAGRAM



Level -2

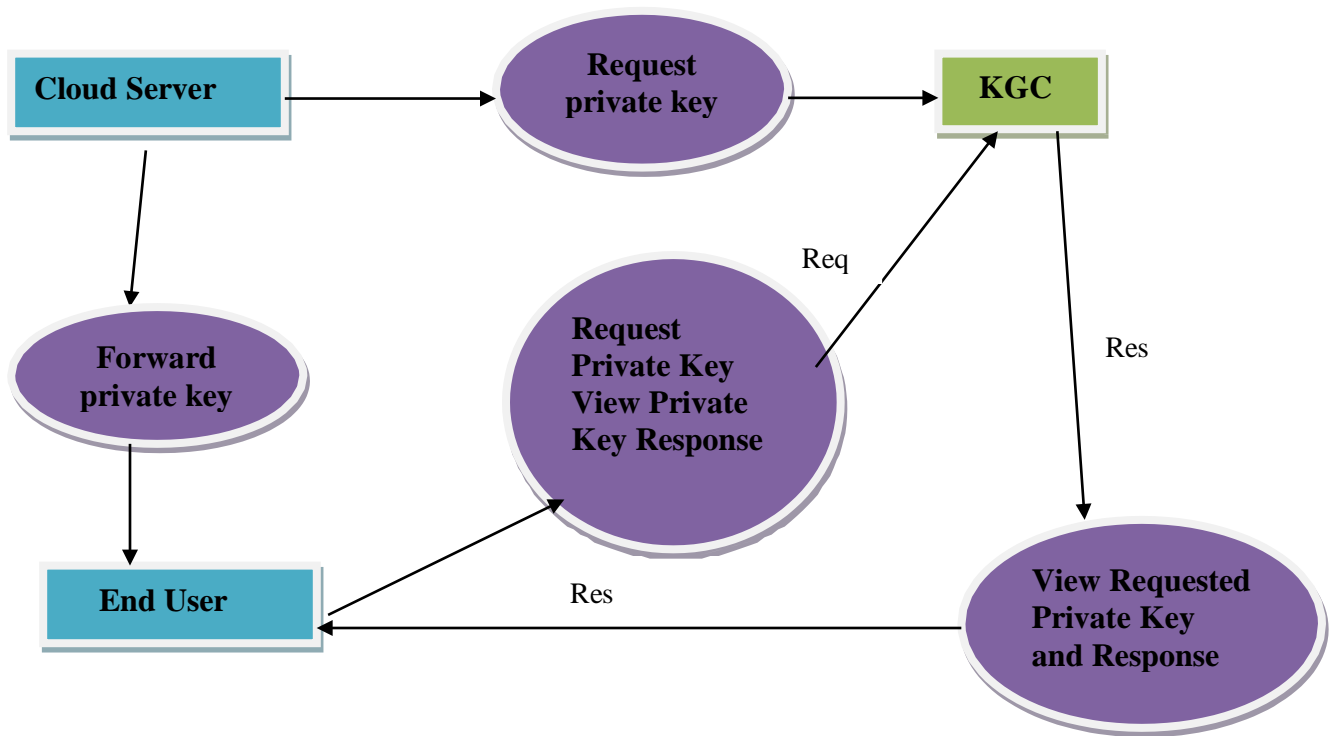


Fig 5.2 Data Flow Diagram

6. SOFTWARE ENVIRONMENT

JavaTechnology

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzz words:

1. Simple
2. Architecture neutral
3. Object oriented
4. Portable
5. Distributed
6. High performance
7. Interpreted
8. Multithreaded
9. Robust
10. Dynamic
11. Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes – the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

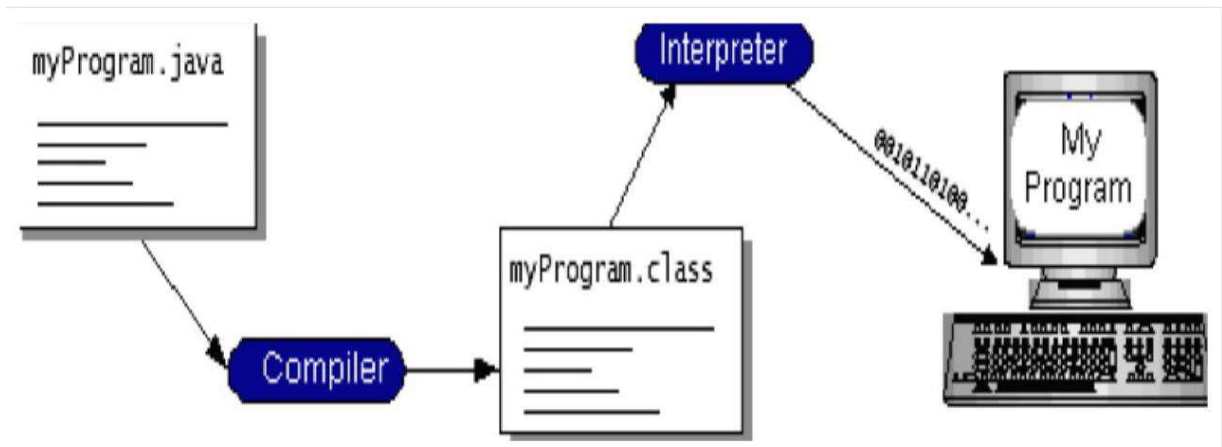


Fig 6.1 Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the JavaVirtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris work station, or on an iMac.

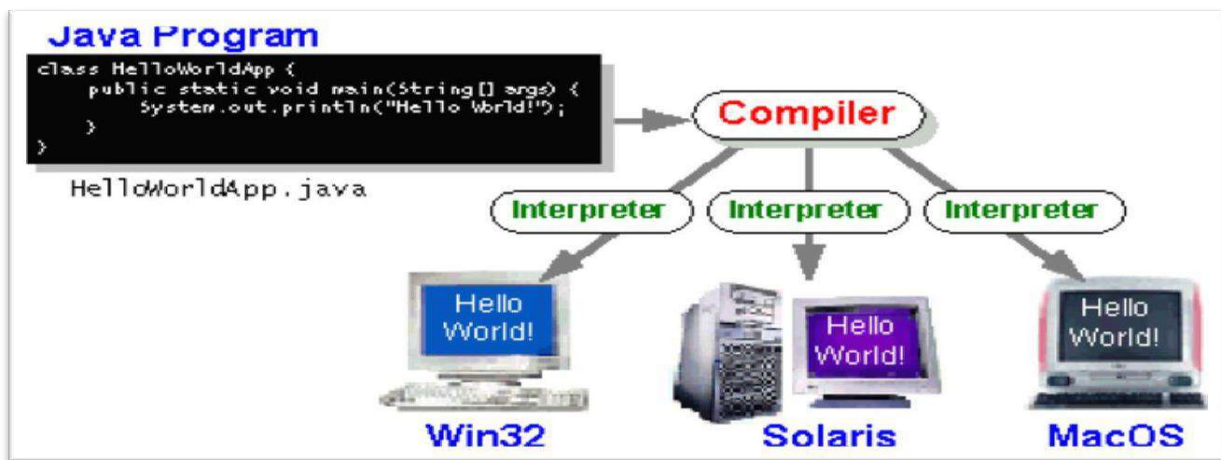


Fig 6.2 Execution for different platforms

The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

1. The Java Virtual Machine (JavaVM)
2. The Java Application Programming Interface (JavaAPI)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? High lights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

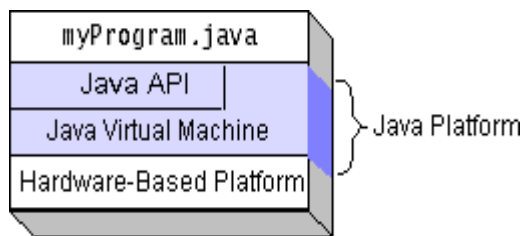


Fig 6.3 Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Javaplatform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance close to that of native code without threatening portability.

What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs. An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

1. **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
2. **Applets:** These set of conventions used by applets.
3. **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
4. **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.
5. **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
6. **Software components:** Known as JavaBeans, can plug into existing component architectures.
7. **Object serialization:** Allows light weight persistence and communication via Remote Method Invocation (RMI).
8. **Java Database Connectivity (JDBC):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2SDK.

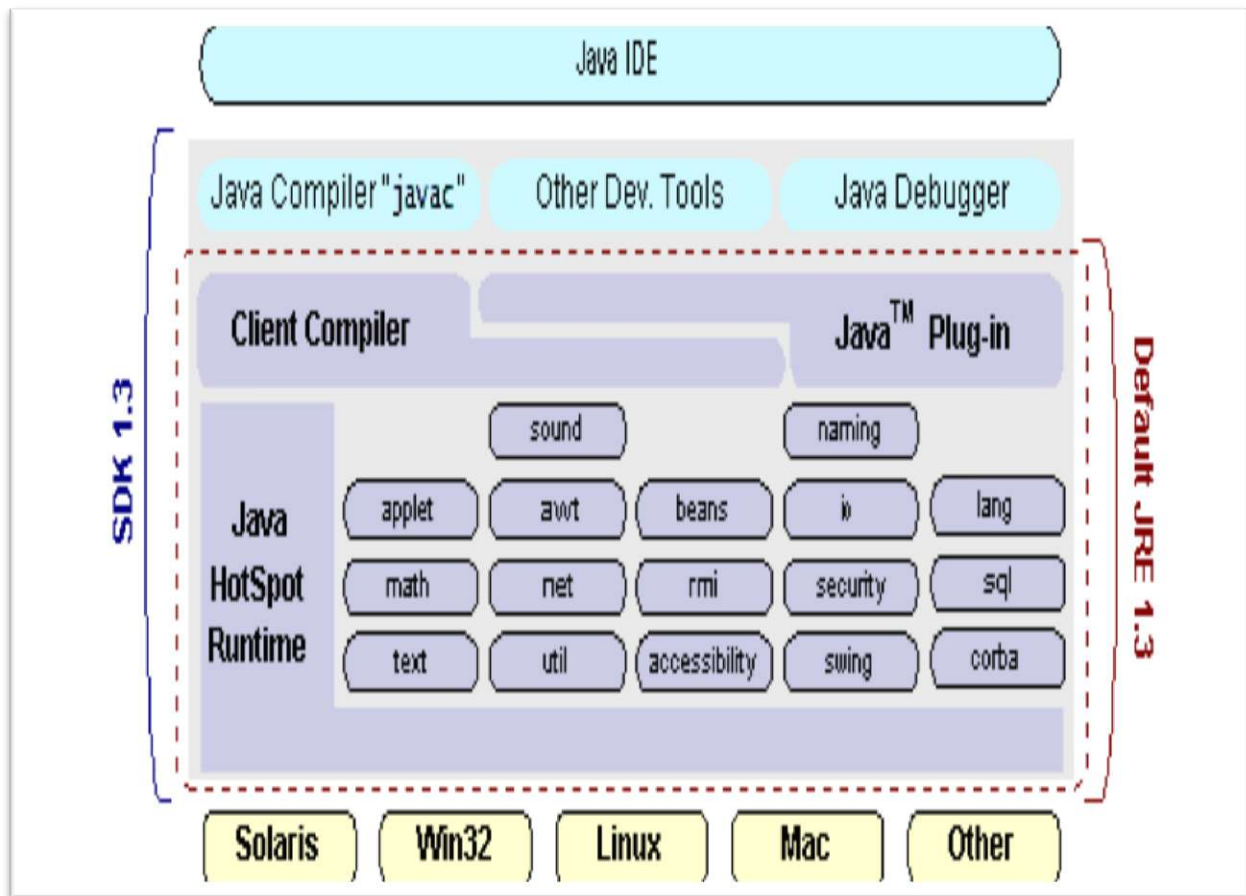


Fig 6.4 Java IDE

How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.

- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you use other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded "on the fly," without recompiling the entire program.

ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became *ade facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBC INST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC

administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. May be not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Mean while, computers get faster every year.

JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of “plug-in” Database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has wide spreads support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBCv1.0 specification was

released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

SQL Level

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest data base interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.

SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

JDBC must be implemented on top of common database interfaces

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

Provide a Java interface that is consistent with the rest of the Java system

Because of Java's acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

Keep it simple

This goal probably appears in all software design goal listings. JDBC is no exception. Sun felt that the design of JDBC should be very simple, allowing for only one method of completing a task per mechanism. Allowing duplicate functionality only serves to confuse the users of the API.

Use strong, static typing where ever possible

Strong typing allows for more error checking to be done at compile time; also, less error appear at run time.

Keep the common cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT's, INSERT's, DELETE's and UPDATE's, the queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally, we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compiler you translate Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java

development tool or a Web browser that can run Java applets, is an implementation of the JavaVM. The Java VM can also be implemented in hardware. Java byte codes help make “write once, run anywhere” possible. You can compile your Java program into byte code so any platform that has a Java compiler.

Networking

TCP / IP stack

The TCP / IP stack is shorter than the OSI one:

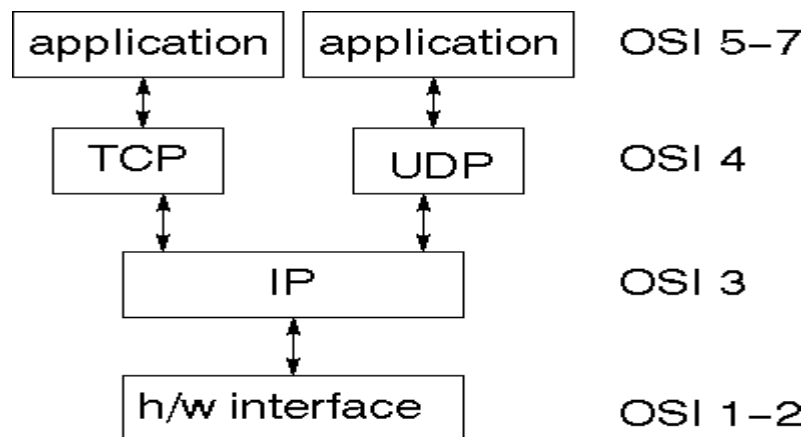


Fig 6.5 TCP is a connection-oriented protocol, UDP (User Datagram Protocol)

IP Datagram's

The IP layer provides a connectionless and unreliable delivery system. It considers each data gram independently of the others. Any association between data gram must be supplied by the higher layers. The IP layer supplies a check sum that includes its own header. The header includes the source and destination addresses. The IP layer handles routing through an Internet. It is also responsible for breaking up large datagram into smaller ones for transmission and re assembling them at the other end.

UDP

UDP is also connectionless and unreliable. What it adds to IP is a checksum for the content of the data gram and port numbers. These are used to give a client/server model-see later.

TCP

TCP supplies logic to give a reliable connection-oriented protocol above IP. It provides a virtual circuit that two processes can use to communicate.

Internet Addresses

In order to use a service, you must be able to find it. The Internet uses an address scheme for machines so that they can be located. The address is a 32 bit integer which gives the IP address. This encodes a network ID and more addressing. The network ID falls into various classes according to the size of the network address.

Network Address

Class A uses 8 bits for the network address with 24 bits left over for other addressing. Class B uses 16 bit network addressing. Class C uses 24-bit network addressing and class D uses all 32.

Subnet Address

Internally, the UNIX network is divided into sub networks. Building 11 is currently on one sub network and uses 10-bit addressing, allowing 1024 different hosts.

Host Address

8 bits are finally used for host addresses within our subnet. This places a limit of 256 machines that can be on the subnet.

Total Address

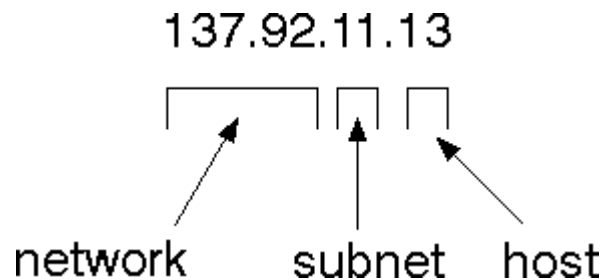


Fig6.6 The 32 bit address is usually written as 4 integers separated by dots.

Port Addresses

A service exists on a host, and is identified by its port. This is a 16 bit number. To send a message to a server, you send it to the port for that service of the host that it is running on. This is not location transparency! Certain of these ports are "well known".

SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with `read File` and `Write File` functions.

```
#include
<sys/types.h
>#include
<sys/socket.
h>
Int socket (int family, int type, int protocol);
```

Here "family" will be AF_INET for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe-but the actual pipe does not yet exist.

JFREE CHART

JFree Chart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFree Chart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for any output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFree Chart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public License (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely

redistribute able vector outlines for the countries of the world, states/ provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYP lot class in JFree Chart. Testing, documenting, testing somemore, documenting some more.

Time Series Chart Interactivity

Implement a new (to JFree Chart) feature for interactive time series charts to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

Dash Boards

There is currently a lot of interest in dashboard displays. Create a flexible dash board mechanism that supports a subset of JFree Chart chart types (dials, pies, thermometers, bars, and lines/ time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFree Chart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

J2ME (Java2 Micro edition)

Sun Micro systems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and carnavigation systems." Announced in June 1999 at the JavaOne Developer Conference,

J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

General J2ME Architecture

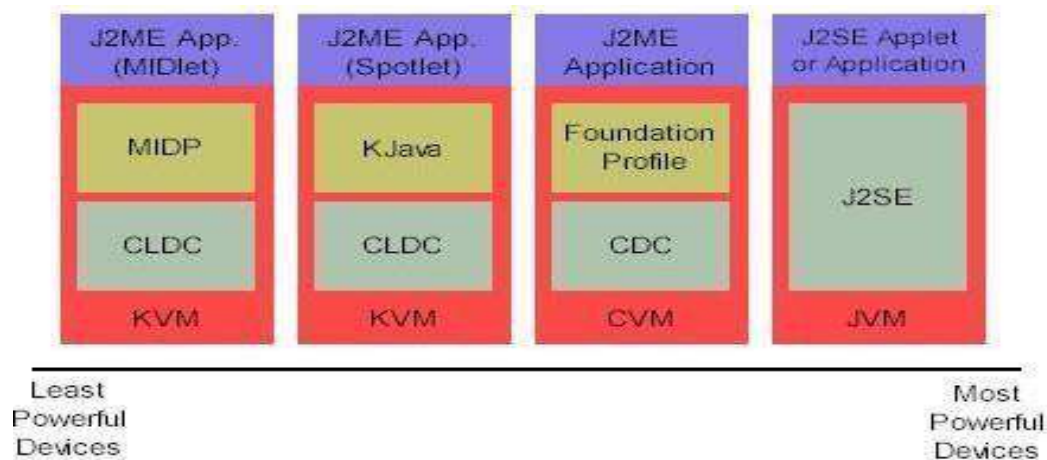


Fig 6.7 General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in theThefollowing graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the

J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine-- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

Developing J2ME Applications

In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Design considerations for small devices

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

1. Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
2. Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
3. Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are

finished with them. Another way to reduce run- time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

Configurations Over View

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

1. **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palmhand-held computer.
2. **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

J2ME PROFILES

What is a J2ME profile?

As we mentioned earlier in this tutorial, a profile defines the type of device supported. The Mobile Information Device Profile (MIDP), for example, defines classes for cellular phones. It adds domain-specific classes to the J2ME configuration to define uses for similar devices. Two profiles have been defined for J2ME and are built upon CLDC: KJava and MIDP. Both KJava and MIDP are associated with CLDC and smaller devices. Profiles are built on top of configurations. Because profiles are specific to the size of the device (amount of memory) on which an application runs, certain profiles are associated with certain configurations. As a starting point upon which you can create your own profile, the Foundation Profile, is available for CLDC.

Profile1: KJava

KJava is Sun's proprietary profile and contains the KJava API. The KJava profile is built on top of the CLDC configuration. The KJava virtual machine, KVM, accepts the same byte codes and class file format as the classic J2SE virtual machine. KJava contains a Sun-specific API that runs on the Palm OS. The KJava API has a great deal in common with the J2SE Abstract Windowing Tool kit (AWT). However, because it is not a standard J2ME package, its main package is `com.sun.kjava`. We'll learn more about the KJava API later in this tutorial when we develop some sample applications.

Profile2: MIDP

MIDP is geared toward mobile devices such as cellular phones and pagers. The MIDP, like KJava, is built upon CLDC and provides a standard run-time environment that allows new applications and services to be deployed dynamically on end user devices. MIDP is a common, industry-

standard profile for mobile devices that is not dependent on a specific vendor. It is a complete and supported foundation for mobile application development. MIDP contains the following packages, the first three of which are core CLDC packages, plus three MIDP-specific packages.

1. java.lang
2. java.io
3. java.util
4. javax.microedition.io
5. javax.microedition.lcdui
6. javax.microedition.midlet
7. javax.microedition.rms

7.SYSTEM REQUIREMENTS

7.1 HARDWARE REQUIREMENTS

- Processor : Intel (R) Core (TM) i3-4200U
- CPU : 1.6 GHz
- RAM : 4 GB
- Hard Disk : 20 GB

7.2 SOFTWARE REQUIREMENTS

- Operating System : windows 7 / 8.1 / 10
- Server : Apache Tomcat 6.0
- Database : MYSQL Server 5.0
- Front end : HTML, CSS, JS
- Backend : JSP

8.SYSTEM DESIGN

8.1 DATA FLOW DIAGRAM

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modeling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. ADFD may be used to represent a system at any level of abstraction. DFD may be partitioned into levels that represent increasing information flow and functional detail.

8.2 UML DIAGRAMS

8.2.1 Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language, activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

Activity Diagram for Cloud Server

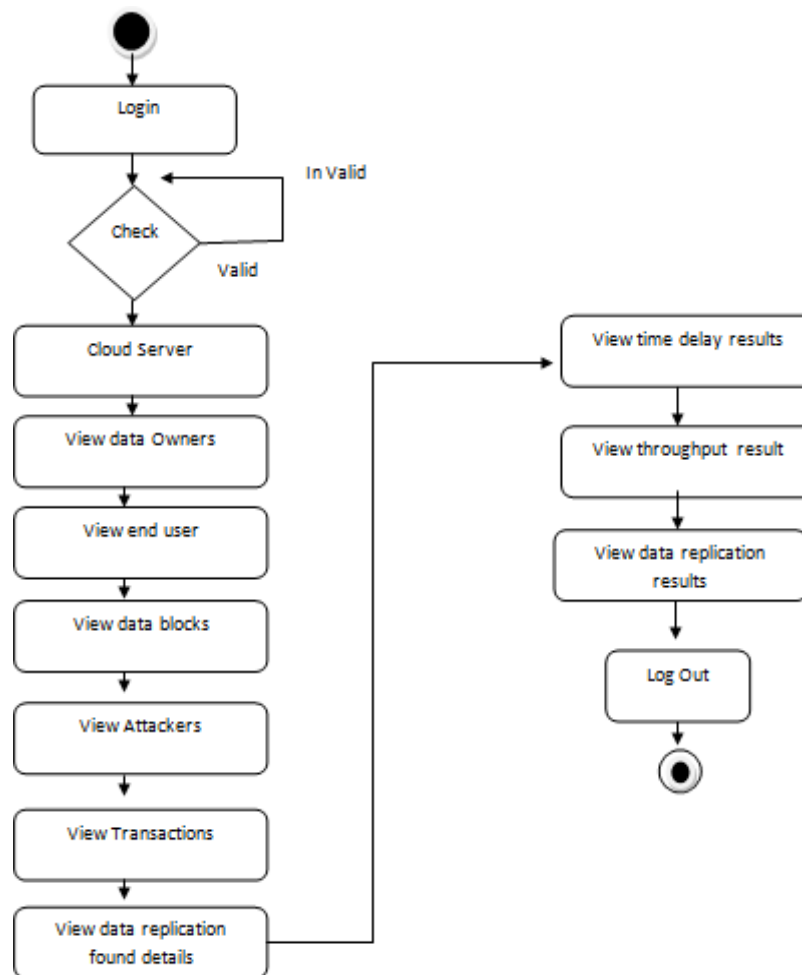


Fig 8.2 1 Activity Diagram for Cloud Server

Activity Diagram for Data Owner

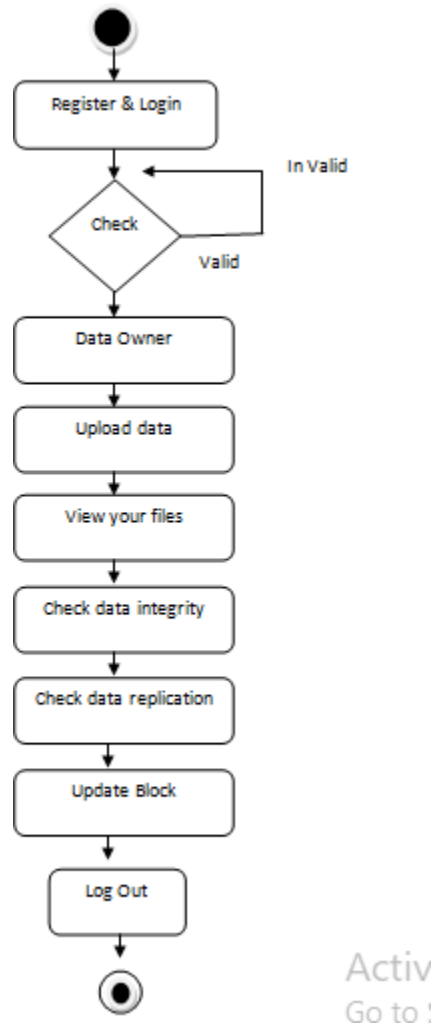


Fig 8.2.1 Activity Diagram for Data owner

Activity Diagram for KGC

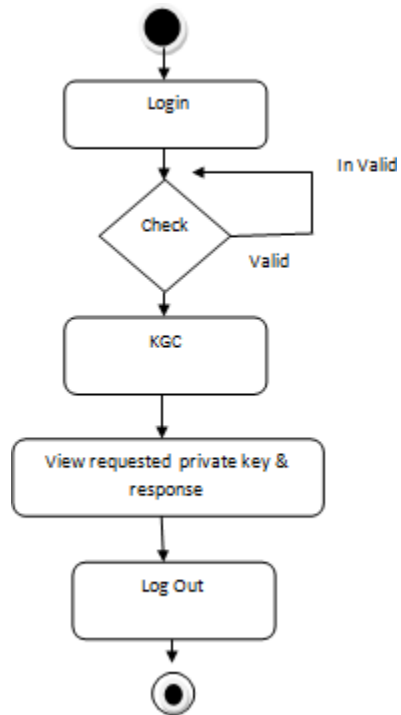


Fig 8.2.1 Activity Diagram for KGC

Activity Diagram for End User

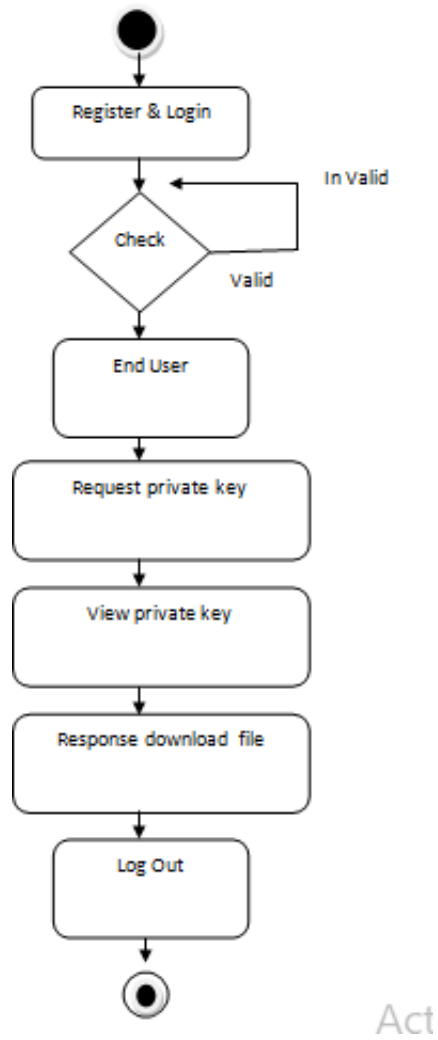


Fig 8.2.1 Activity Diagram for End user

Activity Diagram for TPA

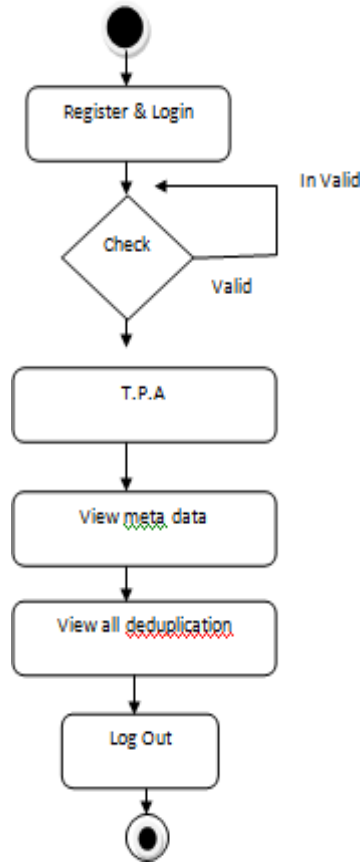


Fig 8.2.1 Activity Diagram for TPA

8.2.2 Use Case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

Use Case Diagram for Cloud Server

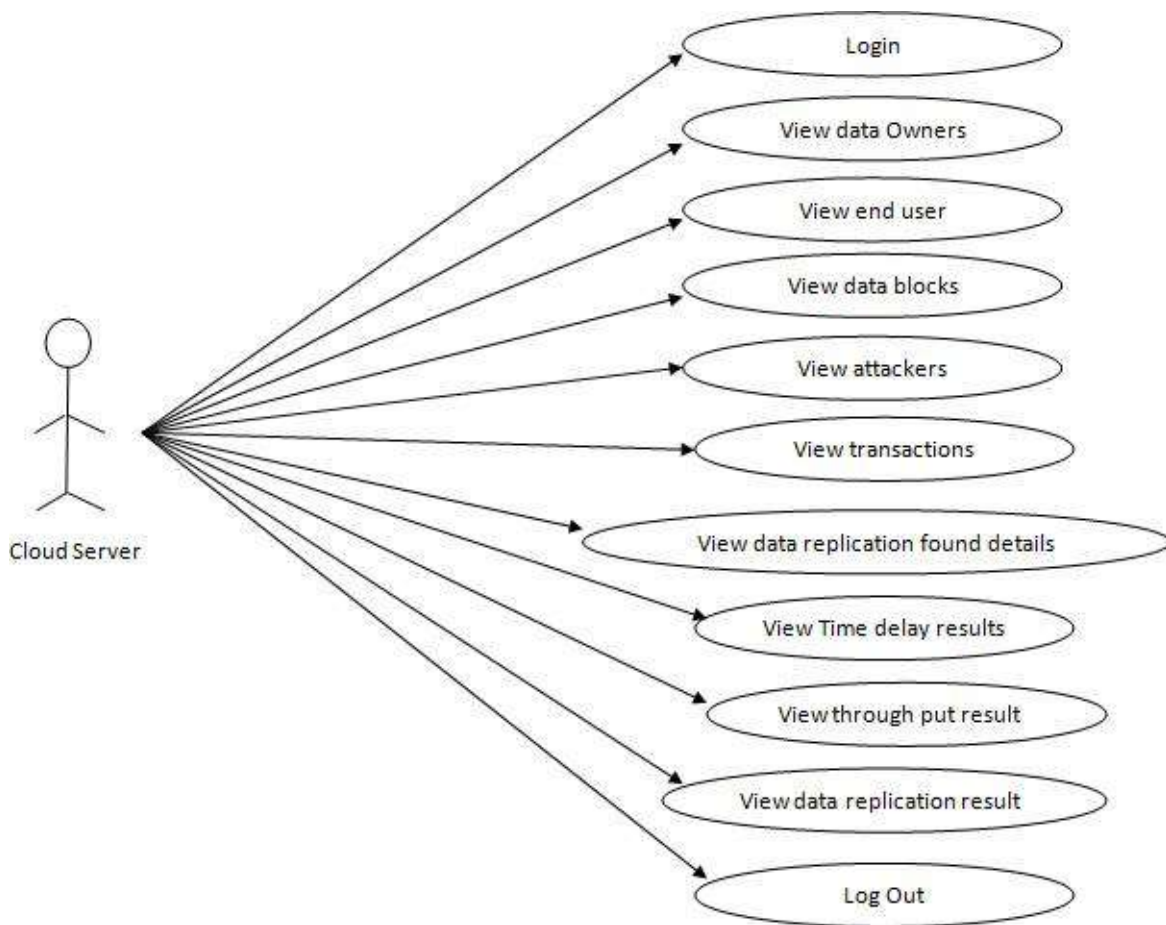


Fig 8.2.2 Use Case Diagram for Cloud Server

Use Case Diagram for Data Owner

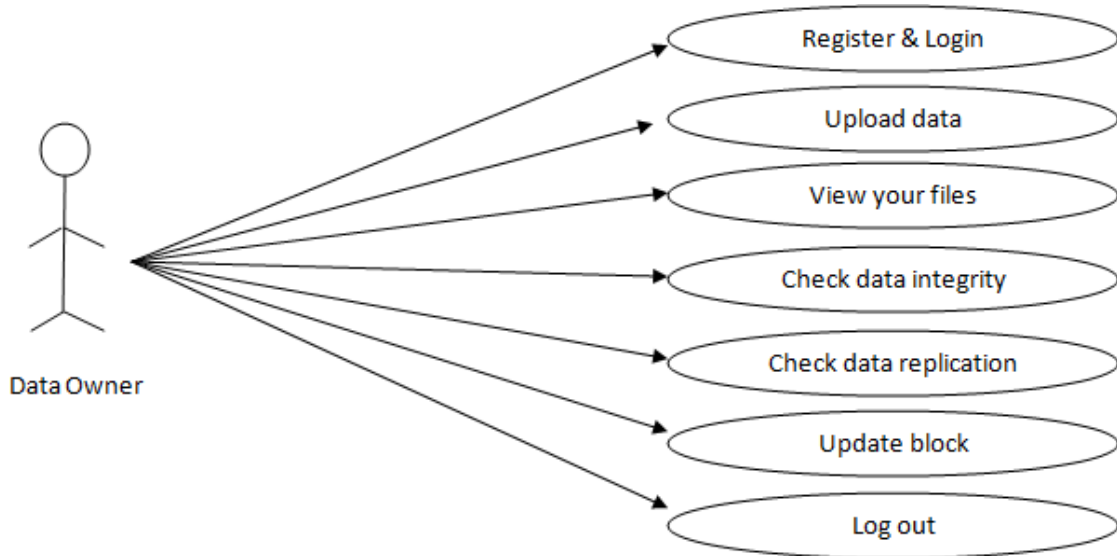


Fig 8.2.2 Use Case Diagram for Data Owner

Use Case Diagram for KGC

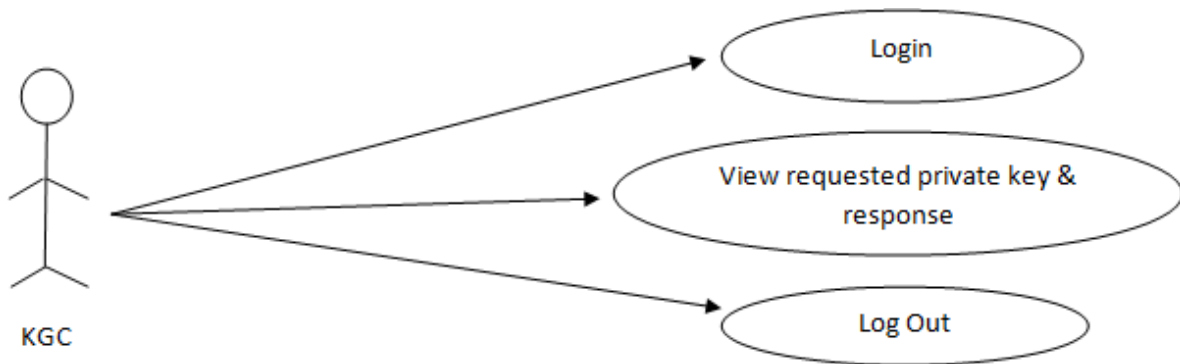


Fig 8.2.2 Use Case Diagram for KGC

Use Case Diagram for End User

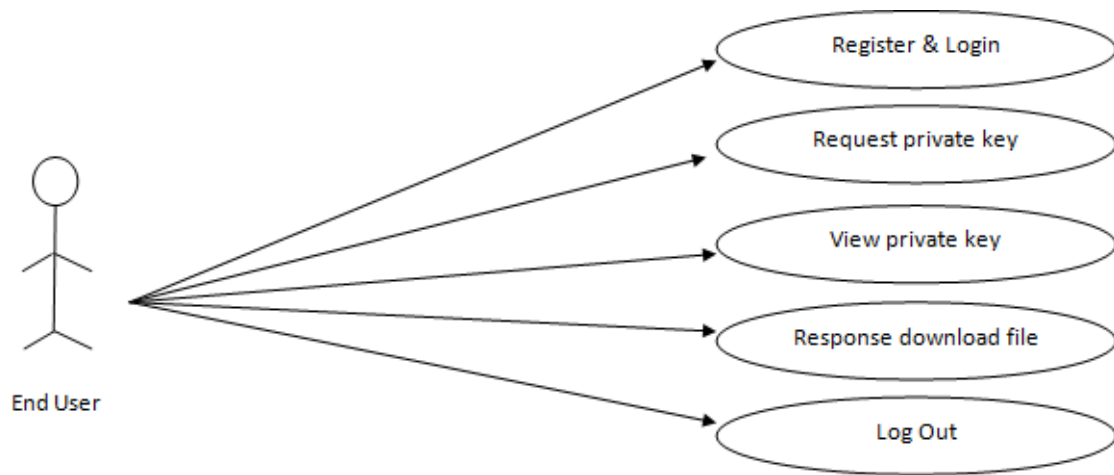


Fig 8.2.2 Use Case Diagram for End User

Use Case Diagram for TPA

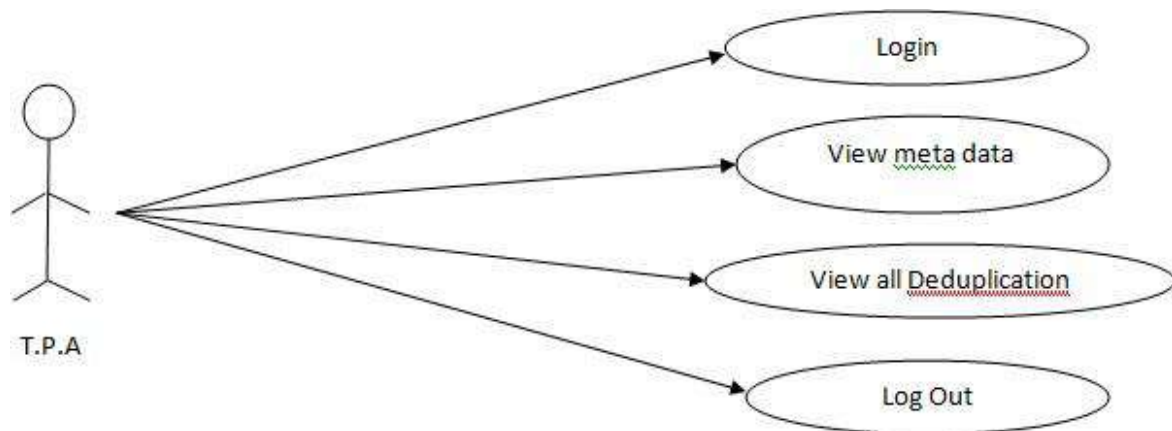


Fig 8.2.2 Use Case Diagram for TPA

8.2.3 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence charts equence diagram are sometimes called event diagram, event scenarios, and timing diagram.

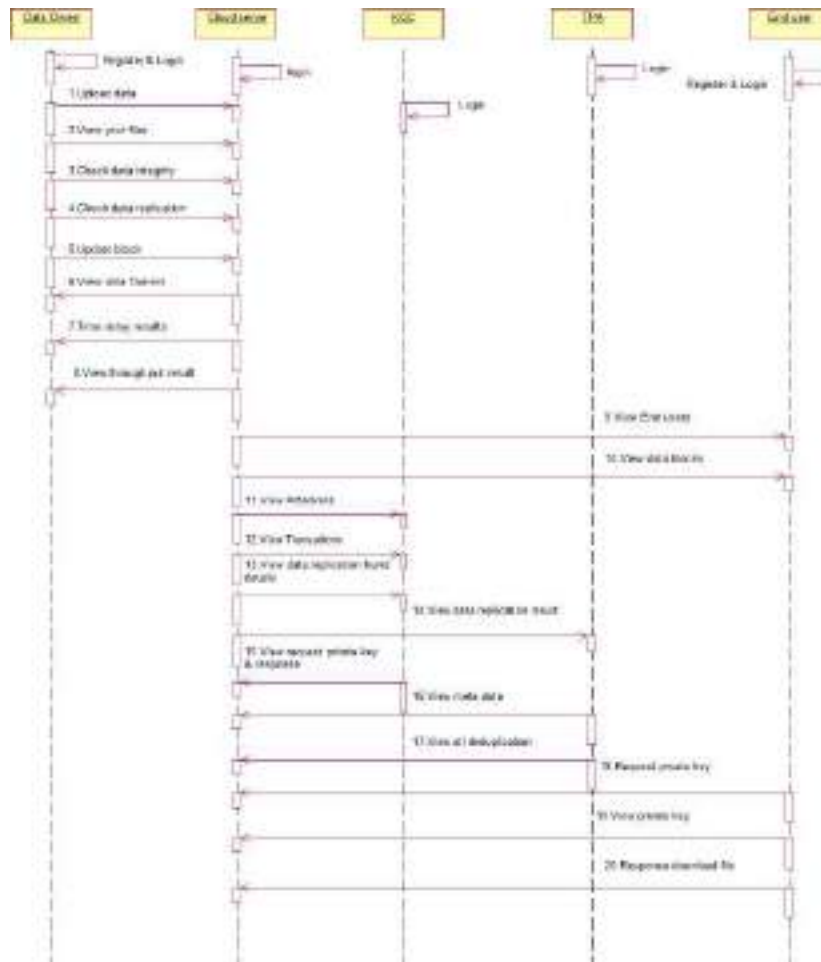


Fig 8.2.3 Sequence Diagram

8.2.4 Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

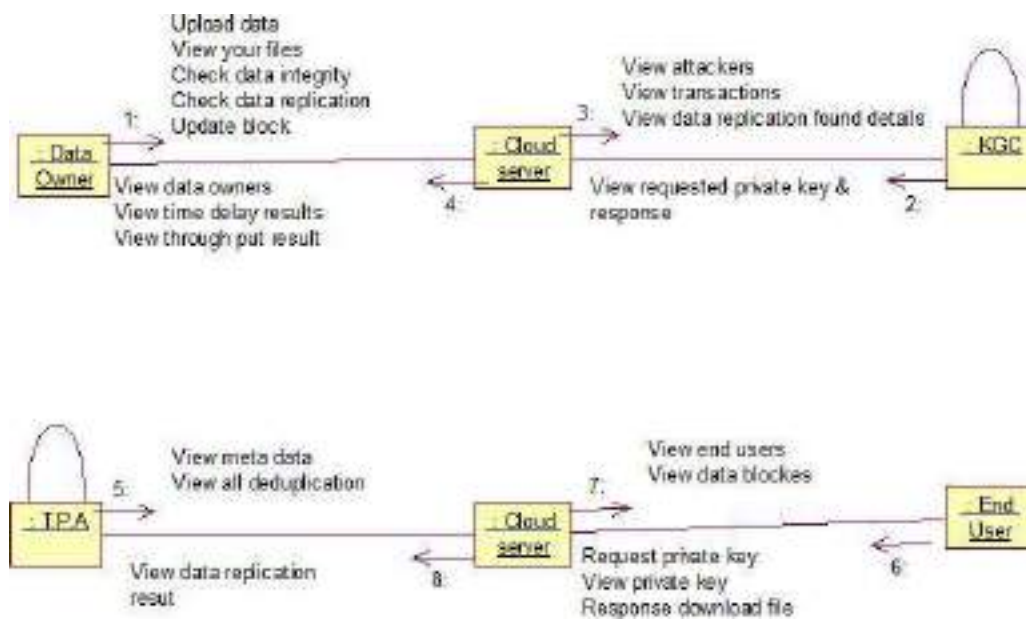


Fig 8.2.4 Collaboration Diagram

8.2.5 Deployment Diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

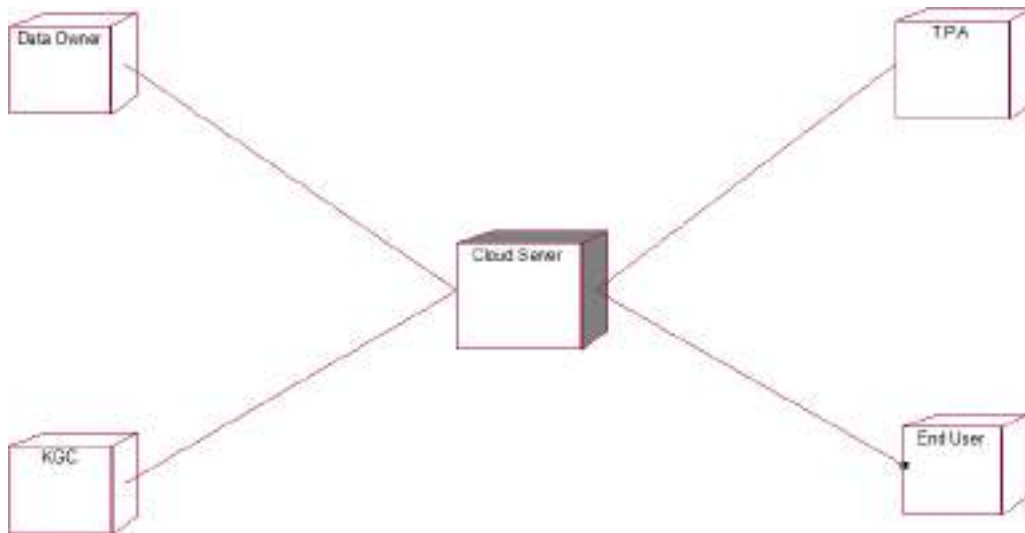


Fig 8.2.5 Deployment Diagram

8.2.6 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items. There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes, Responsibilities and Collaborators approach.

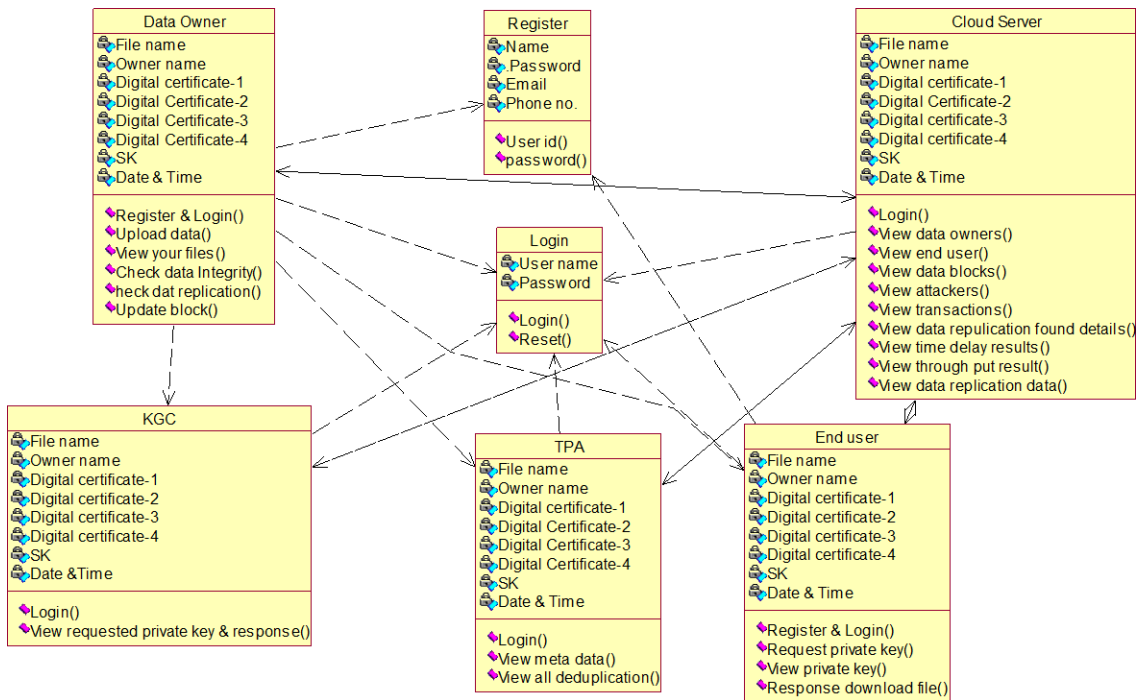


Fig 8.2.6 Class Diagram

8.3 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simple, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.

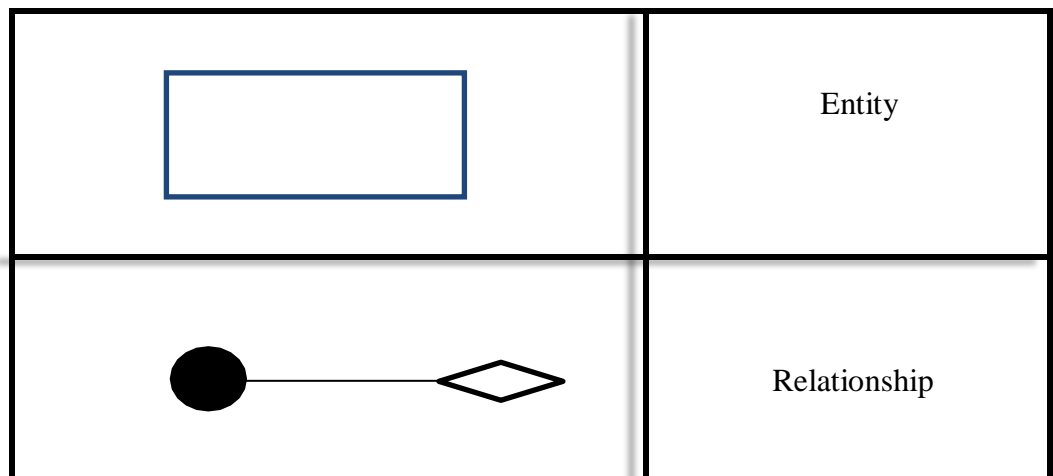


Fig 8.3 E-R Notations

9.IMPLEMENTATION

9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

1. What data should be given as input?
2. How the data should be arranged or coded?
3. The dialog to guide the operating personnel in providing input.
4. Methods for preparing input validations and steps to follow when error occur.

9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.

3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.
4. When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user.
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

9.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.

2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.

- Convey information about past activities, current status or projections of the future.
- Signal important events, opportunities, problems, or warnings.
- Trigger an action.
- Confirm an action.

9.4 CODING

Index.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0  
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-  
transitional.dtd">  
<htmlxmlns="http://www.w3.org/1999/xhtml">  
<head>  
<title>HOMEPAGE</title>  
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>  
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>  
<linkrel="stylesheet"type="text/css" href="css/coin-slider.css"/>  
<scripttype="text/javascript"src="js/cufon-yui.js"></script>  
<scripttype="text/javascript"src="js/droid_sans_400-droid_sans_700.font.js"></script>  
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>  
<scripttype="text/javascript"src="js/script.js"></script>  
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>  
<styletype="text/css">
```

```
<!--
.style2{

    color:
    #FF0000;font-
    style:italic;font-
    weight:bold;
}
.style3{color:#FF0000}
.style4{
    font-size:
    36px;color:
    #FF0000;font-
    weight:bold;
}
-->
</style>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">
<ul>
<liclass="active"><ahref="index.html"><span>HomePage</span></a></li>
<li><ahref="DataUser.jsp"><span>DATAOWNER</span></a></li>
<li><ahref="CloudServer.jsp"><span>CLOUDSERVER</span></a></li>
<li><ahref="EndUser.jsp"><span>ENDUSER</span></a></li>
<li><ahref="KGC.jsp"><span>KGC</span></a></li>
<li><ahref="TPA_Login.jsp"><span>TPA</span></a></li>
</ul>
</div>
<divclass="clr"></div>
<divclass="logo">
<h1class="style4">AttributeBasedCloudDataIntegrityAuditingforSecureOutsourcedStorage</h1>
</div>
<divclass="clr"></div>
<divclass="slider">
<divid="coin-
slider"><ahref="#"><imgsrc="images/slide1.jpg"width="960"height="360"alt=""/></a><ahref=
"#"><imgsrc="images/slide2.jpg"width="960"height="360"alt=""/></a><ahref="#"><imgsrc="i
mages/slide3.jpg"width="960"height="360"alt=""/></a></div>
<divclass="clr"></div>

</div>
```

```
<divclass="clr"></div>
</div>
</div>
<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
        <h2 class="style3">Attribute Based Cloud Data Integrity Auditing for Secure
        OutsourcedStorage</h2>
        <pclass="infopost">&nbsp;</p>
        <divclass="clr"></div>
        <divclass="img"><imgsrc="images/img1.jpg"width="620"height="154"alt=""class="fl"/>
</div>
      <divclass="post_content">
        <palign="justify"class="style2">Outsourced storage such as cloud storage can
        significantly reduce the burden of data management of data owners. Despite of a long list of merits
        of cloud storage, it triggers many security risks at the same time. Data integrity, one of the most
        burning challenges in secure clouds storage, is a fundamental and pivotal element in out sourcing
        services.Outsourced data auditing protocols enable a verifier to efficiently check the integrity of
        the outsourced files without downloading the entire file from the cloud, which can dramatically
        reduce the communication overhead between the cloud server and the verifier.Existing protocols
        are mostly based on public key infrastructure or an exact identity, which lacks flexibility of key
        management. In this paper, we seek to address the complex key management challenge in cloud
        data integrity checking by introducing attribute-based cloud data auditing, where users can upload
        files to cloud through some customized attribute set and specify some designated auditor set to
        check the integrity of the outsourced data. We formalize the system model and the security model
        for this new primitive, and describe a concrete construction of attribute-based cloud data integrity
        auditing protocol. The new protocol offers desirable properties namely attribute privacy-
        preserving and collusion-resistance. We prove soundness of our protocol based on the
        computational Diffie-Hellman assumption and the discrete
        Alogarithm assumption. Finally, we develop a prototype of the protocol which
        demonstrates the practicality of the protocol.
        </p>
      </div>
    </divclass="clr"></div>
  </div>
</div>
<divclass="sidebar">
  <divclass="searchform"></div>
  <divclass="clr"></div>
  <divclass="gadget">
    <h2class="star"><span>Home</span>Menu</h2>
    <divclass="clr"></div>
    <ulclass="sb_menu">
      <li><strong><a href="index.html">Home</a></strong></li>
    </ul>
  </div>
</div>
```



```
<li><strong><ahref="DataUser.jsp">DataUser</a></strong></li>
<li><strong><ahref="CloudServer.jsp">CloudServer</a></strong></li>
<li><strong><ahref="EndUser.jsp">EndUser</a></strong></li>

    <li><strong><ahref="KGC.jsp">KGC</a></strong></li>
    <li><strong><ahref="TPA_Login.jsp">TPA</a></strong></li>
</ul>
</div>
</div>
</div>
</div>
<divclass="fbg"></div>
<divclass="footer">
</html>
```

Cloud Server Main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
    Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>CloudServerMain</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/droid_sans_400-droid_sans_700.font.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style2{
    color:
    #FF0000;font-
    style:italic;font-
    weight:bold;
}
.style4{    font-size:36px;

}
-->
```

```
color: #FF0000;font-
weight:bold;
</style>
</head>
<body>
<divclass="main">
  <divclass="header">
    <divclass="header_resize">
      <divclass="menu_nav">
        <ul>
          <liclass="active"><ahref="index.html"><span>HomePage</span></a></li>
          <li><ahref="DataUser.jsp"><span>DataUser</span></a></li>
          <li><ahref="CloudServer.jsp"><span>CloudServer</span></a></li>
          <li><ahref="EndUser.jsp"><span>EndUser</span></a></li>
          <li><strong><ahref="KGC.jsp">KGC</a></strong></li>
          <li><strong><ahref="TPA_Login.jsp">TPA</a></strong></li>
        </ul>
      </div>
    <divclass="clr"></div>
    <divclass="logo">
      <h1><spanclass="style4">AttributeBasedCloudDataIntegrityAuditingforSecureOutsourced
Storage</span></h1>
    </div>
    <divclass="clr"></div>
    <divclass="slider">
      <divid="coin-
slider"><ahref="#"><imgsrc="images/slide1.jpg"width="960"height="360"alt=""/></a><ahref=
"#"><imgsrc="images/slide2.jpg"width="960"height="360"alt=""/></a><ahref="#"><imgsrc="i
mages/slide3.jpg"width="960"height="360"alt="" /></a></div>
      <divclass="clr"></div>
    </div>
    <divclass="clr"></div>
  </div>
</div>
<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
        <h2><span>WELCOMETOCLOUDSERVER</span></h2>
        <pclass="infopost">&nbsp;<ahref="#"class="com"></a></p>
      <divclass="clr"></div>
      <div class="img"></div>
      <divclass="post_content">
        <palign="justify"class="style2">&nbsp;</p>
      </div>
    </div>
  </div>
</div>
```

```
<pclass="spec"><a href="#" class="rm">..</a></p>

</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
  <div class="searchform"></div>
  <div class="clr"></div>
  <div class="gadget">
    <h2 class="star"><span>Cloud</span>Menu</h2>
    <div class="clr"></div>
    <ul class="sb_menustyle2">
      <li><a href="CloudServerMain.jsp">Home</a></li>
      <li><a href="CViewDataOwners.jsp">ViewDataOwners</a></li>
      <li><a href="CViewEndUsers.jsp">ViewEndUsers</a></li>
      <li><a href="CViewAllBlocks.jsp">ViewDataBlocks</a></li>

      <li><a href="CViewAllAttackers.jsp">ViewAttackers</a></li>
      <li><a href="CViewAllTransactions.jsp">ViewTransactions</a></li>
      <li><a href="CViewAllDeduplication.jsp">View Data Replication Found Details
</a></li>
      <li><a href="CView_Time_Delay_Results.jsp">ViewTimeDelayResults</a></li>
      <li><a href="CView_Throughput_Delay_Results.jsp">View
Throughput Results</a></li>

      <li><a href="CViewResults.jsp">ViewDataReplicationResults</a></li>
      <li><a href="index.html">Logout</a></li>
    </ul>
  </div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer">

</html>
```

Data User.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
    Transitional//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/droid_sans_400-droid_sans_700.font.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style3{
    color:
        #FF0000;font-
        weight:bold;
}
.style7{color:#FF0000}
.style4{    font-
    size:36px;color:#FF00
    00;
    font-weight:bold;
}
-->
</style>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">
<ul>
<liclass="active"><a href="index.html"><span>HomePage</span></a></li>
<li><a href="DataUser.jsp"><span>DataUser</span></a></li>
<li><a href="CloudServer.jsp"><span>CloudServer</span></a></li>
<li><a href="EndUser.jsp"><span>EndUser</span></a></li>
</ul>
</div>
</div>
```



```
<divclass="clr"></div>
<divclass="logo">
  <h1><spanclass="style4">AttributeBasedCloudDataIntegrityAuditingforSecureOutsourced
Storage</span></h1>
</div>
<divclass="clr"></div>
<divclass="slider">
  <divid="coin-
slider"><ahref="#"><imgsrc="images/slide1.jpg"width="960"height="360"alt=""/></a><ahref=
"#"><imgsrc="images/slide2.jpg"width="960"height="360"alt=""/></a><ahref="#"><imgsrc="i
mages/slide3.jpg"width="960"height="360"alt=""/></a></div>
  <divclass="clr"></div>
</div>
<divclass="clr"></div>
</div>
<divclass="content">
  <divclass="content_resize">
  <divclass="mainbar">
  <divclass="article">
  <h2><span>WELCOMETODATAOWNERLOGIN</span></h2>
  <pclass="infopost">&nbsp;<ahref="#"class="com"></a></p>
  <divclass="clr"></div>
  <divclass="img"></div>
  <divclass="post_content">
  <formaction="Authentication.jsp"method="post" id="leavereply">
  <ol><li class="style3"><em>

  <labelfor="name">Name(required)</label>

  <input id="name" name="userid" class="text"/>
  </em></li>
  <li>
  <spanclass="style3"><em>
  <labelfor="email">Password(required)</label>
  </em></span><em><strong>
  <labelfor="email"></label>
  </strong></em><strong>
  <inputtype="password" id="pass" name="pass" class="text"/>
  <labelfor="email"></label>
  </strong>
  <labelfor="email"></label>
  </li>

  <li><ahref="Register.html"><strong>REGISTER</strong></a>
```

```
<input name="imageField" type="submit" class="style3"
id="imageField" value="Login"/>
<inputname="Reset"type="reset"class="style3"value="Reset"/>
</li>
<li></li>
<li><br/>
</li>
</ol>
</form>
<pclass="spec"><a href="#" class="rm">..</a></p>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="sidebar">
<divclass="searchform">
<formid="formsearch"name="formsearch"method="post"action="#">
<span>
<input name="editbox_search" class="editbox_search"
id="editbox_search"maxlength="80"value="Searchourste:"type="text"/>
</span>
<input name="button_search" src="images/search.gif"
class="button_search"type="image"/>
</form>
</div>
<divclass="clr"></div>
<divclass="gadget">
<h2class="star"><span>Home</span>Menu</h2>
<divclass="clr"></div>
<ulclass="sb_menu">
<li><strong><a href="index.html">Home</a></strong></li>
<li><strong><a href="DataUser.jsp">DataUser</a></strong></li>
<li><strong><a href="CloudServer.jsp">CloudServer</a></strong></li>
<li><strong><a href="EndUser.jsp">EndUser</a></strong></li>
</ul>
</div>
</div>
<divclass="clr"></div>
</div>
<divclass="fbg"></div>
<divclass="footer">
</html>
```

End User Main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
    Transitional//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>UserMain</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/droid_sans_400-droid_sans_700.font.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javasc
ript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style1 {
    font-size:
    24px;color:
    #FF0000;font-
    weight:bold;
}
.style2{
    color:
    #FF0000;font-
    style:italic;font-
```

```
        weight:bold;
    }
    .style3{
        color:
        #FF0000;font-
        weight:bold;
    }
    .style4{color:#0000FF}
    .style5{
        color:
        #0000FF;font-
        weight: bold;font-
        style:italic;
    }
    .style6{    font-
        size:36px;color:#FF00
        00;
        font-weight:bold;
    }
-->
</style>
</head>
<body>
<divclass="main">
    <divclass="header">
        <divclass="header_resize">
            <divclass="menu_nav">
```



```
<ul>
  <liclass="active"><a href="index.html"><span>HomePage</span></a></li>
  <li><a href="DataUser.jsp"><span>DataUser</span></a></li>
  <li><a href="CloudServer.jsp"><span>CloudServer</span></a></li>
  <li><a href="EndUser.jsp"><span>EndUser</span></a></li>
    <li><strong><a href="KGC.jsp">KGC</a></strong></li>
      <li><strong><a href="TPA_Login.jsp">TPA</a></strong></li>
</ul>
</div>
<divclass="clr"></div>
<divclass="logo">
  <h1><spanclass="style6">AttributeBasedCloudDataIntegrityAuditingforSecureOutsourced
Storage</span></h1>
</div>
<divclass="clr"></div>
<divclass="slider">
  <divid="coin-
slider"><a href="#"><imgsrc="images/slide1.jpg"width="960"height="360"alt=""/></a><a href=
"#"><imgsrc="images/slide2.jpg"width="960"height="360"alt=""/></a><a href="#"><imgsrc="i
mages/slide3.jpg"width="960"height="360"alt=""/></a></div>
  <divclass="clr"></div>
</div>
<divclass="clr"></div>
</div>
<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
```

```
<h2><span>ENDUSER::<%=application.getAttribute("uname")%></span></h2>
<pclass="infopost">&nbsp;</p>
<divclass="clr"></div>
<divclass="img"><imgsrc="images/img2.jpg"width="600"height="311"/></div>
<divclass="post_content">
  <palign="justify"class="style2">&nbsp;</p>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="sidebar">
  <divclass="searchform">
    <formid="formsearch"name="formsearch"method="post"action="#">
      <span>
        <input name="editbox_search" class="editbox_search"
          id="editbox_search"maxlength="80"value="Searchourste:"type="text"/>
      </span>
      <input name="button_search" src="images/search.gif"
        class="button_search"type="image"/>
    </form>
  </div>
  <divclass="clr"></div>
  <divclass="gadget">
    <h2class="star"><span>Home</span>Menu</h2>
    <divclass="clr"></div>
    <ulclass="sb_menustyle3">
      <li><a href="EndUserMain.jsp">Home</a></li>
```

```
<li><a href="ERequestFile.jsp">RequestPrivateKey</a></li>
<li><a href="EViewFileResponse.jsp">ViewPrivateKeyResponse</a></li>
<li><a href="EndDownloadFile.jsp">DownloadFile</a></li>
<li><a href="index.html">Logout</a></li>
</ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
</html>
```

KGC Main.jsp

```
<% @page import="java.util.*"%>
<% @includefile="connect.jsp"%>
<% @page import="java.sql.*"%>
<% @page
    import="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.
    spec.SecretKeySpec,org.bouncycastle.util.encoders.Base64"%>
<% @page
    import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io
    .FileInputStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDi
    gest,java.io.BufferedInputStream"%>
<% @page
```

```
import="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.cryp
to.Cipher"%>
<% @page
import="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java
a.io.FileOutputStream,java.io.PrintStream"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>KGCMain</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/droid_sans_400-droid_sans_700.font.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style1 {
font-size:
24px;color:#FF00
00;font-
weight:bold;
}
```



```
.style2{
    color:
    #FF0000;font-
    style:italic;font-
    weight:bold;
}
.style3{
    color:
    #FF0000;font-
    weight:bold;
}
.style4{color:#0000FF}
.style5{
    color:
    #0000FF;font-
    weight: bold;font-
    style:italic;
}
.style6{    font-
    size:36px;color:#FF00
    00;
    font-weight:bold;
}
-->
</style>
</head>
```

```
<body>
<divclass="main">
  <divclass="header">
    <divclass="header_resize">
      <divclass="menu_nav">
        <ul>
          <liclass="active"><ahref="index.html"><span>HomePage</span></a></li>
          <li><ahref="DataUser.jsp"><span>DataUser</span></a></li>
          <li><ahref="CloudServer.jsp"><span>CloudServer</span></a></li>
          <li><ahref="EndUser.jsp"><span>EndUser</span></a></li>
          <li><strong><ahref="KGC.jsp">KGC</a></strong></li>
          <li><strong><ahref="TPA_Login.jsp">TPA</a></strong></li>
        </ul>
      </div>
    </div>
  <divclass="clr"></div>
  <divclass="logo">
    <h1><spanclass="style6">AttributeBasedCloudDataIntegrityAuditingforSecureOutsourced
Storage</span></h1>
  </div>
  <divclass="clr"></div>
  <divclass="slider">
    <divid="coin-
slider"><ahref="#"><imgsrc="images/slide1.jpg"width="960"height="360"alt=""/></a><ahref=
"#"><imgsrc="images/slide2.jpg"width="960"height="360"alt=""/></a><ahref="#"><imgsrc="i
mages/slide3.jpg"width="960"height="360"alt=""/></a></div>
  <divclass="clr"></div>
</div>
```

```
<divclass="clr"></div>
</div>
</div>
<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
        <h2><span>WELCOMETOKGC</span></h2>
        <pclass="infopost">&nbsp;</p>
        <divclass="clr"></div>
        <%try
          {
            Strings1="",s2="",s3="",s4="",s5="",s6="",s7="";
            Statementst5=connection.createStatement();
            Stringquery="select* fromcloudserver";
ResultSetrs=st5.executeQuery(query);
            while (rs.next())
              {
                s1=rs.getString(1);//fnames
                2=rs.getString(2);
                //onames7=rs.getString(12)
                ;//pkey

            if(s7.equals("No"))

              {
                KeyPairGeneratorkg=KeyPairGenerator.getInstance("RSA");C
```

```
iphencoder= Cipher.getInstance("RSA");

KeyPairkp=kg.generateKeyPair();

KeypubKey= kp.getPublic();

byte[]pub= pubKey.getEncoded();
//                System.out.println("PUBLICKEY"+pub);

Stringpk=String.valueOf(pub);

Statementst211=connection.createStatement();S
tatementst21=connection.createStatement();
Stringquery1="updatecloudserversetsk='"+pk+"'wherfname='"+s1+"'andownername='"+s2+
''";
Stringquery2="updatetpametadata
                                setsk='"+pk+"'wherfname='"+s1+"'andow
nername='"+s2+''";
st211.executeUpdate(query1);st21.exe
cuteUpdate(query2);
    }
}

connection.close();
}

catch(Exceptione)

{
```



```
        out.println(e.getMessage());e.printStackTrace(
    );
    }
%>
    <h2>PRIVATEKEYSAREGENERATEDFOR ALL
FILESUPLOADEDFROMDATAOWNERS</h2>

    <divclass="post_content">
        <palign="justify"class="style2">&nbsp;</p>
    </div>
    <divclass="clr"></div>
</div>
</div>
<divclass="sidebar">
    <divclass="searchform"></div>
    <divclass="clr"></div>
    <divclass="gadget">
        <h2class="star"><span>Home</span>Menu</h2>
        <divclass="clr"></div>
        <ulclass="sb_menustyle3">
            <li><a href="KGCMain.jsp">Home</a></li>
            <li><a href="KGC_ViewFileRequest.jsp">View Requested Private Key
                andResponse</a></li>
            <li><a href="index.html">Logout</a></li>
        </ul>
    </div>
</div>
```

```
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="fbg"></div>
<divclass="footer">
</html>
```

TPA_Main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>TPAMain</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/droid_sans_400-droid_sans_700.font.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
```

```
<!--  
.style1 {  
  
    font-size: 24px;color:  
#FF0000;font-  
weight:bold;  
}  
.style2 {  
    color:  
    #FF0000;font-  
    style:italic;font-  
  
    weight:bold;  
}  
.style3 {  
    color:  
    #FF0000;font-  
    weight:bold;  
}  
.style4 {color:#0000FF}  
.style5 {  
    color:  
    #0000FF;font-  
    weight: bold;font-  
    style:italic;  
}
```

```
.style6{
font-size:36px;color:#FF0000;

    font-weight:bold;
}
-->
</style>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">
<ul>
<liclass="active"><ahref="index.html"><span>HomePage</span></a></li>
<li><ahref="DataUser.jsp"><span>DataUser</span></a></li>
<li><ahref="CloudServer.jsp"><span>CloudServer</span></a></li>
<li><ahref="EndUser.jsp"><span>EndUser</span></a></li>
<li><strong><ahref="KGC.jsp">KGC</a></strong></li>
<li><strong><ahref="TPA_Login.jsp">TPA</a></strong></li>
</ul>
</div>
<divclass="clr"></div>
<divclass="logo">
<h1><spanclass="style6">AttributeBasedCloudDataIntegrityAuditingforSecureOutsourced
Storage</span></h1>
</div>
<divclass="clr"></div>
```



```
<divclass="slider">
  <divid="coin-
slider"><ahref="#"><imgsrc="images/slide1.jpg"width="960"height="360"alt=""/></a><ahref=
"#"><imgsrc="images/slide2.jpg"width="960"height="360"alt=""/></a><ahref="#"><imgsrc="i
mages/slide3.jpg"width="960"height="360"alt="" /></a></div>
  <divclass="clr"></div>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
        <h2><span>WELCOMETOTPA</span></h2>
        <pclass="infopost">&nbsp;</p>
        <divclass="clr"></div>
        <divclass="img"><imgsrc="images/pix1.jpg"width="606"height="308"/></div>
        <divclass="post_content">
          <palign="justify"class="style2">&nbsp;</p>
        </div>
        <divclass="clr"></div>
      </div>
    </div>
  </div>
</div>
<divclass="sidebar">
  <divclass="searchform">
    <formid="formsearch"name="formsearch"method="post"action="#">
      <span>
        <input      name="editbox_search"      class="editbox_search"
```

```
id="editbox_search"maxlength="80"value="Searchourste:"type="text"/>
</span>
<input name="button_search" src="images/search.gif"
class="button_search"type="image"/>
</form>
</div>
<divclass="clr"></div>
<divclass="gadget">
<h2class="star"><span>Home</span>Menu</h2>
<divclass="clr"></div>
<ulclass="sb_menustyle3">
<li><a href="TPA_Main.jsp">Home</a></li>
<li><a href="TPA_View_MetaData.jsp">ViewMetaData</a></li>
<li><a href="TPA_ViewAllDeduplication.jsp">View All
Deduplication</a></li>
<li><a href="index.html">Logout</a></li>
</ul>
</div>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="fbg"></div>
<divclass="footer">
</html>
```

10.SYSTEM DESIGN

10.1 SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/ ora finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an un acceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

10.2 TYPE SOFTESTING

Unit Testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests performbasic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration Testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the

components were individually satisfied, as shown by successful unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Functional Test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/ Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify business process flows; data fields, pre defined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

White Box Testing

White Box Testing is a testing in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. Its purpose is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box. You cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

1. All field entries must work properly.
2. Pages must be activated from the identified link.
3. The entry screen, messages and responses must not be delayed.

Features to be tested

1. Verify that the entries are of the correct format
2. No duplicate entries should be allowed
3. All links should take the user to the correct page

Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully, no defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully, no defects encountered.

11. OUTPUT SCREENS

Screen: 1 Home Page

The below interface represents the home page of the project.



Screen: 2 Data Owner Registration

The below interface shows the data owner registration.



The screenshot displays a web registration interface. At the top left, the heading "Register Your Details !!!" is followed by a progress bar. Below this is a circular button with a blue background and a white icon of a document with a checkmark, labeled "REGISTER NOW". To the right, a "Home Menu" is visible with links for "Home", "Data Item", "Cloud Item", and "Register". The main form area contains five input fields, each with a red label and a "required" note: "User Name (required)", "Password (required)", "Email address (required)", "Mobile Number (required)", and "Your Address". At the bottom right, there are two links: "AdSense Window" and "View Settings and my Window". A small URL is visible at the bottom left: "localhost:8080/Attribute-Based-Cloud-Data-Integrity-Auditing-for-Secure-Outsourced-Storage/Register.html".

Screen: 3 Login Data Owner

The below interface represents the login data owner to the cloud server.

WELCOME TO DATA OWNER LOGIN

Search user:

Home Menu

- Home
- Data User
- Cloud Server
- Data User

Name (required)

Password (required)

[REGISTER](#) [Login](#) [Reset](#)

Activate Windows
Go to Settings to activate Windows.

Screen 4: Upload Data

The below interface represents upload data to the cloud server.

Upload Your Data Fragments !!!

Select File: [Browse...](#) android_asM

File Name: android_asM

Google Search and always includes core apps for services such as Gmail, as well as the application store and digital distribution platform Google Play, and associated developer platform. These apps are licensed by manufacturers of Android devices certified under standards imposed by Google, but HMS has been used as the basis of competing Android ecosystems, such as Amazon.com's Fire OS, which use their own equivalents to HMS.

Android has been the best-selling OS worldwide on smartphones since 2011 and on tablets since 2013. As of May 2017, it has over two billion monthly active users, the largest installed base of any operating system, and as of June 2018, the Google Play store features over 3.8 million apps.

Digital Certificate1:

Digital Certificate2:

Digital Certificate3:

Digital Certificate4:

Owner Main Menu

[Home](#)

[Logout](#)

Activate Windows
Go to Settings to activate Windows.

Screen 5: Verify Your Data Blocks

The below interface represents view all data blocks.



Screen 6: View Data Owners

The below interface represents view all data owners.



Owner Image	Owner Name	DOB	Email	Mobile	Location
	Robert	05/05/1987	frankmanu13@gmail.com	9636850278	Bangalore
	Manojan	05/05/1987	frankmanu13@gmail.com	9636850278	Bangalore
	Capal	05/05/1987	Goal.123@gmail.com	9636850278	Bangalore
	Manojan	30-11-1988	manojan3011@gmail.com	9648555555	Bangalore

View all Data owners !!!

© 2018 CIVIL WINDOVS
All rights reserved. All trademarks are the property of their respective owners.

Attribute Based Cloud Data Integrity Auditing for Secure Outsourced Storage/ViewDataOwners.jsp#

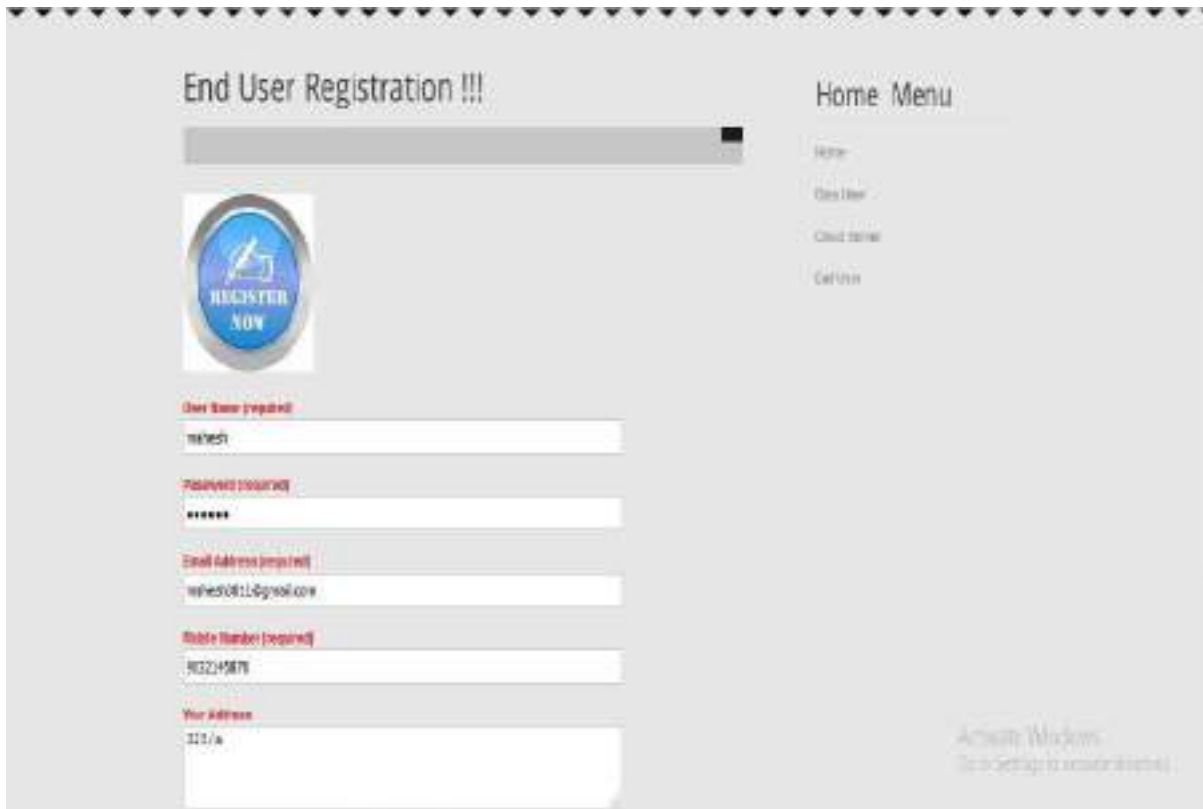
Screen 7: View End Users

The below interface represents view all end users.



Screen 8: End User Registration

The below interface shows end user registration.



The screenshot displays a web interface for "End User Registration !!!". The page features a navigation menu on the right with links for Home, Data User, Cloud Server, and Call Us. The main content area contains a registration form with the following fields and values:

- User Name (required):** mahesh
- Password (required):** *****
- Email Address (required):** mahesh0811@gmail.com
- Mobile Number (required):** 912245878
- Your Address:** 111/a

A "REGISTER NOW" button is visible next to the form fields. In the bottom right corner, there is a link for "Activate Windows" with the text "Go to Settings to activate Windows."

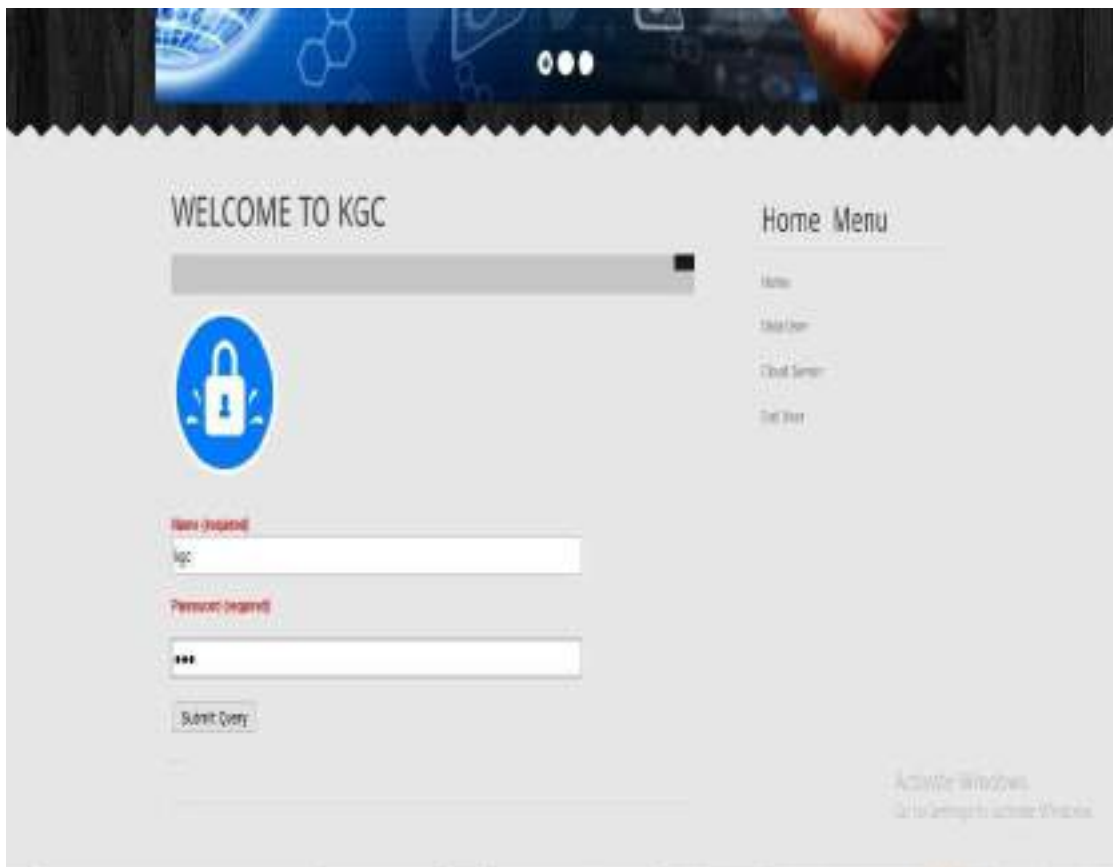
Screen 9: Login End User

The below interface represents end user login page.



Screen 10: Login KGC

The below interface represents KGC login page.



Screen 11: Login TPA

The below interface represents TPA login page.



CONCLUSION

We propose an attribute-based cloud data integrity auditing protocol, for the first time, to simplify the key management issue in traditional cloud data auditing schemes. We formalize the system model and security model for this new primitive. Subsequently, a concrete construction is presented by involving the idea of attribute-based cryptography. The proposed protocol can achieve the property of soundness, attribute privacy-preserving and collusion resistance. We prove the soundness of the protocol under Shacham Waters game-based proof framework. The implementation illustrates the practicality and efficiency of the new proposal.

FUTURE ENHANCEMENT

1. The construction provides a privacy-preserving guarantee that reveals nothing but the common attributes chosen by cloud server when executing the auditing protocols.
2. The authors are investigating a strong privacy-preserving mechanism that can ensure zero knowledge in the auditing phase.
3. Future work includes proposing a concrete construction that are both practical and with high efficiency.

REFERENCES

- [1] M. Hogan, F. Liu, A. Sokol and J. Tong. “NIST Cloud Computing Standards Road map”. NIST Cloud Computing Standards Road map Working Group, SP500-291-v1.0, NIST, Jul, 2011.
- [2] Y. Deswarte, J. J. Quisquater and A. Saidane. “Remote integrity checking”. Integrity and Internal Control in Information Systems VI.SpringerUS, pp.1-11, 2004.
- [3] G. Filho D L, Barreto P S L M. “Demonstrating data possession and uncheatable data transfer”.IACR Cryptologye Print Archive, 2006, 150.
- [4] G. Yamamoto, S. Oda, K. Aoki. “Fast integrity for large data”. Proc. ECRYPT Workshop Software Performance Enhancement for Encryption and Decryption. Amsterdam, Nether lands 2007, 21-32.
- [5] K. Chida, G. Yamamoto. “Batch processing of interactive proofs”. Cryptographers Track at the RSA Conference. Springer Berlin Heidelberg, San Francisco, USA, 200, 196-207.
- [6] F.Sebe, A. Martinez-Balleste, Y. Deswarte, etal. “Time-bounded remote file integrity checking”. Technical Report04429, LAAS, 2004.
- [7] A. Juels, B. S. Kaliski Jr. “PORs: Proofs of retrievability for large files”. Proceedings of the14th ACM conference on Computer and communications security. Acm, Alexandria, 2007, 584-597.

A
Project Report
on
ONLINE PRICING WITH RESERVE PRICE CONSTRAINT FOR
PERSONAL DATA MARKETS

Submitted in partial fulfillment for the award of the degree

of

Master of Computer Applications

Submitted by

S CHANDANA

(Reg. No. 18F61F0003)

Under the esteemed guidance of

Mr. J. S. ANANDA KUMAR, MCA.

Assistant Professor, Department of MCA.



Department of Master of Computer Applications

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(NAAC Accredited with 'A' Grade, NBA Accredited Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583,

Andhra Pradesh.

2020-2021

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583,
Andhra Pradesh.**

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

This is to certify that this project report titled “ONLINE PRICING WITH RESERVE PRICE CONTRAINT FOR PERSONAL DATA MARKETS” that is being submitted by S CHANDANA (Reg. No. 18F61F0003) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **S CHANDANA** hereby declare that the project report entitled “ONLINE PRICING WITH RESERVE PRICE CONSTRAINT FOR PERSONAL DATA MARKETS” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. J. S. ANANDA KUMAR**, MCA. Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APPLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

Date:

S CHANDANA

Reg. No.: 18F61F0003

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. J. S. ANANDA KUMAR, MCA.** Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analyzing and testing throughout the period of project work.

I wish to covey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.,** HOD, Department of **MASTER OF COMPUTER APPLICATIONS** for him valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to project coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(S CHANDANA)

CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF SCREENS	II
	LIST OF ABBREVIATIONS	III
1	INTRODUCTION	1
2	SYSTEM STUDY	4
3	SYSTEM ANALYSIS	6
	3.1 EXISTING SYSTEM	6
	3.2 DIS ADVANTAGES	6
	3.3 PROPOSED SYSTEM	7
	3.4 ADVANTAGES	7
4	SOFTWARE MODULES	8
5	SYSTEM ARCHITECTURE	9
6	SOFTWARE ENVIRONMENT	12
7	SYSTEM REQUIREMENTS	26
8	SYSTEM DESIGN	27
9	IMPLEMENTATION	39
10	SYSTEM TESTING	82
11	OUTPUT SCREENS	85
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

ABSTRACT

The society's insatiable appetites for personal data are driving the emergency of data markets, allowing data consumers to launch customized queries over the datasets collected by a data broker from data owners. In this paper, we study how the data broker can maximize her cumulative revenue by posting reasonable prices for sequential queries. We thus propose a contextual dynamic pricing mechanism with the reserve price constraint, which features the properties of ellipsoid for efficient online optimization, and can support linear and non-linear market value models with uncertainty. In particular, under low uncertainty, our pricing mechanism provides a worst-case regret logarithmic in the number of queries. We further extend to other similar application scenarios, including hospitality service and online advertising, and extensively evaluate all three application instances over Movie Lens 20M dataset, Airbnb listings in U.S. major cities, and Avazu mobile ad click dataset, respectively. The analysis and evaluation results reveal that our proposed pricing mechanism incurs low practical regret, online latency, and memory overhead, and also demonstrate that the existence of reserve price can mitigate the cold-start problem in a posted price mechanism, and thus can reduce the cumulative regret.

LIST OF FIGURES

S. No.	Name	Page No.
1	5.1. System Architecture	10
2	5.2. Block Diagram	32
3	6.1. Compilation & Interpretation	13
4	6.2. Execution for different platforms	13
5	6.3. Java Platform	14
6	6.4. Java IDE	16
7	6.5. General J2ME Architecture	28
8	8.1. Data Flow Diagram	28
9	8.2. Activity Diagram for data owner	29
10	8.3. Activity Diagram for End User	30
11	8.4. Activity Diagram for Agent	31
12	8.5. Use Case Diagram for data owner	32
13	8.6. Use Case Diagram for End User	33
14	8.7. Use case Diagram for Agent	34
15	8.8. Sequence Diagram	35
16	8.9. Collaboration Diagram	36
17	8.10. Deployment Diagram	37
18	8.11. Class Diagram	38

LIST OF SCREENS

S. No	SCREEN NAME	PAGENO.
1	Home Page	85
2	Home Page	86
3	Data Owner Login	87
4	Data Owner Home Page	88
5	View All Users	89
6	View All Post With Ranks	90
7	All User Search History	91
8	Agent Login	92
9	Agent Home Page	93
10	All Purchased Products And Users	94
11	Total Bill And Purchased Products	95
12	User Login	96
13	View Profile User	97
14	Manage Bank Account	98
15	Account Details	99
16	Post Uploaded Successfully	100
17	View All Product Result	101
18	View All Product Score Result	102

LIST OF ABBREVIATIONS

S. No.	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	SMS	Smart Meter System
10	ABSI	Adaptive Binary Splitting Inspection
11	DBMS	Database Management System
12	RMI	Remote Method Invocation
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language
15	KDD	Knowledge Discovery in Database

1. INTRODUCTION

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called Knowledge Discovery in Database (KDD). The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation.

Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

What is Data Mining?

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining.

In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information.

audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tons of information available on various platforms, but very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

Types of Data Mining

Data mining can be performed on the following types of data:

Relational Database:

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data search ability, reporting, and organization.

Data Repositories:

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

Object-Relational Database:

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance, etc.

Advantages of Data Mining

- The Data Mining technique enables organizations to obtain knowledge-based data.
- Data mining enables organizations to make lucrative modifications in operation and production.

- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.
- It Facilitates the automated discovery of hidden patterns as well as the prediction of trends and behaviors.
- It can be induced in the new system as well as the existing platforms.
- It is a quick process that makes it easy for new users to analyze enormous amounts of data in a short time.

Applications of Data Mining

Data mining in Education

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

Data Mining in Manufacturing Engineering

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.

Data Mining Financial Banking:

The Digitalization of the banking system is supposed to generate an enormous amount of data with every new transaction. The data mining technique can help bankers by solving business-related problems in banking and finance by identifying trends, casualties, and correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by experts. The manager may find these data for better targeting, acquiring, retaining, segmenting, and maintain a profitable customer.

2. SYSTEM STUDY

FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

First regards general (insensitive) data trading. The researchers from the database community (e.g., Koutris et al. Lin and Kifer) mainly focused on arbitrage freeness in pricing queries over the relational databases. The existence of arbitrage means that the data consumer can buy a query with a lower price than the marked price through combining a bundle of other cheaper queries. Thus, the data broker needs to rule out arbitrage opportunities to preserve its revenue. Stahl et al. surveyed several empirical pricing strategies in practical data markets. Their later work introduced data quality as a criterion of pricing and allowed the data consumers to suggest their own prices.

Considered the static revenue maximization problem with the prior knowledge of the data consumers' queries and valuations, while leaving the online setting as an open problem. They mainly adopted two static pricing strategies, called uniform bundle pricing and item pricing. Agarwal et al. proposed a combinatorial auction mechanism to trade data for machine learning tasks. Specific to personal data trading, the researchers routinely adopted the cost-plus pricing strategy, where the data broker first compensates each data owner for its privacy leakage and then scales up the total privacy compensation to determine the price of query for the data consumer. Different researchers investigated distinct types of queries from the data consumers.

Ghosh and Roth considered single counting query. further extended to multiple noisy linear queries. We considered the queries of noisy aggregate statistics over private correlated data Hynes et al. investigated model training requests. Chen et al. studied how to price a trained model with different levels of noise perturbation, by an analogy to the queries over personal data. They also considered how to statically optimize the data broker's revenue under the assumption that the error demands and corresponding valuations of the data consumers are known.

3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, the system does not provide revenue maximization methods for online pricing.
- This system is less performance due to lack of Ellipsoid-Based Pricing Mechanism Online Pricing With Reverse Price Constraint For Personal Data markets.

3.3 PROPOSED SYSTEM

The ultimate challenge comes from the novel online pricing with reserve price setting. For the estimation of a query's market value, the data broker can exploit only the current and historical queries. Thus, the pricing of sequential queries can be viewed as an online learning process. Besides the usual tension between exploitation and exploration, our pricing problem has three atypical aspects:

The feedback after trading one query is very limited. The data broker can observe only whether the posted price for the query is higher than its market value or not, but cannot obtain the exact market value, which makes standard online learning algorithms inapplicable;

The reserve price essentially imposes a lower bound on the posted price beyond the market value estimation, while the ordering between the reserve price and the market value is unknown. In addition, the impact of such a lower bound on the whole learning process has not been studied as of yet;

The online mode requires our design of the posted price mechanism to be quite efficient. In other words, the data broker needs to choose each posted price and further update its knowledge about the market value model with low latency.

3.4 ADVANTAGES OF PROPOSED SYSTEM

- The system is more effective due to presence of exploratory posted prices under the linear market value model.
- To The system is more effective due to presence of Ellipsoid-Based Pricing Mechanism

4. SOFTWARE MODULES

4.1 SYSTEM MODULES

- Data Owner
- User
- Agent

4.2 MOUDLES

DESCRIPTION Data

Owner

- In this module, Data Owner maintained their data in server.
- Data owner can login with valid details.
- Data Owner can also perform operation like View all users, Add product posts, View all postswith ranks, View all reviewed posts, View all search history, View results.

User

- In this module, User maintained their data in server.
- User can register and login through valid details.
- User can perform operations like User main, my account details, Create Account, Add money.

Agent

- In this module, agent maintained their data in server.
- Agent can login and Agent can all perform like view purchased products, Agent can addproduct category, View total bill on purchased products.

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data into a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

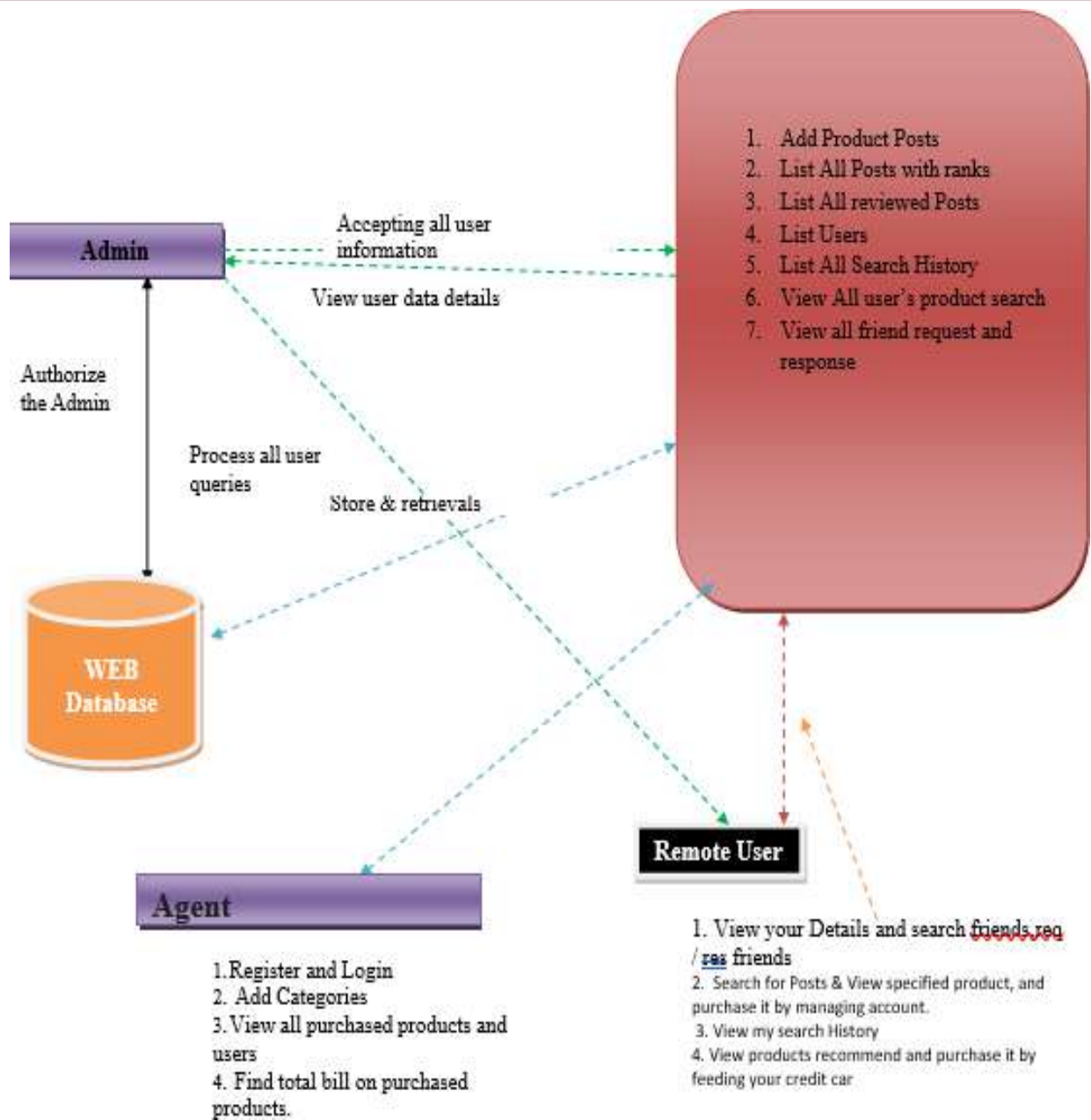


Fig 5.1 SYSTEM ARCHITECTURE

5.1 DATAFLOW DIAGRAM

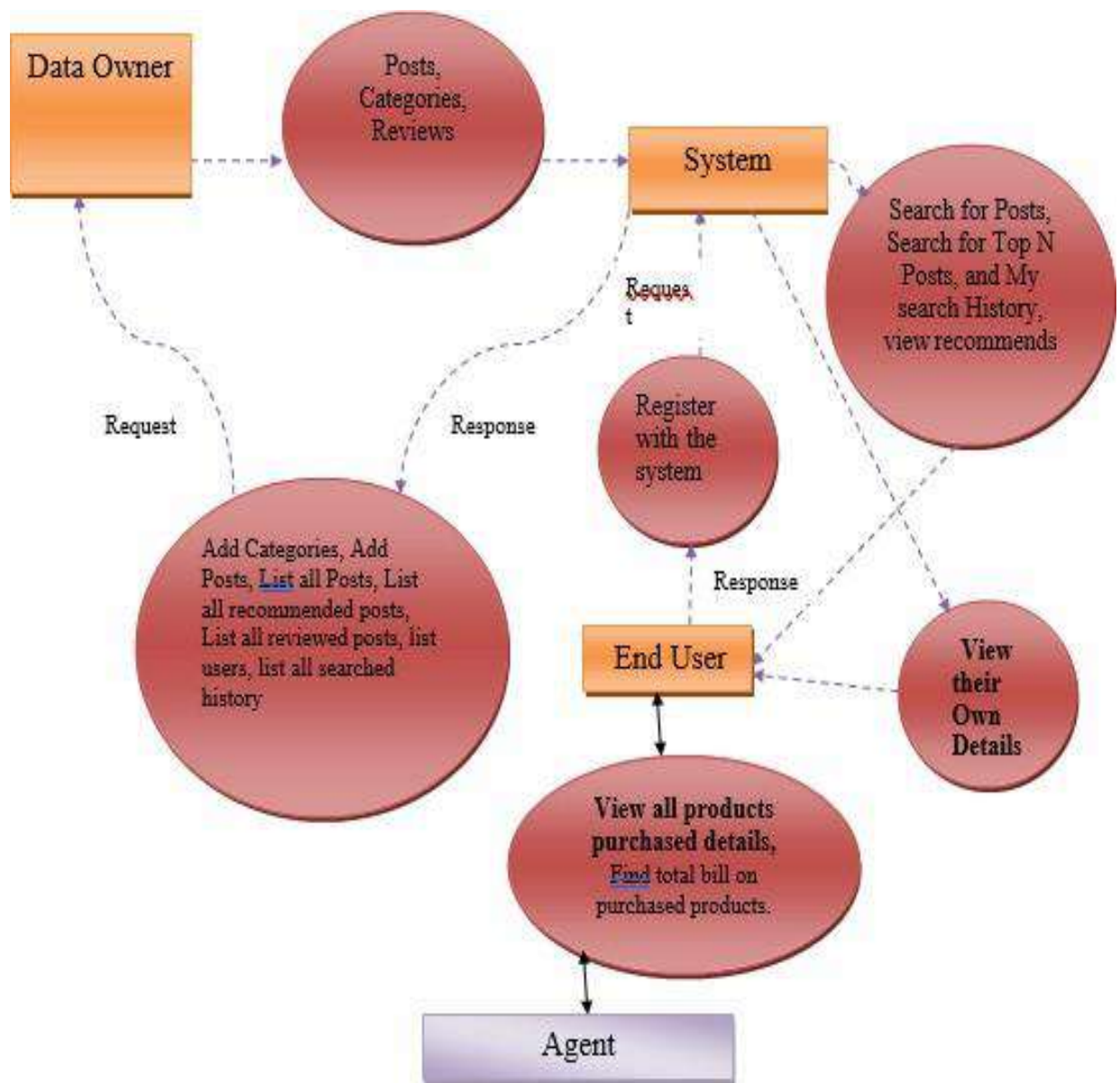


Fig 5.2 DATAFLOW DIAGRAM

6. SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

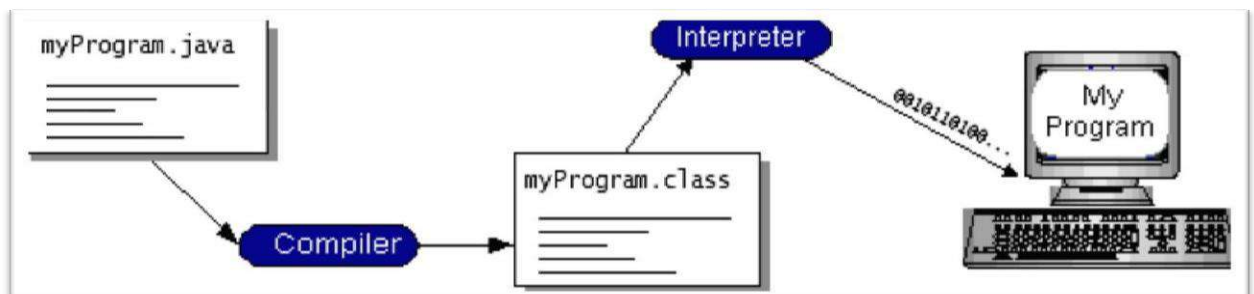


Fig 6.1: Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.

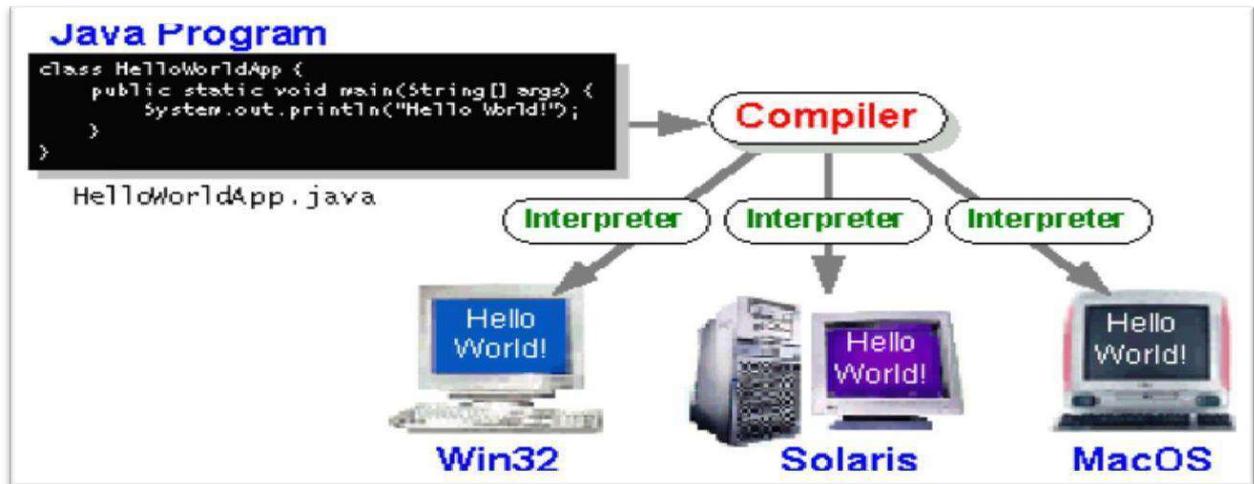


Fig 6.2: Execution for different platforms

6.2 The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and imported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of

the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

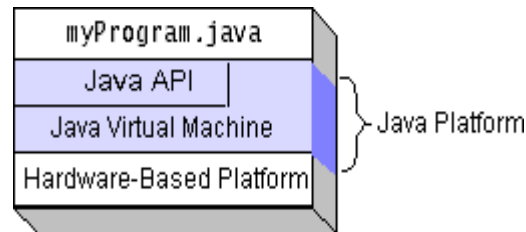


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring performance close to that of native code without threatening portability.

6.3 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server. How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java

platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.
- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
 - **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
 - **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

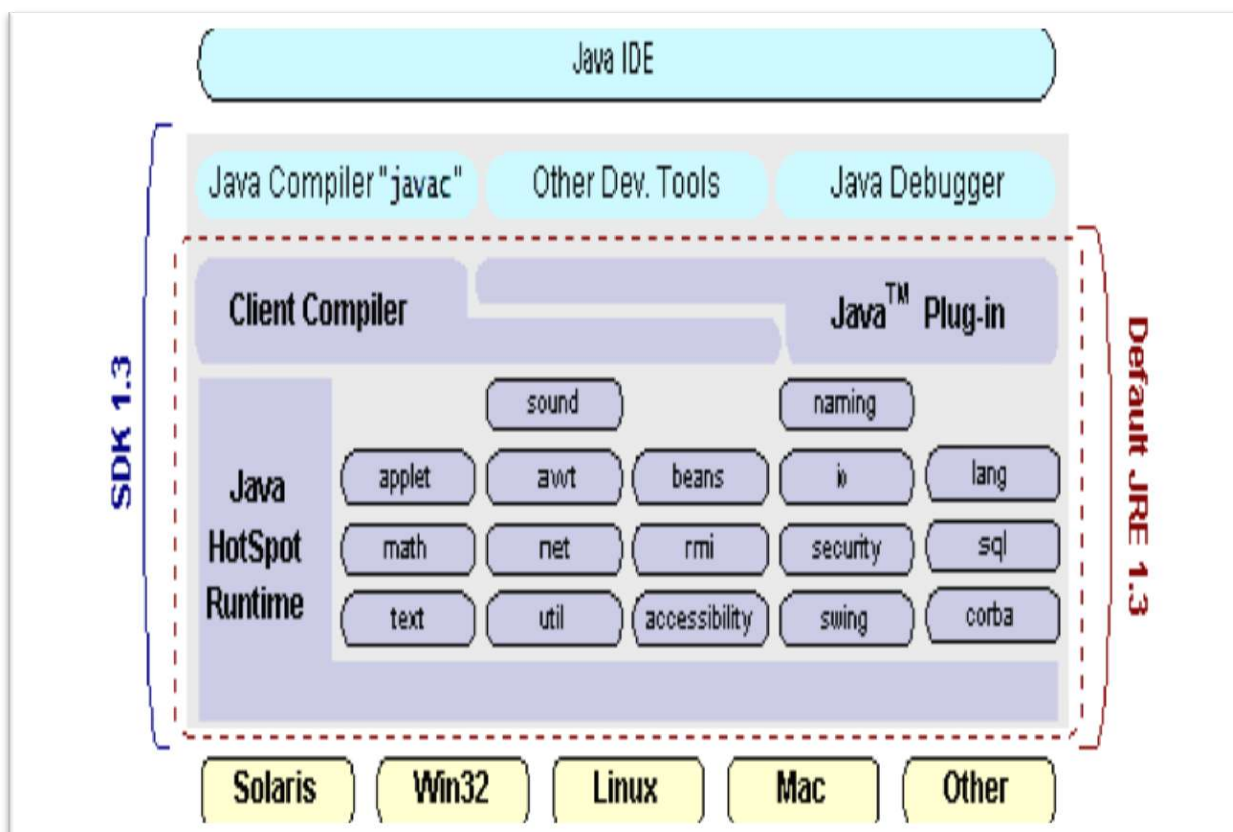


Fig 6.4: Java IDE How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its

- JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded "on the fly," without recompiling the entire program.

6.4 ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales

Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic

4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned

into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

6.5 JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that

provides a consistent interface to a variety of RDBMSs. This consistent interface achieved through the use of “plug-in” database connectivity modules, or drivers. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and

Java run on. To gain a wider acceptance of JDBC, Sun based JDBC’s framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

6.6 JDB

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.

SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

JDBC must be implemental on top of common database interfaces

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate

Provide a Java interface that is consistent with the rest of the Java system

Because of Java's acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

Use strong, static typing wherever possible

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

Keep the cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT's, INSERT's, DELETE's and UPDATE's, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally, we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works. You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call socket. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
>#include<
int socket(int family, int type, int protocol);
```

Here "family" will be AF_INET for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well- documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public License (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting some more.

Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the Java One Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

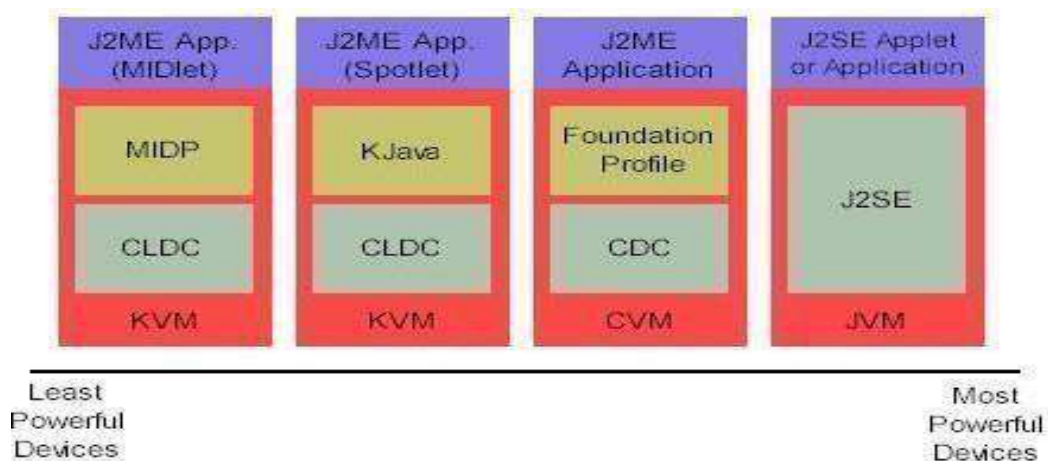


Fig 6.5 General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a

parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines,

KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

Developing J2ME applications

Introduction In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

Configuration's overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.

- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

7. SYSTEM REQUIREMENTS

7.1 HARDWARE REQUIREMENTS

- Processor : Pentium IV or higher
- CPU : 1.6GHz
- RAM : 1 GB Minimum
- Hard Disk : Minimum 80 GB.

7.2 SOFTWARE REQUIREMENTS

- Operating System : windows 7 / Minimum
- Server : Apache Tomcat
- Database : HTML, CSS, JS
- Programming Language : JSP

8. SYSTEM DESIGN

8.1 DATAFLOWDIAGRAM

- The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
- The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
- DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
- DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

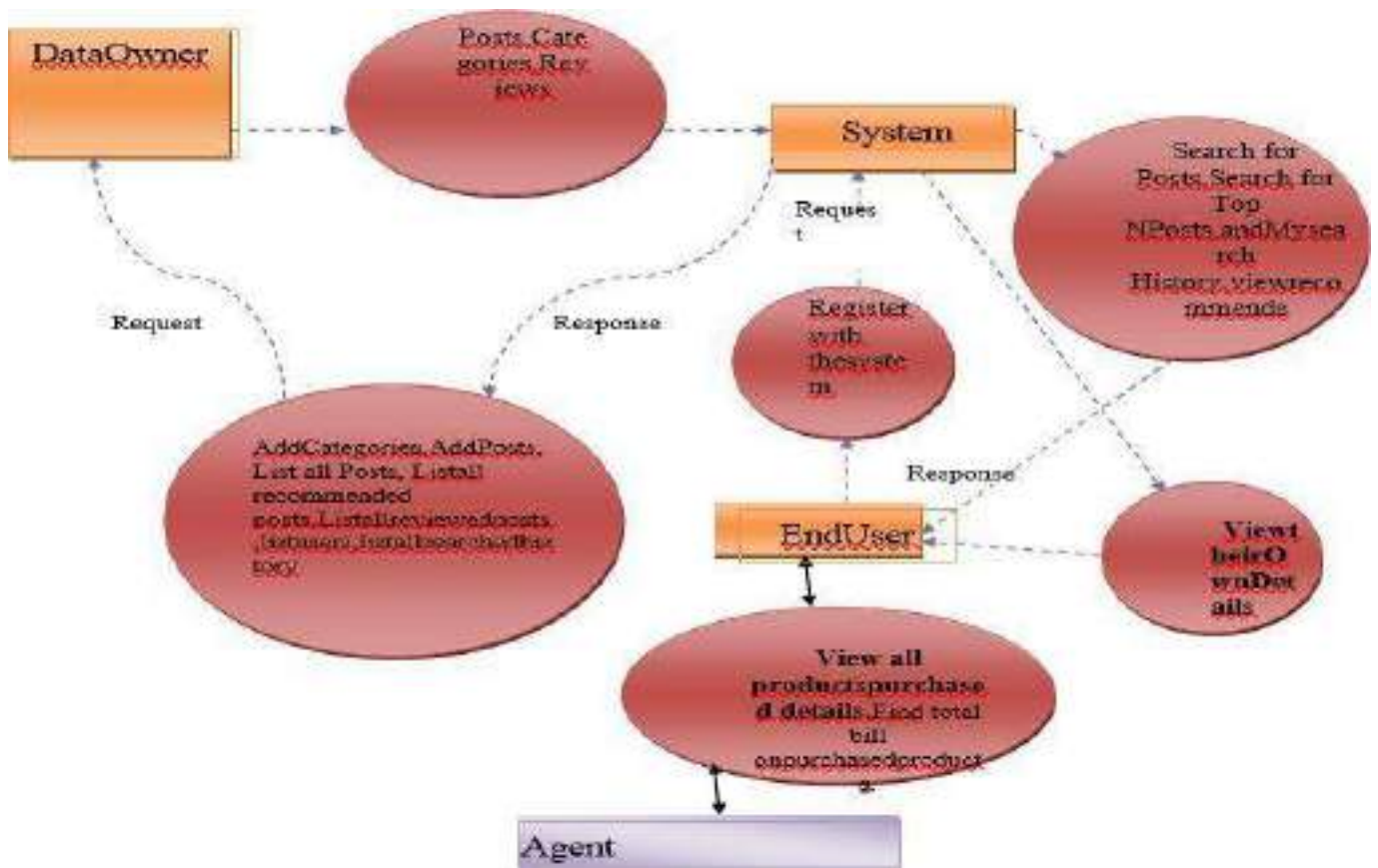


Fig 8.1 DATAFLOW DIAGRAM

8.2 UML DIAGRAMS

Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

Activity Diagram for Data Owner

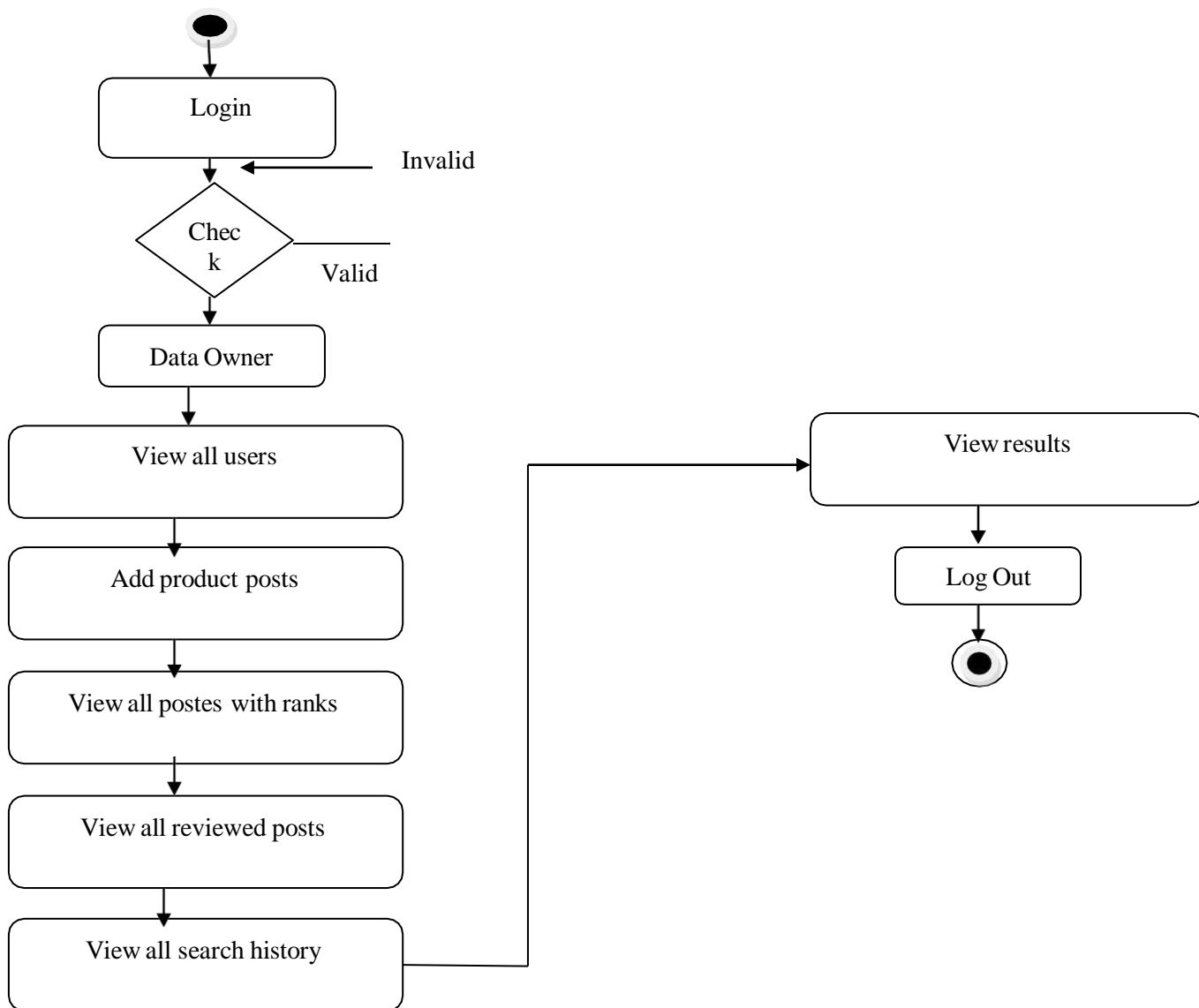


Fig 8.2 Activity Diagram for Data Owner

Activity Diagram for user

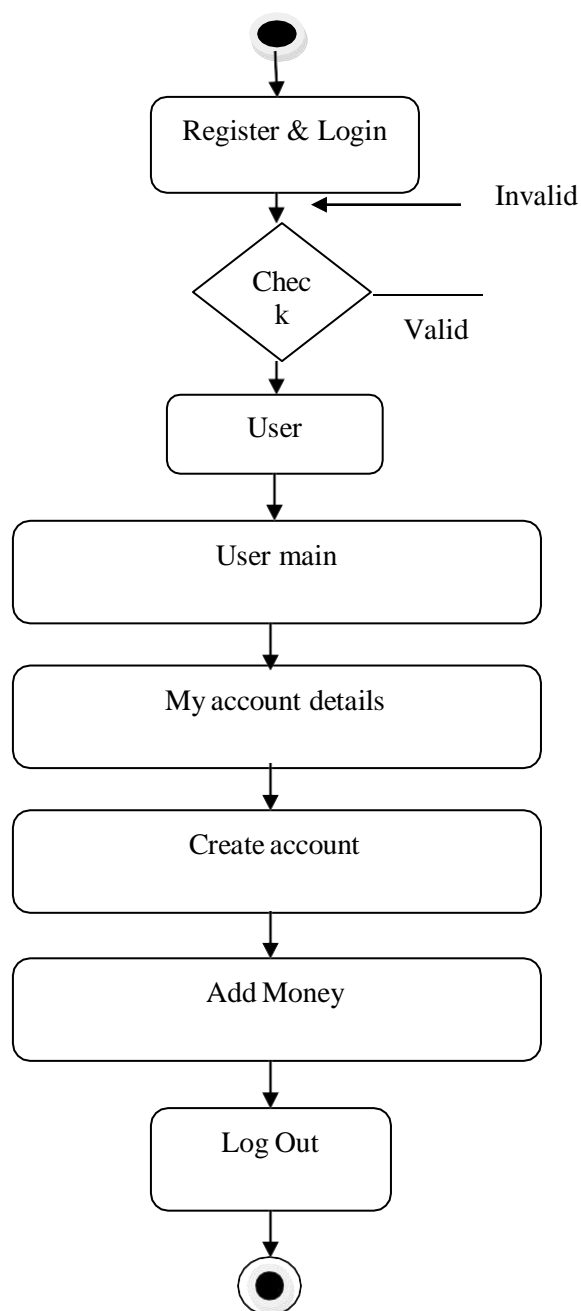


Fig 8.3 Activity Diagram for user

Activity Diagram for Agent

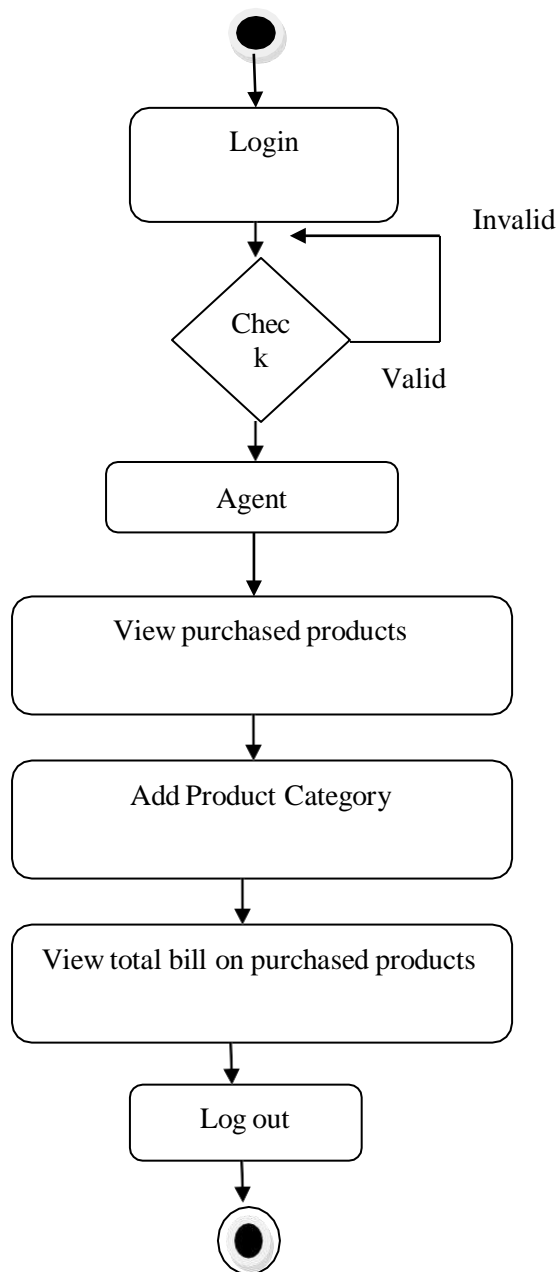


Fig 8.4 Activity Diagram for Agent

Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

Use case Diagram for Data owner

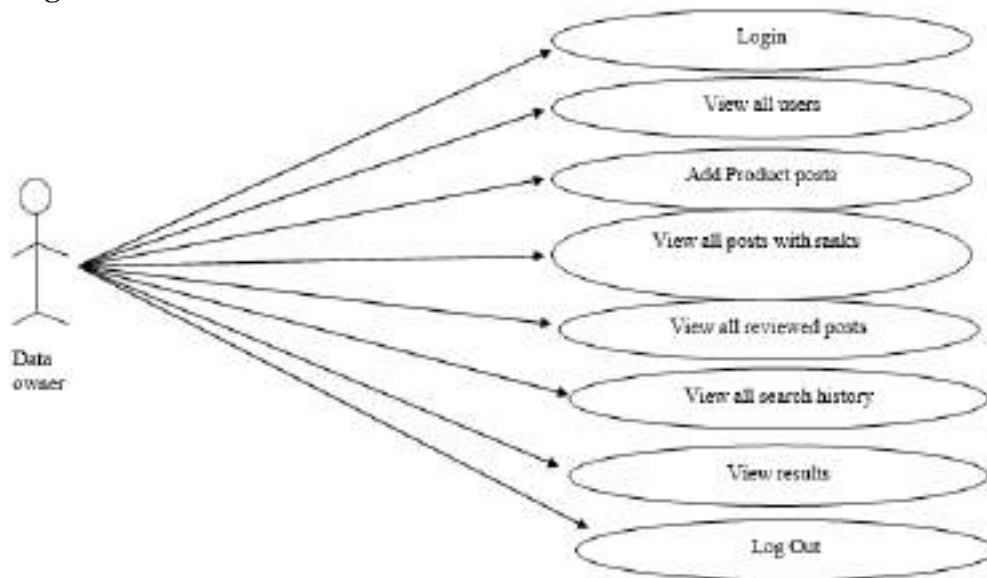


Fig 8.5 Use case Diagram for Data Owner

From the above Use Case Diagram Data Owner Can interact with the System and perform Various tasks like

- View all Users data /information
- Add/View product Posts
- View all posts with ranks
- View all search history
- View results

Use Case Diagram for User

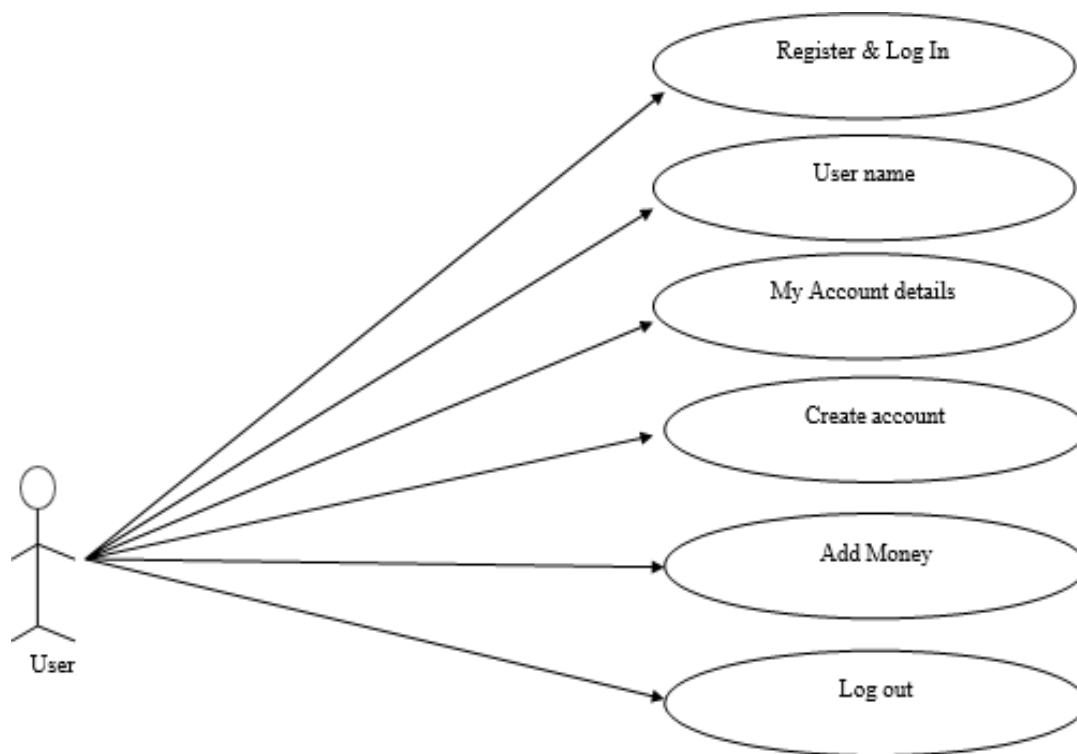


Fig 8.6 Use case Diagram for user

From the above Use Case Diagram for User interact with the system and perform various tasks like

- Register & Log In
- User name
- My account details
- Create account
- Add Money
- Logout

Use Case Diagram for Agent

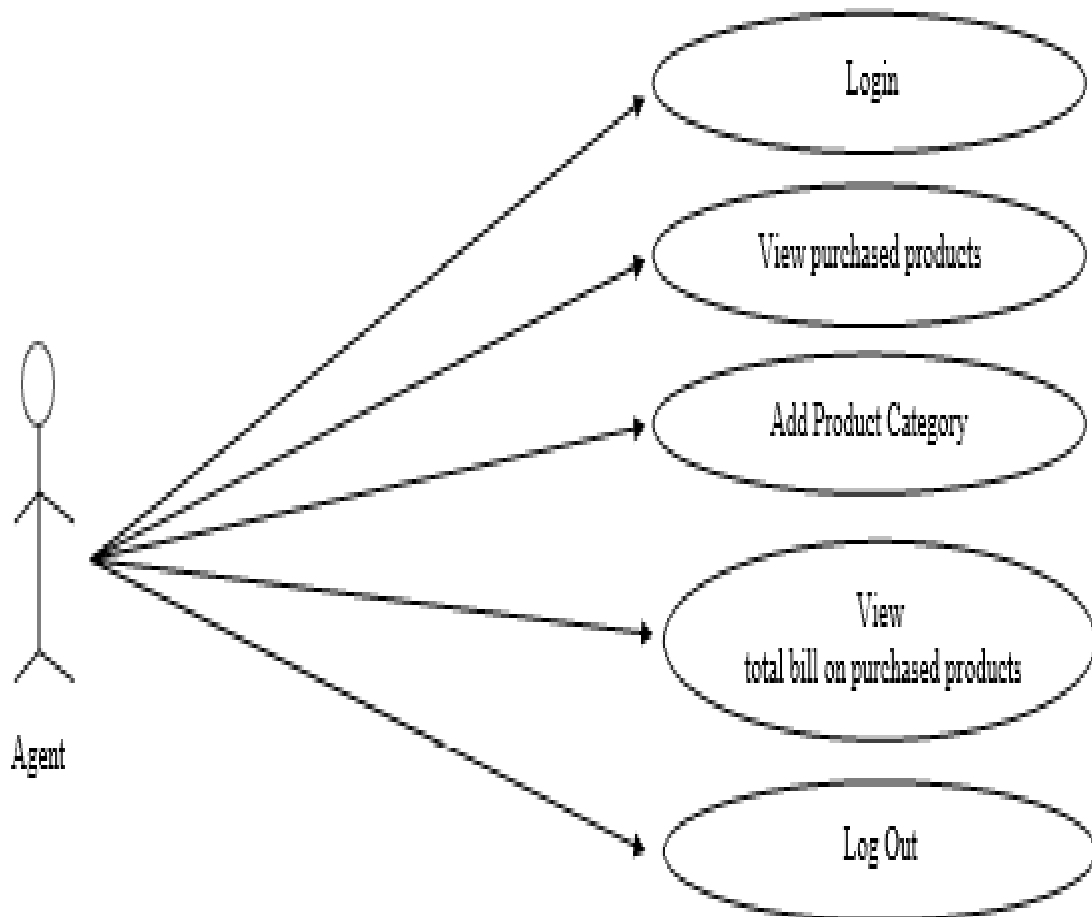


Fig 8.7 Use case Diagram for Agent

From The above Use Case Diagram for Agent interact with the system and perform various tasks like

- Login
- View purchased products
- Add product Category
- View total bill on purchased products
- Log Out

Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are sometimes called event diagram, event scenarios, and timing diagram.

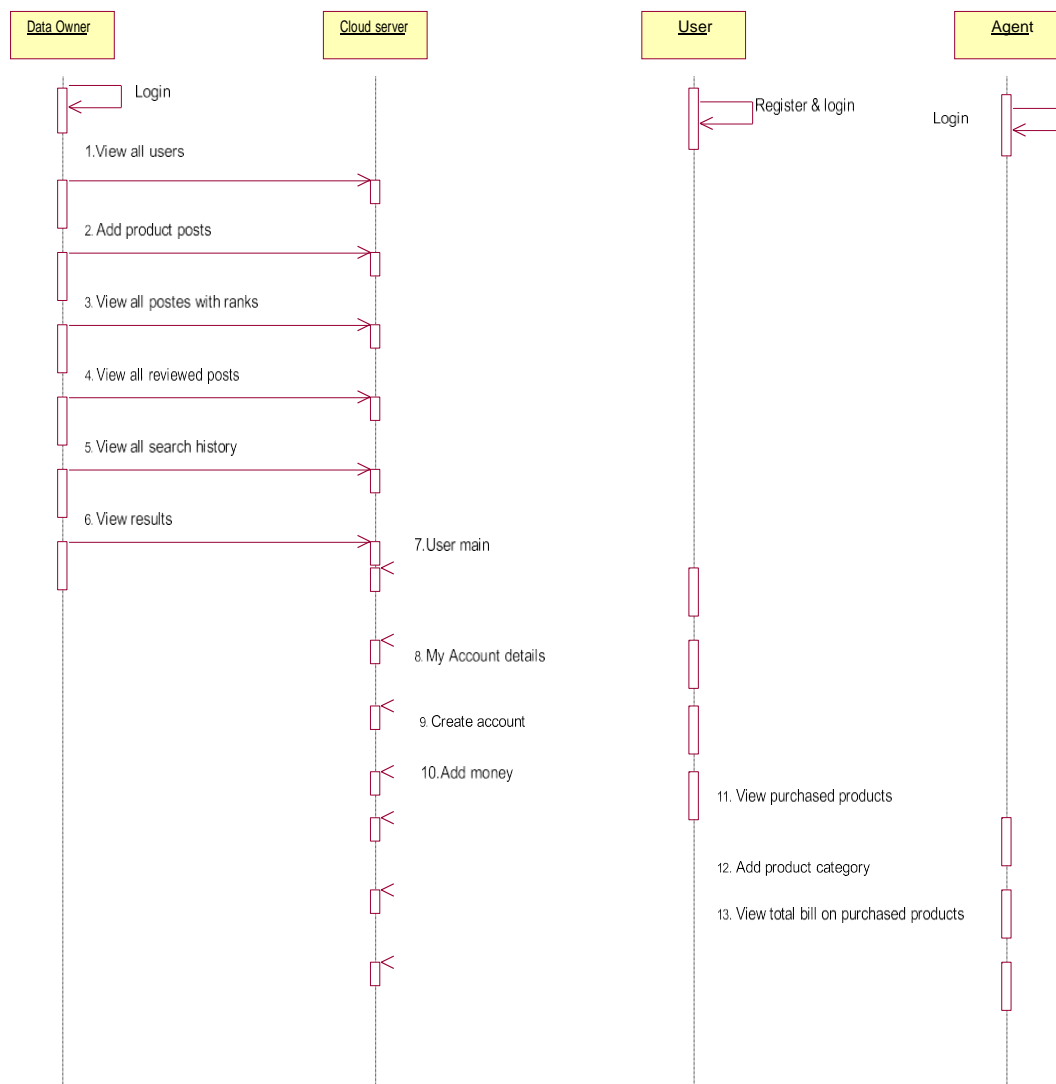


Fig 8.8 Sequence Diagram

Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

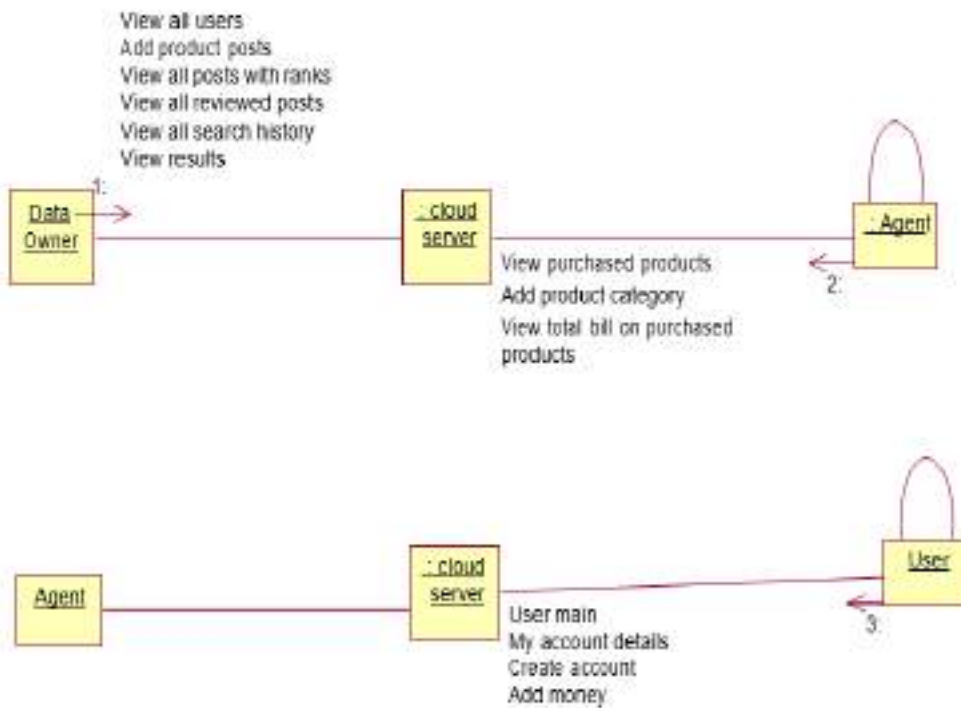


FIG 8.9 COLLABORATION DIAGRAM

Deployment diagram

Deployment diagram represents the deployment view of a system. It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

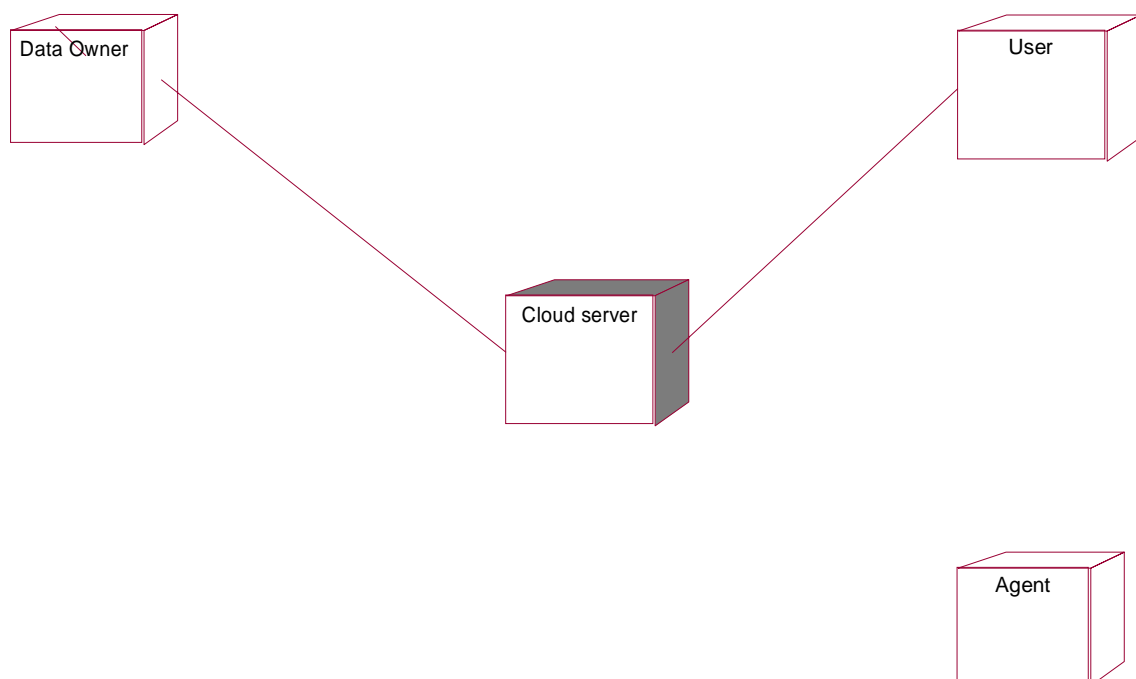


Fig8.10 Deployment diagram

Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items. There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes, Responsibilities and Collaborators approach.

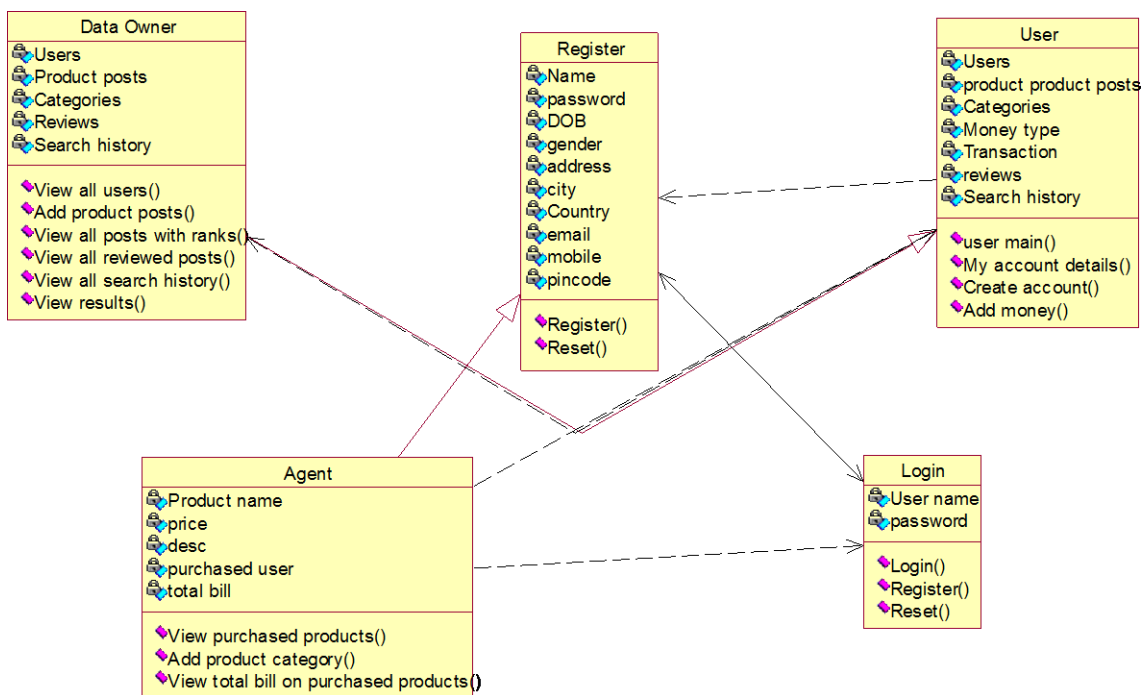


Fig 8.11 Class Diagram

9. IMPLEMENTATION

INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data into a usable form for processing can be achieved by inspecting the computer to read data from a written or printed documenter it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also

provides record viewing facilities.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus, the objective of input design is to create an input layout that is easy to follow.

OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thoughtout manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
 - Convey information about past activities, current status or projections of the
 - Future.
 - Signal important events, opportunities, problems, or warnings.
 - Trigger an action.
 - Confirm an action.

CODING

Index.html

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Strict//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Home Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8"/>
<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/jquery.jcarousel.js"></script>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/MyriadPro.font.js"></script>
<script type="text/javascript" src="js/ArialBold.font.js"></script>
<script type="text/javascript" src="js/jquery-func.js"></script>
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
<style type="text/css">
<!--
.style13 {
    font-size: 25px;
    font-family: "Times New Roman", Times,
    serif;color: #272727;
}
.style15 {
    font-weight:
    bold;color:
    #FF0000;
    font-size:
    18px;}
.style16 { color: #FF0000;

```

```

        font-weight: bold;
    }
-->
</style>
</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">
    <div class="shell">
        <pre class="box"><span class="box style13">
<span class="style15"><a href="index.html" class="active">Home</a> | <a
href="UserLogin.jsp">USER</a> | <a href="AdminLogin.jsp">DataOwner</a> | <a
href="AgentLogin.jsp">Agent</a></span></span></pre>
        <div id="navigation">
</div>
</div>
</div>
<div id="intro">
<div class="shell">
<div class="slider-holder">
<ul>
<li>
<div class="offer-image">  </div>
<div class="offer-data">
<h3>Concept</h3>
<div class="entry">
<p>Online Pricing with Reserve Price Constraint for Personal Data Markets --- personaldata
market, revenue maximization, contextual dynamic pricing, reserve price, ellipsoid.</p>
</div>
</li>
<li>
<div class="offer-image">  </div>
<div class="offer-data">

```

<h3>Concept</h3>

<div class="entry">

<p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>

</div>

<div class="offer-image"> </div>

<div class="offer-data">

<h3>Concept</h3>

<div class="entry">

<p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>

</div>

<div class="offer-image"> </div>

<div class="offer-data">

<h3>Concept</h3>

<div class="entry">

<p>Online Pricing with Reserve Price Constraint for Personal Data Markets --- personal
data market, revenue maximization, contextual dynamic pricing, reserve price, ellipsoid
</p>

</div>

<div class="offer-image"> </div>

<div class="offer-data">

<h3>Abstract</h3>

<div class="entry">

<p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personal data market, revenue maximization, contextual dynamic pricing, reserve price,

ellipsoid.</p>

</div>

</div>

<div class="slider-navigation">

1

2

3

4

5

</div>

</div>

</div>

<div id="main">

<div class="shell">

<div class="box">

<h2>Welcome! ---- </h2>

</div>

<p> </p>

<p> </p>

<p align="justify" class="style16">The society's insatiable appetites for personal data are driving the emergence of data markets, allowing data consumers to launch customized queries over the datasets collected by a data broker from data owners. In this paper, we study how the data broker can maximize its cumulative revenue by posting reasonable prices for sequential queries. We thus propose a contextual dynamic pricing mechanism with the reserve price constraint, which features the properties of ellipsoid forefficient online optimization and can

alt="" width="177" height="213" /> rket value models with uncertainty. In particular, under low uncertainty, the proposed pricing mechanism attains a worst-case cumulative regret logarithmic in the number of queries. We further extend our approach to support other similar application scenarios, including hospitality service and online advertising, and extensively evaluate all three use cases over Movie Lens 20M dataset, Airbnb listings in U.S. major cities, and Avazu mobile ad click dataset, respectively. The analysis and evaluation result reveal that: (1) our pricing mechanism incurs low practical regret, while the latency and memory overhead incurred is low enough for online applications; and (2) the existence of reserve price can mitigate the cold-start problem in a posted price mechanism, thereby reducing the cumulative regret.

</div>

</div>

<div class="footer"></div>

<!-- END PAGE SOURCE -->

<div align=center></div>

</body>

</html>

AdminMain.jsp

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<title> Main Page</title>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />

<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>

<script type="text/javascript" src="js/jquery.jcarousel.js"></script>

<script type="text/javascript" src="js/cufon-yui.js"></script>

<script type="text/javascript" src="js/MyriadPro.font.js"></script>

<script type="text/javascript" src="js/ArialBold.font.js"></script>

<script type="text/javascript" src="js/jquery-func.js"></script>

```
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
<style type="text/css">
<!--
.style13 {
    font-size: 25px;
    font-family: "Times New Roman", Times,
    serif;color: #272727;
}
.style14 {color: #FF00FF}
.style15 {color: #00FF00}
-->
</style>
</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">
    <div class="shell">
        <pre class="box"><span class="box style13">Online Pricing with Reserve Price Constraint
        for Personal Data Markets</span>
        </pre>
        <div id="navigation">
            <ul>
                <li><a href="index.html">HOME</a></li>
                <li><a href="UserLogin.jsp">USER</a></li>
                <li><a href="AdminLogin.jsp">Data Owner</a></li>
                <li><a href="EcommerceLogin.jsp">Agent</a></li>
            </ul>
        </div>
    </div>
</div>
</div>
<div id="intro">
```

```
<div class="shell">
  <div class="slider-holder">
    <ul>
      <li>
        <div class="offer-image">  </div>
        <div class="offer-data">
          <h3>Concept</h3>
          <div class="entry">
            <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata maret, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
          </div>
        </li>
      <li>
        <div class="offer-image">  </div>
        <div class="offer-data">
          <h3>Concept</h3>
          <div class="entry">
            <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata
          </div>
        </li>
      <li>
        <div class="offer-image">  </div>
        <div class="offer-data">
          <h3>Concept</h3>
          <div class="entry">
            <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
          </div>
        </li>
    </ul>
  </div>
</div>
```

```
<div class="offer-image">  </div>
<div class="offer-data">
  <h3>Concept</h3>
  <div class="entry">
    <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
  </div>
</li>
<li>
  <div class="offer-image">  </div>
  <div class="offer-data">
    <h3>Concept</h3>
    <div class="entry">
      <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
    </div>
  </li>
</ul>
</div>
<div class="slider-navigation">
  <ul>
    <li><a href="#">1</a></li>
    <li><a href="#">2</a></li>
    <li><a href="#">3</a></li>
    <li><a href="#">4</a></li>
    <li><a href="#">5</a></li>
  </ul>
</div>
</div>
</div>
```

```
<div id="main">
  <div class="shell">
    <div class="box">
      <h2>Welcome To <span class="style15">Flipcart</span>!</h2>
      <p>&nbsp;</p>
      <p></p>
    </div>
    <div class="box">
      <p><a href="admin_AddCategories.jsp" class="style14"></a></p>
      <p>&nbsp;</p>
    </div>
    <div class="box last-box">
      <h2>Data Owner Menu </h2>
      <div class="entry bullet-list">
        <p class="style14"><a href="admin_AllUsers.jsp" class="style14">View
AllUsers</a></p>
<p class="style14"><a href="admin_AddPosts.jsp" class="style14">Add Product Posts
</a>
</p>
<p class="style14"><a href="admin_AllPosts.jsp" class="style14">View All Posts withRanks
</a>
</p>
<p class="style14"> <a href="admin_AllReviews.jsp" class="style14">View All ReviewedPosts
</a>
</p>
<p class="style14"><a href="admin_AllUserSearchHistory.jsp" class="style14">View
AllSearch History</a></p>
<p class="style14"><a href="ViewResults.jsp" class="style14">View Results</a> </p>
<p class="style14"><a href="index.html" class="style14">Log Out</a></p>
</div>
</div>
<p>&nbsp;</p>
```



```
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<div class="cl">&nbsp;</div>
</div>
</div>
<div class="footer"></div>
<!-- END PAGE SOURCE -->
<div align=center></div>
</body>
</html>

AdminLogin.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Strict//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Data Owner Login Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/jquery.jcarousel.js"></script>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/MyriadPro.font.js"></script>
<script type="text/javascript" src="js/ArialBold.font.js"></script>
```

```
script type="text/javascript" src="js/jquery-func.js"></script>
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
<style type="text/css">
<!--
.style13 {
    font-size: 25px;
    font-family: "Times New Roman", Times,
    serif;color: #272727;
}
.style14 {color: #FF00FF}
.style9 {font-size: 26px}
.style16 {color: #FF0000}
.style18 {color: #FF0000; font-weight: bold; }
-->
</style>
</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">
    <div class="shell">
        <pre class="box"><span class="box style13">Online Pricing with Reserve Price
Constraintfor Personal Data Markets</span>
        </pre>
    <div id="navigation">
        <ul>
            <li><a href="index.html">HOME</a></li>
            <li><a href="UserLogin.jsp">USER</a></li>
            <li><a href="AdminLogin.jsp">Data Owner</a></li>
            <li><a href="EcommerceLogin.jsp">Agent</a></li>
        </ul>
    </div> </div> </div>
```

```
<div id="intro">
  <div class="shell">
    <div class="slider-holder">
      <ul>
        <li>
          <div class="offer-image">  </div>
          <div class="offer-data">
            <h3>Concept</h3>
            <div class="entry">
              <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
            </div>
          </li>
          <li>
            <div class="offer-image">  </div>
            <div class="offer-data">
              <h3>Concept</h3>
              <div class="entry">
                <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
              </div>
            </li>
            <li>
              <div class="offer-image">  </div>
              <div class="offer-data">
                <h3>Concept</h3>
                <div class="entry">
                  <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
```

```
</div>
</li>
<li>
  <div class="offer-image">  </div>
  <div class="offer-data">
    <h3>Concept</h3>
    <div class="entry">
      <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
    </div>
  </li>
</li>
  <div class="offer-image">  </div>
  <div class="offer-data"><h3>Concept</h3>
  <div class="entry">
    <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
  </div>
</li>
</ul>
</div>
<div class="slider-navigation">
  <ul>
    <li><a href="#">1</a></li>
    <li><a href="#">2</a></li>
    <li><a href="#">3</a></li>
    <li><a href="#">4</a></li>
    <li><a href="#">5</a></li>
  </ul>
</div>
```

```

</div>
</div>
<div id="main">
  <div class="shell">
    <div class="box">
      <h2>Welcome!</h2>
    </div>
    <div class="box">
      <h2><a href="admin_AddCategories.jsp" class="style14"></a><span
class="style9">DataOwner Login </span></h2>
      <p></p>
      <div class="box">
        <div class="entry">
          <div align="justify">
            <form action="Authentication.jsp?type=<%= "admin"%>" method="post"
id="leavereply">
              <label for="name"></label>
              <br />
              <p><span class="style16"><strong>Name (required)
                <input id="name" name="userid" class="text" />
              </strong></span></p>
              <p class="style18">&nbsp;</p>
              <ol>
                <span class="style18">
                  <label for="email">Password (required)</label>
                  </span><span class="style16">          </span>
                <input type="password" id="pass" name="pass" class="text" />
              </ol>
              <p>&nbsp;</p>
              <p>
                <input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" />

```



```

    </p>
  </form>
  <p>&nbsp;</p>
  <p>&nbsp;</p>
</div>
</div>
</div>
<p>&nbsp;</p>
</div>
<div class="cl">&nbsp;</div>
</div>
</div>
<div class="footer"></div>
<!-- END PAGE SOURCE -->
<div align=center></div>
</body>
</html>

```

admin_Status.jsp

```

<% @ include file="connect.jsp" %>
<%
try
{
    String id=request.getParameter("id");String str ="Authorized";
    Statement st1 = connection.createStatement();
    String query1 ="update user set status='"+str+"' where id="+id+" ";
    st1.executeUpdate (query1);
    connection.close();
    response.sendRedirect("admin_AllUsers.js
    p") } catch (Exception e) {
        out.println(e.getMessage());
    }
}%>

```

AgentMain.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Strict//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Agent Main Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/jquery.jcarousel.js"></script>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/MyriadPro.font.js"></script>
<script type="text/javascript" src="js/ArialBold.font.js"></script>
<script type="text/javascript" src="js/jquery-func.js"></script>
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
<style type="text/css">
<!--
.style13 {
    font-size: 25px;
    font-family: "Times New Roman", Times,
    serif;color: #272727;
}
.style17 {color: #FF00FF}
.style18 {color: #00FF00}
-->
</style>
</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">

```

```
<div class="shell">
```

```
  <pre class="box"><span class="box style13">Online Pricing with Reserve Price  
Constraintfor Personal Data Markets</span>
```

```
</pre>
```

```
<div id="navigation">
```

```
  <ul><li><a href="index.html">HOME</a></li>
```

```
  <li><a href="UserLogin.jsp">USER</a></li>
```

```
  <li><a href="AdminLogin.jsp">Data Owner</a></li>
```

```
    <li><a href="EcommerceLogin.jsp">Agent</a></li>
```

```
  </ul>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
<div id="intro">
```

```
  <div class="shell">
```

```
    <div class="slider-holder">
```

```
      <ul>
```

```
        <li>
```

```
          <div class="offer-image">  </div>
```

```
          <div class="offer-data">
```

```
            <h3>Concept</h3>
```

```
            <div class="entry">
```

```
            <p>Online Pricing with Reserve Price Constraint for Personal Data Markets --- personaldata  
market, revenue maximization, contextual dynamic pricing, reserve price, ellipsoid.</p>
```

```
          </div>
```

```
        </li>
```

```
      </ul>
```

```
      <div class="offer-image">  </div>
```

```
      <div class="offer-data">
```

```
        <h3>Concept</h3>
```

```
        <div class="entry">
```

```
          <p>
```

Online Pricing with Reserve Price Constraint for Personal Data Markets --- personal data market, revenue maximization, contextual dynamic pricing, reserve price, ellipsoid.</p>

</div>

<div class="offer-image"> </div>

<div class="offer-data">

<h3>Concept</h3>

<div class="entry">

<p>Online Pricing with Reserve Price Constraint for Personal Data Markets --- personaldata market, revenue maximization, contextual dynamic pricing, reserve price, ellipsoid.</p>

</div>

<div class="offer-image"> </div>

<div class="offer-data">

<h3>Concept</h3>

<div class="entry">

<p>Online Pricing with Reserve Price Constraint for Personal Data Markets --- personaldata market, revenue maximization, contextual dynamic pricing, reserve price, ellipsoid.</p>

</div>

<div class="offer-image"> </div>

<div class="offer-data">

<h3>Concept</h3>

<div class="entry">

<p>Online Pricing with Reserve Price Constraint for Personal Data Markets --- personaldata market, revenue maximization, contextual dynamic pricing, reserve price, ellipsoid.</p></div>

```
</li>
</ul>
</div>
<div class="slider-navigation">
  <ul>
    <li><a href="#">1</a></li>
    <li><a href="#">2</a></li>
    <li><a href="#">3</a></li>
    <li><a href="#">4</a></li>
    <li><a href="#">5</a></li>
  </ul>
</div>
</div>
</div>
<div id="main">
  <div class="shell">
    <div class="box">
      <h2>Welcome To <span class="style18">Agent</span> Main</h2>
      <p>&nbsp;</p>
      <p></p>
    </div>
    <div class="box">
      <p>&nbsp;</p>
      <div class="entry">
        <div align="justify">
          <p>&nbsp;</p>
          <p>&nbsp;</p>
          <p>&nbsp;</p>
        </div>
      </div>
    </div>
  </div>
</div>
```



```
</div>
<div class="box last-box">
  <h2>Menu</h2>
  <div class="entry bullet-list">
    <p class="style17">&nbsp; </p>

    <p class="style17"><a href="agent_AddCategories.jsp" class="style17">AddProduct
    Category</a></p>
    <p class="style17"><a href="agent_View_AllPurchase.jsp" class="style17">View
    AllPurchased Products and Users</a></p>
    <p class="style17"><a href="agent_View_TotalBill.jsp" class="style17"> View Total
    Billon Purchased Products</a></p>
    <p class="style17"><a href="index.html" class="style17">Log Out </a></p>
  </div>

</div>
<div class="cl">&nbsp;</div>
</div>
</div>
<div class="footer"></div>
<!-- END PAGE SOURCE -->
<div align=center></div>
</body>
</html>
agent_AddCategories.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Strict//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
```

```
<title> </title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/jquery.jcarousel.js"></script>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/MyriadPro.font.js"></script>
<script type="text/javascript" src="js/ArialBold.font.js"></script>
<script type="text/javascript" src="js/jquery-func.js"></script>
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
<style type="text/css">
<!--
.style13 {
    font-size: 25px;
    font-family: "Times New Roman", Times,
    serif;color: #272727;
}
.style14 {color: #FF0000}
.style4 {    color:
    #42ac1f;font-size:
    15px;
}
.style7 {font-size: 14px}
.style16 {color: #FF00FF}
-->

</style>
</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">
```

```
<div class="shell">
  <pre class="box"><span class="box style13">Online Pricing with Reserve Price
Constraintfor Personal Data Markets</span>
</pre>
  <div id="navigation">
    <ul>
      <li><a href="index.html">HOME</a></li>
      <li><a href="UserLogin.jsp">USER</a></li>
      <li><a href="AdminLogin.jsp">Data Owner</a></li>
      <li><a href="EcommerceLogin.jsp">Agent</a></li>
    </ul>
  </div>
</div>
<div id="intro">
  <div class="shell">
    <div class="slider-holder">
      <ul>
        <li>
          <div class="offer-image">  </div>
          <div class="offer-data">
            <h3>Concept</h3>
            <div class="entry">
              <p>Online Pricing with Reserve Price Constraint for Personal Data Markets-----
personal data market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
            </div>
          </div>
        </li>
      </ul>
    </div>
  </div>
  <h2>Add Categories</h2>
  <div class="entry">
    <div align="justify">
      <p>&nbsp;</p>
    </div>
  </div>
</div>
```

```
<form action="agent_AddCategories1.jsp" method="post"
enctype="multipart/form-data">
  <table width="323" border="0" align="center" cellpadding="0" cellspacing="0" >
    <tr>
      <td width="100" valign="middle" height="50" style="color:
#2c83b0;"><div align="left" class="style7 style15 style18 style21 style4"
style="margin-left:20px;">Categoric</div></td>
      <td width="223" valign="middle" height="50" style="color:#000000;"><label>
        <input type="text" name="categoric" />
      </label></td>
    </tr>

    <div >
      <tr>
        <td height="30" colspan="2" id="learn_more" align="center"
style="color:#FFFFFF;"><input name="submit" type="submit" style="width:100px;
height:25px; background-color:#000000; color:#FFFFFF;" value="Add"/></td>
      </tr>
    </div>
  </table>
</form>
</p>
<p>&nbsp;</p>
<div align="center" class="style7"><a href="AgentMain.jsp"
class="style16">Back</a></div>
<p></p>
<p>&nbsp;</p>

</div>
</div>
```

```

</div>
<div class="box last-box">
  <h2>Data Owner Menu </h2>
  <div class="entry bullet-list">
    <p class="style16"><a href="Agent_Main.jsp" class="style16">Home</p>
    <p class="style16"><a href="index.html" class="style16">Log Out</a></p>
  </div>
</div>
<div class="cl">&nbsp;</div>
</div>
<div class="footer"></div>
<!-- END PAGE SOURCE -->
<div align=center></div>
</body>
</html>

```

agent_View_AllPurchase.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Strict//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>All Purchased Products and Users</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/jquery.jcarousel.js"></script>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/MyriadPro.font.js"></script>
<script type="text/javascript" src="js/ArialBold.font.js"></script>
<script type="text/javascript" src="js/jquery-func.js"></script>
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />

```



```
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
<style type="text/css">
<!--
.style13 {
    font-size: 25px;
    font-family: "Times New Roman", Times,
    serif;color: #272727;
}
.style17 {color: #FF00FF}
.style5 {font-size: 16px}
.style18 {font-size: 25px}
.style19 {font-size: 27px;font-weight: bold; }
.style21 {font-size: 14px}
.style23 {color: #FFFFFF}
.style24 {color: #FF0000}
-->
</style>
</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">
    <div class="shell">
        <pre class="box"><span class="box style13">Online Pricing with Reserve Price
Constraintfor Personal Data Markets</span>
        </pre>
    <div id="navigation">
        <ul>
            <li><a href="index.html">HOME</a></li>
            <li><a href="UserLogin.jsp">USER</a></li>
            <li><a href="AdminLogin.jsp">Data Owner</a></li>
            <li><a href="EcommerceLogin.jsp">Agent</a></li>
        </ul>
    </div>
</div>
</body>
</html>
```

```

    </ul>
</div>
</div>
</div>
<div id="intro">
  <div class="shell">
    <div class="slider-holder">
      <ul>
        <li>
          <div class="offer-image">  </div>
          <div class="offer-data">
            <h3>Concept</h3>
            <div class="entry">
              <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
            </div>
          </li>
          <li>
            <div class="offer-image">  </div>
            <div class="offer-data">
              <h3>Concept</h3>
              <div class="entry">
                <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
              </div>
            </li>
            <li>
              <div class="offer-image">  </div>
              style24" style="margin:10px 13px 10px 13px;" >
              <%out.println(s1);%>

```

```

</div></td>
<td height="0" align="center" valign="middle"><p class="style21 style24">&nbsp;</p>
  <div align="center" class="style21 style24">
    <%out.println(s2);%>
    <p>&nbsp;</p>
  </div></td>
<td height="0" align="center" valign="middle"><p class="style21 style24">&nbsp;</p>
  <div align="center" class="style21 style24">
    <%out.println(s3);%>
    <p>&nbsp;</p>
  </div></td>
<td height="0" align="center" valign="middle"><p class="style24 style21">&nbsp;</p>
  <div align="center" class="style24 style21">
    <%out.println(s4);%>
    <p>&nbsp;</p>
  </div></td>
</tr>
<%  }

                                connection.close();
                                }
                                catch(Exception e)
                                {

```

```

        <td valign="baseline" height="0">&nbsp;</td>
        <td valign="baseline" height="0">&nbsp;</td>
        <td valign="baseline" height="0">&nbsp;</td>
    </tr>
</table>
</p>
<p>&nbsp;</p>
<div align="right" class="style21">
    <p><a href="AgentMain.jsp" class="style17">Back</a></p>
    <p class="style17"><a href="index.html" class="style17">Log Out</a> </p>
</div>
<p></p>
</div>
<p class="style18">&nbsp;</p>
</div>
<div class="cl style18">&nbsp;</div>
</div>
<p class="style18">&nbsp;</p>
</div>
<div class="footer style18"></div>
<span class="style18">
<!-- END PAGE SOURCE -->
</span>
<div align=center class="style18"></div>
</body>
</html>

```

UserMain.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Strict//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>

```

```
<title>User Main Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/jquery.jcarousel.js"></script>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/MyriadPro.font.js"></script>
<script type="text/javascript" src="js/ArialBold.font.js"></script>
<script type="text/javascript" src="js/jquery-func.js"></script>
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
<style type="text/css">
<!--
.style13 {
    font-size: 25px;
    font-family: "Times New Roman", Times,
    serif;color: #272727;
}
.style14 {color: #FF00FF}
.style18 {color: #0000CC}
.style20 {color: #006600}
-->
</style>
</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">
    <div class="shell">
        <pre class="box"><span class="box style13">Online Pricing with Reserve Price
Constraintfor Personal Data Markets</span>
        </pre>
    <div id="navigation">
```



```

<ul>
  <li><a href="index.html">HOME</a></li>
  <li><a href="UserLogin.jsp" class="active">USER</a></li>
  <li><a href="AdminLogin.jsp">Data Owner</a></li>
  <li><a href="EcommerceLogin.jsp">Agent</a></li>
</ul>
</div>
</div>
</div>
<div id="intro">
  <div class="shell">
    <div class="slider-holder">
      <li>
        <div class="offer-image">  </div>
        <div class="offer-data">
          <h3>Concept</h3>
          <div class="entry">
            <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
          </div>
        </li>
      <li>
        <div class="offer-image">  </div>
        <div class="offer-data">
          <h3>Concept</h3>
          <p><a href="UserProfile.jsp" class="style14">My Profile</a></p>
          <p><a href="useraccount.jsp" class="style14">Manage Bank Account</a> </p>
          <p><a href="user_SearchPost.jsp" class="style14">Search Products </a></p>
          <p><a href="user_SearchHistory.jsp" class="style14">My Search History</a> </p>
          <p><a href="index.html" class="style14">Log Out </a></p>
          <p>&nbsp;</p>

```

```
</p>
</div>
</div>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<div class="c1">&nbsp;</div>
</div>
</div>
<div class="footer"></div>
<! -- END PAGE SOURCE -->
<div align=center></div>
</body>

</html>

UserRegister.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title> </title>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/jquery.jcarousel.js"></script>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/MyriadPro.font.js"></script>
<script type="text/javascript" src="js/ArialBold.font.js"></script>
<script type="text/javascript" src="js/jquery-func.js"></script>
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
<style type="text/css">
<!--
.style13 {
    font-size: 25px;
    font-family: "Times New Roman", Times,
    serif;color: #272727;
}
.style14 { color: #FF00FF}
.style15 {
    color:
    #FF0000;
    font-weight:
    bold;
}
-->
</style>

</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">
    <div class="shell">
```

```
<pre class="box"><span class="box style13">Online Pricing with Reserve Price Constraintfor Personal
Data Markets</span>
</pre>
<div id="navigation">
  <ul>
    <li><a href="index.html">HOME</a></li>
    <li><a href="UserLogin.jsp" class="active">USER</a></li>
    <li><a href="AdminLogin.jsp">Data Owner</a></li>
    <li><a href="EcommerceLogin.jsp">Agent</a></li>
  </ul>
</div>
</div>
<div id="intro">
  <div class="shell">
    <div class="slider-holder">
      <ul>
        <li>
          <div class="offer-image">  </div>
          <div class="offer-data">
            <h3>Concept</h3>
            <div class="entry">
              <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
            </div>
          </div>
        </li>
      </ul>
    </div>
    <div class="cl">&nbsp;</div>
  </div>
</div>
<div class="footer"></div>
```

```
<!-- END PAGE SOURCE -->
```

```
<div align=center></div>
```

```
</body>
```

```
</html>
```

UserRegisterAuthentication.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
```

```
Strict//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```

```
<title> </title>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
<link rel="stylesheet" href="css/style.css" type="text/css" media="all" />
```

```
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
```

```
<script type="text/javascript" src="js/jquery.jcarousel.js"></script>
```

```
<script type="text/javascript" src="js/cufon-yui.js"></script>
```

```
<script type="text/javascript" src="js/MyriadPro.font.js"></script>
```

```
<script type="text/javascript" src="js/ArialBold.font.js"></script>
```

```
<script type="text/javascript" src="js/jquery-func.js"></script>
```

```
<link rel="shortcut icon" type="image/x-icon" href="css/images/favicon.ico" />
```

```
<!--[if IE 6]><link rel="stylesheet" href="css/ie.css" type="text/css" media="all" /><![endif]-->
```

```
<style type="text/css">
```

```
<!--
```

```
.style13 {  
    font-size: 25px;
```

```
font-family: "Times New Roman", Times, serif;
```

```
color:
```

```
#272727;
```

```
}.  

```

```
style14 {color: #FF00FF}
```



```
.style15 {color: #FF0000}
.style5 {font-size: 14px}
.style6 {    font-size:
           16px;color:
           #000000;
}
.style16 {font-size: 14px; color: #FF00FF; }
-->
</style>
</head>
<body>
<!-- START PAGE SOURCE -->
<div id="header">
  <div class="shell">
    <pre class="box"><span class="box style13">Online Pricing with Reserve Price
Constraintfor Personal Data Markets</span>
  </pre>
  <div id="navigation">
    <ul>
      <li><a href="index.html">HOME</a></li>
      <li><a href="UserLogin.jsp" class="active">USER</a></li>
      <li><a href="AdminLogin.jsp">Data Owner</a></li>
      <li><a href="EcommerceLogin.jsp">Agent</a></li>
    </ul>
  </div>
</div>
</div>
</li>
  <li>
    <div class="offer-image">  </div>
```

```
<div class="offer-data">
  <h3>Concept</h3>
  <div class="entry">
    <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
  </div>
</li>
<li>
  <div class="offer-image">  </div>
  <div class="offer-data">
    <h3>Concept</h3>
    <div class="entry">
      <p>Online Pricing with Reserve Price Constraint for Personal Data Markets ---
personaldata market, revenue maximization, contextual dynamic pricing, reserve price,
ellipsoid.</p>
    </div>
  </li>
</ul>
</div>
<div class="slider-navigation">
  <ul>
    <li><a href="#">1</a></li>
    <li><a href="#">2</a></li>
    <li><a href="#">3</a></li>
    <li><a href="#">4</a></li>
    <li><a href="#">5</a></li>
  </ul>
</div>
</div>
File file1 = null;tr
{
```

```
gender=multi.getParameter(paramname);
}
if(paramname.equalsIgnoreCase("pincode"))
{
    pincode=multi.get
    Parameter(paramn
    ame);
}
}
int f= 0;
}}}
catch (Exception e)
{
    </div>
</div>out.println(e.getMessage());
}
</div>
</div>
class="cl">&nbsp;</div><
</div></div>
<div class="footer"></div>
<!-- END PAGE SOURCE -->
<div align=center></div>
</body>
</html>
```

10. SYSTEM TESTING

SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

TYPES OF TESTING

Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be

accepted. Invalid Input : identified classes of invalid input must

be rejected. Functions : identified functions must be exercised.

Output : identified classes of application outputs must be

exercised. Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration- oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g., components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the enduser. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

11. OUTPUT SCREENS

SCREEN 1: HOME PAGE



The above interface represents the Home page of the project

SCREEN 2: Home page



The above interface represents the home page of the project.

SCREEN 3: Data Owner Login



The above interface represents the data owner login of the project

SCREEN 4: Data Owner home page



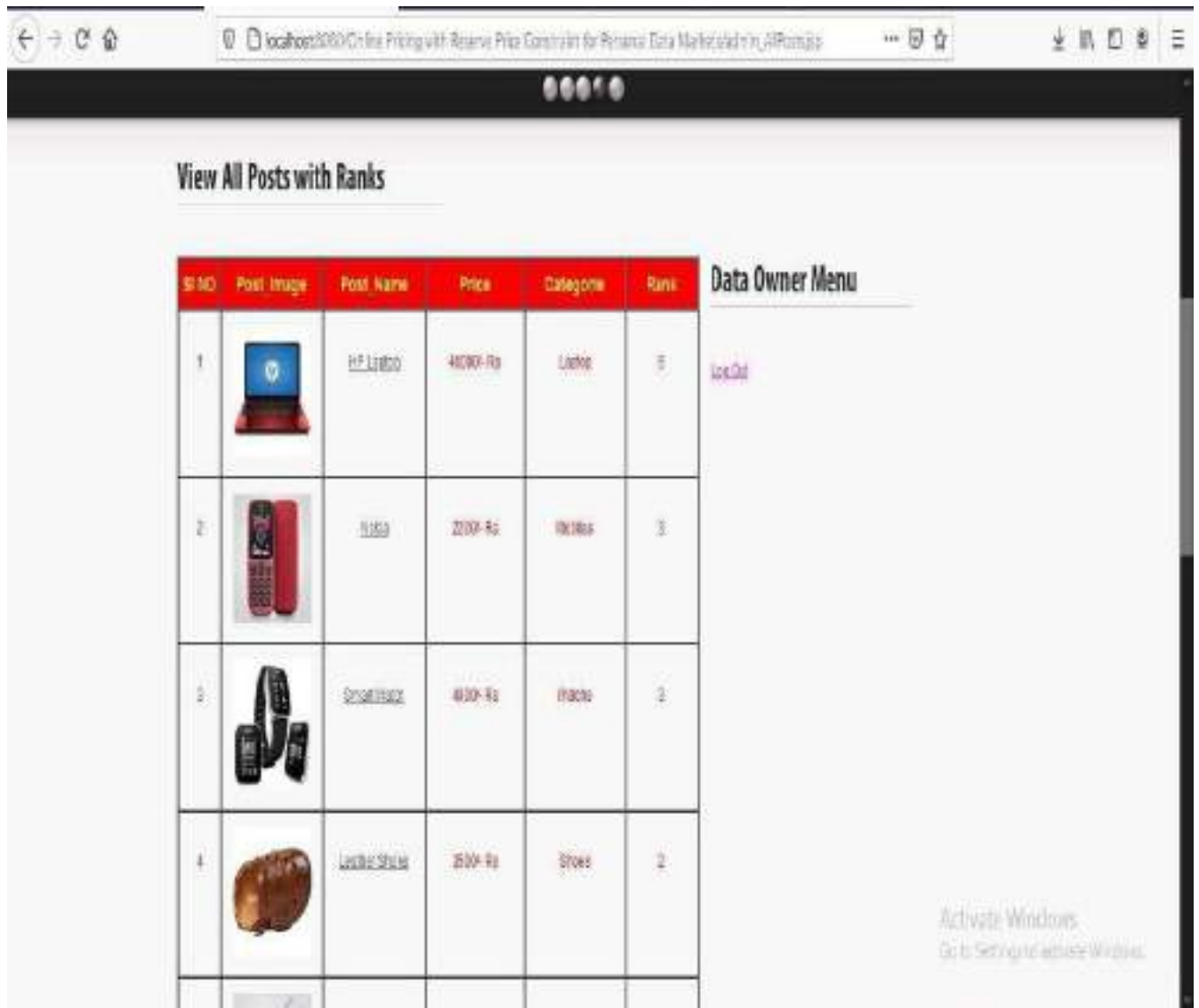
The above interface represents the data owner home page of the project.

SCREEN 5: View all users



The above interface represents the View all users of the project

SCREEN 6: View all Posts with Ranks



The above interface represents the View all Posts with Ranks of the project

SCREEN 7: All user search history



ID	Name	Product	Time
18	Naveen	HP Laptop	23/10/2020 13:23:10
19	Naveen	HP Laptop	23/10/2020 13:23:11
20	Naveen	HP Laptop	23/10/2020 13:23:24
21	Naveen	HP Laptop	23/10/2020 13:23:43
22	Naveen	HP Laptop	23/10/2020 13:24:00
23	Naveen	HP Laptop	23/10/2020 13:24:16
24	Naveen	Dell Laptop	23/10/2020 13:24:26
25	Naveen	HP Laptop	23/10/2020 13:24:53
26	Naveen	HP Laptop	23/10/2020 13:25:27
27	Naveenath	Acer	30/10/2020 12:14:57

The above interface represents the all-user search history of the project.

SCREEN 8: Agent Login



The above interface represents the Agent login of the project.

SCREEN 9: Agent Home Page



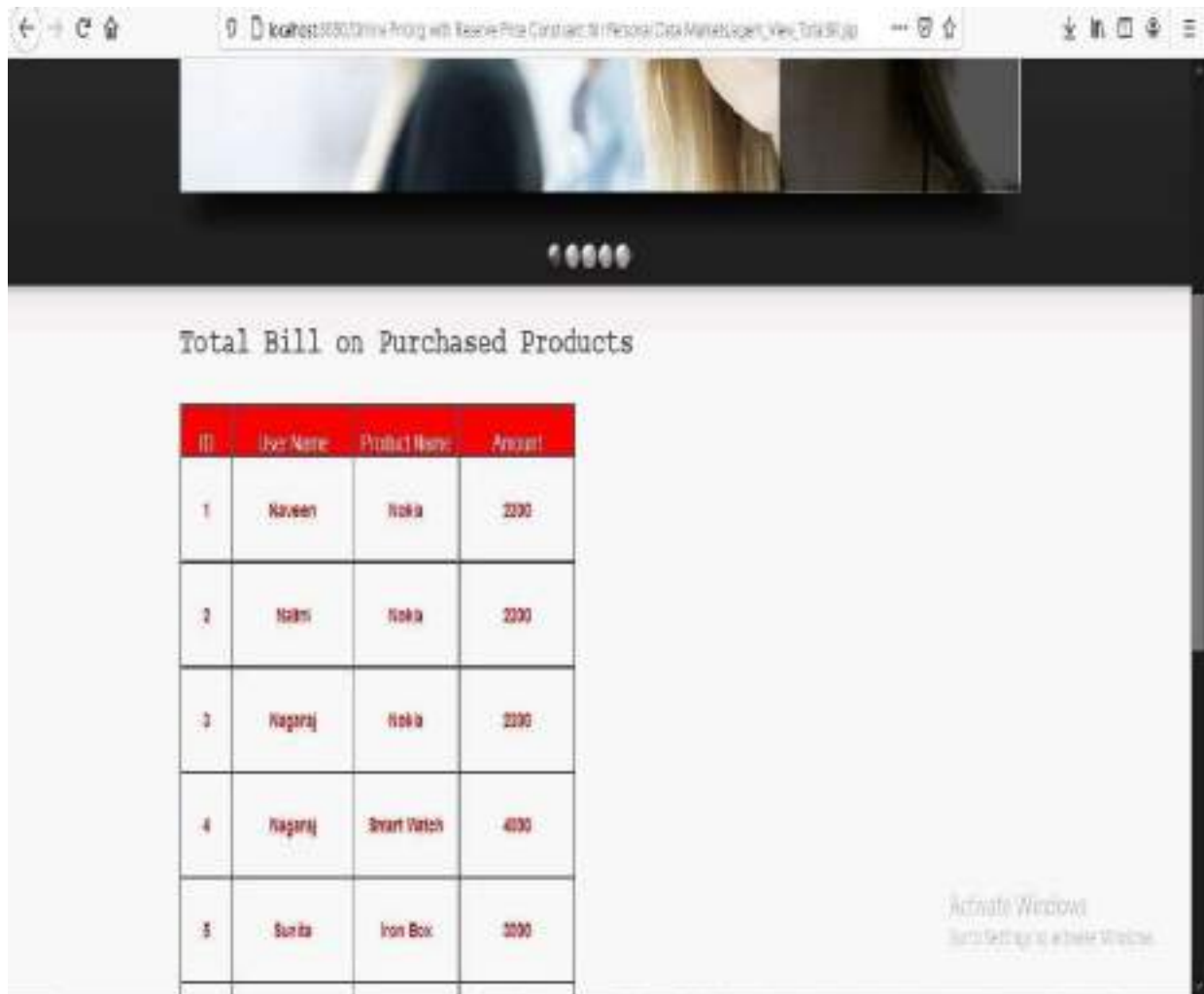
The above interface represents the Agent home page of the project.

SCREEN 10: All Purchased products and users

ID	Account No	User Name	Product Name	Price
1	602046	Raveen	Wala	2200
2	602046	Rabri	Wala	2200
3	602047	Ragani	Wala	2200
4	602047	Ragani	Smart Watch	4000
5	602051	Sarita	Iron Box	3000
6	602050	Pavan	Iron Box	3000
7	1210112102032	Masunath	Acer	26000

The above interface represents the all purchased products and users

SCREEN 11: Total bill on purchased products



The screenshot shows a web browser window with a video player at the top. Below the video, the title 'Total Bill on Purchased Products' is displayed. A table with a red header and black borders contains the following data:

ID	User Name	Product Name	Amount
1	Naveen	Nokia	2000
2	Neha	Nokia	2000
3	Nagaraj	Nokia	2000
4	Nagaraj	Smart Watch	4000
5	Sunita	Iron Box	3000

The above interface represents total bill on purchased products of the project.

SCREEN 12: User Login



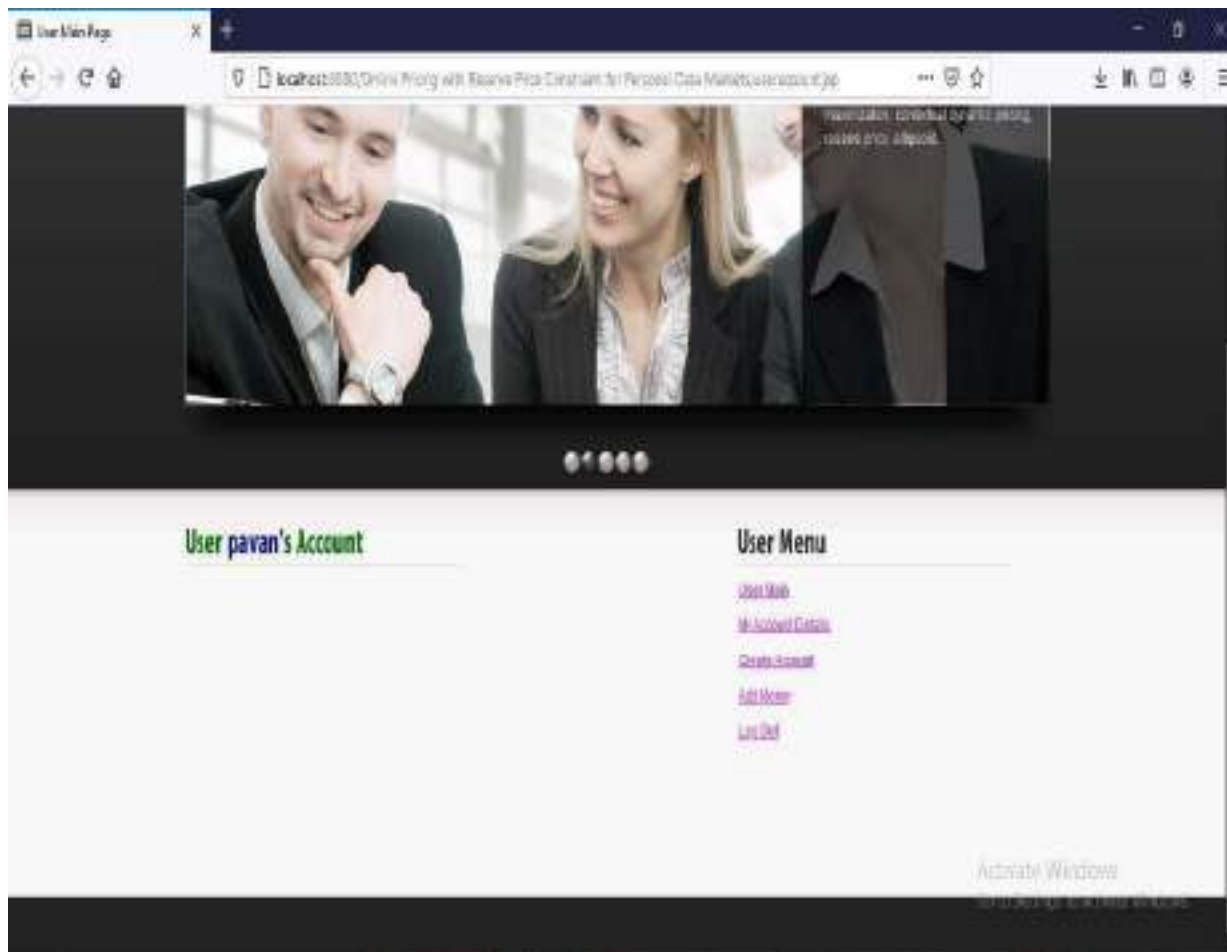
The above interface represents the User Login of the project

SCREEN 13: View Profile User



The above interface represents the View profile user of the project.

SCREEN 14: Manage bank account



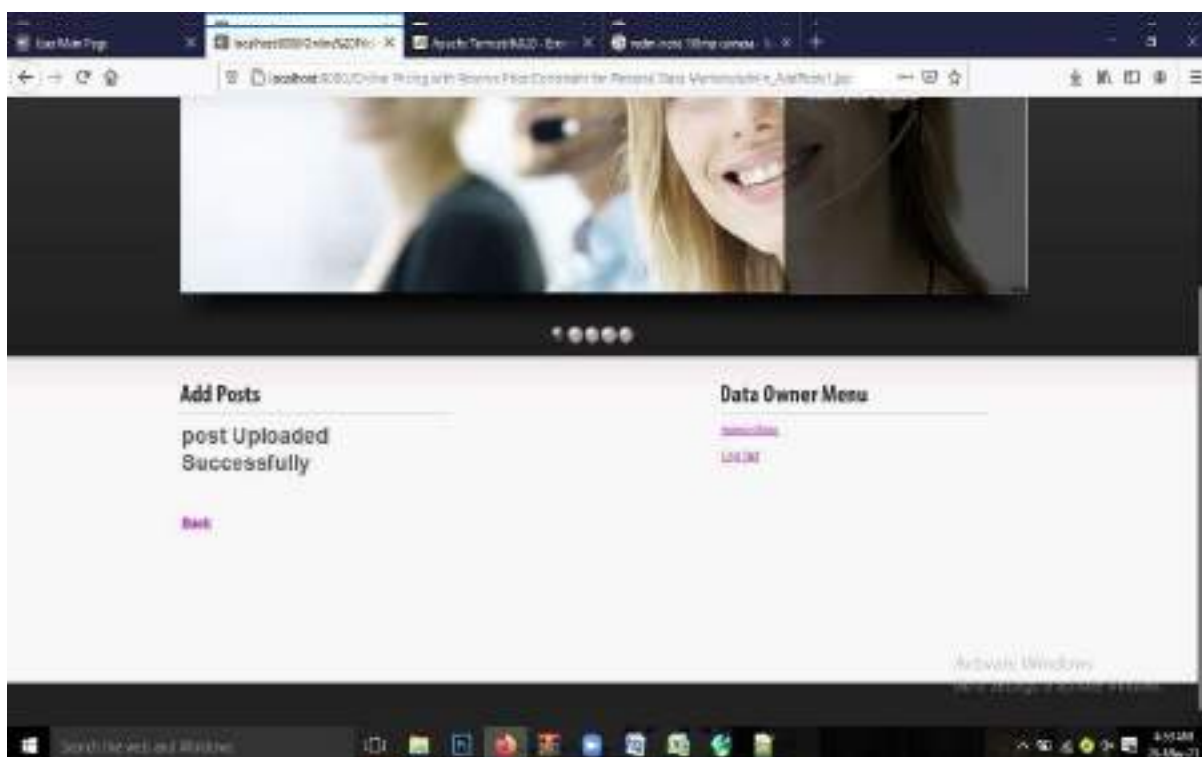
The above interface represents manage bank account of the project.

SCREEN 15: Account details



The above interface represents the User account details of the project.

SCREEN 16: Post Uploaded Successfully



The above interface represents post upload Successfully of the project.

SCREEN 17: View All Product Score Result



The above interface represents the View all Product Score Result of the project.

CONCLUSION

We have proposed the first contextual dynamic pricing mechanism with the reserve price constraint, for the data broker to maximize its cumulative revenue in online personal data markets. Our posted price mechanism features the properties of ellipsoid to perform online optimization effectively and efficiently and can support both linear and non-linear market value models, while allowing some uncertainty.

FUTURE ENHANCEMENT

We further have illustrated how to support two other similar application scenarios and extensively evaluated all three use cases over three practical datasets. Empirical results have demonstrated the feasibility and extensibility of our pricing mechanism as well as the functionality of the reserve price constraint

REFERENCES

- [1] M. Balazinska, B. Howe, and D. Suciu, “Data markets in the cloud: An opportunity for the database community,” *PVLDB*, vol. 4, no. 12, pp. 1482–1485, 2011.
- [2] C. Li, D. Y. Li, G. Miklau, and D. Suciu, “A theory of pricing private data,” *Communications of the ACM*, vol. 60, no. 12, pp. 79–86, 2017.
- [3] A. Ghosh and A. Roth, “Selling privacy at auction,” in *Proc. of EC*, 2011, pp. 199–208.
- [4] P. Koutris, P. Upadhyaya, M. Balazinska, B. Howe, and D. Suciu, “Query-based data pricing,” in *Proc. of PODS*, 2012, pp. 167–178.
- [5] “Toward practical query pricing with query market,” in *Proc. of SIGMOD*, 2013, pp. 613–624.
- [6] B. Lin and D. Kifer, “On arbitrage-free pricing for general data queries,” *PVLDB*, vol. 7, no. 9, pp. 757–768, 2014.
- [7] S. Deep and P. Koutris, “QIRANA: A framework for scalable query pricing,” in *Proc. of SIGMOD*, 2017, pp. 699–7

A

Project Report

on

**FEATURE LEVEL RATING SYSTEM USING CUSTOMER
REVIEWS AND REVIEW VOTES**

Submitted in partial fulfillment for the award of the degree

of

Master of Computer Applications

Submitted by

Y. CHENCHUKUMAR

(Reg. No. 18F61F0004)

Under the esteemed guidance of

Mrs. P. SUKANYA, MCA

Assistant Professor, Department of MCA.



Department of Master of Computer Applications

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(NAAC Accredited with 'A' Grade, NBA Accredited Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583,

Andhra Pradesh.

2020-2021

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583,
Andhra Pradesh.

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

This is to certify that this project report titled “FEATURE LEVEL RATING SYSTEM USING CUSTOMER REVIEWS AND REVIEW VOTES” that is being submitted by Y CHENCHUKUMAR (Reg. No.18F61F0004) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **Y CHENCHUKUMAR** here by declare that the project report entitled “ **FEATURE LEVEL RATING SYSTEM USING CUSTOMER REVIEWS AND REVIEW VOTES** ” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mrs. P. SUKANYA, MCA.**, Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, (AUTONOMOUS)**, Puttur. For the award of the degree of **MASTER OF COMPUTER APLLICATIONS**. The results embodied in this project have not been submitted to any other University forward of anydegree.

Place: Puttur

Date:

Y CHENCHUKUMAR

Reg. No.: 18F61F0004

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thank full to My Guide and **Mrs. P. SUKANYA, MCA.**, Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for her valuable guidance and suggestion in analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.**, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance of make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved Chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indravani, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(Y CHENCHUKUMAR)

CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1
2	SYSTEM STUDY	5
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	7
	3.2 DISADVANTAGES	7
	3.3 PROPOSED SYSTEM	8
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9
5	SYSTEM ARCHITECTURE	12
6	SOFTWARE ENVIRONMENT	14
7	SYSTEM REQUIREMENTS	29
8	SYSTEM DESIGN	30
9	IMPLEMENTATION	41
10	SYSTEM TESTING	81
11	SCREEN SHOTS	84
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

ABSTRACT

This work studies how we can obtain feature-level ratings of the mobile products from the customer reviews and review votes to influence decision-making, both for new customers and manufacturers. Such a rating system gives a more comprehensive picture of the product than what a product-level rating system offers. While product-level ratings are too generic, feature-level ratings are particular; we exactly know what is good or bad about the product. There has always been a need to know which features fall short or are doing well according to the customer's perception. It keeps both the manufacturer and the customer well-informed in the decisions to make in improving the product and buying, respectively. Different customers are interested in different features. Thus, feature-level ratings can make buying decisions personalized. We analyze the customer reviews collected on an online shopping site about various mobile products and the review votes. Explicitly, we carry out a feature-focused sentiment analysis for this purpose. Eventually, our analysis yields ratings to 108 features for 4000+ mobiles sold online. It helps in decision-making on how to improve the product (from the manufacturer's perspective) and in making the personalized buying decisions (from the buyer's perspective) a possibility. Our analysis has applications in recommender systems, consumer research, and so on.

LIST OF FIGURES

S. No.	Name	Page No.
1	5.1. Dataflow Flow Diagram	13
2	6.1. Program Compilation and Interpretaion	15
3	6.2. Execution for different platForms	15
4	6.3. Java Platform	16
5	6.4. Java IDE	18
6	6.5. General J2ME Architecture	26
7	8.1. Data Flow Diagram	31
8	8.2. Activity Diagram For E-Seller	32
9	8.3. Activity Diagram For User	33
10	8.4. Sequence Diagram	36
11	8.5. Collaboration Diagram	37
12	8.6. Deployment Diagram	38
13	8.7. Class Diagram	39
14	8.8. E-R Notations	40
15	Screen Shots	84-104

LIST OF ABBREVIATIONS

S. No.	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development LifeCycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	RR	Rating and Reviews
11	DBMS	Database Management System
12	FR	Feature Rating
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

1. INTRODUCTION

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called Knowledge Discovery in Database (KDD). The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation. Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

What is Data Mining ?

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining. In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information.

Data Mining is similar to Data Science carried out by a person, in a specific situation, on a particular data set, with an objective. This process includes various types of services .

FEATURE LEVEL RATING SYSTEM USING CUSTOMER REVIEWS AND REVIEW VOTES

As text mining, web mining, audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tones of information available on various platforms, but very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

Types of Data Mining

Data mining can be performed on the following types of data:

Relational Database:

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data search ability, reporting, and organization.

Data Repositories:

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

Object-Relational Database:

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance.

Advantages of Data Mining

- The Data Mining technique enables organizations to obtain knowledge-based data.
- Data mining enables organizations to make lucrative modifications in operation and

production.

- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.
- It Facilitates the automated discovery of hidden patterns as well as the prediction of trends and behaviors.
- It can be induced in the new system as well as the existing platforms.
- It is a quick process that makes it easy for new users to analyze enormous amounts of data in a short time.

Applications of Data Mining

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

Data Mining in Manufacturing Engineering:

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.

Data Mining Financial Banking:

The Digitalization of the banking system is supposed to generate an enormous amount of data with every new transaction. The data mining technique can help bankers by solving

FEATURE LEVEL RATING SYSTEM USING CUSTOMER REVIEWS AND REVIEW VOTES

business- related problems in banking and finance by identifying trends, casualties, and correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by experts. The manager may find these data for better targeting, acquiring, retaining, segmenting, and maintain a profitable customer.

2. SYSTEM STUDY

FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources.

SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

EXISTING SYSTEM

Sentiment analysis has been an active research topic for a long period now. It has applications in health, politics, sports, e-commerce , and so on. In e-commerce, customer reviews can give lots of insights about the products, as shown and, through sentiment analysis. Especially, Wiliam et al. studied the trends of mobile brands on Twitter through sentiment analysis. However, the analysis is restricted to the mobile overall, not to specific features. Nandal et al. tried to do so, but for limited products and limited features. While Nandal et al. used SVM, a supervised learning algorithm, Sadhasivam and Kalivaradhan used ensembling for achieving this. In this article, we attempt to exploit these customer reviews to provide ratings for as many as 108 features of 4000+ mobile phones sold online while incorporating review votes, which has never been done in the previous studies.

DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, the system is less effective since the system is not implemented effective recommender systems.
- This system does not provide text mining for analyzing the sentiment on large data sets.

PROPOSED SYSTEM

- ❖ The proposed system contributions are as follows. The system develops a feature-level rating system that takes customer reviews and review votes as input and then outputs feature-level ratings. The system obtains such ratings for as many as 4000+ mobiles sold online in terms of as many as 108 features. The system proposes vote-aware cumulative rating and vote-aware final rating measures, a new way of accumulating and finalizing the sentiment scores.
- ❖ Although there are no ground truths available, we still manage to evaluate our approach by comparing the final ratings of our phone feature against overall ratings of the phone given by the customers themselves, which leads to remarkable results, demonstrating the effectiveness of our method.

ADVANTAGES OF PROPOSED SYSTEM

- ❖ The System performs a series of preprocessing steps on the customer review data to filter out the unnecessary data, correct the remaining, and turn it into structured data. Each review is broken into sentences, and only relevant sentences are retained.
- ❖ The system is more effective due to presence of web mining for providing the sentiment analysis.

4. SOFTWARE MODULES

MODULES

- E-Seller
- User

MODULES DESCRIPTION

➤ **E-Seller**

In this module, the ESeller has to login by using valid user name and password. After login successful he can perform some operations such as View and Authorize Users, View Friend Request/Response, Add and View Categories, Add Products, View All Products, View All Products's Reviews, View All Products's Ratings, View All Sentiment Similarity By Reviews, View All Purchased Products, View Deleted Friends, View User Query Keyword, View All Product Consumes By Users, View All Recommended Products, View Product Score Results.

Viewing and Authorizing Users

In this module, the admin views all users details and authorize them for login permission. User Details such as User Name, Address, Email Id and Mobile Number.

Add and View Category as Domain

In this module, the admin adds Categories like Movie, Products, and Sports etc.

Add Posts as Products

In this module, the admin can add Posts by Selecting Domains and by Providing Posts Details Such as, Post Name, Description, Images and Uses.

View all Posts with Rating based on Ranks

In this module, admin can see all his added posts with details (Post Name, Description, Uses and Images) along with Rating and Rank. Rating is Calculated Based on Ranks.

View all Recommended Products

In this, the admin can see all the posts which are recommended by the users to their friends. Recommended posts can be seen by selecting particular Category.

Categorize Users Based on Products Consumes with user Images

In this, the admin can view all the users who are all liked a particular post and who are all recommended a particular post. The result can be seen in a design graph selecting particular post name.

View Product Rank Results

In this, the admin can view products ranks in a graph. The Rank is calculated based on the number of likes made on particular post.

- **User**

In this module, there are n numbers of users are present. User should register before performing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password. Once Login is successful user can perform some operations like My Profile, Search Friends, View Friend Requests, View My Friends, Delete My Friends, Search Products and Recommend, View Post Recommends, Friends Products Consumes.

Viewing Profile Details

In this module, the user can see their own profile details, such as their address, email, mobile number, profile Image.

Search Friends, Request, and View Friend Requests, View all Friend Details

In this, the user search for other users by their names, send requests and view friend requests from other users. User can see all his friend details with their images and personnel details.

Search Query by keyword

In this, the user can search for post by query keyword and the results will displayed in as two groups. The one is exactly matched posts and the other is posts which are all belongs to matched post's categories. The user can like or dislike and can recommend found posts to their opinion on that post.

FEATURE LEVEL RATING SYSTEM USING CUSTOMER REVIEWS AND REVIEW VOTES

In this, the user can view all his friends recommended posts to user. The user can view recommended post details with a friend opinion on that post.

View Your Friends Products Consumes details with their images

In this, the user can view all his friends products consumes details that is, if the friend liked or recommended on any post, those details will be shown in a design with friend details.

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

DATA FLOW DIAGRAM

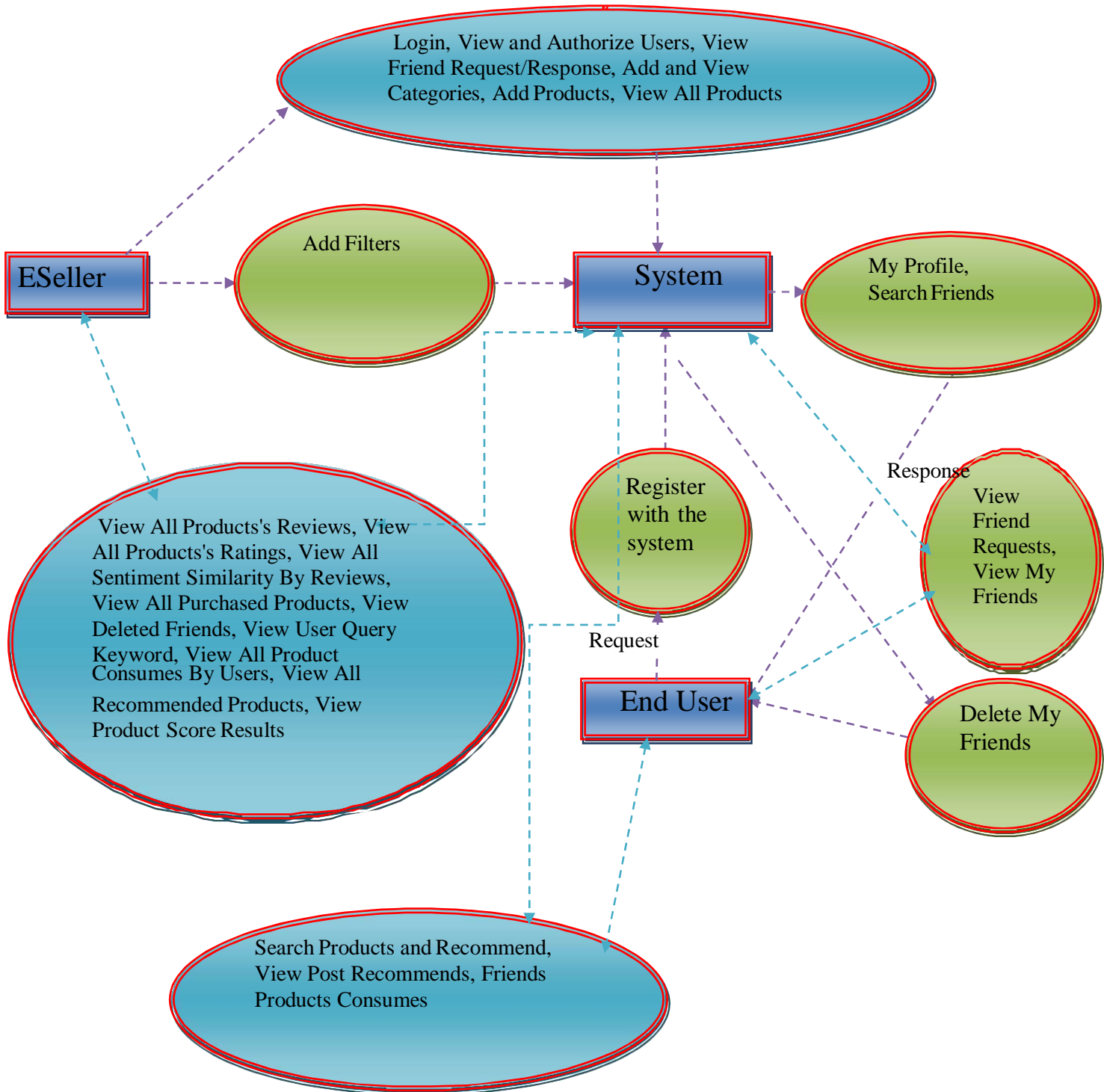


Fig 5.1 Dataflow Diagram

6. SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture
- neutral Object
- oriented
- Portable
- High
- performance
- Interpreted
- Multithreaded

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

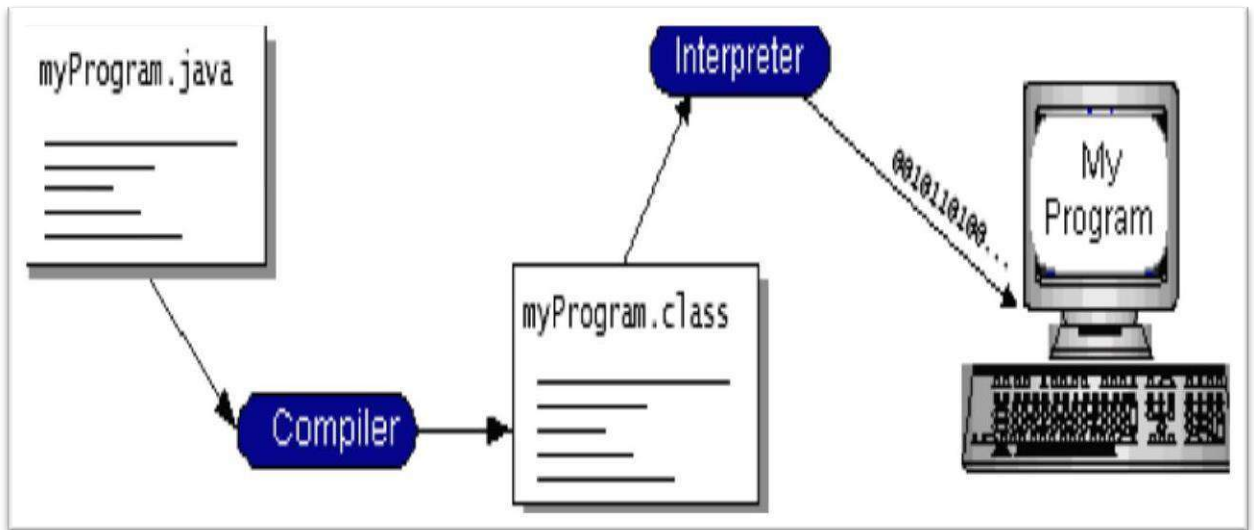
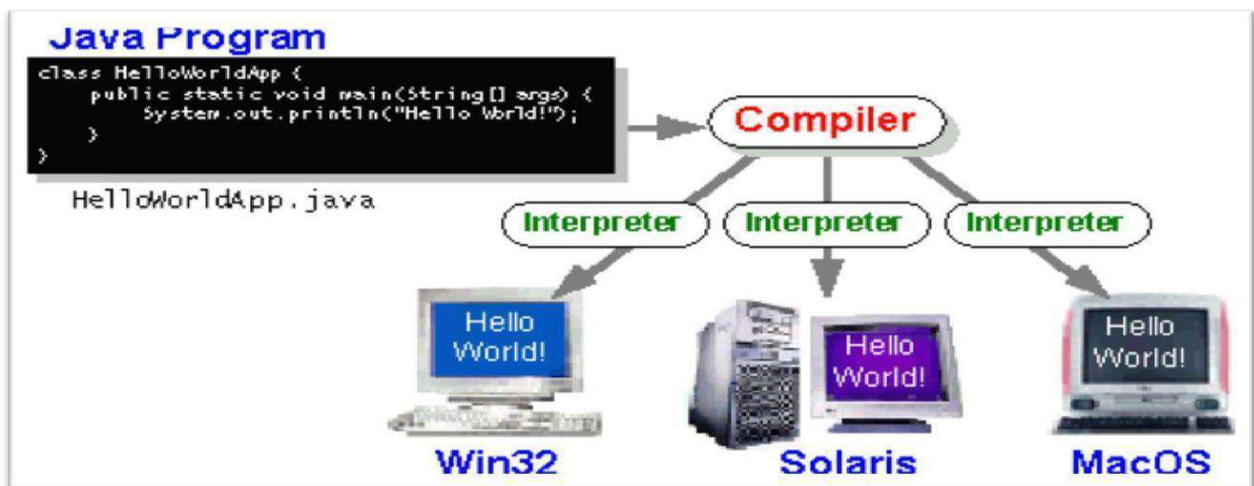


Fig 6.1: Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming



language can run on Windows 2000, a Solaris workstation, or on an iMac.

Fig 6.2: Execution for different platforms

The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and Mac OS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as packages. The next section, What Can Java Technology Do ? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

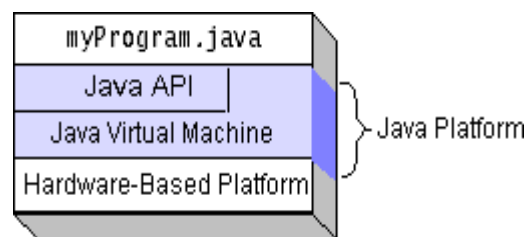


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring performance close.

What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server. How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and soon.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.

- signatures, public and private key management, access control, and certificates.
- **Software components:** Known as Java Beans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

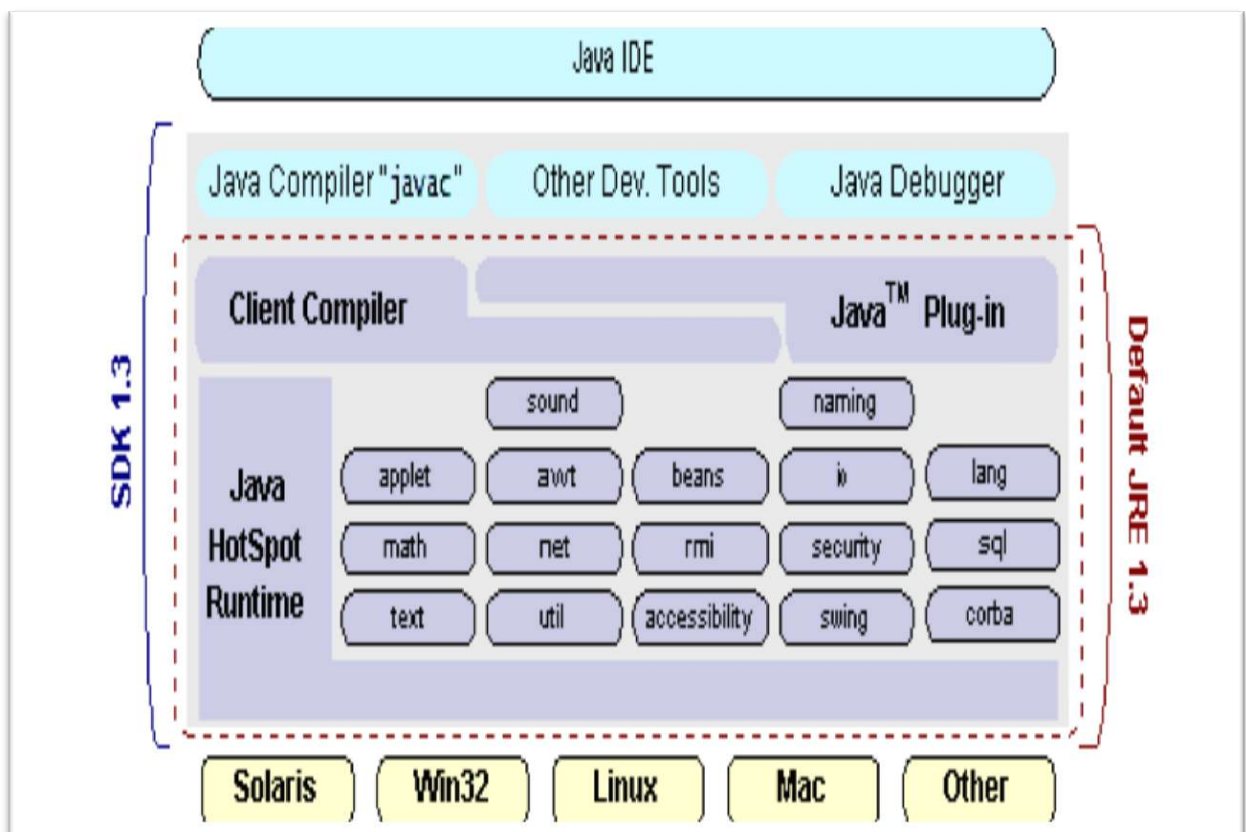


Fig 6.4: Java IDE

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are

- compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a de facto standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE.

There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or drivers. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and

Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

JDB

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to "generate" JDBC code and to hide many of JDBC's complexities from the end user.

SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the

Connectivity module to handle non- standard functionality in a manner that is suitable for its users.

JDBC must be implemental on top of common database interfaces

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

Provide a Java interface that is consistent with the rest of the Java system

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

Use strong, static typing wherever possible

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

Keep the common cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible. Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java ha two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform- independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte code s as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it’s a Java development

Tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make “write once, run anywhere” possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
> #include
<sys/socket.h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

JFREE CHART

JFree Chart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFree Chart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFree Chart is "open source" or, more.

Specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XY Plot class in JFree Chart. Testing, documenting, testing some more, documenting some more.

Time Series Chart Interactivity

Implement a new (to JFree Chart) feature for interactive time series charts -- to display separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFree Chart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFree Chart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the Java One Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

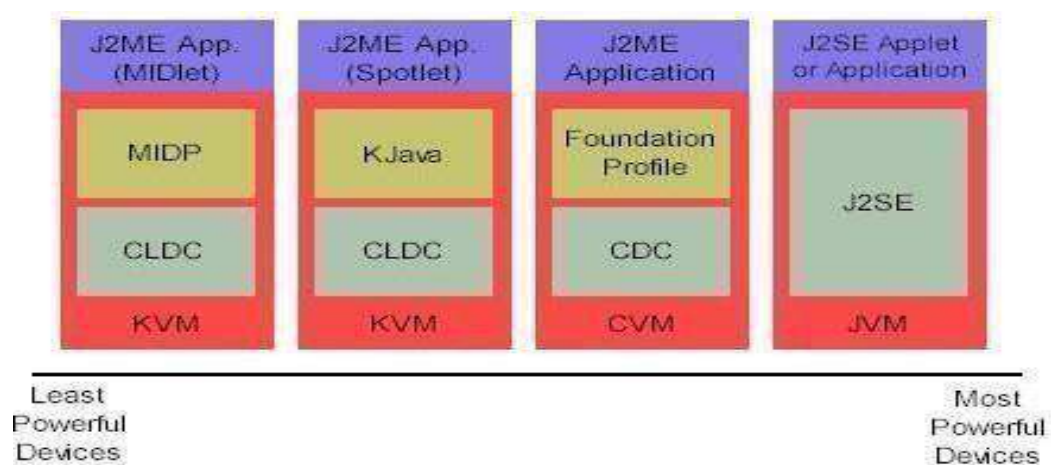


Fig 6.5: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes. The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is

generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

Developing J2ME applications

Introduction In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- **Keep it simple.** Remove unnecessary features, possibly making those features a separate, secondary application.
- **Smaller is better.** This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- **Minimize run-time memory use.** To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis.

Other ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

Configurations overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

7. SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

- Processor - Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM - 4 GB
- Hard Disk - 40 GB

SOFTWARE REQUIREMENTS

- Operating System - windows 7 / 8.1 / 10
- Server - Apache Tomcat
- Database - MYSQL Server 5.0
- Front end - HTML, CSS, JS
- Back end - JSP

8. SYSTEM DESIGN

DATA FLOW DIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

DATA FLOW DIAGRAM

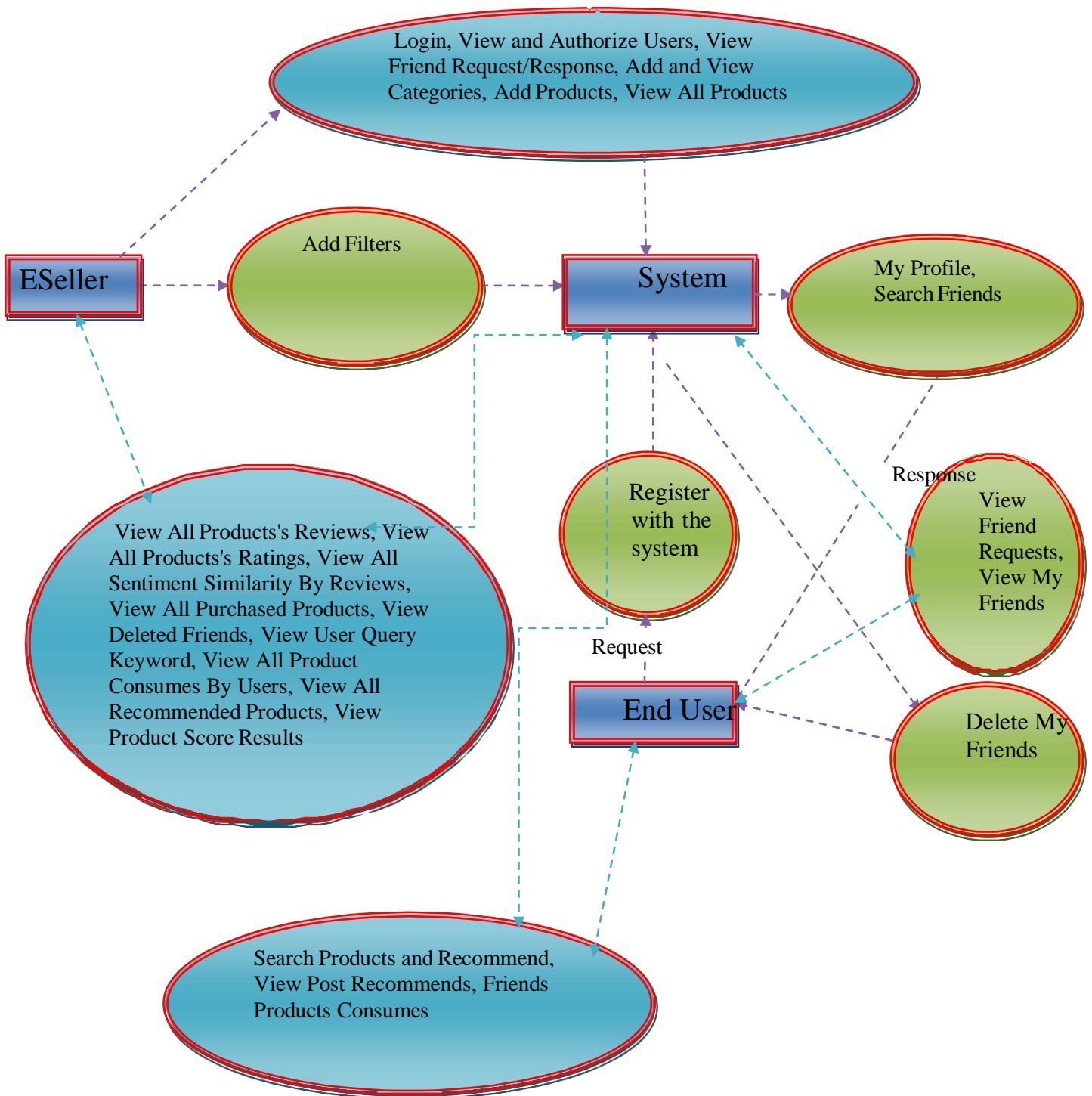


Fig 8.1 Data flow Diagram

UML DIAGRAMS

Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

Activity Diagram for E-Seller

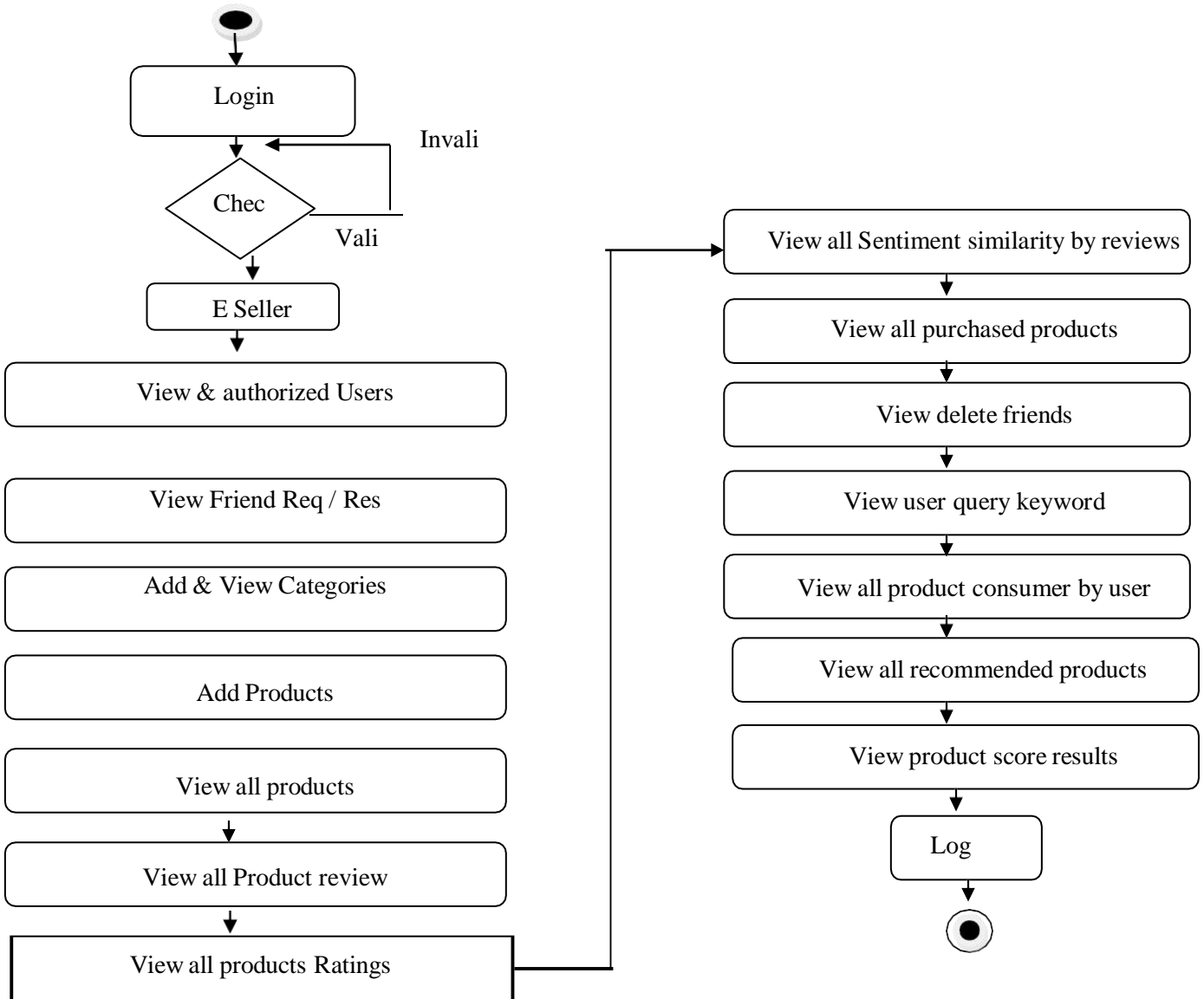


Fig 8.2 Activity Diagram for E-Seller

Activity Diagram for User

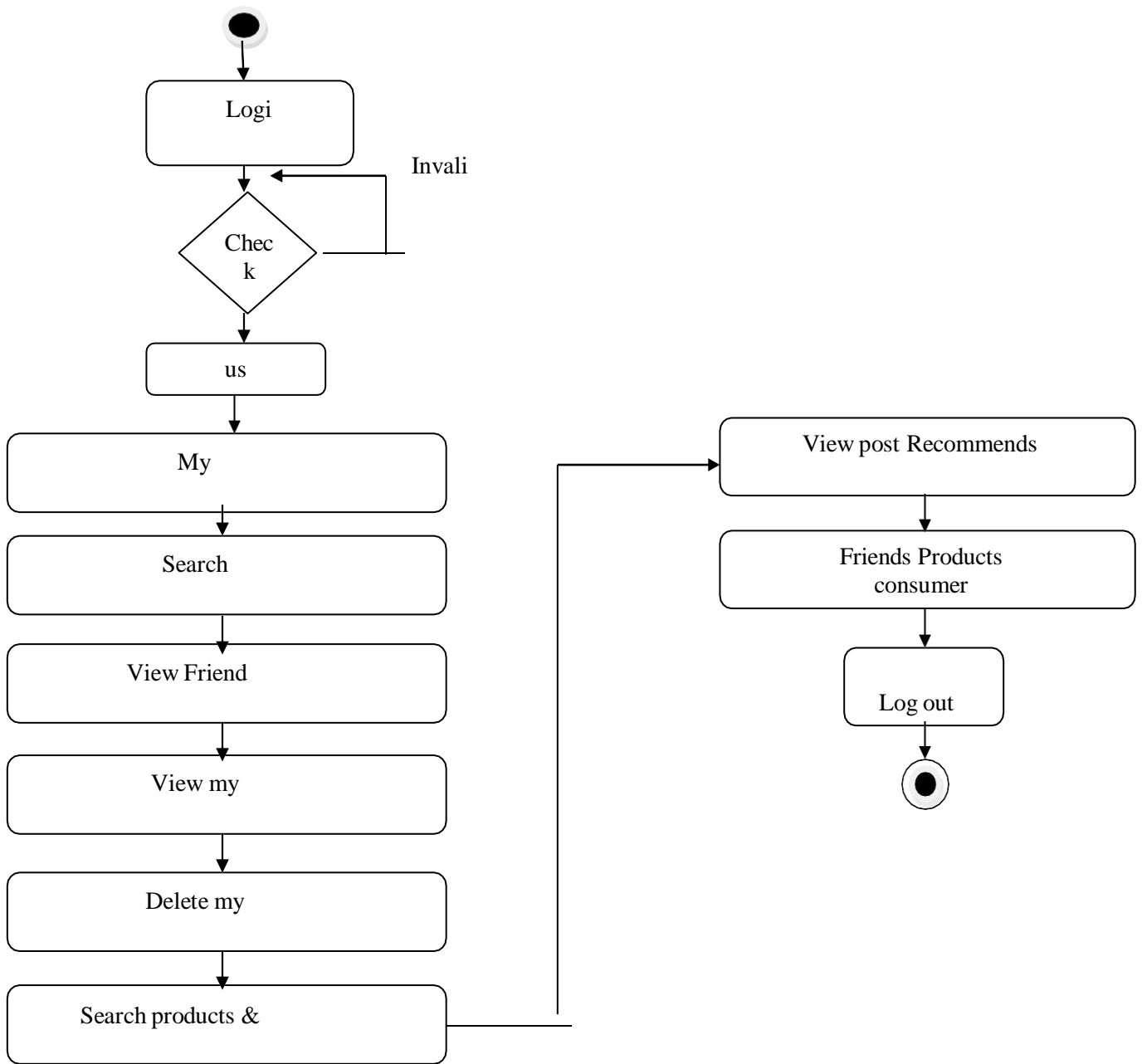


Fig 8.3 Activity Diagram for User

Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

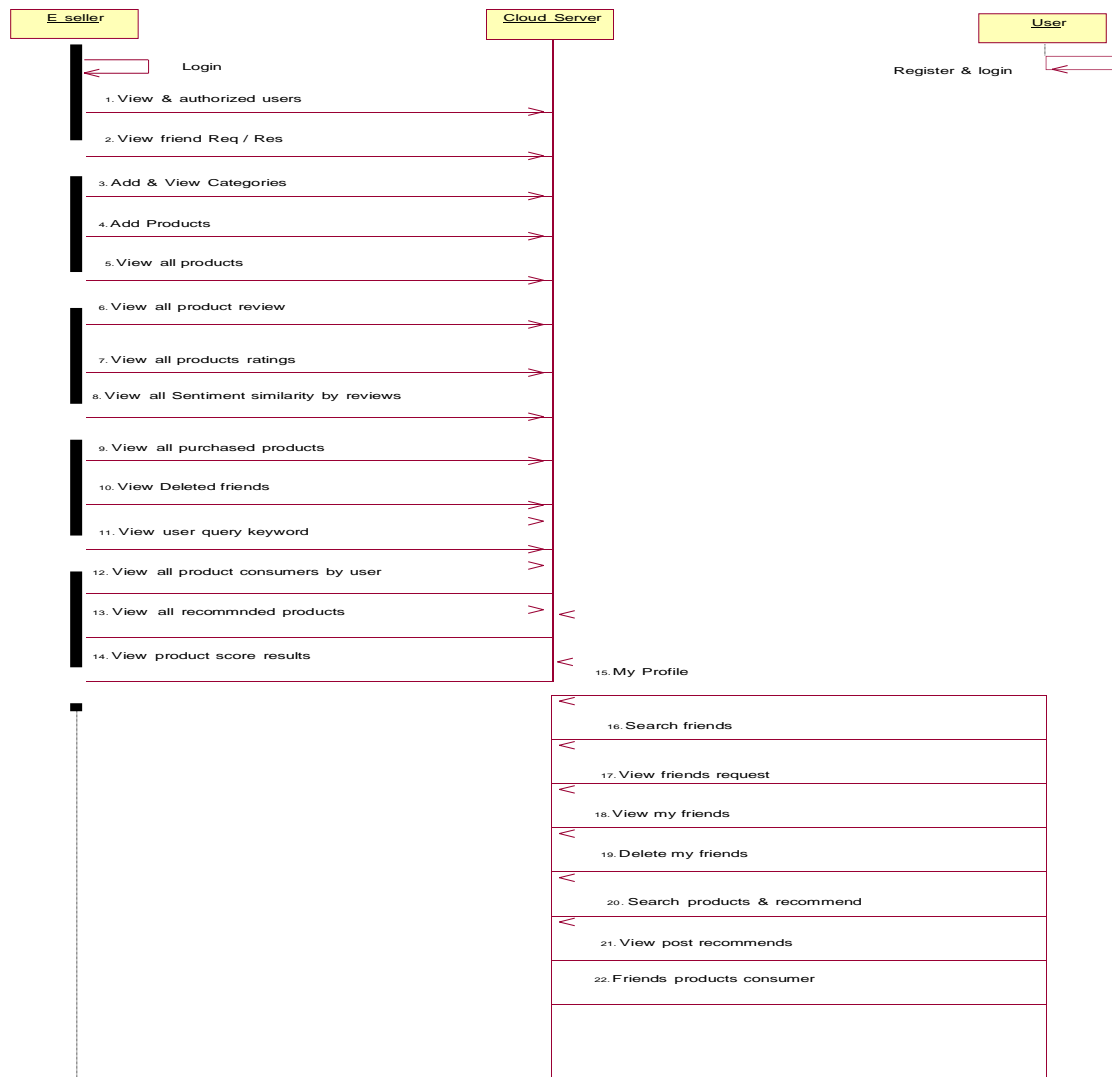


Fig 8.4 Sequence Diagram

Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

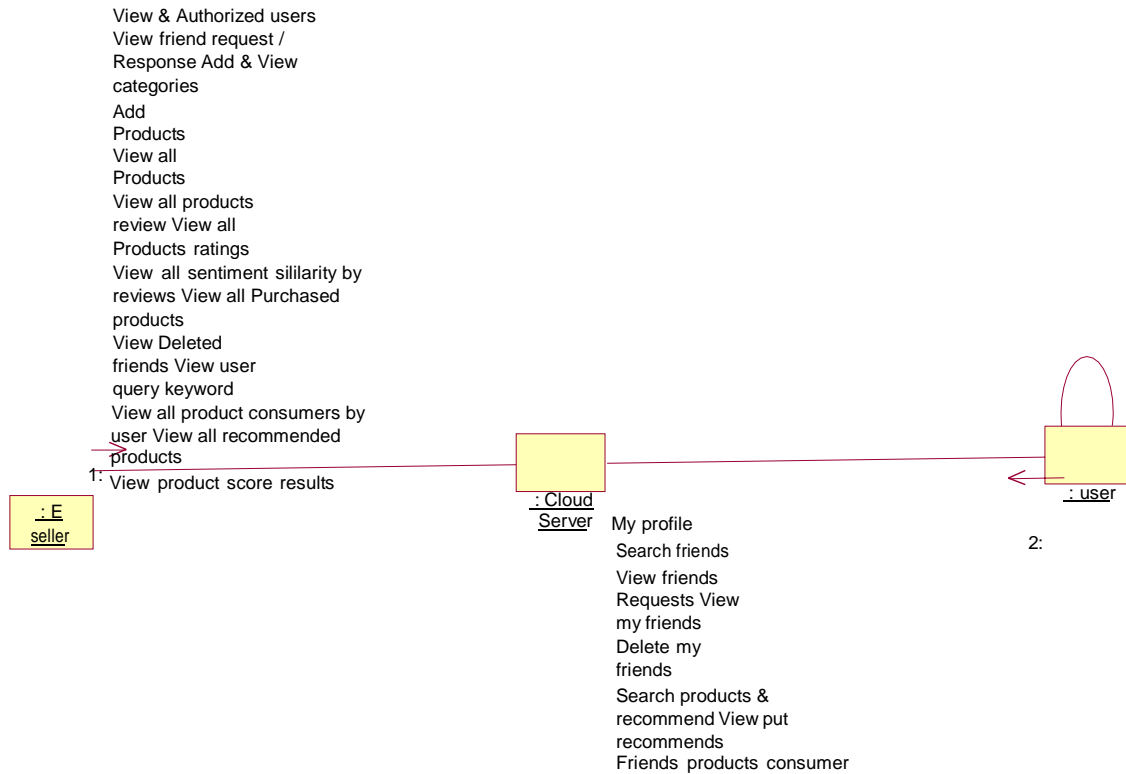


Fig 8.5 Collaboration Diagram

Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

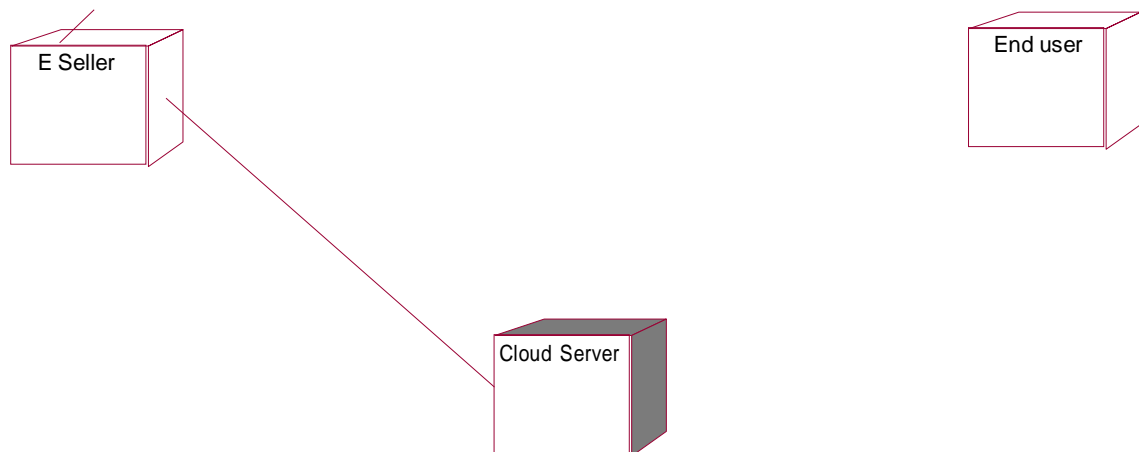


Fig 8.6 Deployment Diagram

Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items. There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.

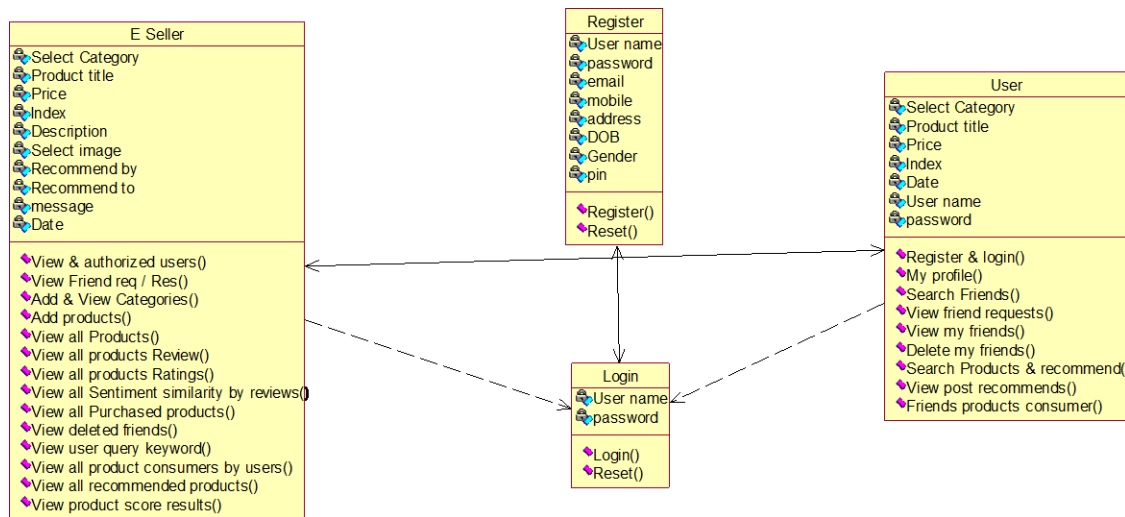


Fig 8.7 Class Diagram

E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.

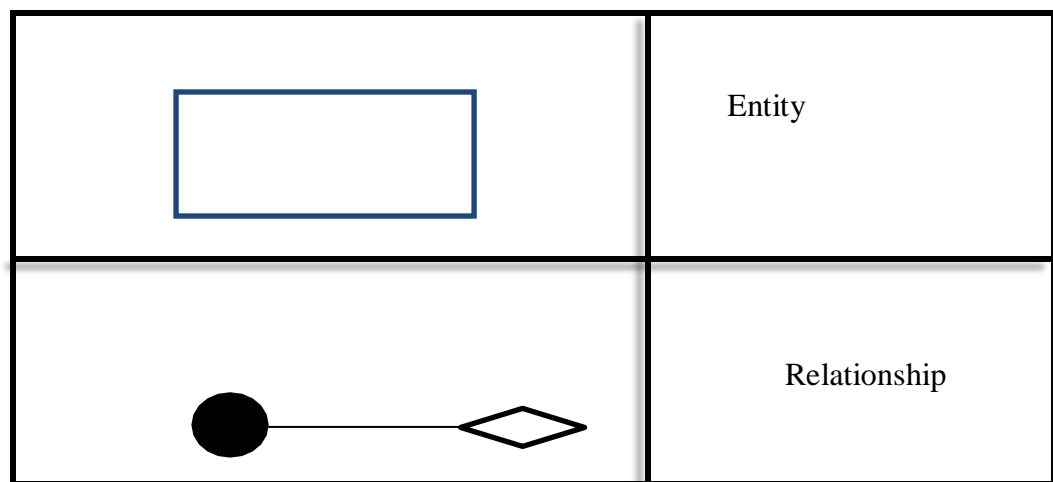


Fig 8.8 E-R Notations

9. IMPLEMENTATION

INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

6. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
7. Select methods for presenting information.
 1. eate document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
 - onvey information about past activities, current status or projections.
 - uture.
 - ignal important events, opportunities, problems, or warnings.

CODING

A_FriendRR.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>All Friend Requests/Response.</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px}
.style17 { font-size: 32px; color: #FF6600; }
.style18 { color: #FF00FF}
.style54 { color: #009900}
.style33 { font-size:
13px; color:
#6666FF;
font-weight: bold;
}
.style34 { font-size: 18px; color: #00FF00; }
.style36 { font-size: 18px; color: #FF3300; }
.style38 { font-size: 18px; color: #666666; }
.style48 {
font-size:
13px; color:
#FFFFFF;
font-weight:
bold;
}
.style49 { color:
#FFFFFF; font-size:
13.5px;
}
.style50 { color:
```



```
.style88 {
color:
#0000FF;
font-weight:
bold;
}
.style90 {color: #FF00FF; font-weight: bold; font-size: 13px; }
.style91 {color: #009900; font-weight: bold; font-size: 13px; }
.style94 {font-size: 18px; color: #FF6600; }
.style95 {color: #FFFFFF}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home </span></a></li>
          <li><a href="UserLogin.jsp"><span>User</span></a></li>
          <li class="active"><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
        </ul>
      </div>
      <div class="logo style8">
        <p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
        <p class="style17"></p>
      </div>
      <div class="clr"></div>
      <div class="slider">
        <div id="coin-slider"> <a href="#"> </a> <a href="#"> </a> <a
href="#">
</a> </div>
      </div>
      <div class="clr"></div>
    </div>
  </div>
  <div class="content">
    <div class="content_resize">
      <div class="sidebar">
        <div class="gadget">
          <table width="851" border="0" cellspacing="2" cellpadding="2">
            <tr>
```

```
        </td>
    </tr>
<% @page
import="com.oreilly.servlet.*,java.sql.*,java.lang.*,java.text.SimpleDateFormat,java.util.*,java.io.*,javax.servlet.*, javax.servlet.http.*" %>
<% @ page import="java.sql.*"%>
<% @ include file="connect.jsp" %>
<% @ page import="java.util.Date" %>
    </table>
    <ul class="sb_menu"><li><table width="856" border="1" align="center">
        <tr>
            <td width="37" height="47" align="center" valign="middle"
bgcolor="#FF0000"><div align="center" class="style33 style49"><span class="style3 ">Id
</span></div></td>
            <td width="114" align="center" valign="middle" bgcolor="#FF0000"><div
align="center" class="style36 style70 style95"><strong><span class="style3 ">Request
From
</span></strong></div></td>
            <td width="145" align="center" valign="middle" bgcolor="#FF0000"><div
align="center" class="style36 style95 style70"><strong><span class="style3 ">Requested
User
</span></strong></div></td>
            <td width="108" align="center" valign="middle" bgcolor="#FF0000"><div
align="center" class="style55 style49"><strong><span class="style3 ">Request To
</span></strong></div></td>
            <td width="173" align="center" valign="middle" bgcolor="#FF0000"><div
align="center" class="style34 style50"><span class="style3 "> Request To Name
</span></div></td>
            <td width="99" align="center" valign="middle" bgcolor="#FF0000"><div
align="center" class="style38 style70 style95"><strong><span class="style3
">Status</span></strong></div></td>
            <td width="134" align="center" valign="middle" bgcolor="#FF0000"><div
align="center" class="style38 style95 style70"><strong><span class="style3
">Date</span></strong></div></td>
        </tr>
    </ul>
```

```
String s1="",s2="",s3="",s4="",s5="",s6="",s7="",s8,s9,s10,s11,s12,s13;
int i=0,j=0,k=0;
```

```
    try
    {
```

```
        String query="select * from frequest";
```

```
ResultSet rs=st.executeQuery(query);

while( rs.next() )

{

    <tr>
        <td height="111"><div align="center" class="style90"><%=i%></div></td>
        <td><div align="center" class="style48 style52 style54 style18 style18">
            <input name="image" type="image" src="user_Pic.jsp?id=<%=j%>"
width="100" height="100" alt="Submit" />
        </div></td>
        <td><div align="center" class="style90"><%=s2 %></div></td>
        <td><div align="center" class="style52 style54 style18">
            <input name="image2" type="image" src="user_Pic.jsp?id=<%=k%>"
width="100" height="100" alt="Submit" />
        </div></td>
        <td><div align="center" class="style90"><%=s3 %></div></td>
        <td><div align="center" class="style91"><%= s5%></div></td>
        <td><div align="center" class="style90"><%= s4%></div></td>
    </tr>
    <%
}
}

}

    connection.close();
}

catch(Exception e)
{
    out.println(e.getMessage());
}
%>

    </table>
</li>
<li></li>
</ul>
<table width="456" border="0" cellspacing="2" cellpadding="2">
<tr>
<td width="448" height="80"><div align="right">
```

```
<p><a href="AdminMain.jsp" class="style88">Back</a></p>
</div></td>
</tr>
</table>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

A_ProductConsume.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Product Consumes By Users..</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link href="circle.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px}
.style17 { font-size: 32px; color: #FF6600; }
.style35 {
font-size:
25px; color:
#FF00FF;
}
.style98 { font-size: 28px}
```

```
color:
#000000; font-
weight: bold;
}
.style92 { color: #FF0000; font-weight: bold; font-size: 14px; }
.style106 { color: #006600}
.style94 { font-size: 18px; color: #FF6600; }
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home </span></a></li>
          <li><a href="UserLogin.jsp"><span>User</span></a></li>
          <li class="active"><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
        </ul>
      </div>
      <div class="logo style8">
        <p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
        <p class="style17"></p>
      </div>
      <div class="clr"></div>
      <div class="slider">
        <div id="coin-slider"> <a href="#"> </a> <a href="#"> </a> <a
href="#">
</a> </div>
      </div>
      <div class="clr"></div>
    </div>
  </div>
  <div class="content">
    <div class="content_resize">
      <div class="sidebar">
        <div class="gadget">
          <table width="772" border="0" cellspacing="2" cellpadding="2">
            <tr>
              <td width="764"><p class="style36 style35 style98">Products Consumed by Users
based on Likes..</p>
              <p class="infopost">&nbsp;</p>
            </td>
          </tr>
        </table>
      </div>
    </div>
  </div>
</div>
</body>
</html>
```



```
<% @ include file="connect.jsp" %>
    <% @ page import="java.io.*"%>
    <% @ page import="java.util.*" %>
    <% @ page import="java.util.Date" %>
    <% @ page import="com.oreilly.servlet.*"%>
    <%

    ArrayList a1=new ArrayList();

    String query="select distinct(title) FROM likes";
    Statement st=connection.createStatement();
    ResultSet rs=st.executeQuery(query);

<form action="A_ProductConsume.jsp" method="post">
<table width="800" border="0" align="center">
    <tr>
        <td width="334" height="33"><div align="justify" class="style92">
            <div align="right"><span class="style3">Select Product </span> </div>
        </div></td>
        <td width="456"><label>
            <div align="left">
                <select id="s1" name="title" style="width:150px">
                    <option>--Select--</option>
                    <%

                    <option><%= a1.get(i)%></option>
                    <%

                </select>
            </div>
        </label></td>
    </tr>
    <tr>
        <td height="99" colspan="2"><div align="center">
            <input type="submit" name="Submit" value="View Consumed Details" />
        </div></td>
    </tr>
</table>
<p>&nbsp;</p>
<table width="712" border="0" cellspacing="2" cellpadding="2">
    <tr>
        <td width="704"><div align="right"><a href="AdminMain.jsp"
```

```

        <td width="742" height="37"><div align="center"><span class="star
style35">Liked          Users          on          Post          <span
class="style106"><%=request.getParameter("title")%></span>' Click on Image
</span></div></td>
    </tr>
</table>
<table width="753" border="0" align="center" cellpadding="2" cellspacing="2">
<tr>
    <td width="745"><div class="templatemo_h_line">
        <div align="center" id="circle1">
            <%

```

```
try
{

```

```

        </div>
        </div></td>
    </tr>
</table>
<p class="star">&nbsp;</p>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
    <div class="footer_resize">
        <div style="clear:both;"></div>
    </div>
</div>
</div>
<div align=center></div>
</body>
</html>

```

A_RankResults.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">

```

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px }
.style17 { font-size: 32px; color: #FF6600; }
.style18 { color: #FF00FF }
.style35 {
font-size:
25px; color:
#FF00FF;
}
.style5 { color:
#66CCFF; font-size:
21px;
font-weight: bold;
}
.style55 { font-size: 16px; color: #FFFFFF; }
.style55 { color: #FF0000 }
.style62 { color:
#FF00FF; font-weight:
bold;
font-size: 13px;
}
.style63 { font-weight: bold }
.style67 { font-size: 15px }
.style98 { font-size: 28px }
.style99 { font-size: 13px }
.style100 { font-weight: bold }
.style101 { font-weight: bold }
.style102 { font-weight: bold }
.style103 { font-weight: bold }
.style105 {
color:
#0000FF;
font-weight: bold;

}
.style94 { font-size: 18px; color: #FF6600; }
-->
</style>
```

```
<div class="header_resize">
  <div class="menu_nav">
    <ul>
      <li><a href="index.html"><span>Home </span></a></li>
      <li><a href="UserLogin.jsp"><span>User</span></a></li>
      <li class="active"><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
    </ul>
  </div>
  <div class="logo_style8">
    <p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
    <p class="style17"></p>
    <p class="style17"></p>
  </div>
  <div class="clr"></div>
  <div class="slider">
    <div id="coin-slider"> <a href="#"> </a> <a href="#"> </a> <a
href="#">
</a> </div>
  </div>
  <div class="clr"></div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="sidebar">
      <div class="gadget">
        <table width="704" border="0" cellspacing="2" cellpadding="2">
          <tr>
            <td width="696" height="183"><p class="style36 style35 style98">Products Vote
Results..</p>
              <p class="infopost">&nbsp;</p>
              <p>&nbsp;</p>
              <iframe width="840" height="400" src="Results.jsp"></iframe>
            </td>
          </tr>
        </table>

        <p>&nbsp;</p>
        <h2 class="star">&nbsp;</h2>
        <table width="577" border="0" cellspacing="2" cellpadding="2">
          <tr>
            <td width="569"><div align="right"><a href="AdminMain.jsp"
class="style105">Back</a></div></td>
          </tr>
        </table>
      </div>
    </div>
  </div>
</div>
```

```
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

A_ViewSentiment.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>View Sentiment</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px }
.style17 { font-size: 32px; color: #FF6600; }
.style35 {
font-size:
25px; color:
#FF00FF;

}
.style98 { font-size: 28px }
.style105 {
color:
#0000FF;
font-weight: bold;
```



```
.style108 {color: #FF0000; font-weight: bold; }
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home </span></a></li>
          <li><a href="UserLogin.jsp"><span>User</span></a></li>
          <li class="active"><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
        </ul>
      </div>
      <div class="logo style8">
        <p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
        <p class="style17"></p>
        <p class="style17"> </p>
      </div>
      <div class="clr"></div>
      <div class="slider">
        <div id="coin-slider"> <a href="#"> </a> <a href="#"> </a> <a
href="#">
</a> </div>
      </div>
      <div class="clr"></div>
    </div>
  </div>
  <div class="content">
    <div class="content_resize">
      <div class="sidebar">
        <div class="gadget">
          <table width="1045" border="0" cellspacing="2" cellpadding="2">
            <tr>
              <td width="1037"><p class="style36 style35 style98">View All Product's Sentiment
```

```
Details.. </p>
    <p class="infopost">&nbsp;</p>
  </tr>
</table>
<p class="style106">&nbsp;</p>
<table width="420" border="2" align="center">
  <tr>
    <td height="33"><div align="center" class="style108"><span class="style106"><a
href="A_View_Positive_Sentiment.jsp">View Positive Sentiment Similarity
Analysis</a></span></div></td>
  </tr>
  <tr>
    <td height="47"><div align="center" class="style108"><span class="style106"><a
href="A_View_Negative_Sentiment.jsp">View Negative Sentiment Similarity
Analysis</a></span></div></td>
  </tr>
</table>
<h2 class="star">&nbsp;</h2>
<p class="star">&nbsp;</p>
<table width="577" border="0" cellspacing="2" cellpadding="2">
  <tr>
    <td width="569"><div align="right"><a href="AdminMain.jsp"
class="style105">Back</a></div></td>
  </tr>
</table>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

Search_Products.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
```

```
]<head>
<title>Searching Products..</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px }
.style17 { font-size: 32px; color: #FF6600; }
.style3 { color: #FF00FF }
.style1 { font-size: 25px }
.style33 { color: #0000FF }
.style11 { color:
#0000FF; font-weight:
bold;
}
.style44 { font-family: "Times New Roman", Times,
serif; color: #FF00FF;
font-weight:
bold; font-
size: 14px;
}
.style82 {
color:
#FF0000;
font-weight:
bold;
}
.style83 { font-size: 11px }
.style94 { font-size: 18px; color: #FF6600; }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">
<ul>
<li><a href="index.html"><span>Home </span></a></li>
<li class="active"><a href="UserLogin.jsp"><span>User</span></a></li>
<li><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
```

```
<p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
<p class="style17"></p>
<p class="style17"> </p>
</div>
<div class="clr"></div>
<div class="slider">
  <div id="coin-slider"> <a href="#"> </a> <a href="#"> </a> <a
href="#">
</a> </div>
  </div>
  <div class="clr"></div>
</div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">
        <h2><span class="style33"><span class="style1"><span class="style3">Search Products..
</span></span><span class="style3"></span></span></h2>
        <p class="infopost">&nbsp;</p>
        <div class="clr"></div>

        <p>&nbsp;</p>
        <form action="SearchProducts2.jsp" method="post" id="leavereply">
          <table align="center" style="margin:0 0 0 30px;">
            <tr>
              <td width="142"><div align="center" class="style3">
                <div align="right" class="style33">
                  <div align="center" class="style82">Enter Keyword</div>
                </div>
              </div></td>
              <td width="200"><div align="left">
                <input type="text" name="keyword" style="width:200px; height:20px";
placeholder="based on index and description" />
              </div></td>
            </tr>
            <tr>
              <td height="61" colspan="2">

                <div align="center">
                  <input name="submit" type="submit" style="width:60px; height:25px;"
value="Search"/>
                </div></td>
            </tr>
          </table>
        </form>
      </div>
    </div>
  </div>
</div>
```

```
</table>
<p class="style44">&nbsp;</p>
</form>
<p align="right"><a href="UserMain.jsp" class="style11
style33"><strong>Back</strong></a></p>
<div class="clr">
<div align="right"></div>
</div>
</div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">
<span>
<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
</span>
<input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
<h2 class="star"><span>Sidebar</span> Menu</h2>
<div class="clr"></div>
<ul class="sb_menu"><li><a href="SearchProducts.jsp">Home</a></li>
<li><a href="index.html">Log Out</a></li>
</ul>
</div>
<div class="gadget">
<h2 class="star">&nbsp;</h2>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
<div class="footer_resize">
<div style="clear:both;"></div>
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```


Index.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>HOME PAGE</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px }
.style17 { font-size: 32px; color: #FF6600; }
.style18 { font-size: 18px; color: #FF6600; }
.style19 {
font-size:
18px; color:
#FF0000;
}
.style20 { color: #FF0000 }
.style95 { color:
#FF0000; font-weight:
bold;
}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">
<ul>
<li class="active"><a href="index.html"><span>Home </span></a></li>
<li><a href="UserLogin.jsp"><span>User</span></a></li>
<li><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
</ul>
</div>
<div class="logo style8">
<p class="style18">Feature Level Rating System Using Customer Reviews and
Review Votes</p>
```

```
</div>
<div class="clr"></div>
<div class="slider">
  <div id="coin-slider"> <a href="#"> </a> <a href="#"> </a> <a
href="#">
</a> </div>
  </div>
  <div class="clr"></div>
</div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">
        <h2 align="center">Feature Level Rating System Using Customer Reviews and
Review Votes</h2>
        <p class="infopost">&nbsp;</p>
        <div class="clr"></div>
        <div class="img"></div>
        <div class="post_content">
          <p align="justify">&nbsp;</p>
        </div>
        <div class="clr"></div>
      </div>
    </div>
  </div>
  <div class="sidebar">
    <div class="searchform">
      <form id="formsearch" name="formsearch" method="post" action="#">
        <span>
          <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
        </span>
        <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
      </form>
    </div>
    <div class="clr"></div>
    <div class="gadget">
      <h2 class="star"><span>Sidebar</span> Menu</h2>
      <div class="clr"></div>
      <ul class="sb_menu">
        <li><a href="index.html">Home</a></li>
        <li><a href="UserLogin.jsp">User</a></li>
        <li><a href="AdminLogin.jsp">ESeller</a></li>
      </ul>
    </div>
  </div>
</div>
```

```
</div>
<div class="gadget">
  <h2 class="star"><span>Concepts</span></h2>
  <div class="clr"></div>
  <ul class="ex_menu"><li>
    <div align="center"><span class="style19">Cellular phones, decision-making,
natural language<br />
    processing, recommender systems, reviews, sentiment<br />
    analysis, text mining, web mining..
    </span>      </div>
    <p align="center"><span class="style20"><a href="#"></a></span></p>
    <div align="center"><br />
    </div>
  </li>
</ul>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

User ReLogin.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Re-Login Page..</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
```

```
<style type="text/css">
<!--
.style8 { font-size: 20px}
.style17 { font-size: 32px; color: #FF6600; }
.style18 { color: #FF00FF}
.style19 { color: #FF0000; font-weight: bold; }
.style20 { color: #FF00FF; font-weight: bold; }
.style25 { color:
#FF00FF; font-size:
20px;
}
.style21 { color: #0000FF; font-weight: bold; }
.style94 { font-size: 18px; color: #FF6600; }
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home </span></a></li>
          <li class="active"><a href="UserLogin.jsp"><span>User</span></a></li>
          <li><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
        </ul>
      </div>
      <div class="logo style8">
        <p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
        <p class="style17"></p>
        <p class="style17"> </p>
      </div>
      <div class="clr"></div>
      <div class="slider">
        <div id="coin-slider"> <a href="#"> </a> <a href="#"> </a> <a
href="#">
</a> </div>
      </div>
      <div class="clr"></div>
    </div>
  </div>
  <div class="content">
    <div class="content_resize">
```

```
<h2 class="style18"><span class="style25">Invalid Login Details, Please Try
Again!!</span></h2>
<p class="infopost">&nbsp;</p>
<div class="clr"></div>
<div class="img"></div>
<div class="post_content">
<form id="form1" name="form1" method="post" action="UserAuthentication.jsp">
<table width="413" border="0" cellspacing="2" cellpadding="2">
<tr>
<td width="205" height="62" align="center"><div
align="center" class="style19">Name (required)</div></td>
<td width="194"><input id="name" name="userid" class="text" /></td>
</tr>
<tr>
<td height="46" align="center"><div align="center" class="style19">Password
(required)</div></td>
<td><input type="password" id="pass" name="pass" class="text" /></td>
</tr>
<tr>
<td>&nbsp;</td>
<td>&nbsp;</td>
</tr>
<tr>
<td>&nbsp;</td>
<td>
<span class="style19">
<input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" />
New User?</span><a href="UserRegister.jsp" class="style20"> Register </a></td>
</tr>
<tr>
<td height="26">&nbsp;</td>
<td>&nbsp;</td>
</tr>
</table>
<p align="right"><a href="index.html" class="style21">Back</a></p>
</form>
</div>
<div class="clr"></div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">
<span>
```



```
<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
</span>
<input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
<h2 class="star"><span>Sidebar</span> Menu</h2>
<div class="clr"></div>
<ul class="sb_menu"><li>
<p><a href="UserRe-Login.jsp">Home</a></p>
<p><a href="index.html">Index Page</a></p>
</li>
</ul>
</div>
<div class="gadget">
<h2 class="star">&nbsp;</h2>
<ul class="ex_menu"><li><br />
</li>
</ul>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer">
<div class="footer_resize">
<div style="clear:both;"></div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

User Register.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Registration Page..</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px }
.style17 { font-size: 32px; color: #FF6600; }
.style22 { color: #00CC00 }
.style3 { color: #FF00FF }
.style1 { font-size: 25px }
.style33 { color: #0000FF }
.style34 { color: #42ac1f }
.style11 { color:
#0000FF; font-weight:
bold;
}
.style40 {
color:
#996600;
font-weight: bold;
}
.style32 { font-size:
25px; font-weight:
bold;
color: #FF00FF;
}
.style94 { font-size: 18px; color: #FF6600; }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">
<ul>
<li><a href="index.html"><span>Home </span></a></li>
<li class="active"><a href="UserLogin.jsp"><span>User</span></a></li>
<li><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
</ul>
</div>
<div class="logo style8">
<p class="style17"><span class="style94">Feature Level Rating System Using
```

```
<p class="style17"> </p>
</div>
<div class="clr"></div>
<div class="slider">
  <div id="coin-slider"> <a href="#"> </a> <a href="#"> </a> <a
href="#">
</a> </div>
  </div>
  <div class="clr"></div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">
        <h2><span class="style32">Welcome To User Registration</span></h2>
        <p>&nbsp;</p>
        <p></p>
        <p class="infopost">&nbsp;</p>
      <div class="clr"></div>

      <form action="UserRegisterAuthentication.jsp" method="post"
id="" enctype="multipart/form-data">
        <label for="name"><span class="style40">User Name (required)</span></label>
        <p class="style40">
          <input id="name" name="userid" class="text" />
        </p>
        <span class="style40">
          <label for="password">Password (required)</label>
        </span>
        <p class="style40">
          <input type="password" id="password" name="pass" class="text" />
        </p>
        <span class="style40">
          <label for="email">Email Address (required)</label>
        </span>
        <p class="style40">
          <input id="email" name="email" class="text" />
        </p>
        <span class="style40">
          <label for="mobile">Mobile Number (required)</label>
        </span>
        <p class="style40">
          <input id="mobile" name="mobile" class="text" />
        </p>
      </div>
    </div>
  </div>
</div>
```

```
<span class="style40">
<label for="address">Your Address</label>
</span>
<p class="style40">
  <textarea id="address" name="address" rows="3" cols="50"></textarea>
</p>
<span class="style40">
<label for="dob">Date of Birth (required)<br />
</label>
</span>
<p class="style40">
  <input id="dob" name="dob" class="text" />
</p>
<span class="style40">
<label for="gender">Select Gender (required)</label>
</span>
<p class="style40">
  <select id="s1" name="gender" style="width:480px;" class="text">
    <option>--Select--</option>
    <option>MALE</option>
    <option>FEMALE</option>
  </select>
</p>
<span class="style40">
<label for="pincode"></label>
<label for="location"></label>
</span>
<p class="style22">
  <span class="style40">
    <label for="pic">Select Profile Picture (required)</label>
  </span>
  <input type="file" id="pic" name="pic" class="text" />
</p>
<p><br />
  <input name="submit" type="submit" value="REGISTER" />
</p>
</form>
<p align="right"><a href="index.html" class="style11">Back</a></p>
<div class="clr">
  <div align="right"></div>
</div>
</div>
<div class="sidebar">
  <div class="searchform">
    <form id="formsearch" name="formsearch" method="post" action="#">
```

```
<span>
  <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
</span>
  <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
  <h2 class="star"><span>Sidebar</span> Menu</h2>
  <div class="clr"></div>
  <ul class="sb_menu"><li>
    <p><a href="UserRegister.jsp">Home</a></p>
    <p><a href="UserLogin.jsp">User Login </a></p>
  </li>
</ul>
</div>
<div class="gadget"></div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

AdminMain.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Admin Main Page.</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
```



```
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px}
.style17 { font-size: 32px; color: #FF6600; }
.style12 { color:
#6633FF; font-size:
24px;
}
.style19 { color: #009900}
.style22 { color: #00CC00}
.style23 { font-size:
26px; color:
#FF00FF;
}
.style24 { font-size: 28px}
.style3 { color: #FF00FF}
.style94 { font-size: 18px; color: #FF6600; }
.style95 { color:
#FF0000; font-weight:
bold;
}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home </span></a></li>
          <li><a href="UserLogin.jsp"><span>User</span></a></li>
          <li class="active"><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
        </ul>
      </div>
      <div class="logo style8">
        <p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
        <p class="style17"></p>
        <p class="style17"> </p>
      </div>
      <div class="clr"></div>
      <div class="slider">
        <div id="coin-slider"> <a href="#"> </a> </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="content">
<div class="content_resize">
<div class="mainbar">
<div class="article">
<h2><span class="style23">Welcome To ESeller
Main::<%= (String)application.getAttribute("ecom")%></span></
h2>
<p class="infopost">&nbsp;</p>
<div class="clr"></div>
<div class="img"></div>
<div class="post_content">
<p align="justify"><span class="style95">This work studies how we can obtain
feature- level ratings of the mobile products from the customer reviews and review votes to
influence decision-making, both for new customers and manufacturers. Such a rating system
gives a more comprehensive picture of the product than what a product-level rating system
offers. While product-level ratings are too generic, feature-level ratings are particular; we
exactly know what is good or bad about the product. There has always been a need to know
which features fall short or are doing well according to the customer's perception. It keeps both
the manufacturer and the customer well-informed in the decisions to make in improving the
product and buying, respectively. Different customers are interested in different features. Thus,
feature-level ratings can make buying decisions personalized. We analyze the customer reviews
collected on an online shopping site (Amazon) about various mobile products and the review
votes. Explicitly, we carry out a feature-focused sentiment analysis for this purpose.
Eventually, our analysis yields ratings to 108 features for 4000+ mobiles sold online. It helps in
decision-making on how to improve the product (from the manufacturer's perspective) and in
making the personalized buying decisions (from the buyer's perspective) a possibility. Our
analysis has applications in recommender systems, consumer research, and so on..
</span></p>
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">
<span>
<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
</span>
<input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
```

```
<div class="clr"></div>
<div class="gadget">
  <h2 class="star"><span>Sidebar</span> Menu</h2>
  <div class="clr"></div>
  <ul class="sb_menu">
    <li><a href="AdminMain.jsp">Home</a><a href="index.html"></a></li>
    <li><a href="A_AuthorizeUsers.jsp">View and Authorize Users</a></li>
    <li><a href="A_FriendRR.jsp">View Friend Request/Response </a></li>
    <li><a href="A_AddCategory.jsp">Add and View Categories </a></li>
    <li><a href="A_AddProducts.jsp">Add Products</a></li>
    <li><a href="A_ViewAllProducts.jsp">View All Products </a></li>
    <li><a href="A_ViewAllReviews.jsp">View All Products's Reviews </a></li>
    <li><a href="A_ViewAllRatings.jsp">View All Products's Ratings </a></li>
```

```
</li>
><a href="A_ViewSentiment.jsp">View All Sentiment Similarity By Reviews
</a></li>

</li>
><a href="A_ViewAllPurchased_Products.jsp">View All Purchased Products
</a></li>
  <li><a href="A_DeletedFriends.jsp">View Deleted Friends</a> </li>
  <li><a href="A_QueryKeyword.jsp">View User Query Keyword </a></li>
  <li><a href="A_ProductConsume.jsp">View All Product Consumes By Users </a></li>
  <li><a href="A_RecommendProducts.jsp">View All Recommended Products </a></li>
  </li><a
href="A_RankResults.jsp">View Product Score Results </a></li>
  <li><a href="index.html">Log Out</a></li>
</ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
```

```
div align=center></div>
</body>
</html>
```

U_rating.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Rate Details</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
```

```
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px }
.style17 { font-size: 32px; color: #FF6600; }
.style3 { color: #FF00FF }
.style1 { font-size: 25px }
.style33 { color: #0000FF }
.style11 { color:
#0000FF; font-weight:
bold;
}
.style94 { font-size: 18px; color: #FF6600; }
.style96 {
font-size:
24px; color:
#FF0000;
font-weight:
bold;
}
.style97 {
color:
#FF0000;
font-weight:
bold;
}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">

      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home </span></a></li>
          <li class="active"><a href="UserLogin.jsp"><span>User</span></a></li>
          <li><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
        </ul>
      </div>
      <div class="logo style8">
        <p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
        <p class="style17"></p>
        <p class="style17"> </p>
```



```
height="271" alt="" /> </a> <a href="#"> </a> </div>
</div>
<div class="clr"></div>
</div>
<div class="content">
<div class="content_resize">
<div class="mainbar">
<div class="article">
<h2><span class="style33"><span class="style1"><span class="style3">
</span></span></h2>
<p class="infopost">&nbsp;</p>
<div class="clr"></div>

<p>&nbsp;</p>
<p>
<% @ include file="connect.jsp" %>
<% @ page import="java.util.*"%>
<% @ page import="java.text.*"%>
<% @ page import="java.util.Date"%>
<% @ page import="java.sql.*"%>
<% @ page
import="com.oreilly.servlet.*,java.lang.*,java.text.SimpleDateFormat,java.io.*,javax.servl
et.*, javax.servlet.http.*" %>
<% @ page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.Secret
Ke ySpec"%>
<% @ page import="org.bouncycastle.util.encoders.Base64"%>

]<% @ page import="java.util.Random,java.io.PrintStream, java.io.FileOutputStream,java.io.FileInputStream,
java.security.DigestInputStream, java.math.BigInteger, java.security.MessageDigest, java.io.BufferedInputStream"
%>

<p align="center" class="style96">RATING DETAILS !!! </p>
<form id="form1" name="form1" method="post" action="u_rating1.jsp">
<p>&nbsp;</p>
</p> <table width="362" border="0">
<tr>
```

```
<td width="153" height="32" bgcolor="#FFFF00"><span
class="style97">Product ID </span></td>
<td width="282"><input type="text" name="id" value="<%=id%>" /></td>
</tr>
<tr>
<td height="45" bgcolor="#FFFF00"><span class="style97">Product Name
</span></td>
<td><input type="text" name="title" value="<%=title%>" /></td>
</tr>
<tr>
<td height="42" bgcolor="#FFFF00"><span class="style97">Product Price
</span></td>
<td><input type="text" name="price" value="<%=price%>" /></td>
</tr>
<tr>
<td height="41" bgcolor="#FFFF00"><span class="style97">Product Company
</span></td>
<td><input type="text" name="ecom" value="<%=ecom%>" /></td>
</tr>
<tr>
<td bgcolor="#FFFF00"><span class="style97">Give Your Rating </span></td>
<td><select name="rating">
<option>1</option>
<option>2</option>
<option>3</option>
<option>4</option>
<option>5</option>
</select>
</td>
</tr>
<tr>
<td height="45">&nbsp;</td>
<td><input type="submit" name="Submit" value="Submit Rate" />
<input type="reset" name="Submit2" value="Reset" /></td>
</tr>
</table>
<p>&nbsp;</p>
</form>
<p align="center"><a href="UserMain.jsp" class="style11
style33"><strong>Back</strong></a></p>
<div align="right"></div>
</div>
</div>
<div class="sidebar">
<div class="searchform">
```

```
<form id="formsearch" name="formsearch" method="post" action="#">
  <span>
    <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
  </span>
  <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>

<div class="gadget">
<h2 class="star"><span>Sidebar</span> Menu</h2>
<div class="clr"></div>
<ul class="sb_menu"><li><a href="#">Home</a></li>
  <li><a href="index.html">Log Out</a></li>
</ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

U_Review.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Review Details</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
```

```
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style8 { font-size: 20px }
.style17 { font-size: 32px; color: #FF6600; }
.style3 { color: #FF00FF }
.style1 { font-size: 25px }
.style33 { color: #0000FF }
.style11 { color:
#0000FF; font-weight:
bold;

}
.style94 { font-size: 18px; color: #FF6600; }
.style96 {
font-size:
24px; color:
#FF0000;
font-weight:
bold;
}
.style97 {
color:
#FF0000;
font-weight:
bold;
}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="menu_nav">
        <ul>
          <li><a href="index.html"><span>Home </span></a></li>
          <li class="active"><a href="UserLogin.jsp"><span>User</span></a></li>
          <li><a href="AdminLogin.jsp"><span>ESeller</span></a></li>
        </ul>
      </div>
      <div class="logo style8">
        <p class="style17"><span class="style94">Feature Level Rating System Using
Customer Reviews and Review Votes</span></p>
        <p class="style17"></p>
        <p class="style17"> </p>
      </div>
    </div>
  </div>
</div>
</body>
</html>
```

```
height="271" alt="" /> </a> </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="content">
<div class="content_resize">
<div class="mainbar">
<div class="article">
<h2><span class="style33"><span class="style1"><span class="style3">

</span></span></h2>
<p class="infopost">&nbsp;</p>
<div class="clr"></div>

<p>&nbsp;</p>
<p>
<% @ include file="connect.jsp" %>
<% @ page import="java.util.*"%>
<% @ page import="java.text.*"%>
<% @ page import="java.util.Date"%>
<% @ page import="java.sql.*"%>
<% @ page
import="com.oreilly.servlet.*,java.lang.*,java.text.SimpleDateFormat,java.io.*,javax.servl
et.*, javax.servlet.http.*" %>
<% @ page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.Secret
Ke ySpec"%>
<% @ page import="org.bouncycastle.util.encoders.Base64"%>
<% @ page import="java.util.Random,java.io.PrintStream,
java.io.FileOutputStream, java.io.FileInputStream, java.security.DigestInputStream,
java.math.BigInteger, java.security.MessageDigest, java.io.BufferedInputStream" %>
</p>
<p align="center" class="style96">REVIEW DETAILS !!! </p>
<form id="form1" name="form1" method="post" action="u_review1.jsp">
<p>&nbsp;</p>
<table width="362" border="0">
<tr>
<td width="153" height="32" bgcolor="#FFFF00"><span
class="style97">Product ID </span></td>
<td width="282"><input type="text" name="id" value="<%=id%>" /></td>
</tr>
<tr>
<td height="45" bgcolor="#FFFF00"><span class="style97">Product Name
</span></td>
<td><input type="text" name="title" value="<%=title%>" /></td>
```



```
</tr>
<tr>
  <td height="42" bgcolor="#FFFF00"><span class="style97">Product Price
</span></td>
  <td><input type="text" name="price" value="<%=price%>" /></td>
</tr>
<tr>
  <td height="41" bgcolor="#FFFF00"><span class="style97">Product Company
</span></td>
  <td><input type="text" name="ecom" value="<%=ecom%>" /></td>
</tr>
<tr>
  <td bgcolor="#FFFF00"><span class="style97">Enter Your Review </span></td>
  <td><textarea name="review" cols="20" rows="5"></textarea></td>
</tr>
<tr>
  <td height="45">&nbsp;</td>
  <td><input type="submit" name="Submit" value="Submit Review" />
  <input type="reset" name="Submit2" value="Reset" /></td>
</tr>
</table>
<p>&nbsp;</p>
</form>
<p align="center"><a href="UserMain.jsp" class="style11
style33"><strong>Back</strong></a></p>
<div class="clr">
  <div align="right"></div>
</div>
</div>
</div>
<div class="sidebar">
```

```
<div class="searchform">
  <form id="formsearch" name="formsearch" method="post" action="#">
    <span>
      <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
    </span>
    <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
  </form>
</div>
<div class="clr"></div>
<div class="gadget">
  <h2 class="star"><span>Sidebar</span> Menu</h2>
  <div class="clr"></div>
  <ul class="sb_menu"><li><a href="#">Home</a></li>
  <li><a href="index.html">Log Out</a></li>
  </ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
  <div class="footer_resize">
    <div style="clear:both;"></div>
  </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

10. SYSTEM TESTING

SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

TYPES OF TESTING

Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

White Box Testing

White Box Testing is a testing in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested.

TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Integration Testing

Software integration testing is the incremental integration testing of two or more software components on a single platform to produce failures caused by interface defects. The task of the integration test is to check that components or software applications, components in a software system or – one step up – software applications at the company level– interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

11. SCREENSHOTS

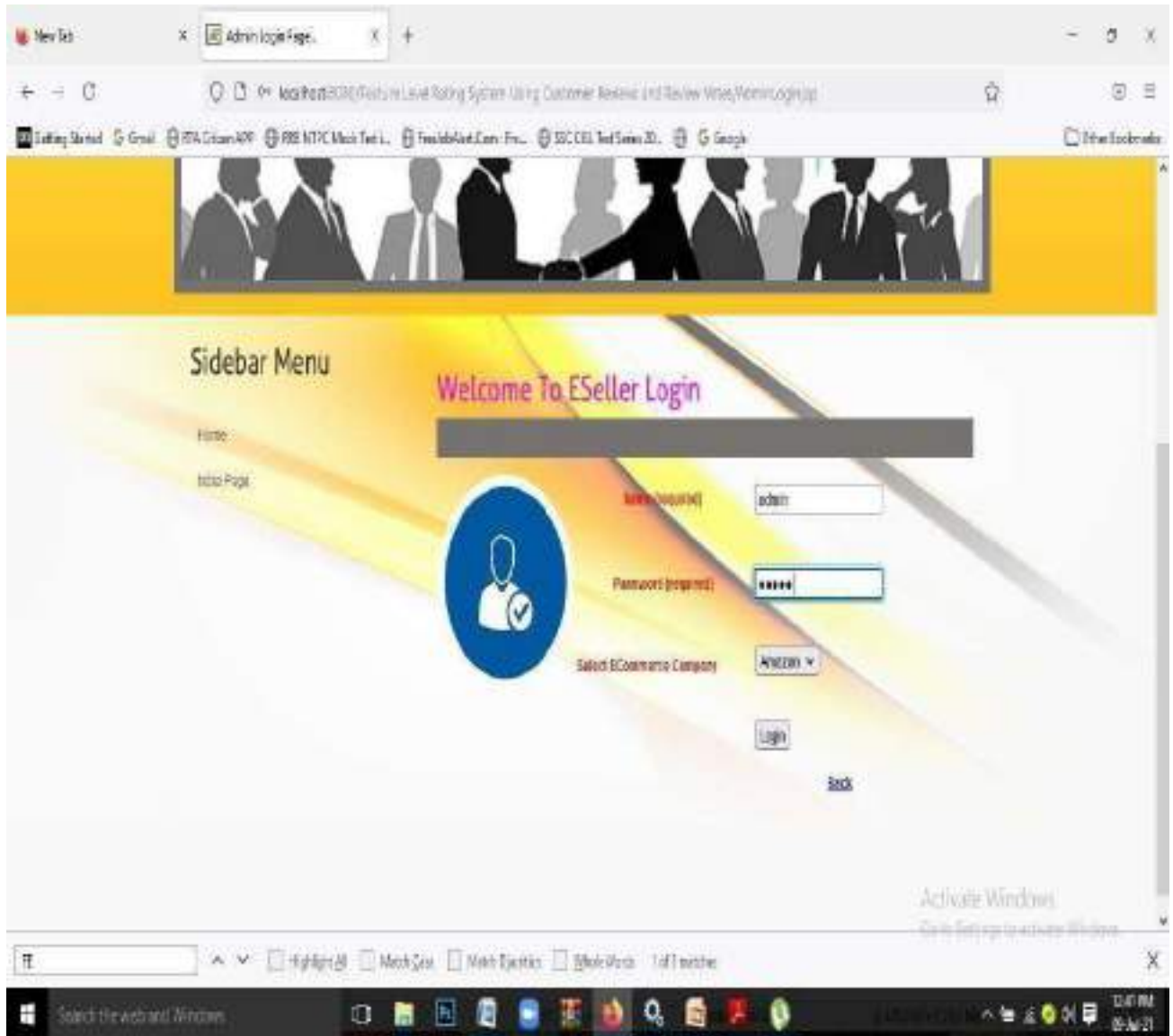
SCREEN 1:

The below screen represents the home page of the feature level rating system using customer reviews and review votes.



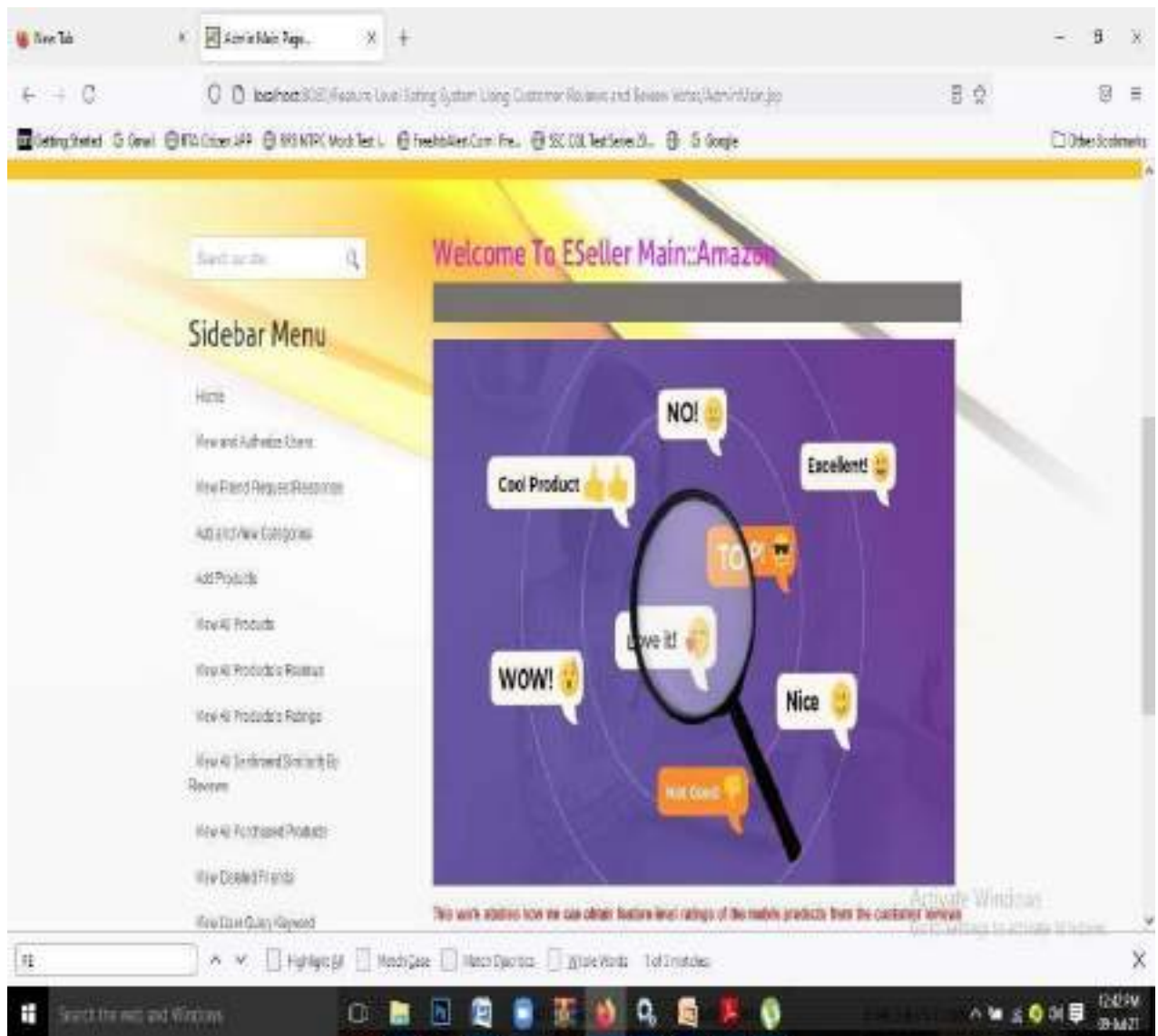
SCREEN 2:

The below screen represents the E-Seller login page.



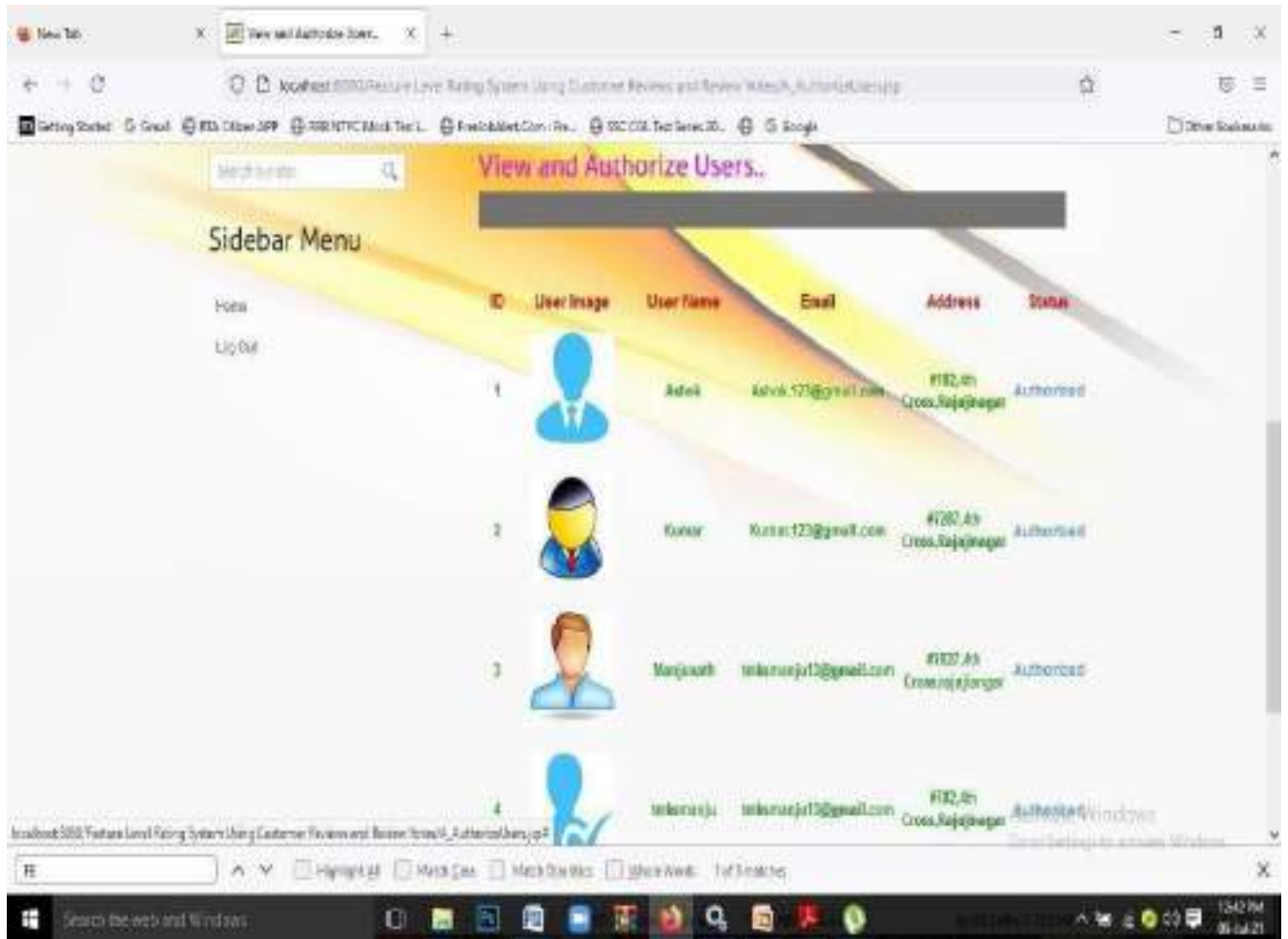
SCREEN 3:

The below screen represents the ESeller login page it can perform some operations.



SCREEN 4:

The below screen represents the view and authorize users page.



SCREEN 5:

The below screen represents to view all friend requests/responses.



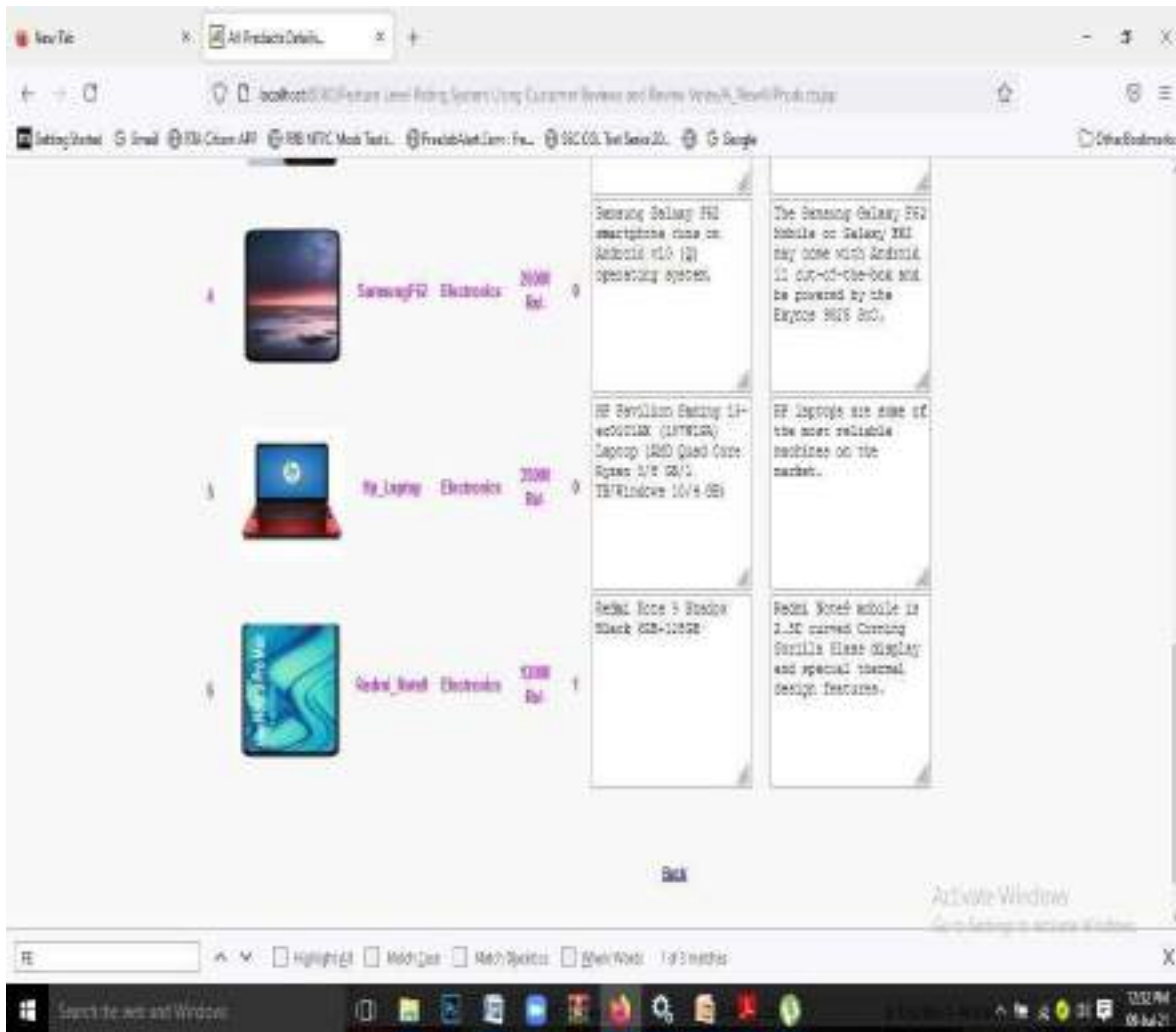
SCREEN 6:

The below screen represents to all products and their details.



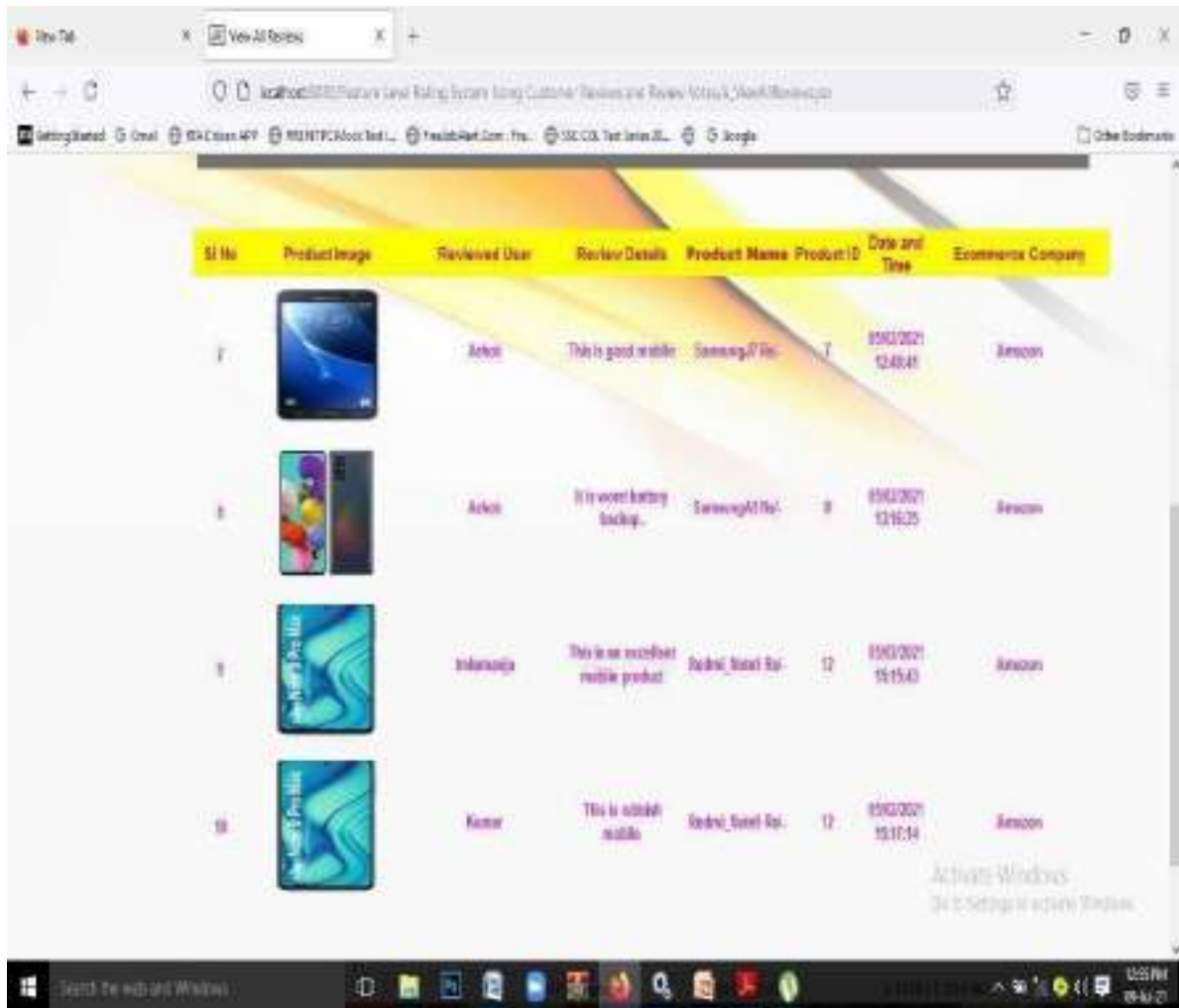
SCREEN 7:

The below screen represents to view all the categories of the product details.



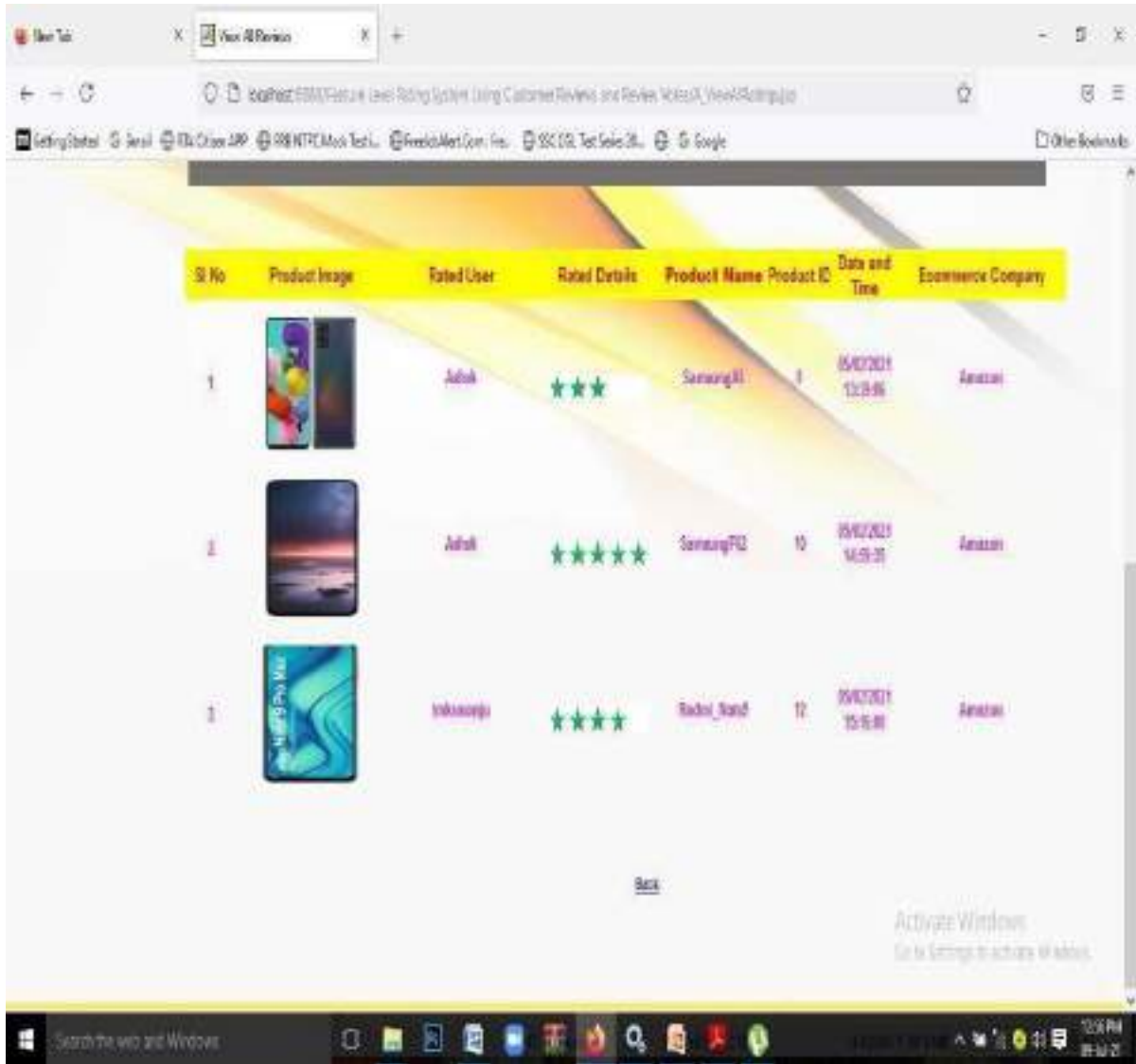
SCREEN 8:

The below screen represents the user gives reviews of the product.



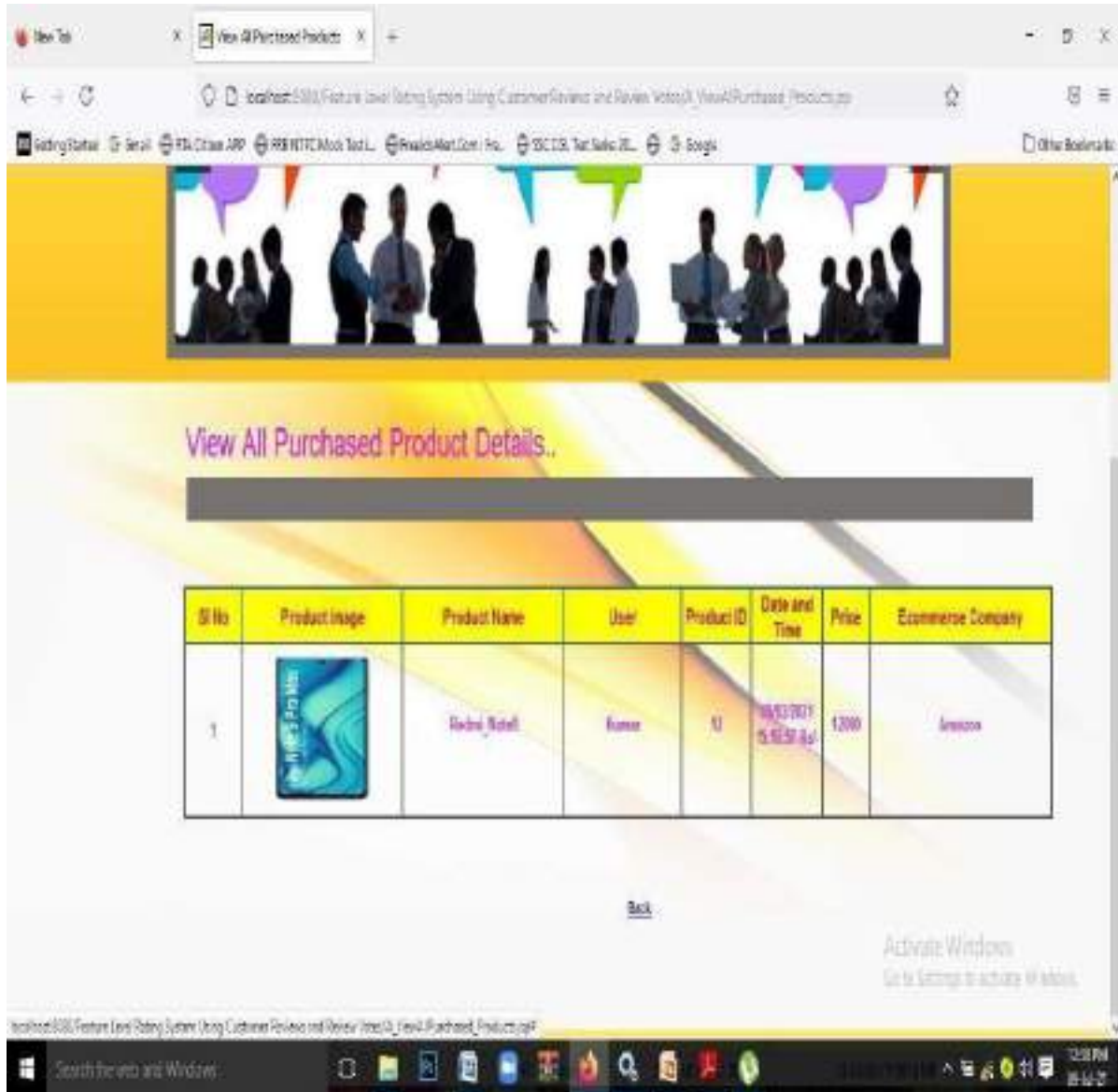
SCREEN 9:

The below screen represents the user gives rating to the product.



SCREEN 10:

The below screen represents to view all purchased product details.



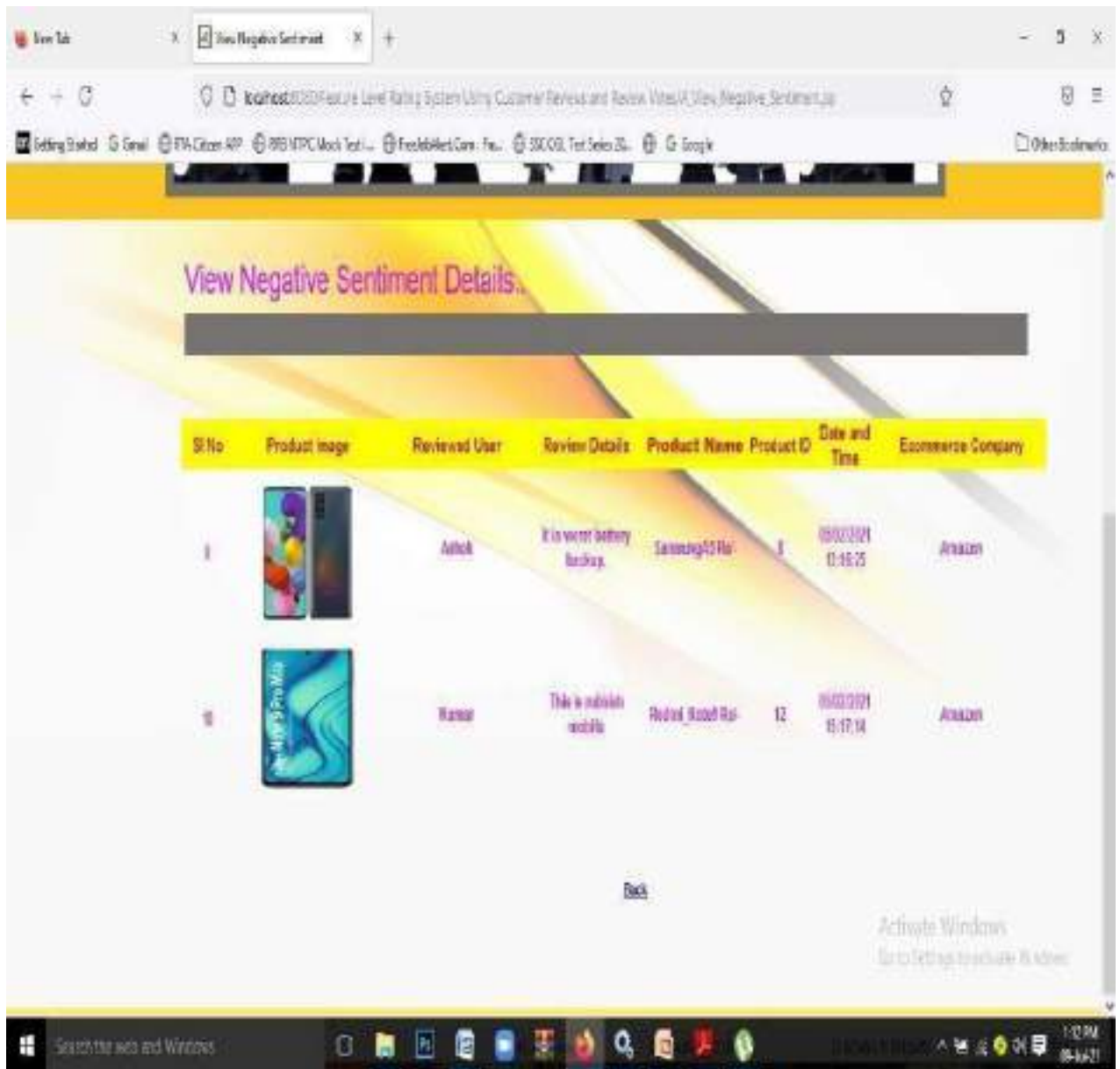
SCREEN 11:

The below screen represents to view positive sentiment details product.



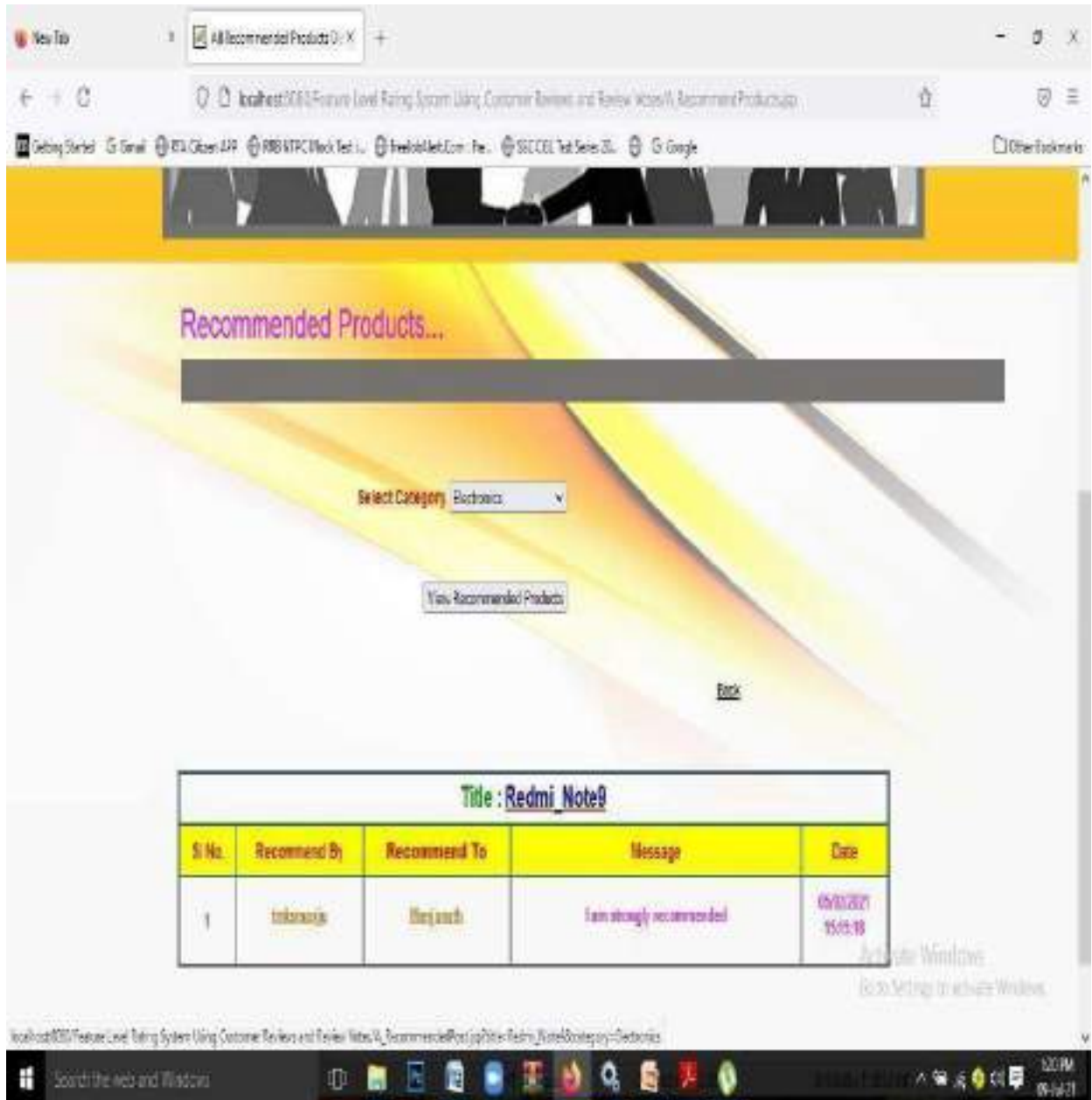
SCREEN 12:

The below screen represents to view the negative sentiment details of the product.



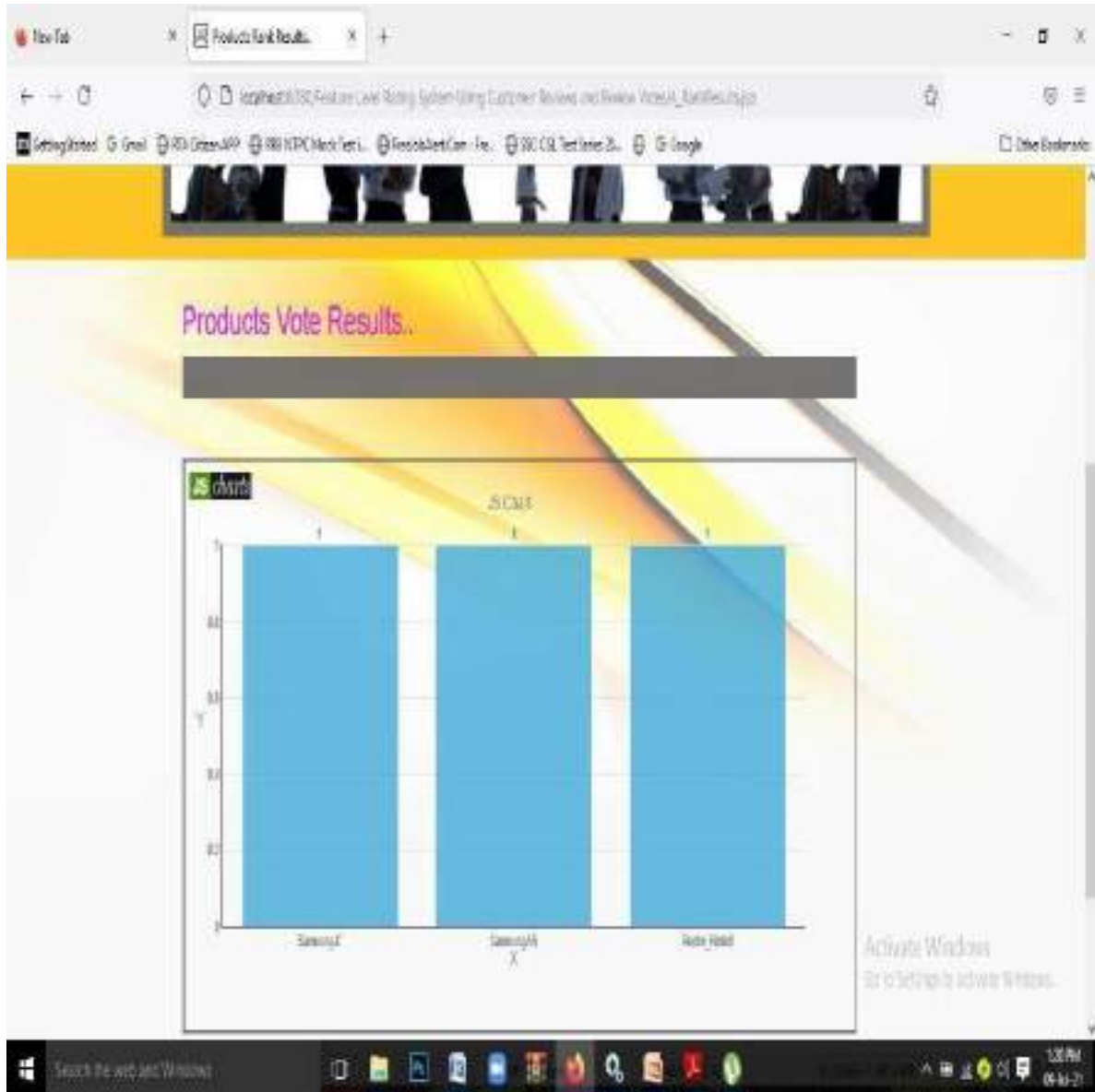
SCREEN 13:

The below screen represents to view the recommended products.



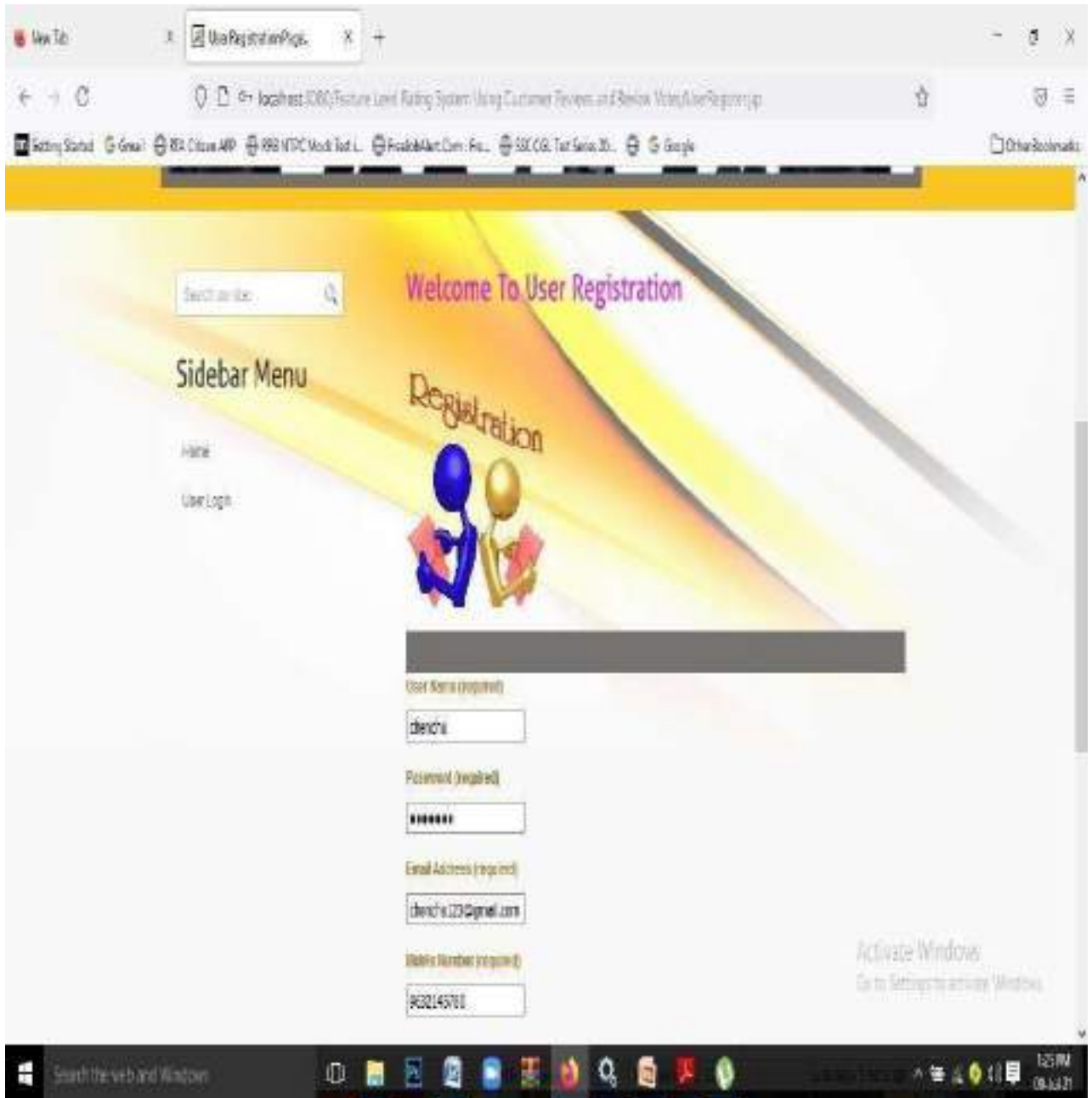
SCREEN 14:

The below screen represents product vote results as particular product.



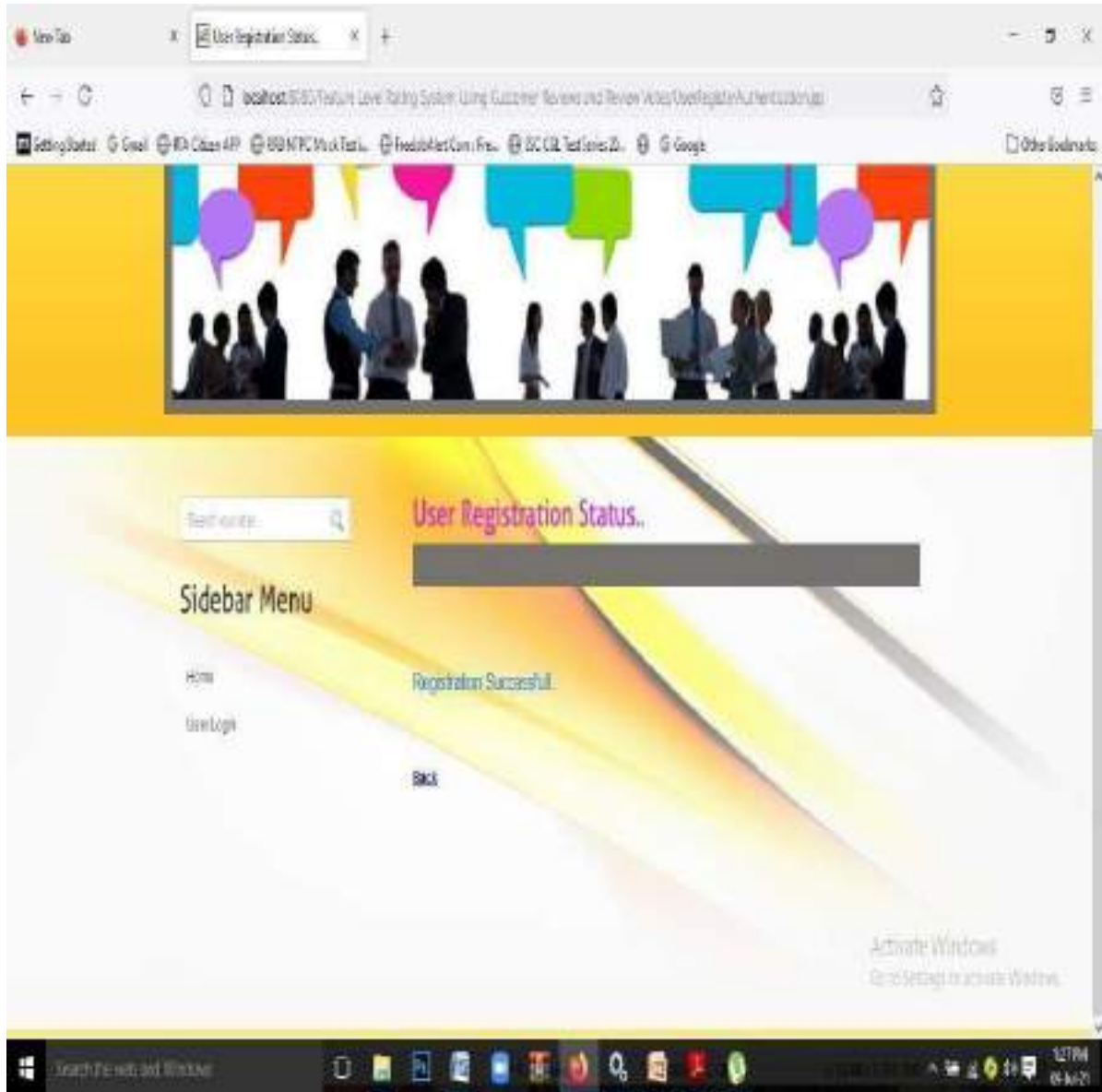
SCREEN 15:

The below screen represents user registration page.



SCREEN 16:

The below screen represents the user registration status successful page.



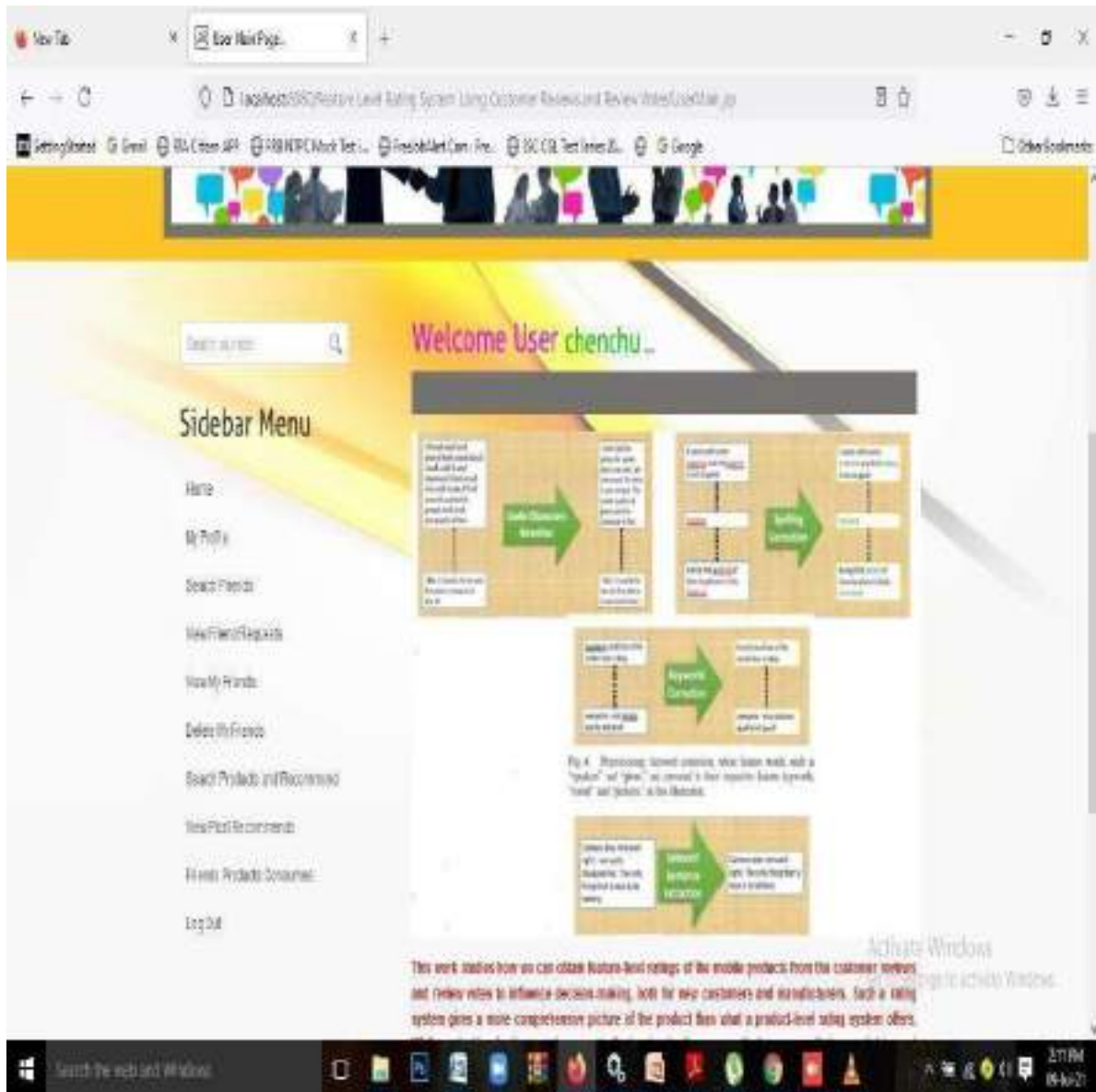
SCREEN 17:

The below screen represents to user login page.



SCREEN 18:

The below screen represents to user login page after login successfully, he can perform some operations.



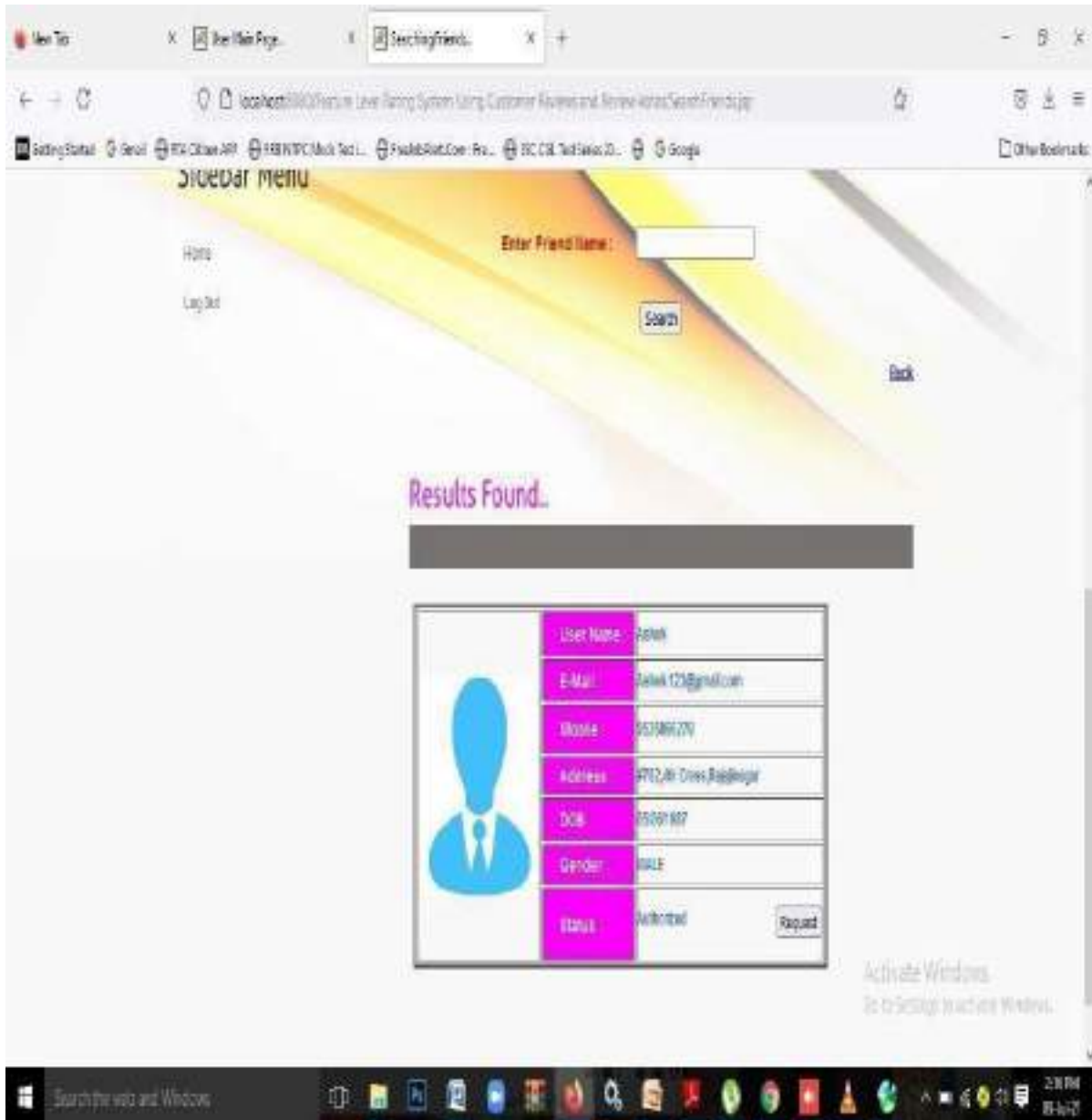
SCREEN 19:

The below screen represents user profile page.



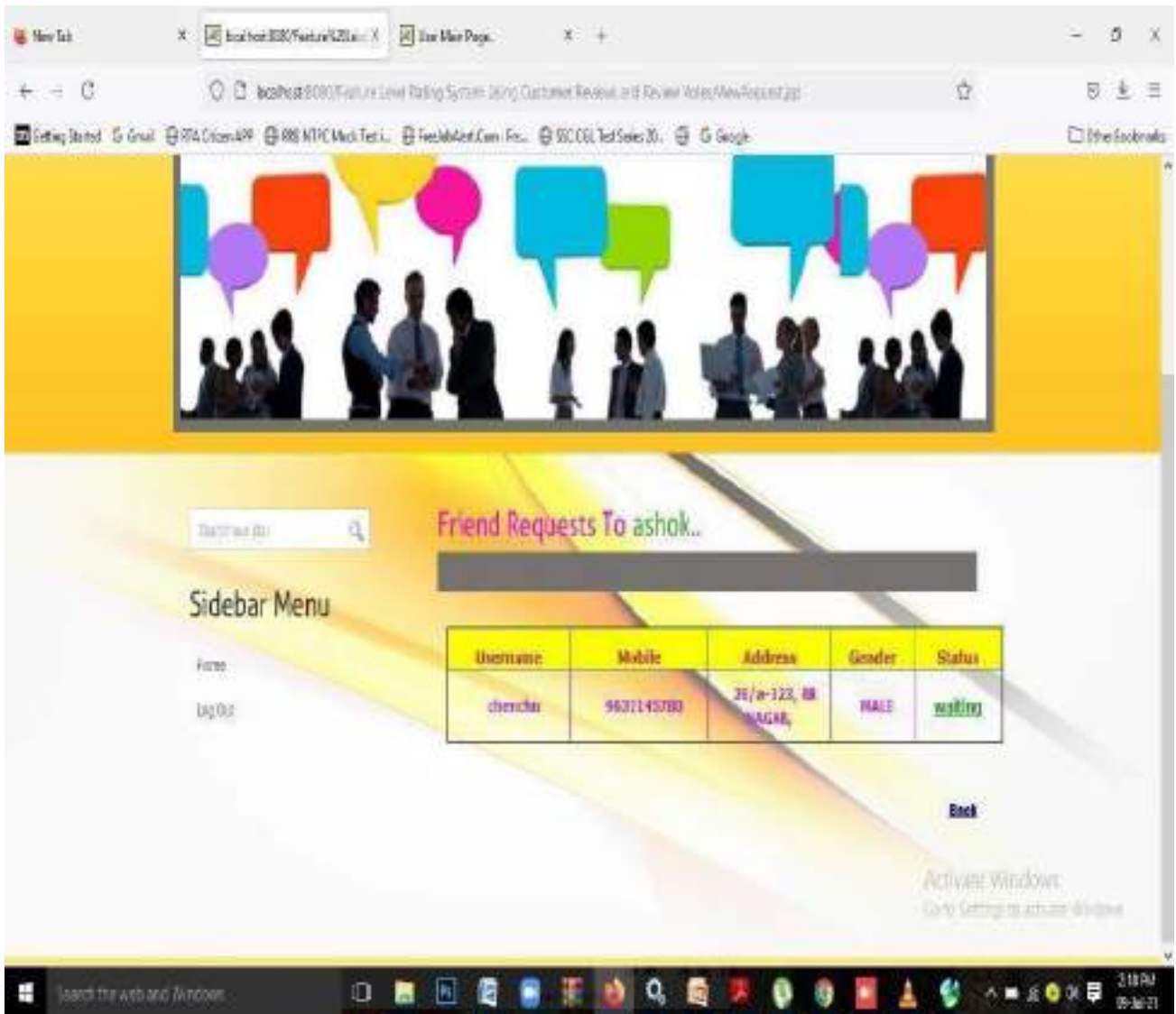
SCREEN 20:

The below screen represents to user result found page.



SCREEN 21:

The below screen represents to friend requested to ashok details.



CONCLUSION

We have developed a system to rate mobile phones in terms of 108 features based on customer reviews and review votes. We could rate 4000+ phones; this can help make personalized buying decisions and improve the products. We accomplish this by first converting the unstructured data into structured data; then, we extract the sentences comprising our feature keywords; then, we were able to provide the feature-level ratings through sentiment analysis of these sentences. We rank the phones based on the number of features that they are best at, and accordingly, we were able to recommend the best phones for a feature. We tested our methodology on the “phone” named feature by considering the overall customer ratings as ground-truth ratings. The performance of our method is found to be decent. We obtain MAE of only 0.555, i.e., approximately just half a star. We get 52.3% accuracy if exact integer ratings have to be predicted. However, if we can tolerate the one- star integer rating error, the accuracy jumps to 93.8%.

FUTURE ENHANCEMENT

In Future work, we will work on improving the performance by taking a weakly supervised or supervised approach to this problem, for which we will have to annotate the available data in terms of all our 108 features.

REFERENCES

- [1] V. Raghavan, G. Ver Steeg, A. Galstyan, and A. G. Tartakovsky, "Modeling temporal activity patterns in dynamic social networks," *IEEE Trans. Computer Social Syst.*, vol. 1, no. 1, pp. 89–107, Mar. 2014.
- [2] A. Farasat, G. Gross, R. Nagi, and A. G. Nikolaev, "Social network analysis with data fusion," *IEEE Trans. Comput. Social Syst.*, vol. 3, no. 2, pp. 88–99, Jun. 2016.
- [3] Y. Zhu, D. Li, R. Yan, W. Wu, and Y. Bi, "Maximizing the influence and profit in social networks," *IEEE Trans. Computer Social Syst.*, vol. 4, no. 3, pp. 54–64, Sep. 2017.
- [4] X. Yang et al., "Collaborative filtering-based recommendation of online social voting," *IEEE Trans. Computer Social Syst.*, vol. 4, no. 1, pp. 1–13, Mar. 2017.
- [5] F. S. N. Karan and S. Chakraborty, "Dynamics of a repulsive voter model," *IEEE Trans. Computer Social Syst.*, vol. 3, no. 1, pp. 13–22, Mar 2016.
- [6] F. Smarandache, M. Colhon, S. Vladutescu, and X. Negrea, "Word level neutrosophic sentiment similarity," *Appl. Soft Computer* vol. 80, pp. 167–176, Jul. 2019.

A
Project Report
on
ANTY FAKE TECHNOLOGY OF COMMODITY USING QR CODE

Submitted in partial fulfillment for the award of the degree

of
Master of Computer Applications

Submitted by

KURAKULA GANESH
(Reg. No. 18F61F0005)

Under the esteemed guidance of

Mr. P. KARTHIKEYAN, MCA., M.E.
Assistant Professor, Department of MCA.



Department of Master of Computer Applications

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with "A" Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583,
Andhra Pradesh

2020-2021

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution) Siddharth
Nagar, Narayanavanam Road, Puttur-517583,
Andhra Pradesh**

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

*This is to certify that this project report titled “**ANTY FAKE TECHNOLOGY OF COMMODITY USING QR CODE**” that is being submitted by **KURAKULA GANESH (Reg. No. 18F61F0005)** in partial fulfillment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **KURAKULA GANESH** hereby declare that the project report entitled **“ANTY FAKE TECHNOLOGY OF COMMODITY USING QR CODE”** is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. KARTHIKEYAN, MCA., M.E.** Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APPLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

Date:

KURAKULA GANESH

Reg. No.: 18F61F0005

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. P. KARTHIKEYAN**, MCA., M.E. Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Dr. P.KARTHIKEYAN, MCA** HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(KURAKULA GANESH)

CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1 – 6
2	SYSTEM STUDY	7 – 8
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	9
	3.2 DISADVANTAGES	9
	3.3 PROPOSED SYSTEM	10
	3.4 ADVANTAGES	11
4	SOFTWARE MODULES	12 – 13
5	SYSTEM ARCHITECTURE	14 – 15
6	SOFTWARE ENVIRONMENT	16 – 26
7	SYSTEM REQUIREMENTS	27
8	SYSTEM DESIGN	28 – 42
9	IMPLEMENTATION	43 – 107
10	SYSTEM TESTING	108– 111
11	SCREEN SHOTS	112– 123
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

ABSTRACT

QR codes are often used in commodities trade, one of its applications is covering credible authentication information to avoid customer buying forged goods. In this paper presents how QR code interact with customer and Interaction between QR codes and Server. RSA and DES were used to encrypt QR code to ensure the security of data. Besides, a scheme which enables decrypting QR code and storing keys is presented and textbooks are served as client-server in this research. By comparing the effect to the security of qr code when using DES or RSA only, it shows that in this way the cost of forging goods is significantly increased, which makes the rapid anti- fake identification possible.

Keywords: Keywords-QR code; cryptography; RSA, Encryption, Key storage, Decryption, Cryptography, DES Algorithm

LIST OF FIGURES

S .No.	Name	Page No.
1	1.1: Structure of QR code	1
2	1.2: Characteristics of QR code	4
3	1.3: Structure of service models	6
4	5.1: System Architecture	14
5	5.2: Block Diagram	15
6	6.1: Program compilation and interpretation	17
7	6.2: Execution of different platforms	18
8	6.5: TCP is connection	23
9	6.6: The 32 bit address	25
10	8.1: Data Flow Diagram	30
11	8.2: Class Diagram	32
12	8.3: Use case Diagram	34
13	8.4: Sequence Diagram	36
14	8.5: Collaboration Diagram	37
15	8.6: E-R Notations	41
16	Screen Shorts	112-124

LIST OF ABBREVIATIONS

S. No.	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	SMS	Smart Meter System
10	ABSI	Adaptive Binary Splitting Inspection
11	DBMS	Database Management System
12	RMI	Remote Method Invocation
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

1. INTRODUCTION

1.1 What is QR code?

QR code Quick Response Code is a kind of two-dimensional matrix symbol, which is developed based on the bar code. One-dimensional bar code records information in the horizontal direction, but it can only represent numbers and letters. Besides, QR code consists of position detection patterns (large square), alignment pattern (small square), two timing patterns (the line with alternating black and white cubes), the area for format and version information, the area for storage data and a blank quiet zone around it. The minimum size for QR code is 21x21 modules, while Data Matrix has a much more space-efficient minimum size of 10x10 modules[2]. Resulting in the Reed-Solomon error correction, the data will still be able to be read accurately even if a part of QR code is damaged. QR codes have four error correcting levels, L(7%), M(15%), Q(25%), H(30%) and the higher level means the area of damaged allowed is larger. In a standard QR Code, corners are marked and estimated so that the inside-code can be scanned [3]. The object with different colors will reflect visible light with different wave length. While camera is scanning QR code, mobile phone will use image banalization to process the QR code.



Fig: 1.1: Structure of QR code

1.2 How QR code Works?

Basically, a QR code works in the same way as a barcode at the supermarket. It is a machine-scannable image that can instantly be read using a Smartphone camera. Every QR code consists of a number of black squares and dots which represent certain pieces of information. When your Smartphone scans this code, it translate that information into something that can be easily understand by humans. Quite simply, a QR code is an encoded piece of data. The data in a QR code can be alphanumeric, numeric, binary or Kanji .Although that is the technical explanation of how a QR code works, something much more important to focus on is the fact that QR codes can be scanned at the touch of a button by the hundreds of millions of people around the world that use a Smartphone on a daily basis. This makes them great for marketers .If you've ever scanned a QR code with your Smartphone, you'll likely have noticed that they can be scanned extremely quickly (we're talking within a second-or-two here). This makes QR codes an extremely simple way to access stored information in an instant which in turn, makes them a perfect solution to conversion-hungry marketers.

1.2 Characteristics and Services Models:

Countless Applications

Since QR codes contain essential information, they can be used for many applications and encourage users to take certain actions. From providing simple information, like product descriptions, contact details, and event dates and locations, to special promotions, like voting, coupons, and sweepstakes, you can embed any kind of information in a QR code which will be displayed in a web browser the moment it is scanned

Simple and Accessible Technology

Another reason for QR codes' popularity and wide-spread use is their easily accessible technology. Since practically every nowadays owns a smartphone, QR codes make it easy to deliver information to anyone, at any place and time. A mobile device with a camera is required to access information sealed inside a QR code – aside from this, there are literally no intermediaries between the user and you.

User Feedback and Direct Contact

Nowadays, it is possible to establish contact with users through QR codes, and engage in a dialogue with them. For marketers, this provides a great opportunity to engage with their customers, allowing them to provide feedback on their products and services. This also create a way for marketers to obtain contact information or email addresses from potential customers, using it for further interactions.

Scalable Campaign Success

If a user scans a QR code embedded with your website URL or social media page, you can keep a track of how many people used that particular code for reaching the intended destination. Not only that, it can found out from where, when, and which kind of device it was scanned. Due to this, marketing campaigns comprising of usage of QR codes are measurable in real time, making it easy for you determine whether you are doing well or changes are required.

Higher User Engagement

Whether you are using QR codes for delivering marketing messages, leading customers to business website, or allowing them to avail special offers, they spark curiosity in people and compel to scan the code. Due to this appealing trait, the opportunity of a customer taking an intended action through QR code increases dramatically, providing a higher chance to engage with them.

Now that you know the importance and features of QR codes, you may want to consider creating some and trying them to see their impact on your business. Use our super easy QR code generator to create codes and try them out!



Fig1.2: Characteristics of QR code

1.2. Services Models:

QR Code Model 1 & Model 2

QR code model 1 and 2 represent development stages of QR code history.

QR Code Model 1: The First QR Code Type

QR code model 1 was the original QR code. When the QR code was first created, it was capable of a size of up to 73x73 modules. That's version 14. All model 1 QR codes have a maximum version of 14 and a maximum size of 73x73. Model 1 QR codes are the older specification and are used far less frequently today than their successor, the model 2.

QR Code Model 2: The Updated QR Code Type

QR code model 2 is widely seen today. Most QR codes are model 2, which built on model 1 in two important ways. First, it increased the grid size to 177x177, giving us the modern version 40.

Second, and by increasing the grid size and data storage capacity, it enabled more robust error correction. So your QR code can still successfully be scanned and read even if up to 30% of it is damaged. Or otherwise difficult to scan.

Micro QR Code & Small QR Code

Next up, we've got the micro QR code. Sometimes casually referred to as the small QR code.

These tenacious little buggers are capable of being placed and successfully scanned in the smallest of places. They're often used on product packaging with limited real estate.

The ink of a QR code on your toothpaste tube that surfaces a shortened URL that brings you to the manufacturers website. Or a QR code on a can of sardines that surfaces a shortened URL that communicates the social responsibility initiatives of the fishery.

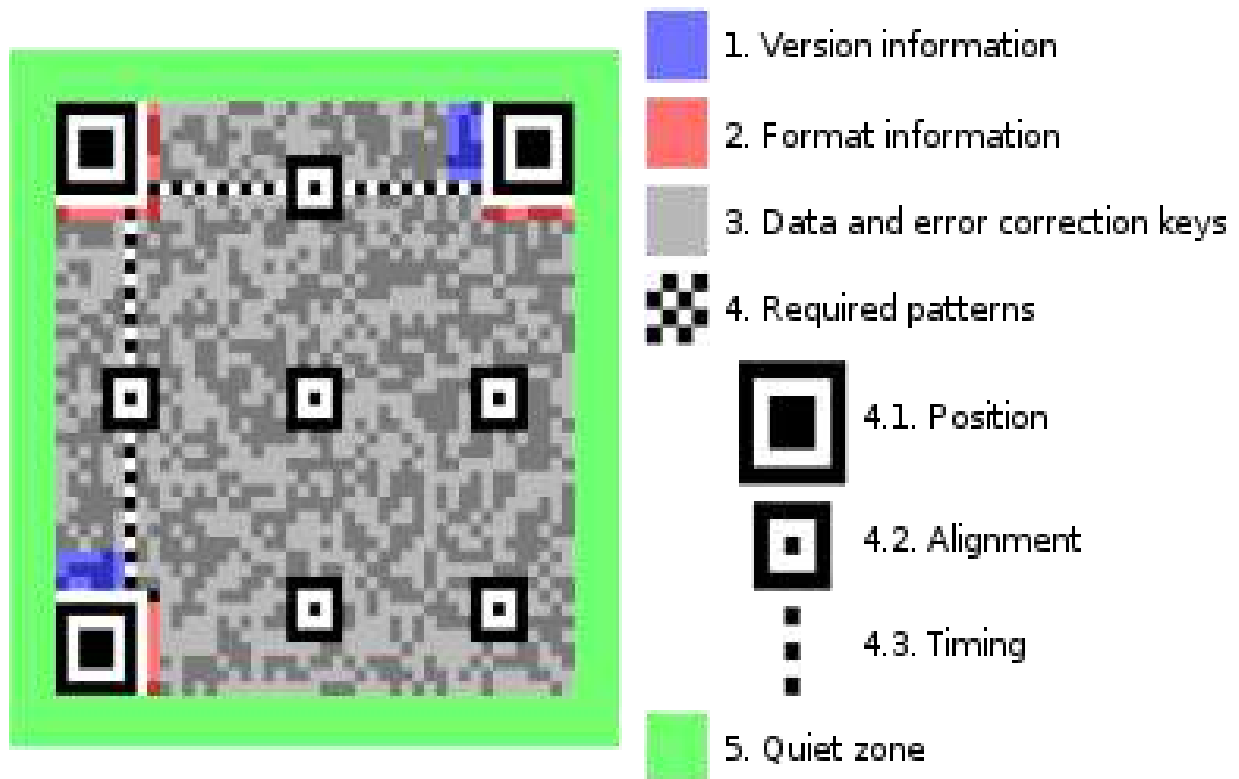


Fig 1.3: Structure of service models

1.1. Benefits of cloud computing:

- 1. Hygienic:** Hygiene is the primary reason why QR codes are seeing such resurgent interest right now. It's dawning on people that contactless commerce isn't just a nifty lever to pull to get out of this one jam. Going touch less is how we have to behave going forward to consistently minimize the risk of infectious disease.
- 2. Flexible:** Fluctuations in inventory affect bars and restaurants more than any other business. That's because they must codify their inventory in menus. Menus are a snapshot in time and often inaccurate because of seasonal changes and unforeseen spikes in traffic and demand. But QR code menus, and digital menus in general, give restaurants the power to edit menus on the fly. No more reprinting, no more wrangling old menus out of the dining room.
- 3. Versatile:** QR code uses are many and impactful. They encode anything from simple business cards to more complex touch less payment systems. They power WiFi authentication, event check-in, and ordering systems, too. Once you learn what a QR code is, you see that the format is a bit of blank slate. You can encode virtually anything in a QR code. And the QR code minimum size makes it perfect for environments with limited real estate. That's why the use cases keep growing.
- 4. Lower cost.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
- 5. Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
- 6. Streamline processes.** Get more work done in less time with less people.
- 7. Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
- 8. Improve accessibility.** You have access anytime, anywhere, making your life so much easier!
- 9. Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
- 10. Less personnel training is needed.** It takes fewer people to do more work on a

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

cloud, with a minimal learning curve on hardware and software issues.

11. Minimize licensing new software. Stretch and grow without the need to buy expensive software licenses or programs.

12. Improve flexibility. You can change direction without serious “people” or “financial” issues at stake.

1.2. Advantages:

- **Price:** Pay for only the resources used.
- **Security:** instances are isolated in the network from other instances for improved security.
- **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the core hardware.
- **Scalability:** Auto-deploy instances when needed.
- **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
- **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
- **Traffic:** Deals with spike in traffic with quick deployment of additional instances to handle the load

2. SYSTEM STUDY

2.1. FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICALFEASIBILITY
- TECHNICALFEASIBILITY
- SOCIALFEASIBILITY

2.2. ECONOMICALFEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

2.3. TECHNICALFEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must

have a modest requirement, as only minimal or null changes are required for implementing this system.

2.4. SOCIALFEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

3.1. EXISTING SYSTEM

1. The faking commodities is a stubborn question, not only in retail industry but also in machinery manufacturing industry.
2. Lawbreakers get the valid information of copyrighted product by using illegal approach and produce defective product to the consumers, which causes unignorable losses to both customers and the manufacturers.
3. Some manufacturers will make QR codes irreproducible by using special coating to print them.
4. Considering the QR code has already been applied in anti-counterfeiting industry, this paper mainly discusses the way to encrypt the data of QR code, but not the QR code itself.

3.2. DIS-ADVANTAGES

1. Huge cost in terms of data usability. For example, the existing techniques on keyword-based information retrieval, which are widely used on the plaintext data, cannot be directly applied on the encrypted data.
2. Existing System methods not practical due to their high computational overhead for both the server and user.
3. To buy forged goods.
4. Heavy losses to consumer and manufacture.

3.3. PROPOSED SYSTEM

1. This paper proposed a double way to encrypt QR code, RSA and DES were used to encrypt the plaintext. With the help of mobile app and the enterprise database.

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

2. customers just need to scan the QR code and the app transfers data to the database and the database will return the feedback.
3. Then customers can get a series of genuine information of the product. Except simply increasing the difficulty of decrypting, this paper also compares the influence of the encrypt/decrypt efficiency while using different encrypting way.
4. Username and the Password provided by the client to the service provider. The password is encrypted by Hybrid Encryption method such as RSA, Ceaser cipher and alphabetic encryption.
5. Login key for Security vendor.
6. User authenticated with key provided by Service Provider.
7. User selects the encryption method for various options that CSP does not aware of and stores the data.
8. It is also used in various areas like mobile payment, and website exploring.

3.4. ADVANTAGES

1. We design a searchable encryption scheme that supports both the accurate multi-keyword ranked search and flexible dynamic operation on document collection.
2. Due to the special structure of our tree-based index, the search complexity of the proposed scheme is fundamentally kept to algorithmic.
3. And in practice, the proposed scheme can achieve higher search efficiency by executing our “DES” algorithm. Moreover, parallel search can be flexibly performed to further reduce the time cost of search process.
4. Safe and secure to read the product information

4. SOFTWAREMODULES

4.1 MODULES:

- QR code Module
- Encryption Module
- Key Storage Module
- Decryption Module

4.2 MODULEDESCRIPTION

➤ QR code Module

QR stands for "Quick Response." While they may look simple, **QR** codes are capable of storing lots of data. But no matter how much they contain, when scanned, the **QR code** should allow the user to access information instantly – hence why it's called a Quick Response **code**. Quick Response Code is a kind of two-dimensional matrix symbol, which is developed based on the bar code. One- dimensional bar code records information in the horizontal direction, but it can only represent numbers and letters. Besides, it cannot be used in mobile app due to its small l storage capacity. It works like the following. The manufacturers assign an unique QR code to every product, then the customers use mobile phone to scan the QR code. The verification will be done by computer and the result will be returned to the customers.

➤ Encryption Module:

To encrypt the QR code information, we use DES and RSA algorithm. The main purpose is to avoid the chosen-plaintext attack. Although the anti-faking label of most of the product is usually an unique serial number, there will still have many same substrings between different serial numbers. DES is used to encrypt the plain text and the cipher text will be the front part of the QR code data. Since the DES is no longer secure, in order to make sure that the cipher text is

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

unbreakable during product's service period (the large machineries like mechanical arm and TBM have service period form a month to several years). The key will be encrypted again by RSA and then it will be the latter part of QR code data.

Combining the cipher text and encrypted key together. QR codes will be generated and printed on to the cover of products. DES key, private key and public key are all automatically generated by computer.

➤ **Key Storage Module:**

In reality, the company will store the keys in their own database for online verification. Like any information system, a database system must run on a clean operating system and trustworthy hardware, and it must be protected against attacks over the network. Our assumption is made that when scanned data is submitted through browser the data should remain confidential on its way to the web server, the application server, and the backend DB server and a secure connection between any user and the database is established.

Text book is used to simulate the data base in a company. The encrypted DES keys, private key and public key will be stored in different textbooks once the QR code is generated. These keys will be used when decryption data.

➤ **Decryption Module**

When customer scans the QR code, the data will be uploaded to the server. Then computer will start to try to decrypt the DES key using a list of private keys from the database. If success, the DES key will be submitted to the database to match with a list of DES keys. Once the key is matched, the computer will start to decrypt the cipher text. The decrypted data will be matched with a series of serial numbers and the result will be returned to customer's application.

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

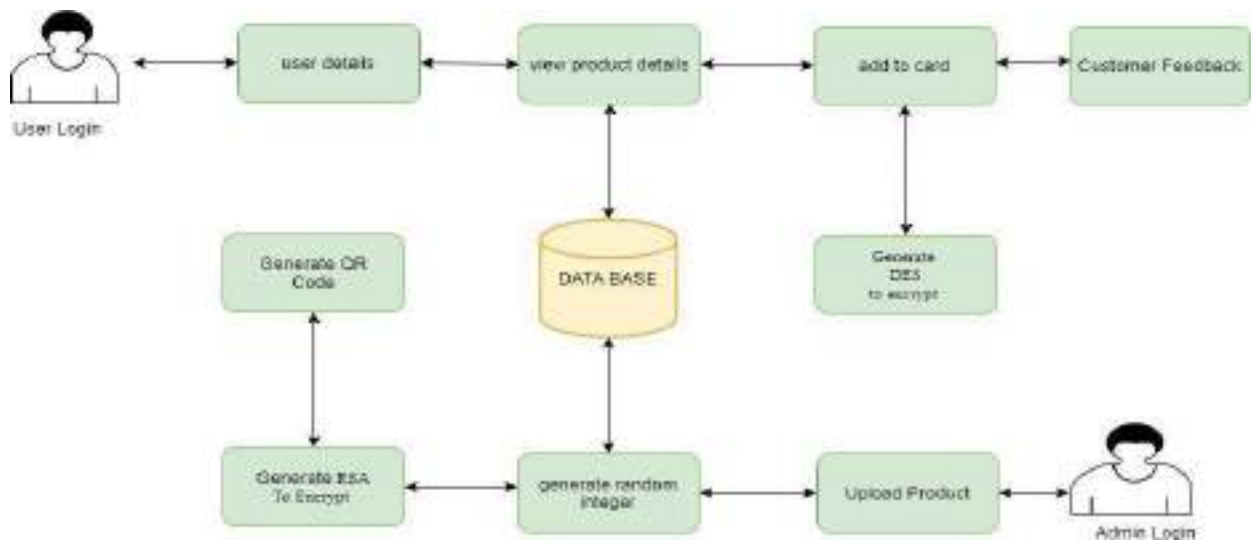


Fig 5.1: System Architecture

5.1 BLOCKDIAGRAM:

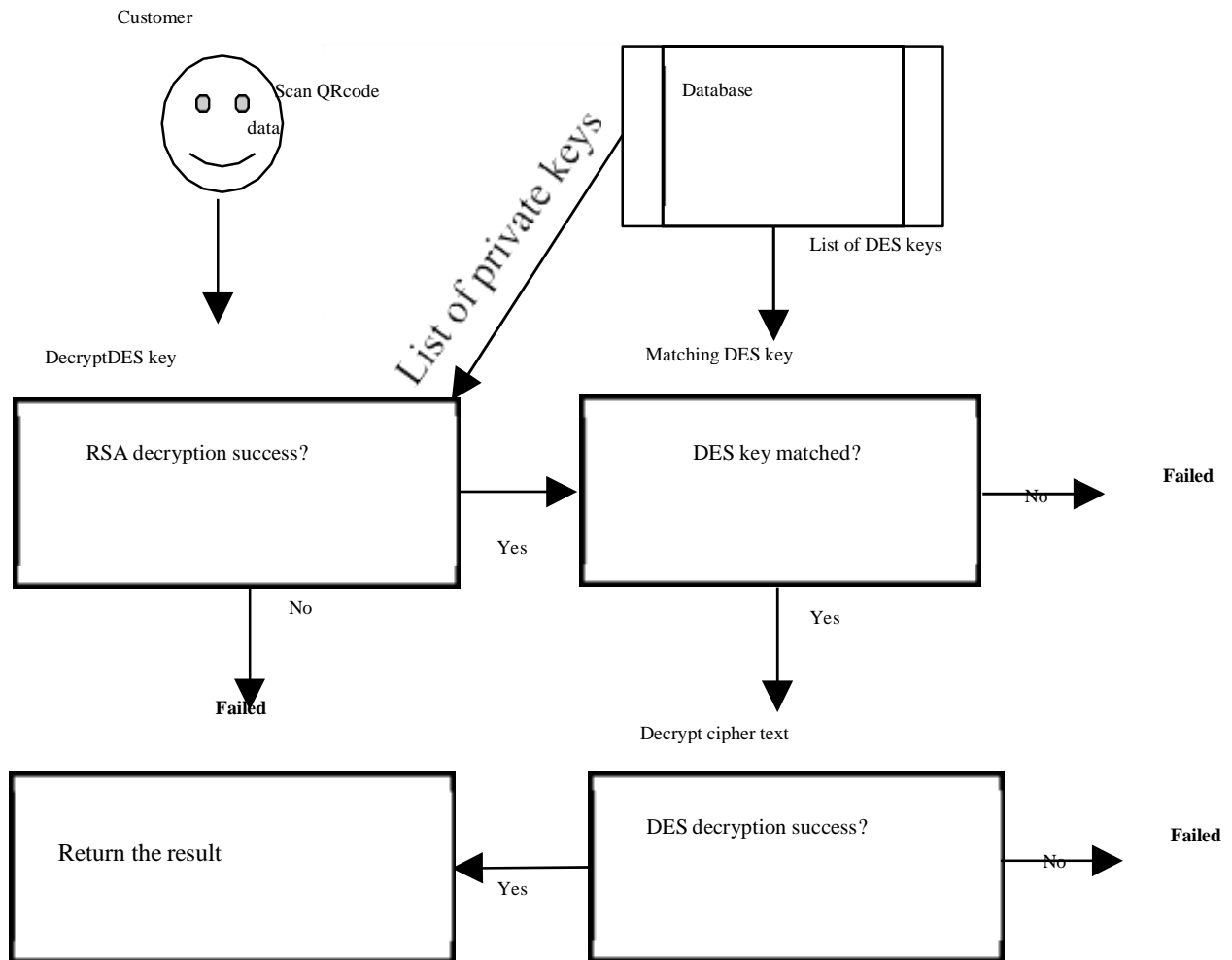


Fig 5.2: Block Diagram

6. SOFTWAREENVIRONMENT

6.1. Python Technology

Python is a general-purpose interpreted, interactive, object-oriented, and high-level programming language. It was created by Guido van Rossum during 1985- 1990. Like Perl, Python source code is also available under the GNU General Public License (GPL). This **tutorial** gives enough understanding on **Python programming** language.

Why to Learn Python?

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

Python is a MUST for students and working professionals to become a great Software Engineer specially when they are working in Web Development Domain. I will list down some of the key advantages of learning Python:

- **Python is Interpreted** – Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- **Python is Interactive** – You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- **Python is Object-Oriented** – Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- **Python is a Beginner's Language** – Python is a great language for the beginner-level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

Characteristics of Python

Following are important characteristics of **Python Programming** –

- It supports functional and structured programming methods as well as OOP.
- It can be used as a scripting language or can be compiled to byte-code for building large applications.
- It provides very high-level dynamic data types and supports dynamic type checking.
- It supports automatic garbage collection.
- It can be easily integrated with C, C++, COM, ActiveX, CORBA, and Java.

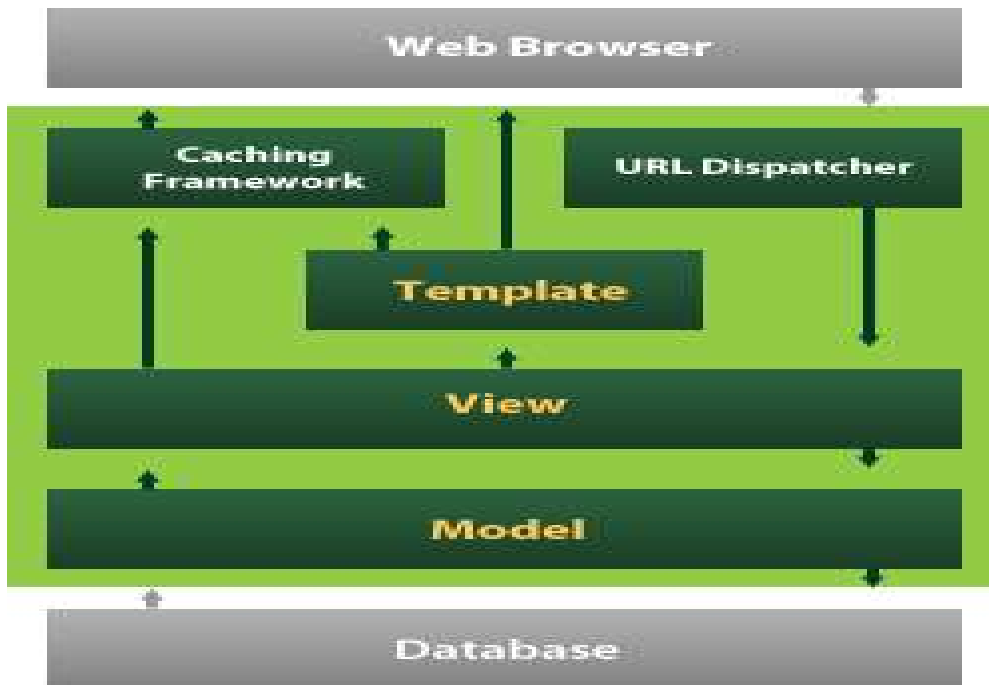


Fig 6.1: Program Compilation and Interpretation

Django

Django was a high-level Python language's Web framework it encourages rapid evolution and easy, actual plan. This was built by executive designers to lay hold on care of the lot of these headaches in respect to Web development so that we could concentrate on developing our application rather of recreating the circle. This is unlocked resource and simple to use. The primary goal of Django is to make it easier to create complex, data-driven websites. Django emphasises segment reusability and "pluggability," rapid turn-of-events, and the rule of "don't repeat yourself." In any case, Python is used throughout the project to set up documents.

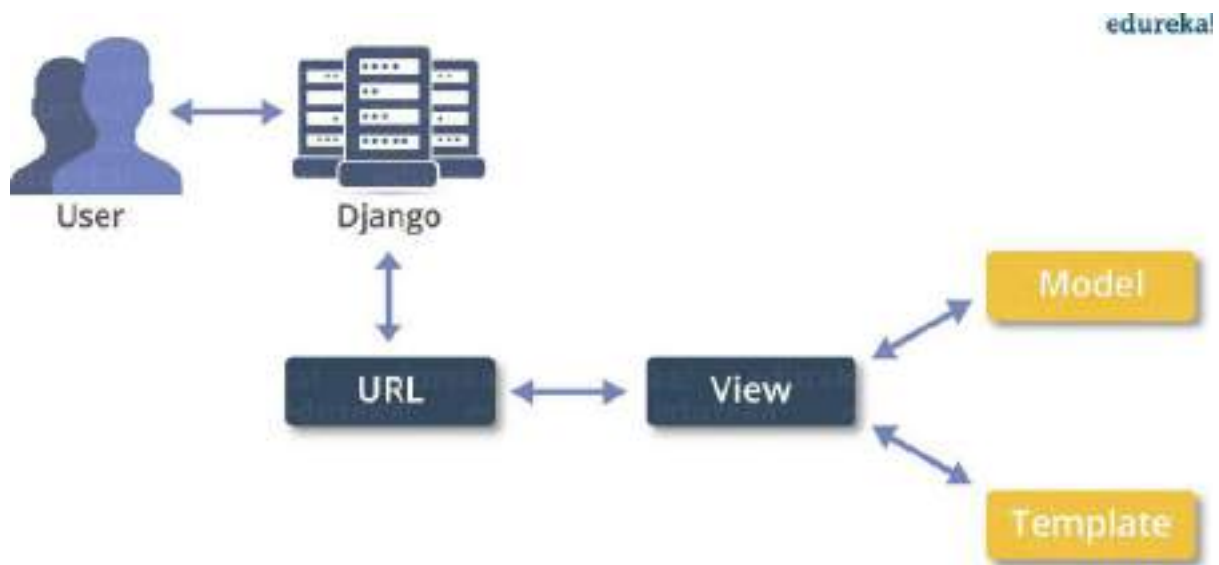


Fig 6.2: Execution for different platforms

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

Django too gives a required legitimate makes, read, restore and eliminate limit that is formed logically done thought fulnes and arrangeds through administrator model.

6.2. The python Platform

Local Environment Setup

Open a terminal window and type "python" to find out if it is already installed and which version is installed.

- Unix (Solaris, Linux, FreeBSD, AIX, HP/UX, SunOS, IRIX, etc.)
- Win 9x/NT/2000
- Macintosh (Intel, PPC, 68K)
- OS/2
- DOS (multiple versions)
- PalmOS
- Nokia mobile phones
- Windows CE
- Acorn/RISC OS
- BeOS
- Amiga
- VMS/OpenVMS
- QNX
- VxWorks
- Psion
- Python has also been ported to the Java and .NET virtual machines

Getting Python

The most up-to-date and current source code, binaries, documentation, news, etc., is available on the official website of Python <https://www.python.org/>

You can download Python documentation from <https://www.python.org/doc/>. The documentation is available in HTML, PDF, and PostScript formats.

Installing Python

Python distribution is available for a wide variety of platforms. You need to download only the binary code applicable for your platform and install Python.

If the binary code for your platform is not available, you need a C compiler to compile the source code manually. Compiling the source code offers more flexibility in terms of choice of features that you require in your installation.

Here is a quick overview of installing Python on various platforms –

Unix and Linux Installation

Here are the simple steps to install Python on Unix/Linux machine.

- Open a Web browser and go to <https://www.python.org/downloads/>.
- Follow the link to download zipped source code available for Unix/Linux.
- Download and extract files.
- Editing the *Modules/Setup* file if you want to customize some options.
- run `./configure` script
- `make`
- `make install`

This installs Python at standard location `/usr/local/bin` and its libraries at `/usr/local/lib/pythonXX` where XX is the version of Python.

Windows Installation

Here are the steps to install Python on Windows machine.

- Open a Web browser and go to <https://www.python.org/downloads/>.
- Follow the link for the Windows installer `python-XYZ.msi` file where XYZ is the version you need to install.

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

- To use this installer *python-XYZ.msi*, the Windows system must support Microsoft Installer 2.0. Save the installer file to your local machine and then run it to find out if your machine supports MSI.
- Run the downloaded file. This brings up the Python install wizard, which is really easy to use. Just accept the default settings, wait until the install is finished, and you are done.

Macintosh Installation

Recent Macs come with Python installed, but it may be several years out of date. See <http://www.python.org/download/mac/> for instructions on getting the current version along with extra tools to support development on the Mac. For older Mac OS's before Mac OS X 10.3 (released in 2003), Mac Python is available.

Jack Jansen maintains it and you can have full access to the entire documentation at his website – <http://www.cwi.nl/~jack/macpython.html>. You can find complete installation details for Mac OS installation.

Setting up PATH

Programs and other executable files can be in many directories, so operating systems provide a search path that lists the directories that the OS searches for executables.

The path is stored in an environment variable, which is a named string maintained by the operating system. This variable contains information available to the command shell and other programs.

The **path** variable is named as PATH in Unix or Path in Windows (Unix is case sensitive; Windows is not).

In Mac OS, the installer handles the path details. To invoke the Python interpreter from any particular directory, you must add the Python directory to your path.

6.3. Networking

6.8.1. TCP/IP stack

The TCP/IP stack is shorter than the OSI one:

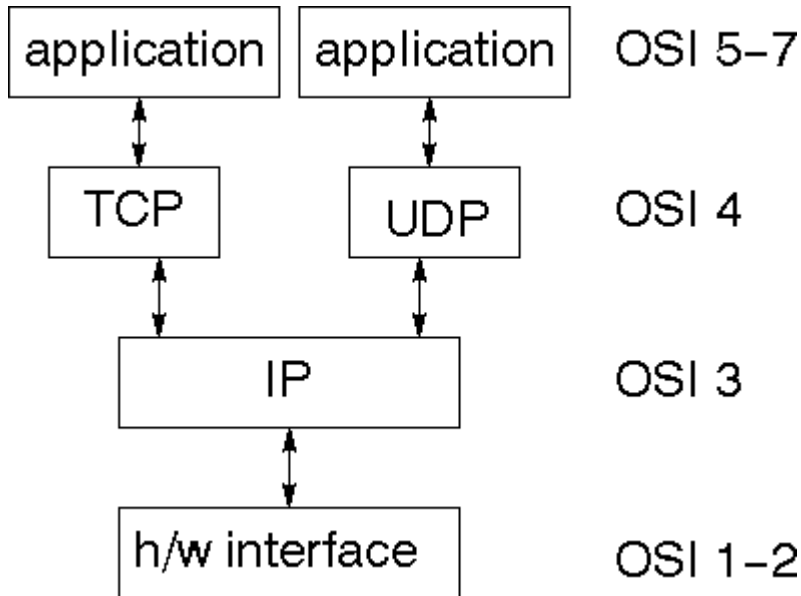


Fig 6.5: TCP is a connection-oriented protocol, UDP (User Datagram Protocol) is a connectionless protocol.

6.8.2. IP datagram's

The IP layer provides a connectionless and unreliable delivery system. It considers each datagram independently of the others. Any association between datagram must be supplied by the higher layers. The IP layer supplies a checksum that includes its own header. The header includes the source and destination addresses. The IP layer handles routing through an Internet. It is also responsible for breaking up large datagram into smaller ones for transmission and reassembling them at the other end.

6.8.3. UDP

UDP is also connectionless and unreliable. What it adds to IP is a checksum for the contents of the datagram and port numbers. These are used to give a client/server model - see later.

6.8.4. TCP

TCP supplies logic to give a reliable connection-oriented protocol above IP. It provides a virtual circuit that two processes can use to communicate.

6.8.5. Internet addresses

In order to use a service, you must be able to find it. The Internet uses an address scheme for machines so that they can be located. The address is a 32 bit integer which gives the IP address. This encodes a network ID and more addressing. The network ID falls into various classes according to the size of the network address.

6.8.6. Network address

Class A uses 8 bits for the network address with 24 bits left over for other addressing. Class B uses 16 bit network addressing. Class C uses 24 bit network addressing and class D uses all 32.

6.8.7. Subnet address

Internally, the UNIX network is divided into sub networks. Building 11 is currently on one sub network and uses 10-bit addressing, allowing 1024 different hosts.

6.8.8. Host address

8 bits are finally used for host addresses within our subnet. This places a limit of 256 machines that can be on the subnet.

6.8.9. Total address

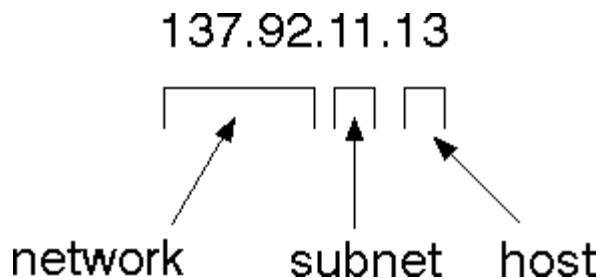


Fig 6.6: The 32 bit address is usually written as 4 integers separated by dots.

6.8.10. Port addresses

A service exists on a host, and is identified by its port. This is a 16 bit number. To send a message to a server, you send it to the port for that service of the host that it is running on. This is not location transparency! Certain of these ports are "well known".

6.4. SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include <sys/types.h>
#include <sys/socket.h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

MySQL

MySQL is the product that is accessible straightforwardly and can be used for putting away information and recovering the data from the framework. SQL is extended as "organized question language" and it is additionally called as relational database management Systems. It was developed by Sun smaller scale frameworks. The my sql it is inquiry language, thus we write in as questions which is a type of basic English words which is more obvious. At the point when we compose the question the outcome or yield coordinating such conditions in the inquiry is produced. At the point when we need to join at least two inquiries together, we need to utilize "AND" statement. At the point when we have both of the inquiries to be executed, at that point we use "OR" condition. There are a few provisions for various purposes. Some essential provisions are SELECT, DELETE, INSERT, ADD, DROP and UPDATE. SELECT commands is utilized to pick the specific table sections. Erase is utilized to erase the records in the table. DROP is utilized to erase the whole table. Addition is utilized to include the records in the table. UPDATE is utilized to alter the Inserted tuple values. Include is utilized add new sections to the current table

7. SYSTEM REQUIREMENTS

7.1: HARDWARE REQUIREMENTS:

➤ System	:	Pentium IV 2.4GHz.
➤ Hard Disk	:	40 GB.
➤ Floppy Drive	:	1.44 Mb.
➤ Monitor	:	15 VGAColour
➤ Mouse	:	Logitech
➤ Ram	:	512 Mb.

7.2. SOFTWARE REQUIREMENTS:

➤ Operating System	:	Windows XP/7/10
➤ Coding Language	:	PYTHON
➤ Database	:	MYSQL

7. SYSTEMDESIGN

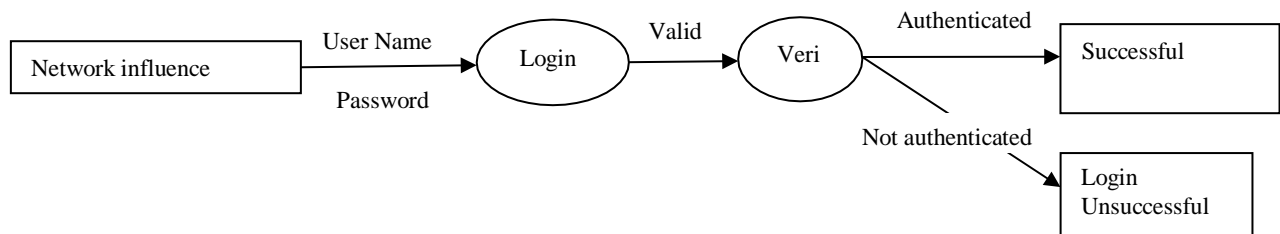
8.1. DATA FLOWDIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction. DFD may be partitioned into levels that represent increasing information flow and functional details.

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

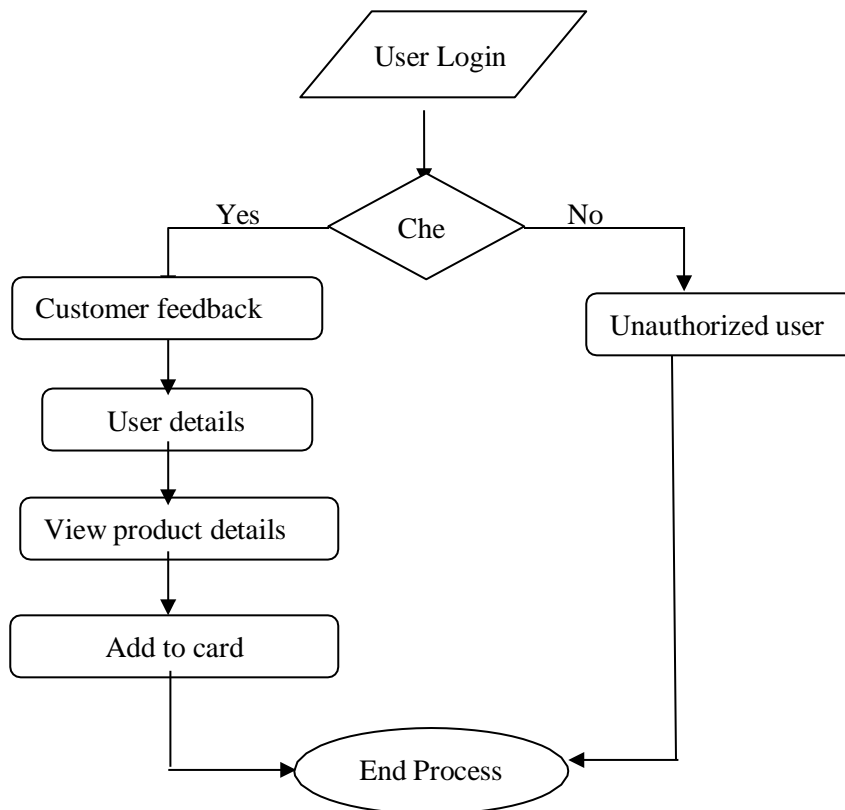
Level -0 DFD

It shows structures critical methods, data streams, and the data stores at an unusual condition of reflection. It depends over dimension 0 and it sub-segregates the system into various disconnected social occasions.



LEVEL 1 DFD

User



- admin

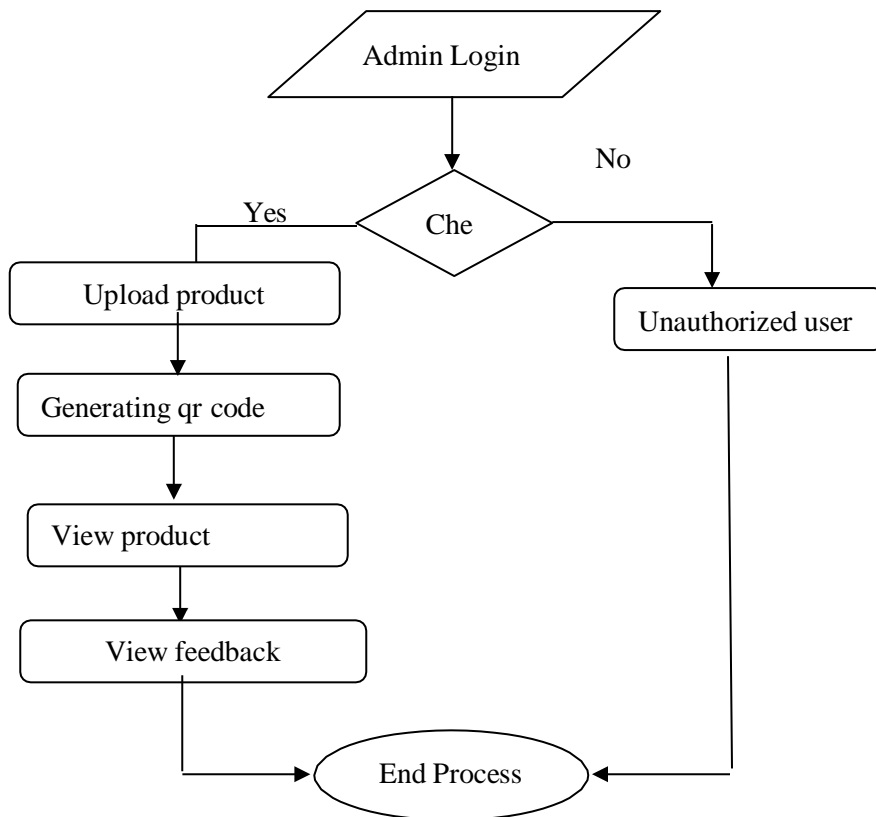


Fig 8.1: Data Flow Diagram

8.2. UMLDIAGRAMS

UML stands for Unified Modelling Language. UML is a standardized general-purpose modelling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group. The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the arte facts of software system, as well as for business modeling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems. The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

8.2.1. Goals

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.
7. Integrate best practices.

8.2.2. CLASSDIAGRAM

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.

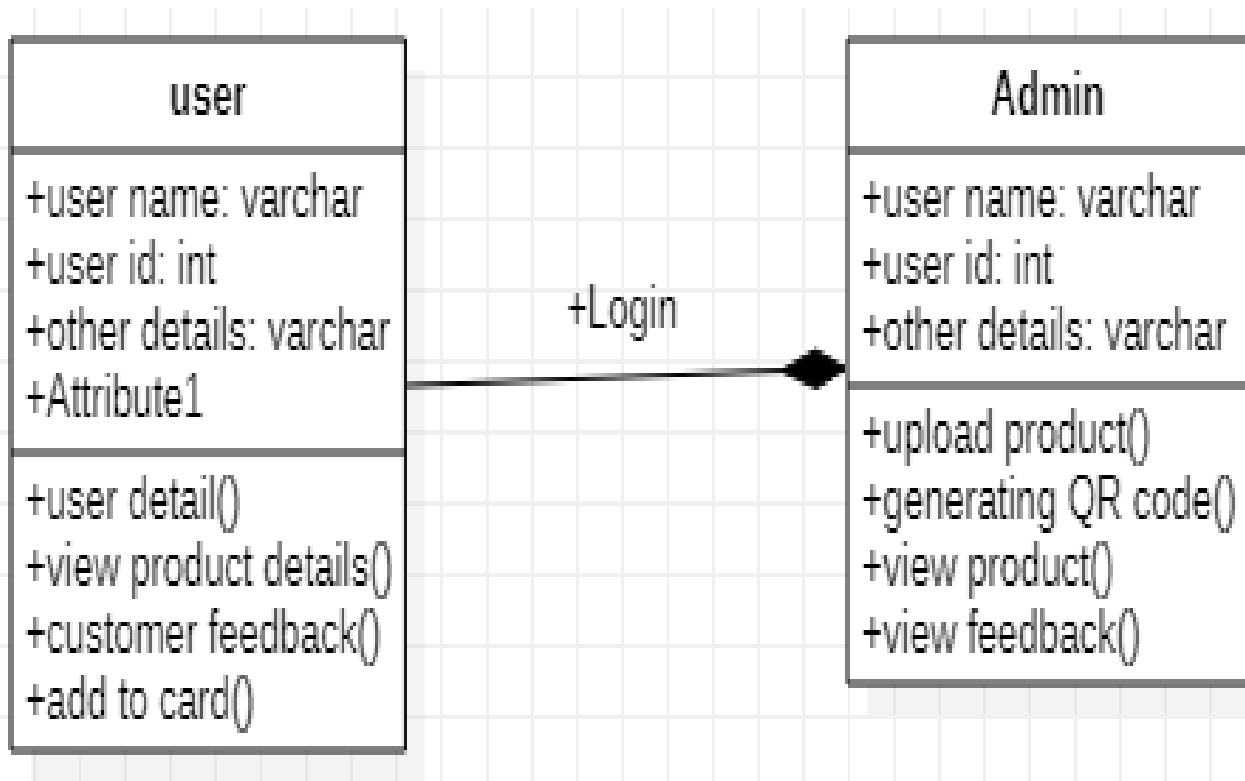
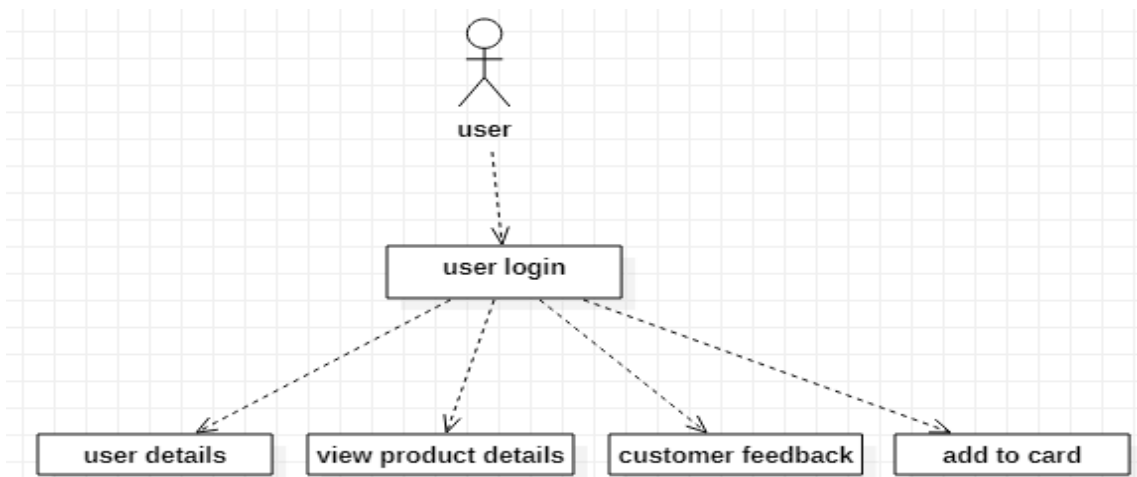


Fig 8.2: Class Diagram

8.2.3. USE CASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

- User



Admin

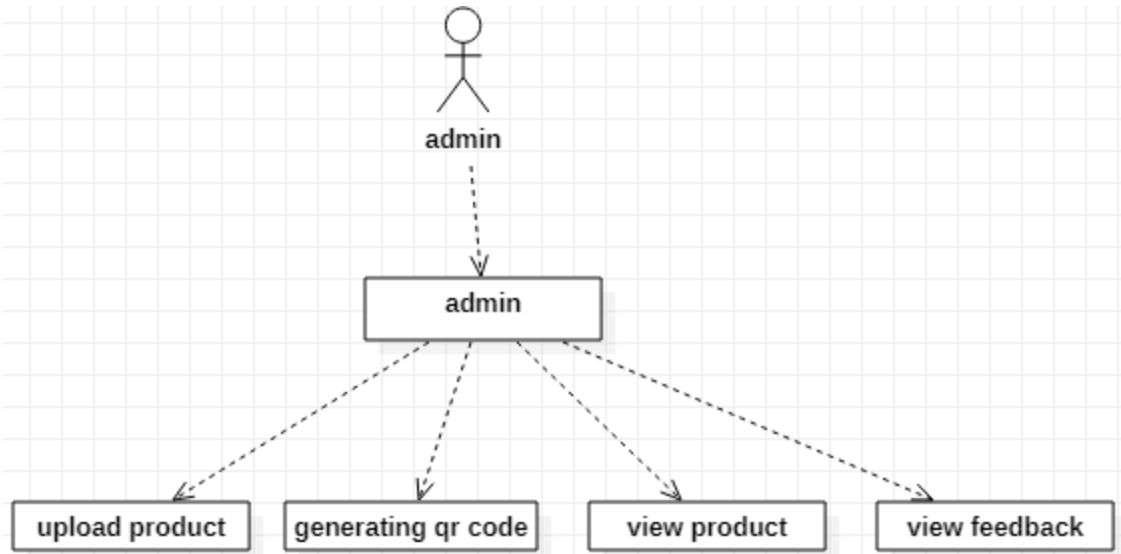
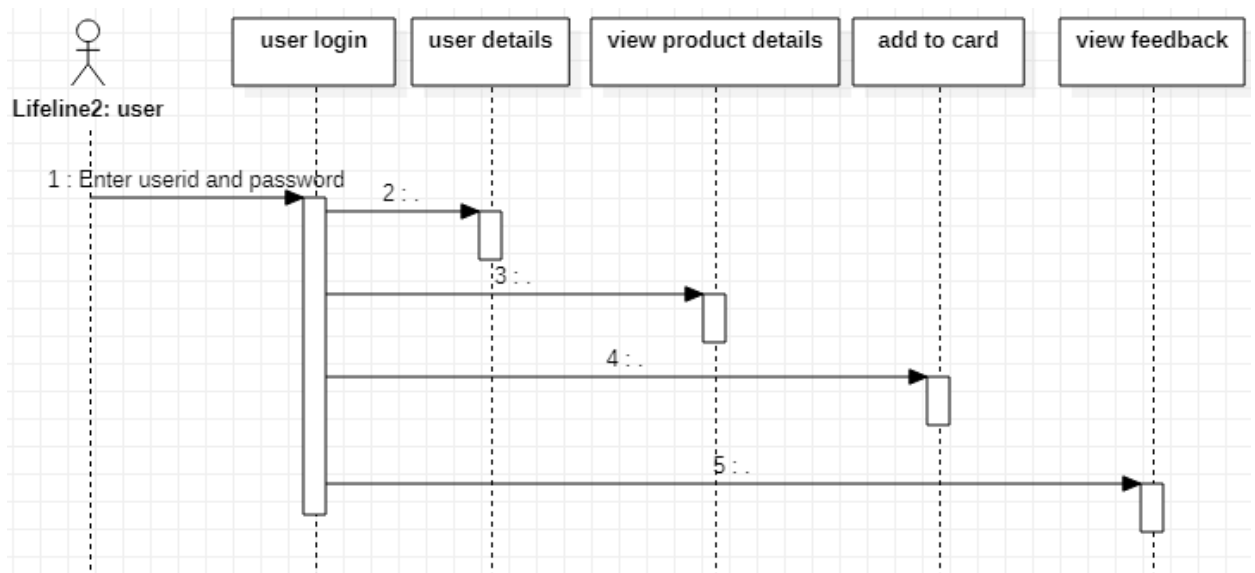


Fig 8.3: USE CASE DIAGRAM

8.2.4. SEQUENCEDIAGRAM

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

- User



- **Admin**

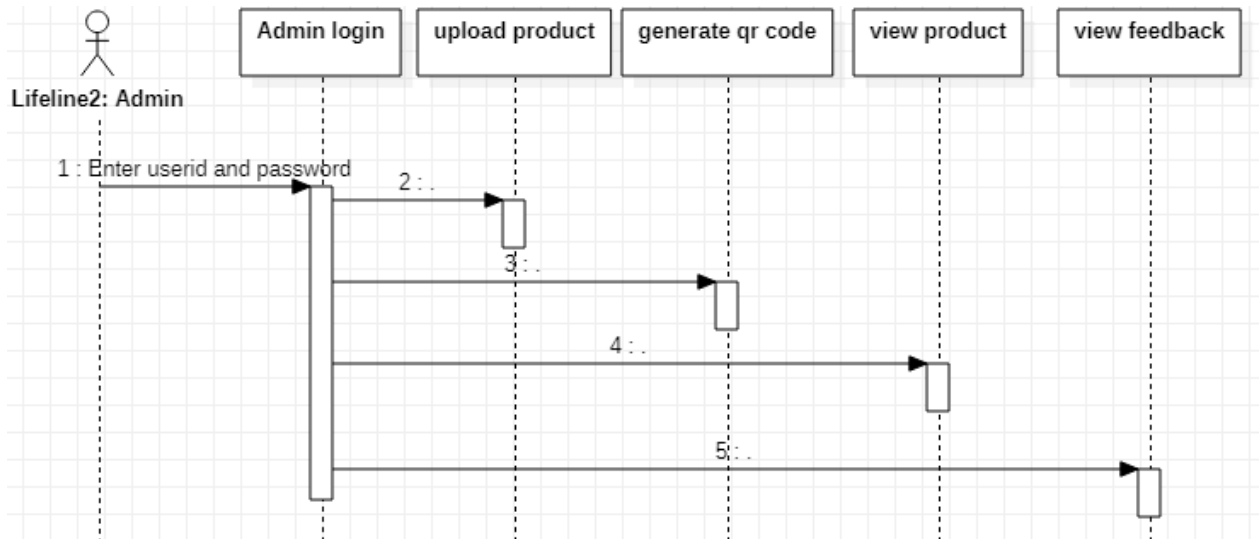


Fig 8.4: Sequence Diagram

8.2.5. Collaboration Diagram:

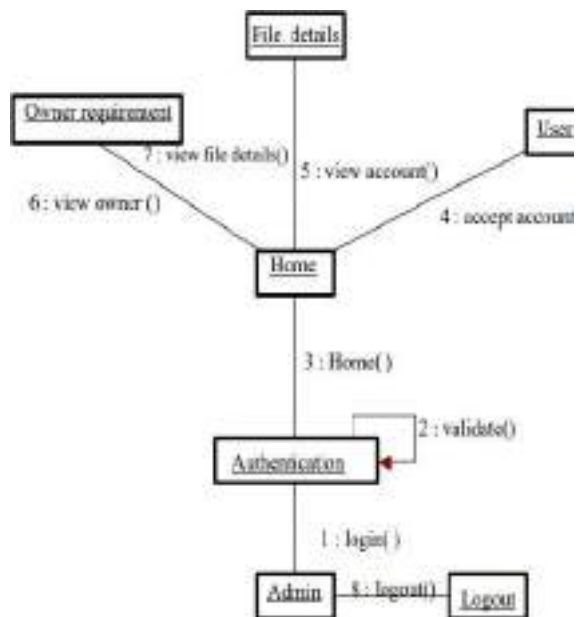
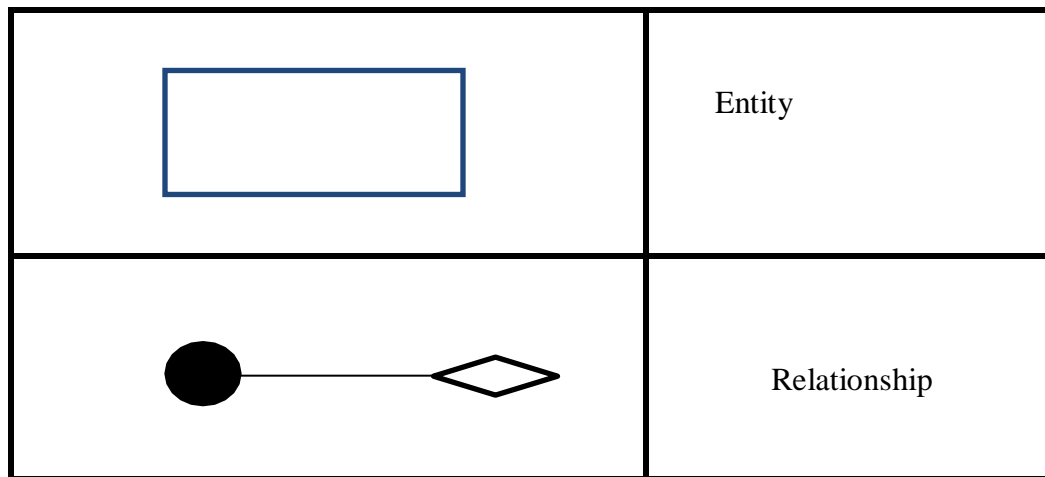


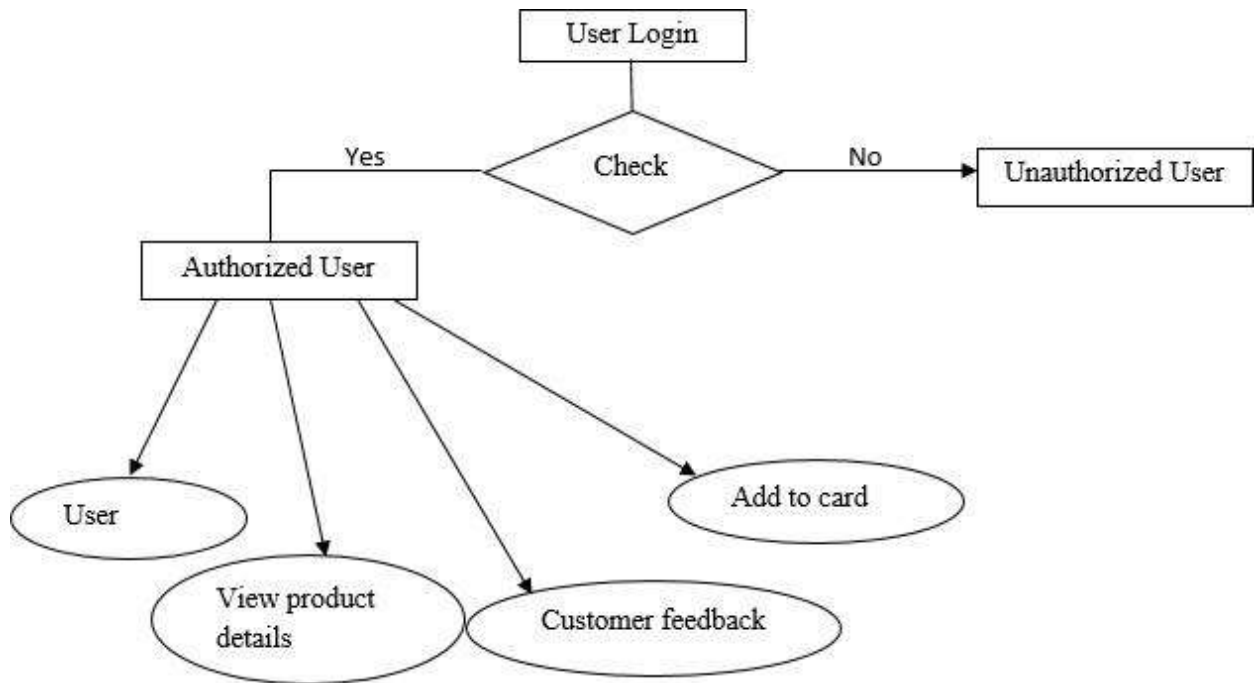
Fig 8.5: Collaboration Diagram

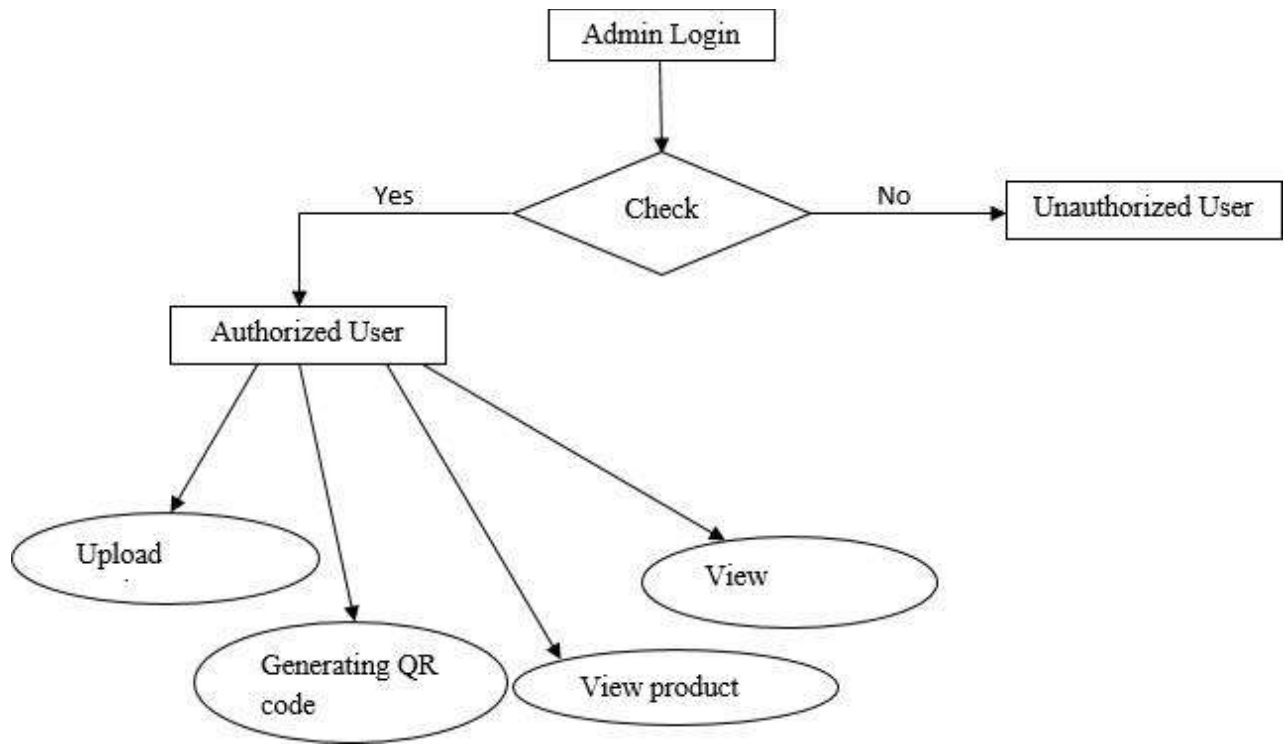
This is the Collaboration Diagram which represents the inflow and outflow of a particular one.

8.3. E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.







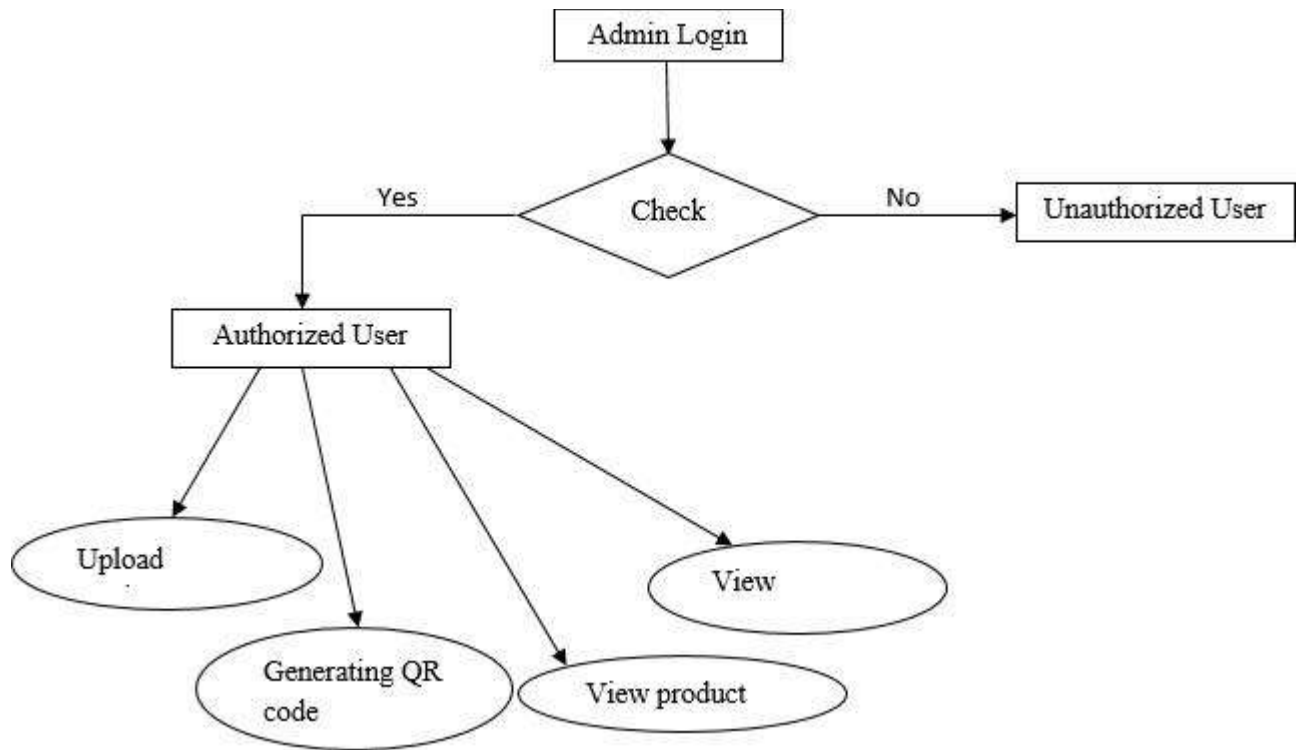


Fig8.6: E-R Notations

8. IMPLEMENTATION

9.1. INPUTDESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

9.2. OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

9.3. OUTPUTDESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
 - Convey information about past activities, current status or projections ofthe
 - Future.
 - Signal important events, opportunities, problems, or warnings.
 - Trigger an action.
 - Confirm an action.

9.4. CODING

Index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
<title>Login</title>
<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/css/bootstrap.min.css">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.min.css">
<script src="https://code.jquery.com/jquery-3.5.1.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"></script>
<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/js/bootstrap.min.js"></script>
<style>
body {
    color: #fff;
    background: #d47677;
}
.form-control {
    min-height: 41px;
    background: #fff;
    box-shadow: none !important;
    border-color: #e3e3e3;
}
.form-control:focus {
    border-color: #70c5c0;
}
.form-control, .btn {
    border-radius: 2px;
}
.login-form {
    width: 350px;
    margin: 0 auto;
    padding: 100px 0 30px;
}
.login-form form {
    color: #7a7a7a;
    border-radius: 2px;
    margin-bottom: 15px;
}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
font-size: 13px;
background: #ecec;
box-shadow: 0px 2px 2px rgba(0, 0, 0, 0.3);
padding: 30px;
position: relative;
}
.login-form h2 {
font-size: 22px;
margin: 35px 0 25px;
}
.login-form .avatar {
position: absolute;
margin: 0 auto;
left: 0;
right: 0;
top: -50px;
width: 95px;
height: 95px;
border-radius: 50%;
z-index: 9;
background: #70c5c0;
padding: 15px;
box-shadow: 0px 2px 2px rgba(0, 0, 0, 0.1);
}
.login-form .avatar img {
width: 100%;
}
.login-form input[type="checkbox"] {
position: relative;
top: 1px;
}
.login-form .btn, .login-form .btn:active {
font-size: 16px;
font-weight: bold;
background: #70c5c0 !important;
border: none;
margin-bottom: 20px;
}
.login-form .btn:hover, .login-form .btn:focus {
background: #50b8b3 !important;
}
.login-form a {
color: #fff;
text-decoration: underline;
}
.login-form a:hover {
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
text-decoration: none;
}
.login-form form a {
  color: #7a7a7a;
  text-decoration: none;
}
.login-form form a:hover {
  text-decoration: underline;
}
.login-form .bottom-action {
  font-size: 14px;
}
</style>
</head>
<body>
<div class="login-form">
<form method="post">
  {% csrf_token %}

<h2 class="text-center">Member Login</h2>
<div class="form-group">
  <input type="text" class="form-control" name="username" placeholder="User ID"
required="required">
</div>
  <div class="form-group">
<input type="password" class="form-control" name="password" placeholder="Password"
required="required">
</div>
<div class="form-group">
<button type="submit" class="btn btn-primary btn-lg btn-block">Sign in</button>
</div>

</form>
<p class="text-center small">Don't have an account? <a href="{% url 'register' %}">Sign up here!</a></p>
</div>
</body>
</html>
```

Login.html

```
<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css" rel="stylesheet"
id="bootstrap-css">
<script src="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/js/bootstrap.min.js"></script>
<script src="//cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
<script>

    $(document).ready(function(){
        $('.login-info-box').fadeOut();
        $('.login-show').addClass('show-log-panel');
    });

    $('.login-reg-panel input[type="radio"]').on('change', function() {
        if($('#log-login-show').is(':checked')) {
            $('.register-info-box').fadeOut();
            $('.login-info-box').fadeIn();

            $('.white-panel').addClass('right-log');
            $('.register-show').addClass('show-log-panel');
            $('.login-show').removeClass('show-log-panel');

        }
        else if($('#log-reg-show').is(':checked')) {
            $('.register-info-box').fadeIn();
            $('.login-info-box').fadeOut();

            $('.white-panel').removeClass('right-log');

            $('.login-show').addClass('show-log-panel');
            $('.register-show').removeClass('show-log-panel');
        }
    });

</script>
<style>

@import url('https://fonts.googleapis.com/css?family=Mukta');
body{
    font-family: 'Mukta', sans-serif;
    height:100vh;
    min-height:550px;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
background-image: url(http://www.planwallpaper.com/static/images/Free-Wallpaper-Nature-Scenes.jpg);
background-repeat: no-repeat;
background-size: cover;
background-position: center;
position: relative;
overflow-y: hidden;
}
a{
text-decoration: none;
color: #444444;
}
.login-reg-panel{
position: relative;
top: 50%;
transform: translateY(-50%);
text-align: center;
width: 70%;
right: 0; left: 0;
margin: auto;
height: 400px;
background-color: rgba(236, 48, 20, 0.9);
}
.white-panel{
background-color: rgba(255, 255, 255, 1);
height: 500px;
position: absolute;
top: -50px;
width: 50%;
right: calc(50% - 50px);
transition: .3s ease-in-out;
z-index: 0;
box-shadow: 0 0 15px 9px #00000096;
}
.login-reg-panel input[type="radio"]{
position: relative;
display: none;
}
.login-reg-panel{
color: #B8B8B8;
}
.login-reg-panel #label-login,
.login-reg-panel #label-register{
border: 1px solid #9E9E9E;
padding: 5px 5px;
width: 150px;
```

```
display:block;
text-align:center;
border-radius:10px;
cursor:pointer;
font-weight: 600;
font-size: 18px;
}
.login-info-box{
width:30%;
padding:0 50px;
top:20%;
left:0;
position:absolute;
text-align:left;
}
.register-info-box{
width:30%;
padding:0 50px;
top:20%;
right:0;
position:absolute;
text-align:left;
}
.right-log{right:50px !important;}

.login-show,
.register-show{
z-index: 1;
display:none;
opacity:0;
transition:0.3s ease-in-out;
color:#242424;
text-align:left;
padding:50px;
}
.show-log-panel{
display:block;
opacity:0.9;
}
.login-show input[type="text"], .login-show input[type="password"]{
width: 100%;
display: block;
margin:20px 0;
padding: 15px;
border: 1px solid #b5b5b5;
```

```
outline: none;
}
.login-show input[type="button"] {
  max-width: 150px;
  width: 100%;
  background: #444444;
  color: #f9f9f9;
  border: none;
  padding: 10px;
  text-transform: uppercase;
  border-radius: 2px;
  float:right;
  cursor:pointer;
}
.login-show a{
  display:inline-block;
  padding:10px 0;
}

.register-show input[type="text"], .register-show input[type="password"]{
  width: 100%;
  display: block;
  margin:20px 0;
  padding: 15px;
  border: 1px solid #b5b5b5;
  outline: none;
}
.register-show input[type="button"] {
  max-width: 150px;
  width: 100%;
  background: #444444;
  color: #f9f9f9;
  border: none;
  padding: 10px;
  text-transform: uppercase;
  border-radius: 2px;
  float:right;
  cursor:pointer;
}
.credit {
  position:absolute;
  bottom:10px;
  left:10px;
  color: #3B3B25;
  margin: 0;
  padding: 0;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
font-family: Arial,sans-serif;
text-transform: uppercase;
font-size: 12px;
font-weight: bold;
letter-spacing: 1px;
z-index: 99;
}
a{
text-decoration:none;
color:#2c7715;
}
```

```
</style>
<!------- Include the above in your HEAD tag ----->
```

```
<div class="login-reg-panel">
  <div class="login-info-box">
    <h2>Have an account?</h2>
    <p>Lorem ipsum dolor sit amet</p>
    <label id="label-register" for="log-reg-show">Login</label>
    <input type="radio" name="active-log-panel" id="log-reg-show"
checked="checked">
  </div>

  <div class="register-info-box">
    <h2>Don't have an account?</h2>
    <p>Lorem ipsum dolor sit amet</p>
    <label id="label-login" for="log-login-show">Register</label>
    <input type="radio" name="active-log-panel" id="log-login-show">
  </div>

  <div class="white-panel">
    <div class="login-show">
      <h2>LOGIN</h2>
      <input type="text" name="userid" placeholder="userid">
      <input type="password" name="password" placeholder="Password">
      <input type="button" value="Login">
      <a href="">Forgot password?</a>
    </div>
    <div class="register-show">
      <h2>REGISTER</h2>
      <input type="text" name="firstname" placeholder="Firstname">

```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
<input type="text" name="lastname" placeholder="Lastname">
<input type="text" name="userid" placeholder="Userid">
<input type="password" name="password" placeholder="Password">
<input type="number" name="mobilenumber" placeholder="Mobile
Number">
<input type="email" name="email" placeholder="Email">
<select name="gender">
<option disabled="disabled" selected="selected">Gender</option>
<option>Male</option>
<option>Female</option>
<option>Other</option>
</select>
<input type="text" name="address" placeholder="Address">
<input type="button" value="Register">
</div>
</div>
</div></form>
```

Register.html

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
<title>Register</title>
<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/css/bootstrap.min.css">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.7.0/css/font-
awesome.min.css">
<script src="https://code.jquery.com/jquery-3.5.1.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"></script>
<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/js/bootstrap.min.js"></script>
<style>
body {
    color: #fff;
    background: #d47677;
}
.form-control {
    min-height: 41px;
    background: #fff;
    box-shadow: none !important;
    border-color: #e3e3e3;
```

```
}  
.form-control:focus {  
    border-color: #70c5c0;  
}  
.form-control, .btn {  
    border-radius: 2px;  
}  
.login-form {  
    width: 350px;  
    margin: 0 auto;  
    padding: 100px 0 30px;  
}  
.login-form form {  
    color: #7a7a7a;  
    border-radius: 2px;  
    margin-bottom: 15px;  
    font-size: 13px;  
    background: #ececec;  
    box-shadow: 0px 2px 2px rgba(0, 0, 0, 0.3);  
    padding: 30px;  
    position: relative;  
}  
.login-form h2 {  
    font-size: 22px;  
    margin: 35px 0 25px;  
}  
.login-form .avatar {  
    position: absolute;  
    margin: 0 auto;  
    left: 0;  
    right: 0;  
    top: -50px;  
    width: 95px;  
    height: 95px;  
    border-radius: 50%;  
    z-index: 9;  
    background: #70c5c0;  
    padding: 15px;  
    box-shadow: 0px 2px 2px rgba(0, 0, 0, 0.1);  
}  
.login-form .avatar img {  
    width: 100%;  
}  
.login-form input[type="checkbox"] {  
    position: relative;  
    top: 1px;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
}
.login-form .btn, .login-form .btn:active {
    font-size: 16px;
    font-weight: bold;
    background: #70c5c0 !important;
    border: none;
    margin-bottom: 20px;
}
.login-form .btn:hover, .login-form .btn:focus {
    background: #50b8b3 !important;
}
.login-form a {
    color: #fff;
    text-decoration: underline;
}
.login-form a:hover {
    text-decoration: none;
}
.login-form form a {
    color: #7a7a7a;
    text-decoration: none;
}
.login-form form a:hover {
    text-decoration: underline;
}
.login-form .bottom-action {
    font-size: 14px;
}
</style>
</head>
<body>
<div class="login-form">
<form method="post">
    {% csrf_token %}

<h2 class="text-center">Member Register</h2>
<div class="form-group">
    <input type="text" class="form-control" name="firstname" placeholder="First Name"
required="required">
</div><div class="form-group">
    <input type="text" class="form-control" name="lastname" placeholder="Last Name"
required="required">
</div><div class="form-group">
    <input type="text" class="form-control" name="userid" placeholder="UserId" required="required">
</div>
    <div class="form-group">
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
<input type="password" class="form-control" name="password" placeholder="Password"
required="required">
</div><div class="form-group">
<input type="number" class="form-control" name="mobilenumber" placeholder="Mobile Number"
required="required">
</div><div class="form-group">
<input type="email" class="form-control" name="email" placeholder="Email" required="required">
</div><div class="form-group">
<select name="gender" class="form-control">
<option disabled="disabled" selected="selected">Gender</option>
<option>Male</option>
<option>Female</option>
<option>Other</option>
</select>
</div><div class="form-group">
<input type="text" class="form-control" name="address" placeholder="Address" required="required">
</div>
<div class="form-group">
<button type="submit" class="btn btn-primary btn-lg btn-block">Sign up</button>
</div>

</form>
<p class="text-center small">Do have an account? <a href="{ % url 'index' % }">Sign ip here!</a></p>
</div>
</body>
</html>
```

Admin.html

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
<title>Login</title>
<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/css/bootstrap.min.css">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.7.0/css/font-
awesome.min.css">
<script src="https://code.jquery.com/jquery-3.5.1.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"></script>
<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/js/bootstrap.min.js"></script>
<style>
body {
    color: #fff;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
background: #d47677;
}
.form-control {
  min-height: 41px;
  background: #fff;
  box-shadow: none !important;
  border-color: #e3e3e3;
}
.form-control:focus {
  border-color: #70c5c0;
}
.form-control, .btn {
  border-radius: 2px;
}
.login-form {
  width: 350px;
  margin: 0 auto;
  padding: 100px 0 30px;
}
.login-form form {
  color: #7a7a7a;
  border-radius: 2px;
  margin-bottom: 15px;
  font-size: 13px;
  background: #ecec;
  box-shadow: 0px 2px 2px rgba(0, 0, 0, 0.3);
  padding: 30px;
  position: relative;
}
.login-form h2 {
  font-size: 22px;
  margin: 35px 0 25px;
}
.login-form .avatar {
  position: absolute;
  margin: 0 auto;
  left: 0;
  right: 0;
  top: -50px;
  width: 95px;
  height: 95px;
  border-radius: 50%;
  z-index: 9;
  background: #70c5c0;
  padding: 15px;
  box-shadow: 0px 2px 2px rgba(0, 0, 0, 0.1);
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
}
.login-form .avatar img {
    width: 100%;
}
.login-form input[type="checkbox"] {
    position: relative;
    top: 1px;
}
.login-form .btn, .login-form .btn:active {
    font-size: 16px;
    font-weight: bold;
    background: #70c5c0 !important;
    border: none;
    margin-bottom: 20px;
}
.login-form .btn:hover, .login-form .btn:focus {
    background: #50b8b3 !important;
}
.login-form a {
    color: #fff;
    text-decoration: underline;
}
.login-form a:hover {
    text-decoration: none;
}
.login-form form a {
    color: #7a7a7a;
    text-decoration: none;
}
.login-form form a:hover {
    text-decoration: underline;
}
.login-form .bottom-action {
    font-size: 14px;
}
</style>
</head>
<body>
<div class="login-form">
<form method="post">
    {% csrf_token %}

<h2 class="text-center">Admin Login</h2>
<div class="form-group">
    <input type="text" class="form-control" name="username" placeholder="User Name"
required="required">
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
</div>
    <div class="form-group">
<input type="password" class="form-control" name="password" placeholder="Password"
required="required">
</div>
<div class="form-group">
<button type="submit" class="btn btn-primary btn-lg btn-block">Sign in</button>
</div>

</form>

</div>
</body>
</html>
```

uploadpro

```
{% extends 'admins/base.html' %}
{% block adminblock %}
{% load staticfiles %}
<style>
```

```
    .upload{
    position: absolute;
top: 180px;
margin-left: 30px;
padding: 30px;
width: 900px;
height: 400px;
}
```

```
    .upload table{
    margin-top: -128px;
width: 38em;
text-align: center;
//: ;
border-collapse: collapse;
border-spacing: 1px;
background: white;
}
```

```
    .upload table tr th{
    color:white;
}

    .upload table tr th{
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
background:rgb(1, 176, 135);
padding:10px;
}
.upload table tr td{
    background-color: #ffffff;
    margin-left: center;
    padding: 16px 20px;
    border-radius: 119px;
}
.upload table tr:hover td{
background:rgba(237, 236, 234);
}

.buttonpost {
background-color: #ff1a3c;
border: none;
color: white;
padding: 5px 10px;
text-align: center;
text-decoration: none;
display: inline-block;
font-size: 16px;
margin: 4px 2px;
cursor: pointer;
}

</style>
<body>

<div class="upload">
<form method="POST" enctype="multipart/form-data">

    {%csrf_token%}
<table align="right" style="color:black">

<tr>
<td style="color:black;" ><b>Product Name:</b></td>
<td><input type="text" name="Productname" placeholder="Product Name"></td>
</tr>

<tr>
<td style="color:black;" ><b>Upload Image:</b></td>
<td><input type="file" name="uploadimage" placeholder="Upload Image"></td>
</tr>

<tr>
<td style="color:black;" ><b>Type of Product:</b></td>
<td><select type="text" value="" name="typeofproduct" >
```


ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
<option disabled="disabled" selected="selected">---Select---</option>
<option>Convenience Products</option>
<option>Shopping Products</option>
<option>Specialty Products</option>

</select></td>
</tr>
<tr>
<td style="color:black;" ><b>Description:</b></td>
<td><input type="text" name="Description" placeholder="Description"></td>
</tr>
<tr>
<td style="color:black;" ><b>Amount:</b></td>
<td><input type="number" name="amount" placeholder="Amount"></td>
</tr>

<tr>
<td style="text-align:center;" colspan="2"><input type="submit" class="buttonpost" name="submit"
value="Add Product"></td>
</tr>

</table>
</form>
</div>
</body>
```

```
{% endblock % }
```

Mydetails.html

```
{% extends 'design.html' % }
{% block userblock % }
{% load static % }
```

```
<style>
.mydetails{
position:absolute;
padding:60px;
```

```
    }
    .mydetails table{
    width:30em;
    text-align:center;
    border-spacing: 1px;
    margin-left: 20em;
    }
    .mydetails table tr td{
    background:rgb(240 248 255);
    padding:10px;

}
    .mydetailsimage{
    border-style:solid;
    border-width:1px;
    height:350px;
    width:400px;
    margin-top:0px;
    margin-left:740px;
    background: url("{% static '22.jpg' %}");
    background-size: 100% 100%;
    padding:0px;

}
</style>

<div class="mydetails"><table>
<tr>
<td>First Name :</td>
<td>{{ objects.firstname }}</td>
</tr>
<tr>
<td>Last Name :</td>
<td>{{ objects.lastname }}</td>
</tr>
<tr>
<td>Userid :</td>
<td>{{ objects.userid }}</td>
</tr>

<tr>
<td>Phoneno :</td>
<td>{{ objects.mobilenumber }}</td>
</tr>
<tr>
```

```
<td>Email :</td>
<td>{{ objects.email }}</td>
</tr>
<tr>
<td>Gender :</td>
<td>{{ objects.gender }}</td>
</tr><tr>
<td>Address :</td>
<td>{{ objects.address }}</td>
</tr>

</table>
</div>

{% endblock % }
```

Uploadpro.html

```
{% extends 'admins/base.html' % }
{% block adminblock % }
{% load staticfiles % }
<style>

    .upload{
        position: absolute;
        top: 180px;
        margin-left: 30px;
        padding: 30px;
        width: 900px;
        height: 400px;
    }

    .upload table{
        margin-top: -128px;
        width: 38em;
        text-align: center;
        //: ;
        border-collapse: collapse;
        border-spacing: 1px;
        background: white;
    }
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
.upload table tr th{
  color:white;
}

.upload table tr th{
  background:rgb(1, 176, 135);
  padding:10px;
}

.upload table tr td{
  background-color: #ffffff;
  margin-left: center;
  padding: 16px 20px;
  border-radius: 119px;
}

.upload table tr:hover td{
  background:rgba(237, 236, 234);
}

.buttonpost {
  background-color: #ff1a3c;
  border: none;
  color: white;
  padding: 5px 10px;
  text-align: center;
  text-decoration: none;
  display: inline-block;
  font-size: 16px;
  margin: 4px 2px;
  cursor: pointer;
}

</style>
<body>

<div class="upload">
<form method="POST" enctype="multipart/form-data">

  {%csrf_token% }
<table align="right" style="color:black">

<tr>
<td style="color:black;" ><b>Product Name:</b></td>
<td><input type="text" name="Productname" placeholder="Product Name"></td>
</tr>

<tr>
<td style="color:black;" ><b>Upload Image:</b></td>
<td><input type="file" name="uploadimage" placeholder="Upload Image"></td>
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
</tr>
<tr>
<td style="color:black;" ><b>Type of Product:</b></td>
<td><select type="text" value="" name="typeofproduct" >
<option disabled="disabled" selected="selected">---Select---</option>
<option>Convenience Products</option>
<option>Shopping Products</option>
<option>Specialty Products</option>

</select></td>
</tr>
<tr>
<td style="color:black;" ><b>Description:</b></td>
<td><input type="text" name="Description" placeholder="Description"></td>
</tr>
<tr>
<td style="color:black;" ><b>Amount:</b></td>
<td><input type="number" name="amount" placeholder="Amount"></td>
</tr>

<tr>
<td style="text-align:center;" colspan="2"><input type="submit" class="buttonpost" name="submit"
value="Add Product"></td>
</tr>

</table>
</form>
</div>
</body>

{% endblock % }
```

Mydetails.html

```
{% extends 'design.html' % }
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
{% block userblock %}
{% load static %}

<style>
    .mydetails{
        position:absolute;
        padding:60px;

    }
    .mydetails table{
        width:30em;
        text-align:center;
        border-spacing:1px;
        margin-left: 20em;
    }
    .mydetails table tr td{
        background:rgb(240 248 255);
        padding:10px;

    }
    .mydetailsimage{
        border-style:solid;
        border-width:1px;
        height:350px;
        width:400px;
        margin-top:0px;
        margin-left:740px;
        background:url("{% static '22.jpg' %}");
        background-size: 100% 100%;
        padding:0px;

    }
</style>
```

```
<div class="mydetails"><table>
<tr>
<td>First Name :</td>
<td>{{ objects.firstname }}</td>
</tr>
<tr>
<td>Last Name :</td>
<td>{{ objects.lastname }}</td>
</tr>
<tr>
<td>Userid :</td>
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
<td>{{ objects.userid }}</td>
</tr>

<tr>
<td>Phoneno :</td>
<td>{{ objects.mobilenumber }}</td>
</tr>
<tr>
<td>Email :</td>
<td>{{ objects.email }}</td>
</tr>
<tr>
<td>Gender :</td>
<td>{{ objects.gender }}</td>
</tr><tr>
<td>Address :</td>
<td>{{ objects.address }}</td>
</tr>

</table>
</div>
{% endblock % }
```

Product.html

```
{% endblock % }{% extends 'design.html' % }
{% block userblock % }
{% load static % }
<style>

</style>
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">

<div class="rwhldr">
<div class="row" >
    {% for pro in products % }
<div class="col-sm-4" style="margin-left: em;background-color: #f0f8ffa1;">
<table align="center" style="margin-left: 2em; margin-top:2em">

<tr>
<td colspan="3" align="center"></td>
</tr>
<tr style="visibility:hidden;">
<td>df</td>
</tr>
<tr>
<td style="color: #080808;font-size: medium;">Product Name</td>
<td style="color: #080808;font-size: medium;">:</td>
<td height="30px" style="color: #080808;font-size: medium;">{{ pro.Productname }}</td>
</tr>

<tr>
<td style="color: #080808;font-size: medium;">Description</td>
<td style="color: #080808;font-size: medium;">:</td>
<td height="30px" style="color: #080808;font-size: medium;">{{ pro.Description }}</td>
</tr><tr>
<td style="color: #080808;font-size: medium;">Price</td>
<td style="color: #080808;font-size: medium;">:</td>
<td height="30px" style="color: #080808;font-size: medium;">{{ pro.amount }}</td>

</tr>
<tr>
<td><a href="{% url 'addcard' pro.id %}" style="background-color: #ff3333;font-size: larger;color:
aliceblue;text-align: center;margin-left: 54px;">ADD TO CARD</a></td>
</tr>

</table>
</div>
    {% endfor % }
</div>
</div>
```

Feedback.html

```
{% extends 'design.html' % }
{% block userblock % }
{% load static % }
<style>
```

```
/*//////////////////////////////////////
[ FONT ]*/

@font-face {
  font-family: Montserrat-Regular;
  src: url('../fonts/montserrat/Montserrat-Regular.ttf');
}

@font-face {
  font-family: Montserrat-Bold;
  src: url('../fonts/montserrat/Montserrat-Bold.ttf');
}

@font-face {
  font-family: Montserrat-ExtraBold;
  src: url('../fonts/montserrat/Montserrat-ExtraBold.ttf');
}

@font-face {
  font-family: Montserrat-Medium;
  src: url('../fonts/montserrat/Montserrat-Medium.ttf');
}

/*//////////////////////////////////////
[ RESTYLE TAG ]*/

* {
  margin: 0px;
  padding: 0px;
  box-sizing: border-box;
}

body, html {
  height: 100%;
  font-family: Montserrat-Regular, sans-serif;
}

/*.....*/
a {
  font-family: Montserrat-Regular;
  font-size: 14px;
  line-height: 1.7;
}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
color: #666666;
margin: 0px;
transition: all 0.4s;
-webkit-transition: all 0.4s;
-o-transition: all 0.4s;
-moz-transition: all 0.4s;
}

a:focus {
    outline: none !important;
}

a:hover {
    text-decoration: none;
    color: #57b846;
}

/*.....*/
h1,h2,h3,h4,h5,h6 {
    margin: 0px;
}

p {
    font-family: Montserrat-Regular;
    font-size: 14px;
    line-height: 1.7;
    color: #666666;
    margin: 0px;
}

ul, li {
    margin: 0px;
    list-style-type: none;
}

/*.....*/
input {
    outline: none;
    border: none;
}

textarea {
    outline: none;
    border: none;
}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
textarea:focus, input:focus {
  border-color: transparent !important;
}

input::-webkit-input-placeholder { color: #999999; }
input:-moz-placeholder { color: #999999; }
input::-moz-placeholder { color: #999999; }
input:-ms-input-placeholder { color: #999999; }

textarea::-webkit-input-placeholder { color: #999999; }
textarea:-moz-placeholder { color: #999999; }
textarea::-moz-placeholder { color: #999999; }
textarea:-ms-input-placeholder { color: #999999; }

/*.....*/
button {
  outline: none !important;
  border: none;
  background: transparent;
}

button:hover {
  cursor: pointer;
}

iframe {
  border: none !important;
}
/*//////////////////////////////////////
[ Contact 1 ]*/

.contact1 {
width: 54%;
  min-height: 100%;
  padding: 21px;
  display: -webkit-box;
  display: -webkit-flex;
  display: -moz-box;
  display: -ms-flexbox;
  display: flex;
  flex-wrap: wrap;
  justify-content: center;
  align-items: center;
  margin-left: 307px;
  margin-top: 48px;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
}

.container-contact1 {
  width: 489px;
  background: #fff;
  border-radius: 10px;
  overflow: hidden;
  margin-left: 104px;
  overflow: hidden;
  margin-top: -60px;
  display: -moz-box;
  display: -ms-flexbox;
  display: flex;
  flex-wrap: wrap;
  justify-content: space-between;
  align-items: center;
  padding: -62px -33px 68px 28px;
}

/*-----
[ ]*/
.contact1-pic {
  width: 296px;
}

.contact1-pic img {
  max-width: 100%;
}

/*-----
[ ]*/
.contact1-form {
  width: 390px;
}

.contact1-form-title {
  display: block;
  font-family: Montserrat-ExtraBold;
  font-size: 24px;
  color: #333333;
  line-height: 1.2;
  text-align: center;
  padding-bottom: 44px;
}
```



```
input.input1 {
  height: 50px;
  border-radius: 25px;
  padding: 0 30px;
}
input.input1 + .shadow-input1 {
  border-radius: 25px;
}

textarea.input1 {
  min-height: 150px;
  border-radius: 25px;
  padding: 12px 30px;
}
textarea.input1 + .shadow-input1 {
  border-radius: 25px;
}

/*.....*/
.wrap-input1 {
  position: relative;
  width: 100%;
  z-index: 1;
  margin-bottom: 20px;
}

.input1 {
  display: block;
  width: 100%;
  background: #e6e6e6;
  font-family: Montserrat-Bold;
  font-size: 15px;
  line-height: 1.5;
  color: #666666;
}

.shadow-input1 {
  content: ";
  display: block;
  position: absolute;
  bottom: 0;
  left: 0;
  z-index: -1;
  width: 100%;
  height: 100%;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
box-shadow: 0px 0px 0px 0px;
color: rgba(87,184,70, 0.5);
}

.input1:focus + .shadow-input1 {
  -webkit-animation: anim-shadow 0.5s ease-in-out forwards;
  animation: anim-shadow 0.5s ease-in-out forwards;
}

@-webkit-keyframes anim-shadow {
  to {
    box-shadow: 0px 0px 80px 30px;
    opacity: 0;
  }
}

@keyframes anim-shadow {
  to {
    box-shadow: 0px 0px 80px 30px;
    opacity: 0;
  }
}

/*.....*/
.container-contact1-form-btn {
  display: -webkit-box;
  display: -webkit-flex;
  display: -moz-box;
  display: -ms-flexbox;
  display: flex;
  flex-wrap: wrap;
  justify-content: center;
}

.contact1-form-btn {
  min-width: 193px;
  height: 50px;
  border-radius: 25px;
  background: #57b846;
  font-family: Montserrat-Bold;
  font-size: 15px;
  line-height: 1.5;
  color: #fff;
  display: -webkit-box;
  display: -webkit-flex;
  display: -moz-box;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
display: -ms-flexbox;
display: flex;
justify-content: center;
align-items: center;
padding: 0 25px;

-webkit-transition: all 0.4s;
-o-transition: all 0.4s;
-moz-transition: all 0.4s;
transition: all 0.4s;
}
```

```
.contact1-form-btn i {
margin-left: 7px;
```

```
-webkit-transition: all 0.4s;
-o-transition: all 0.4s;
-moz-transition: all 0.4s;
transition: all 0.4s;
}
```

```
.contact1-form-btn:hover {
background: #333333;
}
```

```
.contact1-form-btn:hover i {
-webkit-transform: translateX(10px);
-moz-transform: translateX(10px);
-ms-transform: translateX(10px);
-o-transform: translateX(10px);
transform: translateX(10px);
}
```

```
/*-----
[ Responsive ]*/
```

```
@media (max-width: 1200px) {
.contact1-pic {
width: 33.5%;
}
```

```
.contact1-form {
width: 44%;
```

```
}  
}  
  
@media (max-width: 992px) {  
  .container-contact1 {  
    padding: 90px 80px 88px 90px;  
  }  
  
  .contact1-pic {  
    width: 35%;  
  }  
  
  .contact1-form {  
    width: 55%;  
  }  
}  
  
@media (max-width: 768px) {  
  .container-contact1 {  
    padding: 90px 80px 88px 80px;  
  }  
  
  .contact1-pic {  
    display: none;  
  }  
  
  .contact1-form {  
    width: 100%;  
  }  
}  
  
@media (max-width: 576px) {  
  .container-contact1 {  
    padding: 90px 15px 88px 15px;  
  }  
}  
  
/*-----  
[ Alert validate ]*/  
  
.validate-input {  
  position: relative;  
}  
  
.alert-validate::before {
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
content: attr(data-validate);
position: absolute;
max-width: 70%;
background-color: white;
border: 1px solid #c80000;
border-radius: 13px;
padding: 4px 25px 4px 10px;
top: 50%;
-webkit-transform: translateY(-50%);
-moz-transform: translateY(-50%);
-ms-transform: translateY(-50%);
-o-transform: translateY(-50%);
transform: translateY(-50%);
right: 8px;
pointer-events: none;
```

```
font-family: Montserrat-Medium;
color: #c80000;
font-size: 13px;
line-height: 1.4;
text-align: left;
```

```
visibility: hidden;
opacity: 0;
```

```
-webkit-transition: opacity 0.4s;
-o-transition: opacity 0.4s;
-moz-transition: opacity 0.4s;
transition: opacity 0.4s;
```

```
}
```

```
.alert-validate::after {
  content: "\f06a";
  font-family: FontAwesome;
  display: block;
  position: absolute;
  color: #c80000;
  font-size: 15px;
  top: 50%;
  -webkit-transform: translateY(-50%);
  -moz-transform: translateY(-50%);
  -ms-transform: translateY(-50%);
  -o-transform: translateY(-50%);
  transform: translateY(-50%);
  right: 13px;
}
```

```
.alert-validate:hover:before {
  visibility: visible;
  opacity: 1;
}
.rating {
  display: inline-block;
  position: relative;
  height: 29px;
  line-height: 5px;
  font-size: 50px;
  margin-left: -219px;
  margin-top: -26px;
}

.rating label {
  position: absolute;
  top: 0;
  left: 0;
  height: 100%;
  cursor: pointer;
}

.rating label:last-child {
  position: static;
}

.rating label:nth-child(1) {
  z-index: 5;
}

.rating label:nth-child(2) {
  z-index: 4;
}

.rating label:nth-child(3) {
  z-index: 3;
}

.rating label:nth-child(4) {
  z-index: 2;
}

.rating label:nth-child(5) {
  z-index: 1;
}
```


ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
.rating label input {
  position: absolute;
  top: 0;
  left: 0;
  opacity: 0;
}

.rating label .icon {
  float: left;
  color: transparent;
}

.rating label:last-child .icon {
  color: #000;
}

.rating:not(:hover) label input:checked ~ .icon,
.rating:hover label:hover input ~ .icon {
  color: #33cc33;
}

.rating label input:focus:not(:checked) ~ .icon:last-child {
  color: #000;
  text-shadow: 0 0 5px #09f;
}

@media (max-width: 992px) {
  .alert-validate::before {
    visibility: visible;
    opacity: 1;
  }
}
</style>
<body>

  <div class="contact1">
    <div class="container-contact1">
      <div class="contact1-pic js-tilt" data-tilt>

      </div>

    <form method="POST" class="contact1-form validate-form">
      {% csrf_token %}

      <span class="contact1-form-title">
        Post Your Feedback
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
</span>

<div class="wrap-input1 validate-input" data-validate = "Name is required">
  <input class="input1" type="text" name="name" value="{ {
form.firstname } }" readonly>
  <span class="shadow-input1"></span>
</div>

<div class="wrap-input1 validate-input" data-validate = "Valid email is
required: ex@abc.xyz">
  <input class="input1" type="text" name="Productname"
placeholder="Product Name" required>
  <span class="shadow-input1"></span>
</div>

<div class="wrap-input1 validate-input" data-validate = "Message is required"
>
  <textarea class="input1" name="feedback" placeholder="feedback"
required></textarea>
  <span class="shadow-input1"></span>
</div>

<div class="container-contact1-form-btn">
  <button class="contact1-form-btn">
    <span>
      Send Feedback
      <i class="fa fa-long-arrow-right" aria-
hidden="true"></i>
    </span>
  </button>
</div>

</form>
```

```
<!--
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
=====-->
    <script src="vendor/jquery/jquery-3.2.1.min.js"></script>
<!--
=====
=====-->
    <script src="vendor/bootstrap/js/popper.js"></script>
    <script src="vendor/bootstrap/js/bootstrap.min.js"></script>
<!--
=====
=====-->
    <script src="vendor/select2/select2.min.js"></script>
<!--
=====
=====-->
    <script src="vendor/tilt/tilt.jquery.min.js"></script>
    <script >
        $('js-tilt').tilt({
            scale: 1.1
        })
    </script>

<!-- Global site tag (gtag.js) - Google Analytics -->
<script async src="https://www.googletagmanager.com/gtag/js?id=UA-23581568-13"></script>
<script>
    window.dataLayer = window.dataLayer || [];
    function gtag(){dataLayer.push(arguments);}
    gtag('js', new Date());

    gtag('config', 'UA-23581568-13');
</script>

<!--
=====
=====-->
    <script src="js/main.js"></script>
</div>
</div>

</body>
{% endblock % }
```

Viewquality.html

```
{% extends 'admins/base.html' % }
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
{% block adminblock %}
{% load staticfiles %}
<style>

.viewdetails table tr th{
    color:white;
}
.viewdetails table tr th{
background: #000000;
    padding: 10px;
}
.viewdetails table tr td{
background-color: white;
    padding: 10px;
}
.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}

.viewdetails {
    top: 0px;
    height: 375px;
    overflow: auto;
    width: 78%;
    float: left;
    margin-left:205px;
    text-align: center;
    margin-top: 23px;
    border-collapse: collapse;
    border-spacing: 1px;
    FONT-SIZE: 19PX;
}

.viewdetails table tr th{
    color:white;
}
.viewdetails table tr td{
border: 1px solid #ddd;
padding:8px;
background-color: white;
```

```
}
.viewdetails table tr th{
padding-top: 12px;
font-family: sans-serif;
padding-bottom: 12px;
text-align: center;
background-color: rgb(11, 188, 206);
color: black;

}.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}
</style>
```

```
<body>
<form method="POST">
<div class="viewdetails" style="overflow: scroll">
<table>
<tr>

<th>Product Name</th>
<th>Decryption Value</th>
<th>Product Quality</th>

</tr>
{% for o in objects %}
<tr>
<td>{{o.proname}}</td>

<td>{{o.decrypt}}</td>
<td>{{o.Quality}}</td>

</tr>
{% endfor %}
</table>
</div>
<div class="image1">

</div></form>
</body>
{% endblock %}
```

Viewupload.html

```
{% extends 'admins/base.html' % }
{% block adminblock % }
{% load staticfiles % }
<style>
```

```
.viewdetails table tr th{
    color:white;
}
.viewdetails table tr th{
background: #000000;
    padding: 10px;
}
.viewdetails table tr td{
background-color: white;
    padding: 10px;
}
.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}
```

```
.viewdetails {
    top: 0px;
    height: 375px;
    overflow: auto;
    width: 78%;
    float: left;
    margin-left:205px;
    text-align: center;
    margin-top: 23px;
    border-collapse: collapse;
    border-spacing: 1px;
    FONT-SIZE: 19PX;
}
```

```
.viewdetails table tr th{
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
    color:white;
}
.viewdetails table tr td{
border:1px solid #ddd;
padding:8px;
background-color: white;

}
.viewdetails table tr th{
padding-top: 12px;
font-family: sans-serif;
padding-bottom: 12px;
text-align: center;
background-color: rgb(11, 188, 206);
color: black;

}.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}
</style>
```

```
<body>
<form method="POST">
<div class="viewdetails" style="overflow: scroll">
<table>
<tr>
<th>Product Name</th>
<th>Product Image</th>
<th>Type Of Product</th>

<th>Description</th>
<th>Price</th>

</tr>
{% for o in objects %}
<tr>
<td>{{o.Productname}}</td>
<td></td>
<td>{{o.typeofproduct}}</td>
<td>{{o.Description}}</td>

<td>{{o.amount}}</td>
```

```
</tr>
{% endfor %}
</table>
</div>
<div class="image1">
```

```
</div></form>
</body>
{% endblock %}
```

Customersdetails.html

```
{% extends 'admins/base.html' %}
{% block adminblock %}
{% load staticfiles %}
<style>
```

```
    .viewdetails{
    position: relative;
    top: 50px;
    margin-left: 18px;
    padding: 13px;
    width: 1268px;
    height: 600px;
    overflow: auto;
    text-align: center;
    }
```

```
.viewdetails table tr th{
    color:white;
}
.viewdetails table tr th{
background: #000000;
    padding: 10px;
}
.viewdetails table tr td{
background-color: white;
    padding: 10px;
}
.viewdetails table tr:hover td{
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
background:rgba(237, 236, 234);
}
```

```
.viewdetails {
  top: 0px;
  height: 375px;
  overflow: auto;
  width: 96%;
  float: left;
  margin-left: 12px;
  text-align: center;
  margin-top: 73px;
  border-collapse: collapse;
  border-spacing: 1px;
  FONT-SIZE: 19PX;
}
```

```
.viewdetails table tr th{
  color:white;
}
```

```
.viewdetails table tr td{
  border:1px solid #ddd;
  padding:8px;
  background-color: white;
}
```

```
.viewdetails table tr th{
  padding-top: 12px;
  font-family: sans-serif;
  padding-bottom: 12px;
  text-align: center;
  background-color: rgb(11, 188, 206);
  color: black;
}
```

```
}.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}
```

```
</style>
```

```
<body>
<form method="POST">
<div class="viewdetails" style="overflow: scroll">
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
<table>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Userid</th>

<th>Mobile Number</th>
<th>Email</th>
<th>Gender</th>
<th>Address</th>
</tr>
{% for o in objects %}
<tr>
<td>{{o.firstname}}</td>
<td>{{o.lastname}}</td>
<td>{{o.userid}}</td>

<td>{{o.mobilenumber}}</td>
<td>{{o.email}}</td>
<td>{{o.gender}}</td>
<td>{{o.addres}}</td>

</tr>
{% endfor %}
</table>
</div>
<div class="image1">

</div></form>
</body>
{% endblock %}
```

CustomersService.html

```
{% extends 'admins/base.html' %}
{% block adminblock %}
{% load staticfiles %}
<style>
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
.viewdetails table tr th{
  color:white;
}
.viewdetails table tr th{
background: #000000;
  padding: 10px;
}
.viewdetails table tr td{
background-color: white;
  padding: 10px;
}
.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}

.viewdetails {
  top: 0px;
  height: 375px;
  overflow: auto;
  width: 78%;
  float: left;
  margin-left:205px;
  text-align: center;
  margin-top: 23px;
  border-collapse: collapse;
  border-spacing: 1px;
  FONT-SIZE: 19PX;
}

.viewdetails table tr th{
  color:white;
}
.viewdetails table tr td{
border:1px solid #ddd;
padding:8px;
background-color: white;
}
.viewdetails table tr th{
padding-top: 12px;
  font-family: sans-serif;
padding-bottom: 12px;
  text-align: center;
  background-color: rgb(11, 188, 206);
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
color: black;

}.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}
</style>

<body>
<form method="POST">
<div class="viewdetails" style="overflow: scroll">
<table>
<tr>
<th>Customer Name</th>
<th>Product Name</th>
<th>Feedback</th>

<th>Sentiment</th>

</tr>
{% for o in objects %}
<tr>
<td>{{o.name}}</td>

<td>{{o.Productname}}</td>
<td>{{o.feedback}}</td>

<td>{{o.sentiment}}</td>

</tr>
{% endfor %}
</table>
</div>
<div class="image1">

</div></form>
</body>

{% endblock %}
```


ViewQuality.html

```
{% extends 'admins/base.html' % }
{% block adminblock % }
{% load staticfiles % }
<style>
```

```
.viewdetails table tr th{
    color:white;
}
.viewdetails table tr th{
background: #000000;
    padding: 10px;
}
.viewdetails table tr td{
background-color: white;
    padding: 10px;
}
.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}
```

```
.viewdetails {
    top: 0px;
    height: 375px;
    overflow: auto;
    width: 78%;
    float: left;
    margin-left:205px;
    text-align: center;
    margin-top: 23px;
    border-collapse: collapse;
    border-spacing: 1px;
    FONT-SIZE: 19PX;
}
```

```
.viewdetails table tr th{
    color:white;
}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
.viewdetails table tr td{
border:1px solid #ddd;
padding:8px;
background-color: white;

}
.viewdetails table tr th{
padding-top: 12px;
font-family: sans-serif;
padding-bottom: 12px;
text-align: center;
background-color: rgb(11, 188, 206);
color: black;

}.viewdetails table tr:hover td{
background:rgba(237, 236, 234);
}
</style>
```

```
<body>
<form method="POST">
<div class="viewdetails" style="overflow: scroll">
<table>
<tr>

<th>Product Name</th>
<th>Decryption Value</th>
<th>Product Quality</th>

</tr>
{% for o in objects %}
<tr>
<td>{{o.proname}}</td>

<td>{{o.decrypt}}</td>
<td>{{o.Quality}}</td>

</tr>
{% endfor %}
</table>
</div>
<div class="image1">
```

```
</div></form>
</body>
{% endblock % }
```

Addcard.html

```
<!DOCTYPE html>
<html>
<title></title>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="https://www.w3schools.com/w3css/4/w3.css">
<link rel="stylesheet" href="https://fonts.googleapis.com/css?family=Karma">
<style>
body,h1,h2,h3,h4,h5,h6 { font-family: "Karma", sans-serif}
.w3-bar-block .w3-bar-item {padding:20px}
</style>
<body>

<!-- Top menu -->
<div class="w3-top">
<div class="w3-white w3-xlarge" style="max-width:1200px;margin:auto">

<div class="w3-center w3-padding-16">Add to card</div>
</div>
</div>

<!-- !PAGE CONTENT! -->
<form method="POST">
  {% csrf_token % }
<div class="w3-main w3-content w3-padding" style="max-width:1200px;margin-top:100px">

<!-- First Photo Grid-->
<div class="w3-row-padding w3-padding-16 w3-center" id="food">
<div class="w3-quarter" style="padding: 0 8px; margin-left: 399px; width: 387px; ">


<h3 style="margin-top: -462px; margin-left: 72px;">{{ v.Productname }}</h3>
<p style="margin-left: 70px;width: 346px;">{{ v.Description }}</p>
<h3>Price:{{ v.amount }}</h3>
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
<h4>Quality: <input type="text" size="4" name="Quality" class="Quality" ></h4>
<input type="submit" name="" class="log" style="margin-left: 56px;margin-top: 43px;background-color:
#ff4343;font-size: xx-large; color: aliceblue;" value="Add to Basket">
```

```
</div>
```

```
<!-- Second Photo Grid-->
<div class="w3-row-padding w3-padding-16 w3-center">
<div class="w3-quarter">
```

```
</div>
```

```
<div class="w3-quarter">
```

```
</div>
```

```
<div class="w3-quarter">
```

```
</div>
```

```
<div class="w3-quarter">
```

```
</div>
```

```
</div>
```

```
<!-- End page content -->
```

```
</div>
```

```
<script>
```

```
// Script to open and close sidebar
```

```
function w3_open() {
```

```
  document.getElementById("mySidebar").style.display = "block";
```

```
}
```

```
function w3_close() {
```

```
  document.getElementById("mySidebar").style.display = "none";
```

```
}
```

```
</script>
```

```
</body>
```

```
</html>
```

Feedback.html

```
{% extends 'design.html' %}
```

```
{% block userblock %}
```

```
{% load static %}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

<style>

```
/*//////////////////////////////////////
[ FONT ]*/

@font-face {
  font-family: Montserrat-Regular;
  src: url('../fonts/montserrat/Montserrat-Regular.ttf');
}

@font-face {
  font-family: Montserrat-Bold;
  src: url('../fonts/montserrat/Montserrat-Bold.ttf');
}

@font-face {
  font-family: Montserrat-ExtraBold;
  src: url('../fonts/montserrat/Montserrat-ExtraBold.ttf');
}

@font-face {
  font-family: Montserrat-Medium;
  src: url('../fonts/montserrat/Montserrat-Medium.ttf');
}

/*//////////////////////////////////////
[ RESTYLE TAG ]*/

* {
  margin: 0px;
  padding: 0px;
  box-sizing: border-box;
}

body, html {
  height: 100%;
  font-family: Montserrat-Regular, sans-serif;
}

/*.....*/
a {
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
font-family: Montserrat-Regular;
font-size: 14px;
line-height: 1.7;
color: #666666;
margin: 0px;
transition: all 0.4s;
-webkit-transition: all 0.4s;
-o-transition: all 0.4s;
-moz-transition: all 0.4s;
}

a:focus {
    outline: none !important;
}

a:hover {
    text-decoration: none;
    color: #57b846;
}

/*.....*/
h1,h2,h3,h4,h5,h6 {
    margin: 0px;
}

p {
    font-family: Montserrat-Regular;
    font-size: 14px;
    line-height: 1.7;
    color: #666666;
    margin: 0px;
}

ul, li {
    margin: 0px;
    list-style-type: none;
}

/*.....*/
input {
    outline: none;
    border: none;
}

textarea {
```


ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
outline: none;
border: none;
}

textarea:focus, input:focus {
  border-color: transparent !important;
}

input::-webkit-input-placeholder { color: #999999; }
input:-moz-placeholder { color: #999999; }
input::-moz-placeholder { color: #999999; }
input:-ms-input-placeholder { color: #999999; }

textarea::-webkit-input-placeholder { color: #999999; }
textarea:-moz-placeholder { color: #999999; }
textarea::-moz-placeholder { color: #999999; }
textarea:-ms-input-placeholder { color: #999999; }

/*.....*/
button {
  outline: none !important;
  border: none;
  background: transparent;
}

button:hover {
  cursor: pointer;
}

iframe {
  border: none !important;
}
/*//////////////////////////////////////
[ Contact 1 ]*/

.contact1 {
width: 54%;
  min-height: 100%;
  padding: 21px;
  display: -webkit-box;
  display: -webkit-flex;
  display: -moz-box;
  display: -ms-flexbox;
  display: flex;
  flex-wrap: wrap;
  justify-content: center;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
align-items: center;
margin-left: 307px;
margin-top: 48px;
}
```

```
.container-contact1 {
width: 489px;
background: #fff;
border-radius: 10px;
overflow: hidden;
margin-left: 104px;
overflow: hidden;
margin-top: -60px;
display: -moz-box;
display: -ms-flexbox;
display: flex;
flex-wrap: wrap;
justify-content: space-between;
align-items: center;
padding: -62px -33px 68px 28px;
}
```

```
/*
-----
[ ]*/
.contact1-pic {
width: 296px;
}
```

```
.contact1-pic img {
max-width: 100%;
}
```

```
/*
-----
[ ]*/
.contact1-form {
width: 390px;
}
```

```
.contact1-form-title {
display: block;
font-family: Montserrat-ExtraBold;
font-size: 24px;
color: #333333;
line-height: 1.2;
}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
text-align: center;
padding-bottom: 44px;
}

input.input1 {
  height: 50px;
  border-radius: 25px;
  padding: 0 30px;
}
input.input1 + .shadow-input1 {
  border-radius: 25px;
}

textarea.input1 {
  min-height: 150px;
  border-radius: 25px;
  padding: 12px 30px;
}
textarea.input1 + .shadow-input1 {
  border-radius: 25px;
}

/*.....*/
.wrap-input1 {
  position: relative;
  width: 100%;
  z-index: 1;
  margin-bottom: 20px;
}

.input1 {
  display: block;
  width: 100%;
  background: #e6e6e6;
  font-family: Montserrat-Bold;
  font-size: 15px;
  line-height: 1.5;
  color: #666666;
}

.shadow-input1 {
  content: "";
  display: block;
  position: absolute;
  bottom: 0;
  left: 0;
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
z-index: -1;
width: 100%;
height: 100%;
box-shadow: 0px 0px 0px 0px;
color: rgba(87,184,70, 0.5);
}

.input1:focus + .shadow-input1 {
  -webkit-animation: anim-shadow 0.5s ease-in-out forwards;
  animation: anim-shadow 0.5s ease-in-out forwards;
}

@-webkit-keyframes anim-shadow {
  to {
    box-shadow: 0px 0px 80px 30px;
    opacity: 0;
  }
}

@keyframes anim-shadow {
  to {
    box-shadow: 0px 0px 80px 30px;
    opacity: 0;
  }
}

/*.....*/
.container-contact1-form-btn {
  display: -webkit-box;
  display: -webkit-flex;
  display: -moz-box;
  display: -ms-flexbox;
  display: flex;
  flex-wrap: wrap;
  justify-content: center;
}

.contact1-form-btn {
  min-width: 193px;
  height: 50px;
  border-radius: 25px;
  background: #57b846;
  font-family: Montserrat-Bold;
  font-size: 15px;
  line-height: 1.5;
  color: #fff;
}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
display: -webkit-box;
display: -webkit-flex;
display: -moz-box;
display: -ms-flexbox;
display: flex;
justify-content: center;
align-items: center;
padding: 0 25px;

-webkit-transition: all 0.4s;
-o-transition: all 0.4s;
-moz-transition: all 0.4s;
transition: all 0.4s;
}
```

```
.contact1-form-btn i {
margin-left: 7px;
```

```
-webkit-transition: all 0.4s;
-o-transition: all 0.4s;
-moz-transition: all 0.4s;
transition: all 0.4s;
}
```

```
.contact1-form-btn:hover {
background: #333333;
}
```

```
.contact1-form-btn:hover i {
-webkit-transform: translateX(10px);
-moz-transform: translateX(10px);
-ms-transform: translateX(10px);
-o-transform: translateX(10px);
transform: translateX(10px);
}
```

```
/*
-----
[ Responsive ]*/
```

```
@media (max-width: 1200px) {
.contact1-pic {
width: 33.5%;
}
}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
.contact1-form {
  width: 44%;
}

@media (max-width: 992px) {
  .container-contact1 {
    padding: 90px 80px 88px 90px;
  }

  .contact1-pic {
    width: 35%;
  }

  .contact1-form {
    width: 55%;
  }

  @media (max-width: 768px) {
    .container-contact1 {
      padding: 90px 80px 88px 80px;
    }

    .contact1-pic {
      display: none;
    }

    .contact1-form {
      width: 100%;
    }

    @media (max-width: 576px) {
      .container-contact1 {
        padding: 90px 15px 88px 15px;
      }
    }

    /*.....
    [ Alert validate ]*/

    .validate-input {
      position: relative;
    }
  }
}
```



```
}  
  
.alert-validate::before {  
  content: attr(data-validate);  
  position: absolute;  
  max-width: 70%;  
  background-color: white;  
  border: 1px solid #c80000;  
  border-radius: 13px;  
  padding: 4px 25px 4px 10px;  
  top: 50%;  
  -webkit-transform: translateY(-50%);  
  -moz-transform: translateY(-50%);  
  -ms-transform: translateY(-50%);  
  -o-transform: translateY(-50%);  
  transform: translateY(-50%);  
  right: 8px;  
  pointer-events: none;  
  
  font-family: Montserrat-Medium;  
  color: #c80000;  
  font-size: 13px;  
  line-height: 1.4;  
  text-align: left;  
  
  visibility: hidden;  
  opacity: 0;  
  
  -webkit-transition: opacity 0.4s;  
  -o-transition: opacity 0.4s;  
  -moz-transition: opacity 0.4s;  
  transition: opacity 0.4s;  
}  
  
.alert-validate::after {  
  content: "\f06a";  
  font-family: FontAwesome;  
  display: block;  
  position: absolute;  
  color: #c80000;  
  font-size: 15px;  
  top: 50%;  
  -webkit-transform: translateY(-50%);  
  -moz-transform: translateY(-50%);  
  -ms-transform: translateY(-50%);  
  -o-transform: translateY(-50%);
```

```
transform: translateY(-50%);
right: 13px;
}
```

```
.alert-validate:hover:before {
  visibility: visible;
  opacity: 1;
}
```

```
.rating {
  display: inline-block;
  position: relative;
  height: 29px;
  line-height: 5px;
  font-size: 50px;
  margin-left: -219px;
  margin-top: -26px;
}
```

```
.rating label {
  position: absolute;
  top: 0;
  left: 0;
  height: 100%;
  cursor: pointer;
}
```

```
.rating label:last-child {
  position: static;
}
```

```
.rating label:nth-child(1) {
  z-index: 5;
}
```

```
.rating label:nth-child(2) {
  z-index: 4;
}
```

```
.rating label:nth-child(3) {
  z-index: 3;
}
```

```
.rating label:nth-child(4) {
  z-index: 2;
}
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
.rating label:nth-child(5) {
  z-index: 1;
}

.rating label input {
  position: absolute;
  top: 0;
  left: 0;
  opacity: 0;
}

.rating label .icon {
  float: left;
  color: transparent;
}

.rating label:last-child .icon {
  color: #000;
}

.rating:not(:hover) label input:checked ~ .icon,
.rating:hover label:hover input ~ .icon {
  color: #33cc33;
}

.rating label input:focus:not(:checked) ~ .icon:last-child {
  color: #000;
  text-shadow: 0 0 5px #09f;
}

@media (max-width: 992px) {
  .alert-validate::before {
    visibility: visible;
    opacity: 1;
  }
}
</style>
<body>

  <div class="contact1">
    <div class="container-contact1">
      <div class="contact1-pic js-tilt" data-tilt>

        </div>

    </div>

  <form method="POST" class="contact1-form validate-form">
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
{% csrf_token %}
    <span class="contact1-form-title">
        Post Your Feedback
    </span>

    <div class="wrap-input1 validate-input" data-validate = "Name is required">
        <input class="input1" type="text" name="name" value="{ {
form.firstname } }" readonly>
        <span class="shadow-input1"></span>
    </div>

    <div class="wrap-input1 validate-input" data-validate = "Valid email is
required: ex@abc.xyz">
        <input class="input1" type="text" name="Productname"
placeholder="Product Name" required>
        <span class="shadow-input1"></span>
    </div>

    <div class="wrap-input1 validate-input" data-validate = "Message is required"
>
        <textarea class="input1" name="feedback" placeholder="feedback"
required></textarea>
        <span class="shadow-input1"></span>
    </div>

    <div class="container-contact1-form-btn">
        <button class="contact1-form-btn">
            <span>
                Send Feedback
                <i class="fa fa-long-arrow-right" aria-
hidden="true"></i>
            </span>
        </button>
    </div>

</form>
```

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

```
<!--  
=====-->  
    <script src="vendor/jquery/jquery-3.2.1.min.js"></script>  
<!--  
=====-->  
    <script src="vendor/bootstrap/js/popper.js"></script>  
    <script src="vendor/bootstrap/js/bootstrap.min.js"></script>  
<!--  
=====-->  
    <script src="vendor/select2/select2.min.js"></script>  
<!--  
=====-->  
    <script src="vendor/tilt/tilt.jquery.min.js"></script>  
    <script >  
        $('js-tilt').tilt({  
            scale: 1.1  
        })  
    </script>  
  
<!-- Global site tag (gtag.js) - Google Analytics -->  
<script async src="https://www.googletagmanager.com/gtag/js?id=UA-23581568-13"></script>  
<script>  
    window.dataLayer = window.dataLayer || [];  
    function gtag(){dataLayer.push(arguments);}  
    gtag('js', new Date());  
  
    gtag('config', 'UA-23581568-13');  
</script>  
  
<!--  
=====-->  
    <script src="js/main.js"></script>  
</div>  
</div>  
  
</body>  
{% endblock %}
```

10. SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the

Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

10.1. TYPES OF TESTS

i. Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

ii. Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is Specifically a exposing the problems that arise from the combination of components.

iii. Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals. Functional testing is entered on the following items:

Valid Input	:	Identified classes of valid input must be accepted.
Invalid Input	:	Identified classes of invalid input must be rejected.
Functions	:	Identified functions must be exercised.
Output	:	Identified classes of application outputs must be exercised.
Systems/Procedures	:	Interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

iv. System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

v. White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

vi. Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

10.2. Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

10.2.1. Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

10.2.2. Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

10.2.3. Integration Test strategy

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects. The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

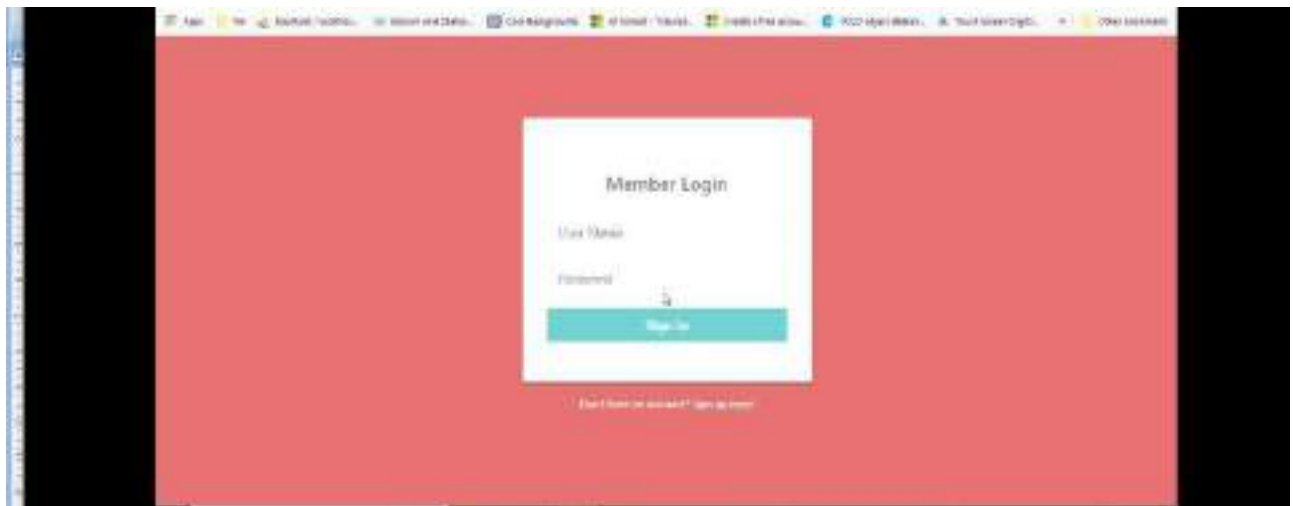
10.2.4. Acceptance strategy

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

11. SCREENSHOTS

Main Page: This is the first activity page when the users open the app for the first time after successful installation. If the user already having his account then he will go for the login option else if he is a new user then first he need to create account first.



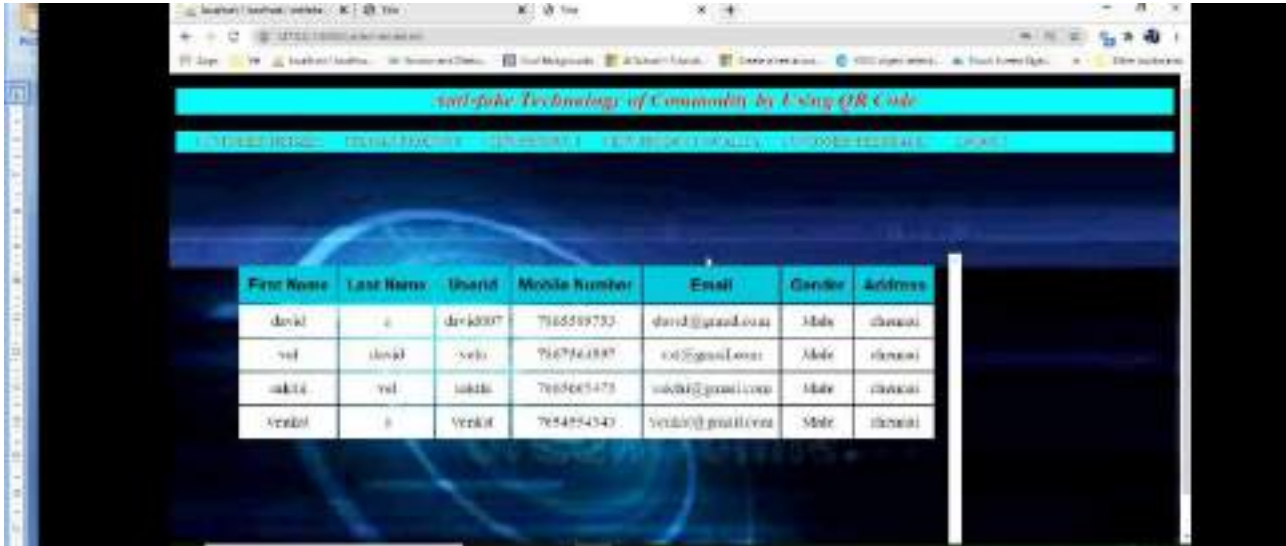
Admin Side Implementation

Admin Login: Here Admin Will login using his username and password.



ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

View Customer Details: Here only admin can view all customer details.



The screenshot shows a web browser displaying a page titled "Anti-fake Technology of Commodity by Using QR Code". Below the title, there is a navigation menu with options: "HOME", "ABOUT", "CONTACT", "FAQ", "REGISTER", "LOGIN", "ADMIN", "LOGOUT". The main content area features a table with the following data:

First Name	Last Name	Usrid	Mobile Number	Email	Gender	Address
david	d	dre0007	716559733	david@gmail.com	Male	chennai
vel	david	velo	716796887	vel@gmail.com	Male	chennai
sakthi	vel	sakthi	785665475	sakthi@gmail.com	Male	chennai
venkai	s	venkai	7854954343	venkai@gmail.com	Male	chennai

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

Upload Product: In this page admin adds different types of products for customer to buy for their use.



ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

View Product: Here admin can view product details.



ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

View Product Quality: Admin can view product quality.

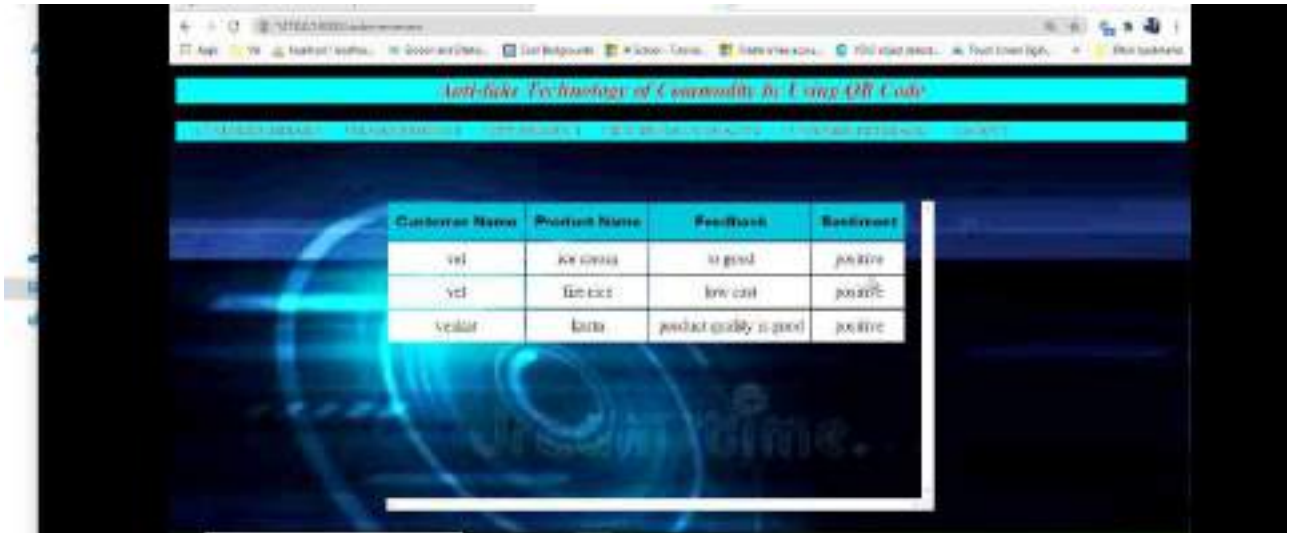


The screenshot displays a web browser window with a URL of 'http://192.168.1.100:8080/ant-fake'. The page title is 'Anty-fake Technology of Commodity by Using QR Code'. Below the title, there is a navigation menu with options like 'Home', 'About Us', 'Contact Us', 'Admin Login', and 'User Login'. The main content area features a table with three columns: 'Product Name', 'Description Value', and 'Product Quality'. The table contains five rows of data, each with a product name, a long alphanumeric string, and a quality value.

Product Name	Description Value	Product Quality
ice cream	1q10V3GV_bjgczUa6t6r1U302gJgH4V_SFrcdBD6+	5
fruit	UgjsjgZQR_AcΔHMcOyM190cH_Q00HrWQQVdc=	6
flour rice	hw1zE4B7LjDqXTfM1-4I200rGG6rFL0RCNE7FU-	7
beans	M/W02vsg1_0p4VTcMh0?NcAdH6W/00gB3I-8-	2
beans	3j0x0j_A04-2MG6h8eN7U00rCj0C60r_BQX6Y-	2

ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

Customer Feedback: Admin can view Customer Feedback.

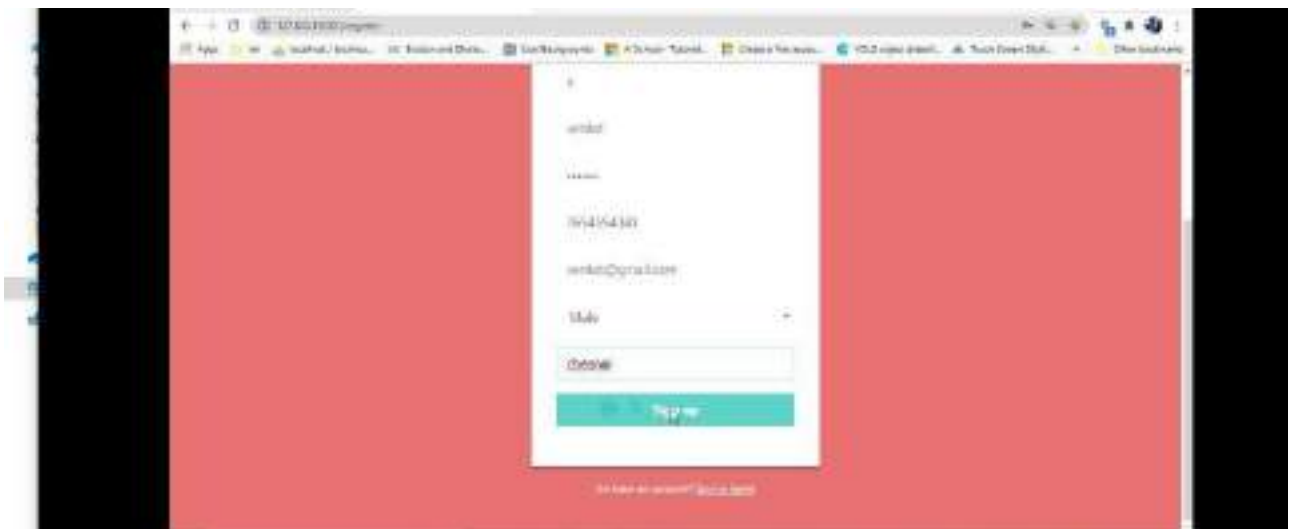


The screenshot shows a web browser displaying a page titled "Anty Fake Technology of Commodity by Using QR Code". Below the title, there is a navigation menu with options like "HOME", "ABOUT", "CONTACT", "FAQ", "SERVICES", "PRODUCTS", "BLOG", and "ADMIN". The main content area features a table with the following data:

Customer Name	Product Name	Feedback	Response
vel	ice cream	is good	positive
vel	ice cream	low cost	positive
vel	ice cream	product quality is good	positive

Member Side Implementation

Member Registration Page: Member will enter their details to register in this application.



Member Login: Once the registration is done then the customer is login by providing the user name and password.



ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

View My Details: Here Member can view their own details.



Product Details: Here Member can view different types of product and buy it.



ANTY FAKE TECHNOLOGY OF COMMODITY BY USING QR CODE

Customer Feedback: Here Member can write their feedback about product quality.



CONCLUSION

CONCLUSION

In this paper, a scheme of QR code generating, scanning and verifying is proposed. The customer can verify the QR code conveniently and the verifying process is totally automatic. A QR code encryption method for commodity anti-faking is also proposed. The proposed method achieves strong encrypting protection and is more efficient than the classic encrypting method like RSA. But since the situations under experiment like network connection, the security of database is ideal so if the secure of database cannot be guaranteed, the encryption will be meaningless. Also, the paper only considered the case of text encryption; QR code could also be used for encrypting sound and image. The file size of QR code increases significantly when the length of plaintext increases, the efficiency of encoding will be reduced and the generated QR code will be too complex to be scanned. (As shown in figure 8) The maximum length of plaintext that the proposed scheme can encrypt is around 260 chars. The following research will focus on optimizing the content of QR code, building the scanning application and the database. QR code anti-faking will be further studied in the future work.

FUTURE ENHANCEMENT

FUTURE ENHANCEMENT

The paper only considered the case of text encryption; QR code could also be used for encrypting sound and image. The file size of QR code increases significantly when the length of plaintext increases, the efficiency of encoding will be reduced and the generated QR code will be too complex to be scanned. (As shown in figure 8) The maximum length of plaintext that the proposed scheme can encrypt is around 260 chars. The following research will focus on optimizing the content of QR code, building the scanning application and the database. QR code anti-faking will be further studied in the future work.

REFERENCES

REFERENCES

- [1] C. Gentry, "A fully homomorphic encryption scheme [Ph.D. thesis]", International Journal of Distributed Sensor Networks, Stanford University,2009.
- [2] D. Boneh, "The decision Diffie-Hellman problem", Algorithmic Number Theory.2008.
- [3] A. Kaur and M. Bhardwaj, "Hybrid encryption for cloud database security", Journal of Engineering Science Technology,2010.
- [4] R. Arora, A. Parashar, and C. C. T. Transforming, "Secure user data in cloud computing using encryption algorithms", International Journal of Engineering Research and Applications, June2013.
- [5] D. Manivannan and R. Sujarani, "Light weight and secure database encryption using tsfs algorithm", Proceedings of the International Conference on Computing Communication and Networking Technologies ICCCNT'10.
- [6] F. Pagano and D. Pagano, "Using in-memory encrypted databases on the cloud", Proceedings of the 1st IEEE International Workshop on Securing Services on the Cloud (TWSSC'11).
- [7] K.Huang and R. Tso, "A commutative encryption scheme based on ElGamal encryption", Proceedings of the 3rd International Conference on Information Security and Intelligent Control (ISIC '12), August2012.
- [8] N. Cao, C. Wang, M. Li, K. Ren, and W. Lou, "Privacy preserving multi-keyword ranked search over encrypted cloud data", IEEE Transactions on Parallel and Distributed Systems,2012.
- [9] M. A. AlZain, B. Soh, and E. Pardede, "McdB: using multi clouds to ensure security in cloud computing", Proceedings of the IEEE 9th International Conference on Dependable, Autonomic and Secure Computing (DASC'11).
- [10] C. P. Ram and G. Sreenivaasan, "Security as a service (sass): securing user data by coprocessor and distributing the data". Proceedings of the 2nd International Conference on Trendz in Information Sciences and Computing, (TISC'10).
- [11] M. Asad Arfeen, K. Pawlikowski, and A. Willig, "A framework for resource allocation strategies in cloud computing environmen", Proceedings of the 14th Annual IEEE International Computer Software and Applications Conference Workshops(COMPSACW'II).

- [12] P. Victor Paul, D. Rajaguru, N. Saravanan, R. Baskaran and P. Dhavachelvan, "Efficient service cache management in mobile P2P networks", *Future Generation Computer Systems*, Elsevier, Volume 29, Issue 6, August 2013 , Pages1505-1521.
- [13] E. M.Mohamed, H. S. Abdelkader, and S. El-Etriby, "Enhanced data security model for cloud computing", *Proceedings of the 8th International Conference on Informatics and Systems*.
- [14] S. Biedermann and S. Katzenbeisser, "POSTER: event-based isolation of critical data in the cloud", *Proceedings of the ACM SIGSAC Conference on Computer & Communications Security*,2012.
- [15] C. Delettre, K. Boudaoud, and M. Riveill, "Cloud computing, security and data concealment", *Proceedings of the 16th IEEE Symposium on Computers and Communications (ISCC'11)*.
- [16] Y. Tang, P. P. C. Lee, J. C. S. Lui, and R. Perlman, "Fade: secure overlay cloud storage with file assured deletion", *Security and Privacy in Communication Networks*,2011.
- [17] P. Victor Paul, N. Saravanan, S.K.V. Jayakumar, P. Dhavachelvan and R. Baskaran, "QoS enhancements for global replication management in peer to peer networks", *Future Generation Computer Systems*, Elsevier, Volume 28, Issue 3, March 2012, Pages 573-582.
- [18] A. Rao, "Centralized database security in cloud", *International Journal of Advanced Research in Computer and Communication Engineering*, 2011
- [19] P. Victor Paul, T. Vengattaraman, P. Dhavachelvan, "Improving efficiency of Peer Network Applications by formulating Distributed Spanning Tree", *Third International Conference on Emerging Trends in Engineering & Technology (ICETET-2010)*, IEEE, India, May 2010. pp. 813-818.
- [20] T. Sun, D. Zhou, 2011 *IEEE International Conference on Automation and Logistics (ICAL)- Automatic identification technology-Application of two-dimensional code*, 164-168,2011.
- [21] T. Falas, H. Kashani, "Two-Dimensional Bar-Code Decoding with Camera- Equipped Mobile Phones," *Fifth Annual IEEE International Conference on Pervasive Computing and Communications-Workshops (PerCom Workshops 2007)*, 19-23 March, White Plains, New York, USA, IEEE, 2007.

A

Project Report

on

**SPCSS: SOCIAL NETWORK BASED PRIVACY PRESERVING CRIMINAL
SUSPECT SENSING**

Submitted in partial fulfilment for the award of the degree

of

Master of Computer Applications

Submitted by

K.MALLESWAR REDDY
(Reg. No. 18F61F0006)

Under the esteemed guidance of

Mr. P. BALAJI, MCA, M.Tech.
Assistant Professor, Department of MCA.



Department of Master of Computer Applications

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

(2020-2021)

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

*This is to certify that this project report titled “**SPCSS: SOCIAL NETWORK BASED PRIVACY PRESERVING CRIMINAL SUSPECT SENSING**” that is being submitted by **K.MALLESWAR REDDY** (Reg. No. 18F61F0006) in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **K.MALLESWAR REDDY** here by declare that the project report entitled “**SPCSS: SOCIAL NETWORK BASED PRIVACY PRESERVING CRIMINAL SUSPECT SENSING**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **MR. P. BALAJI**, MCA, M.Tech. Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

Date:

K.MALLESWAR REDDY

Reg. No: 18F61F0006

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mr. P. BALAJI, MCA, M.Tech.** Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**,for his valuable guidance and suggestions in analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.,HOD**, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(K.MALLESWAR REDDY)

CONTENTS

S.No.	CHAPTERS	PAGENO.
	ABSTRACT	
	LISTOFFIGURES	I
	LISTOFABBREVIATIONS	li
1	INTRODUCTION	1 – 5
2	SYSTEMSTUDY	6 – 7
3	SYSTEMANALYSIS	
	3.1EXISTINGSYSTEM	8
	3.2DISADVANTAGES	9
	3.3PROPOSEDSYSTEM	9
	3.4ADVANTAGES	10
4	SOFTWAREMODULES	11
5	SYSTEMARCHITECTURE	12-15
6	SOFTWAREENVIRONMENT	16 –30
7	SYSTEMREQUIREMENTS	31
8	SYSTEMDESIGN	32–47
9	IMPLEMENTATION	48–72
10	SYSTEMTESTING	73-75
11	SCREENSHOTS	76-99
	CONCLUSION	
	FUTUREENHANCEMENT	
	REFERENCES	

ABSTRACT

With development of online social networks, many criminal suspects use social network to communicate with each other. In order to obtain valuable criminal clues, considerable research works have been done to analyze criminal suspects' social data. However, most of them did not pay much attention on privacy-preserving problems, which may leak some sensitive data in the analysis process. To solve this problem, we propose a novel analysis approach of criminal suspects by exploiting social data and crime data that are collected by social network and police information systems. We enable the social cloud server and public security cloud server to exchange social information of criminal suspects and user's public information in a privacy preserving manner. Specifically, we propose a privacy preserving data retrieving method based on oblivious transfer to guarantee that only the authorized entities can perform queries on suspects' social data, while the social cloud server cannot infer anything during the query. Moreover, several building blocks, such as encrypted data comparing, secure classification and regression tree (CART) model are also proposed. Based on these building blocks, we designed a privacy preserving criminal suspects sensing scheme. Finally, we demonstrate a performance evaluation which shows that our scheme can enhance analysis of criminal suspects without privacy leakage, while with low overhead.

LISTOFFIGURES

S.No.	Name	Page No.
1	1.1.Structureof Service models	3
2	5.1.System Architecture	13
3	5.2.Block Diagram	33
4	6.1.Compilation & Interpretation	17
5	6.2.Execution for different platforms	17
6	6.3.JavaPlatform	18
7	6.4.JavaIDE	20
8	6.7.General J2ME Architecture	28
9	8.1.Data FlowDiagram	33
10	8.2.Class Diagram	46
11	8.3.UseCaseDiagram	39
12	8.4.SequenceDiagram	43
13	8.5.Collaboration Diagram	44
14	8.6.E-R Notations	47
15	Screenshots	76-99

LIST OF ABBREVIATIONS

S.No.	Acronyms	Abbreviations
1	HTML	HyperTextMarkup Language
2	CSS	CascadingStyleSheet
3	JSP	JavaServerPage
4	UML	UnifiedModellingLanguage
5	SDLC	SystemDevelopmentLifeCycle
6	DFD	DataFlow Diagram
7	OOA	ObjectOrientedAnalysis
8	OOD	ObjectOrientedDesign
9	JDBC	JavaDatabaseConnectivity
10	SMS	SmartMeterSystem
10	ABSI	AdaptiveBinarySplittingInspection
11	DBMS	DatabaseManagementSystem
12	RMI	RemoteMethod Invocation
13	JVM	JavaVirtualMachine
14	SQL	StructureQueryLanguage

1. INTRODUCTION

1.1 What is Cloud Computing?

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced

1.2 How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.

The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

1.3 Characteristics and Service Models:

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

➤ **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.

➤ **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

➤ **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

➤ **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the

Consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

➤ **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

1.4 Service Models:

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS)

that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.

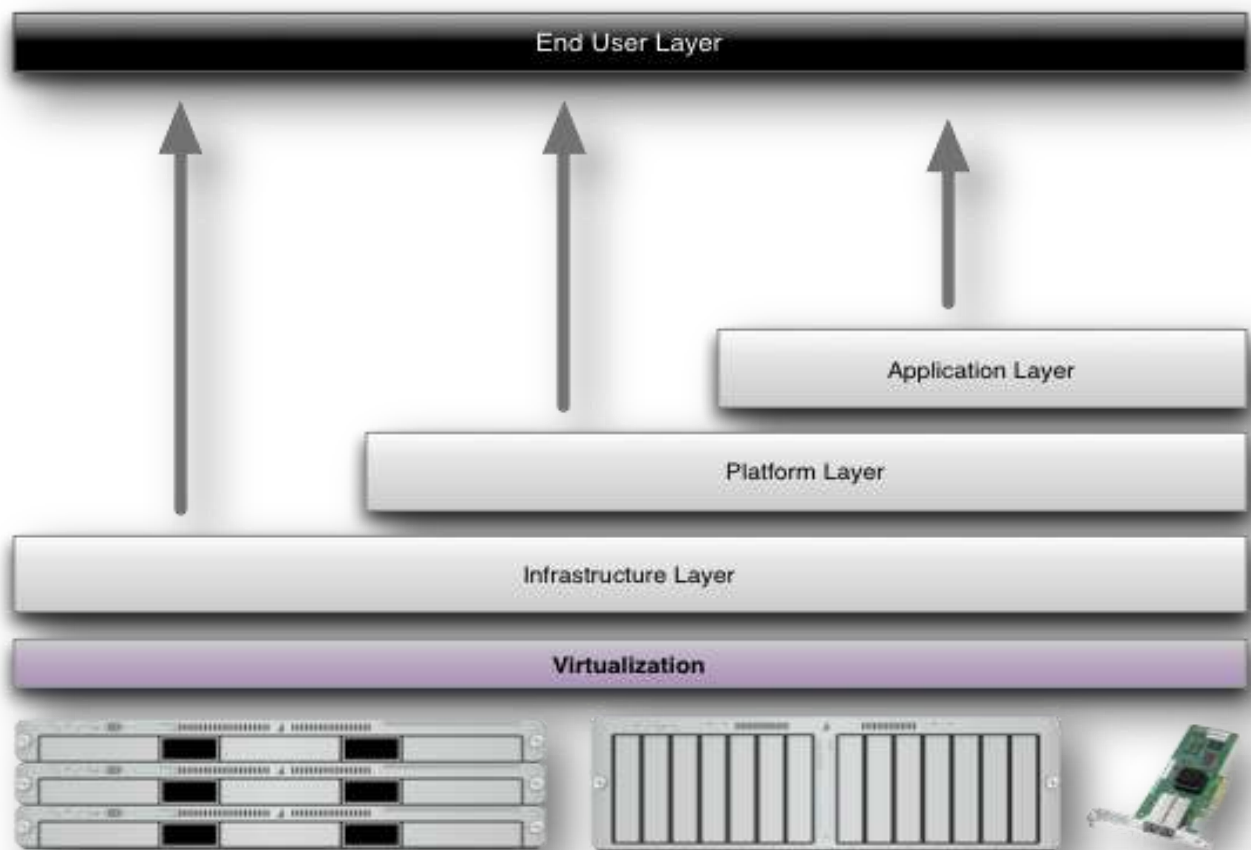


Fig 1.1: Structure of service models

1.5 Benefits of cloud computing:

- 1. Achieve economies of scale** – increase volume output or productivity with fewer people. Your cost per unit, project or product plummets.
- 2. Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
- 3. Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
- 4. Streamline processes.** Get more work done in less time with less people.
- 5. Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
- 6. Improve accessibility.** You have access anytime, anywhere, making your life so much easier!
- 7. Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
- 8. Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
- 9. Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
- 10. Improve flexibility.** You can change direction without serious “people” or “financial” issues at stake.

1.6 Advantages:

- **Price:** Pay for only the resources used.
- **Security:** Cloud instances are isolated in the network from other instances for improved security.

- **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud's corehardware.
- **Scalability:** Auto-deploy cloud instances when needed.
- **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
- **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
- **Traffic:** Deals with spike in traffic with quick deployment of additional

2. SYSTEM STUDY

2.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

2.2 ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

2.3 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high

Demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

2.4 SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

Social data analysis has attracted extensive attention in academia and industry, such as infection analysis, emotion analysis, and especially plays an important role in the analysis of gang criminal behavior. There exist considerable applications about potential crime analysis based on machine learning in social networks. Rigopoulos and Karadimas developed a model for the assignment based on the application of NexClass methodology, and decision support system in order to assign crime types into a number of categories according to predefined criteria.

Ingilevich and Ivanov used linear regression, logistic regression and gradient enhancement methods to predict the number of crimes in different regions of city based on gang robbery crime data of the Russian Federation. Prathap and Ramesh a proposed a novel approach to analyze the Twitter sentiments of the users about a particular crime event tweets posted by the active users, thus find out public option changes, and emotion distribution on different types of crimes. In scenarios of most applications, we can see social network analysis (SNA) is now a common tool in criminal investigations; however, evidence collection, and analysis are often limited by data privacy laws. In recent years, many research works consider data availability and privacy protection in data analysis.

Proposed an improved fully homomorphism encryption (FHE) scheme based on HELib by reducing the cipher text size, the modulus, and decryption noise. Based on these, they implemented a private decision tree classifier, and the result showed that it has a better performance. Nevertheless, it has low efficiency in practical application. Later, Abadi presented a differential privacy based deep learning scheme. The security measure used in this scheme is to add noise to the original data of the data owner before training in order to resist the inverse attack of extracting the data set directly from the training model, and this privacy preserving scheme is noncloud aided.

Olimenco proposed a novel multiparty machine learning method, where a trusted SGX (Software Guard Extensions) processor was used to training oblivious data in cloud. Either non cloud or cloud assisted privacy preserving scheme focus on privacy issues in the data training phase. For privacy issues at the classification stage, Bost proposed several building blocks, such as secure comparison, secure dot product, and secure argmax. Based on these building .

Hassani proposed a privacy-preserving social network analysis solution based on differential privacy. we proposed the secure evaluation based on homomorphism encryption for decision tree and random forests. Tai proposed a privacy preserving decision tree evaluation for semi-honest, and one side secure model. They replace the polynomial evaluation step in via linear functions. This leads to computational complexity reduce, and better performance for sparse decision trees. However, the model owner must maintain online to provide interactive classification services for users, and equipped adequate storage and computing power which is hard for the owner.

3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, the system does not have Privacy-Preserving Criminal Suspects Analysis on large data sets.
- The security measure used in this scheme is to add noise to the original data of the data owner before training in order to resist the inverse attack of extracting the data set directly from the training model, and this privacy preserving scheme is non cloud aided.

3.3 PROPOSED SYSTEM

We propose a privacy-preserving criminal suspects sensing (*SPCSS*) scheme considering social data associated with personal data to perform criminal suspects analysis. This scheme employs a privacy-preserving data retrieving (*PPDR*) method based on oblivious transfer to enable access pattern protection, and several building blocks to construct *SPCSS* to enable the cloud servers to infer criminal suspects status, and preserve data privacy using classification and regression tree (*CART*) model. The main contributions of this article are as follows.

First, we analyze the organization structure and personnel affinity of gang crime through the existing personal data of gang crime, and social data among members. According to the analysis results, several key factors that can reflect the characteristics and intimacy of the criminal suspects are extracted, such as the criminal records, the contact duration, and the location similarity.

Second, we put forward a *PPDR* method (*PPDR*) based on oblivious transfer for authenticated entity (police) to query the social cloud server for social data of specific suspects, while the social cloud server is unable to know neither the target nor results of the query. Combine this method with the proxy re encryption technique to enable data sharing between police and social cloud server, while preventing man-in-the-middle attacks.

Third, for *SPCSS*, we present a new system model which includes classifier owner, cloud server, ASP and police. The classifier owner owns the tree model and out source it to *ASP* to provide criminal suspects analysis service. Personal and social data of suspects are owned by the public security cloud server, and social cloud server. On investigation, the police can obtain the authorization of suspects. Using authorization, the police can query social data from social cloud server through *PPDR*. The police combined the personal data and social data as a query, and launched the query for the *ASP* and wait for results in return. The main cipher text computation work was done by the *ASP*, while preventing the tree model, the query data, and classification results from revealing to an un trusted party. In addition, through data simulation and experiments, we demonstrate that *SPCSS* can effectively analyze potential suspects over encrypted social data using classifier, and have lower computational overhead even if the query data, and model are confidential.

3.4 ADVANTAGES OF PROPOSED SYSTEM

- The system is more secure due to presence of Privacy-Preserving Data Retrieving on criminal suspects.
- The system is more effective due to presence of Homomorphic encryption which makes the calculation of cipher text is the same with the encrypted result of the corresponding plaintexts calculation, while preventing the plaintext from revealing.

4. SOFTWARE MODULES

4.1. MODULES

- DATA OWNER
- CLOUD SERVER
- AUTHENTICATION
- USER

4.2. MODULES DESCRIPTION

DATA OWNER

In this module, the Data Owner maintains the data in server. Data owner has to register and login, and also performs the following operations such as add criminal records, view criminal records, view criminal records status, delete criminal records.

CLOUD SERVER

In this module, the cloud servers maintain data in server. Login with valid details and also performs the following operations such as View all criminal records, view criminal records transactions, private key response, view criminal records access permission, social and public secretly cloud transaction

AUTHENTICATION

In this module, the Authentication performs the following operations such as Login ,view classifier Owners and authorize and View data users and authorize, List public key details and private key details, reports access requests, authorizes authentication, storage access permissions.

USER

In this module, the user has to register to cloud and log in and performs the following operations such as view criminal records, download criminal records, request public key, request private key, public key response, private key response and also files access permissions.

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

5.1 System Architecture

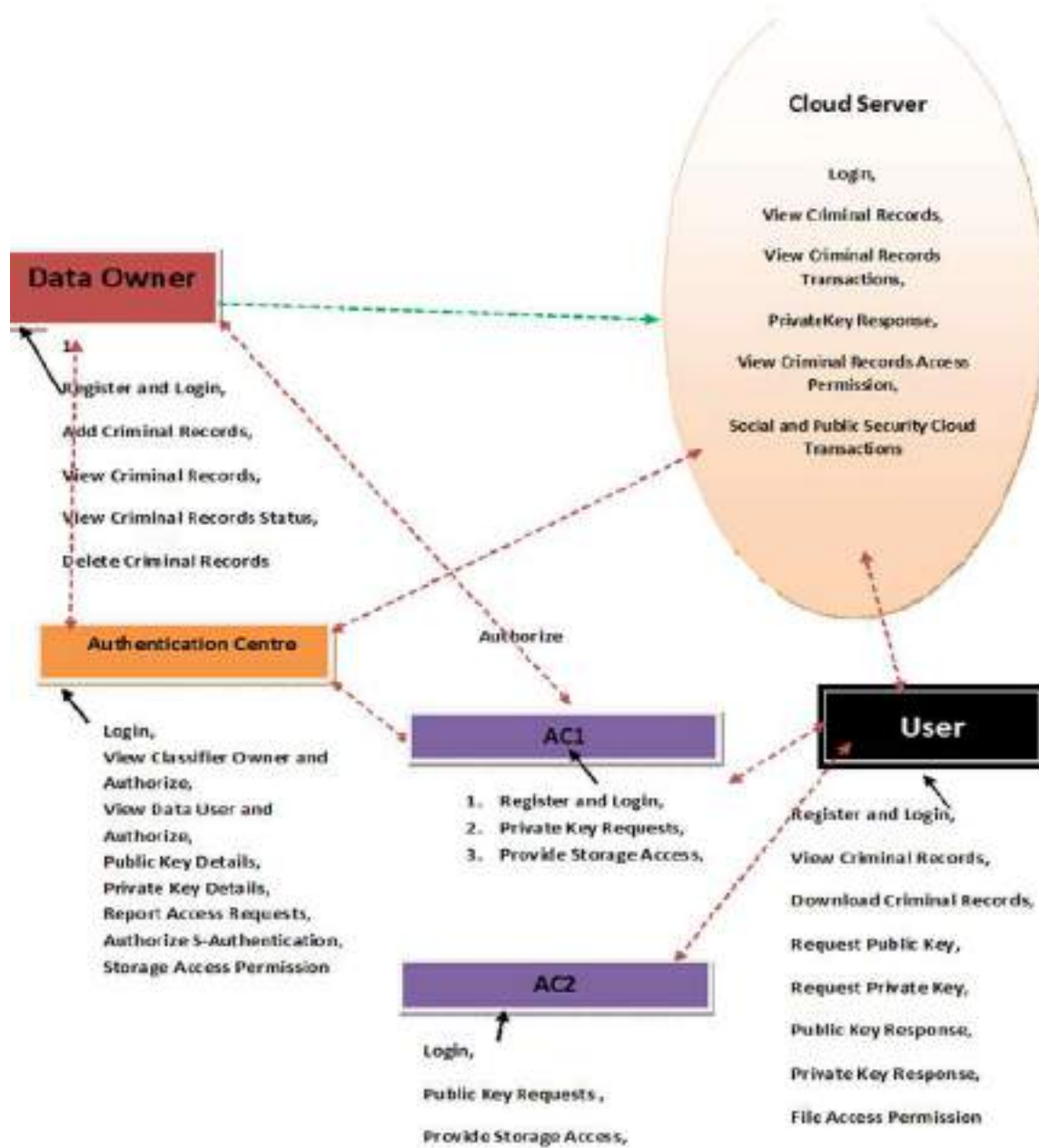
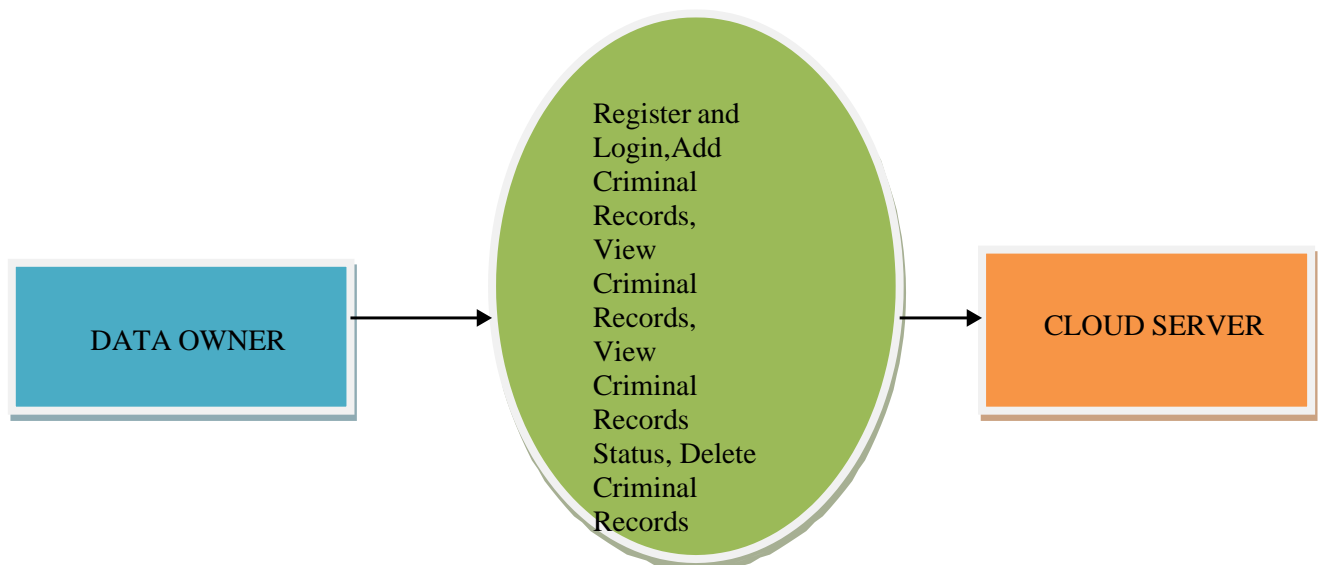


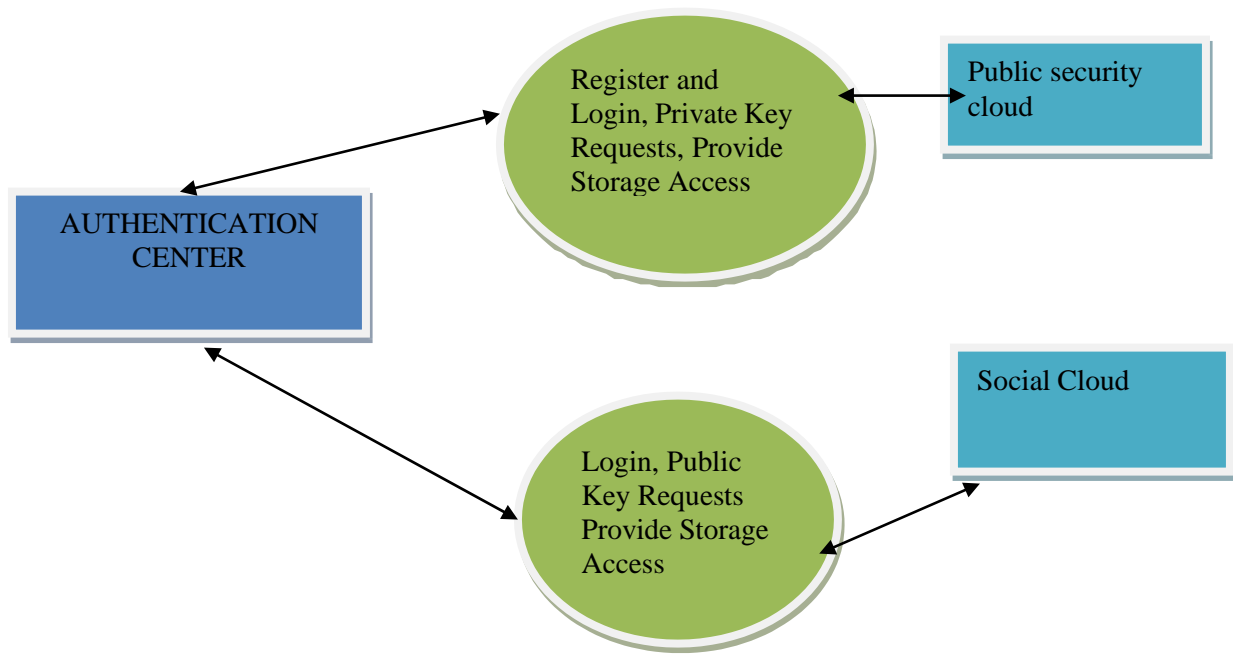
Fig 5.1 System Architecture

5.2 DATA FLOW DIAGRAM

Level -0



Level- 1



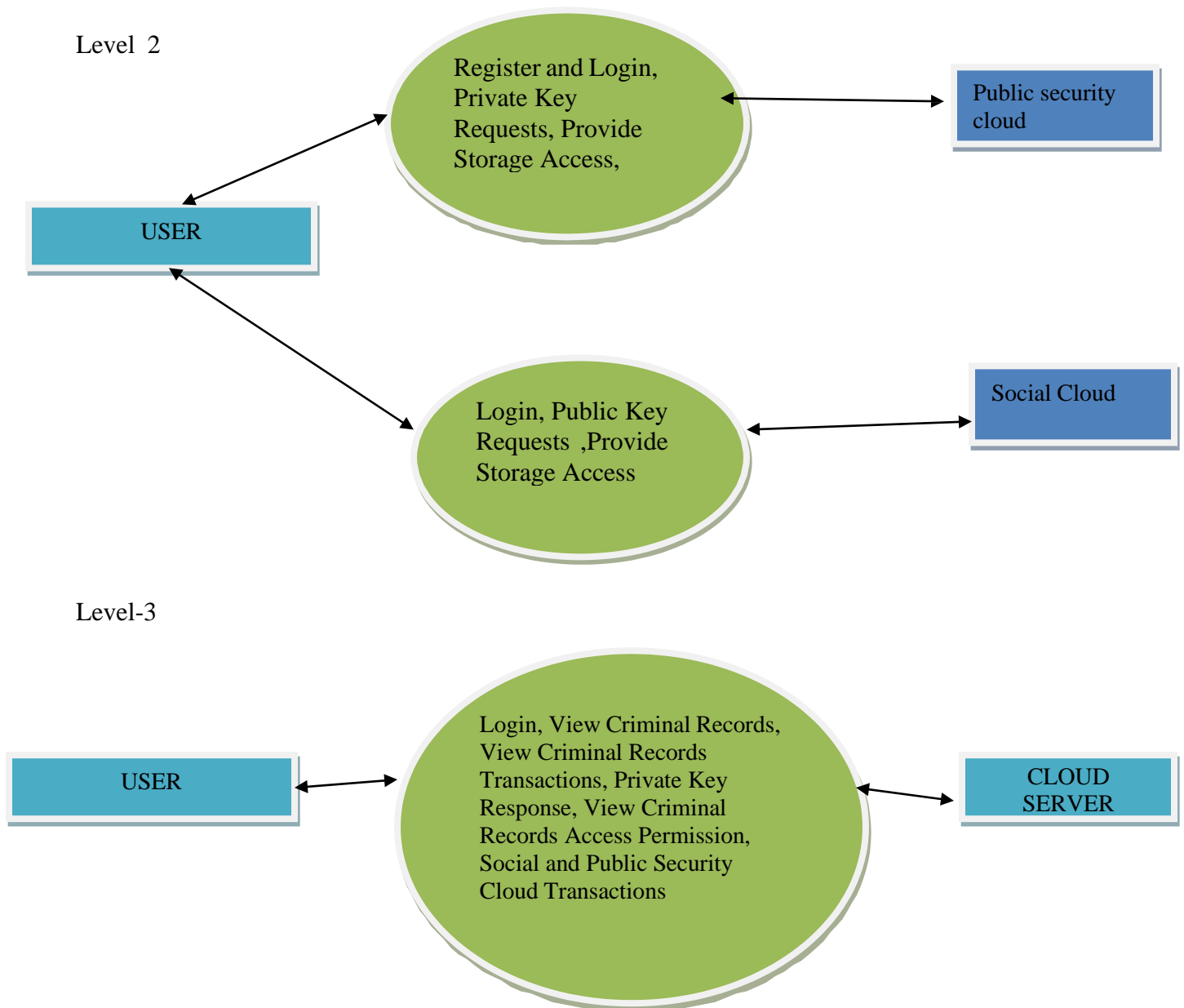


Fig 5.2: Data flow Diagram

6.SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

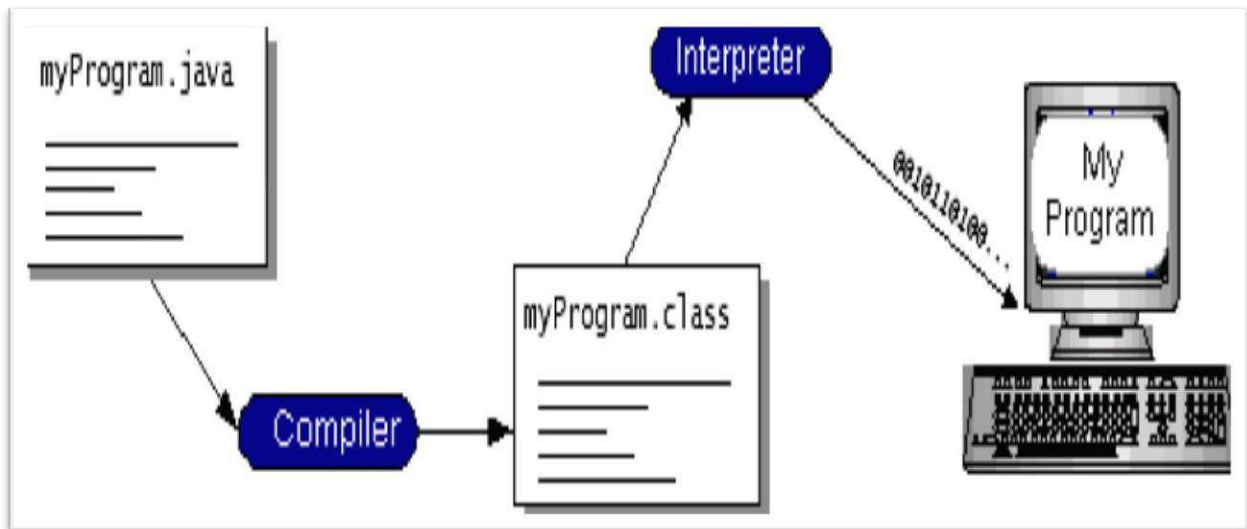


Fig 6.1: Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming

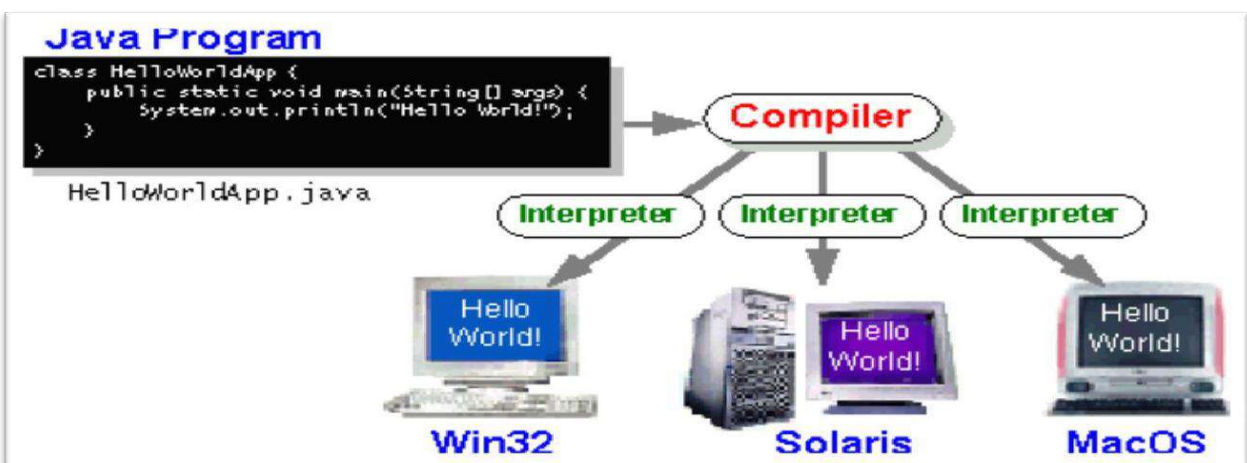


Fig 6.2: Execution for different platforms

6.1. The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

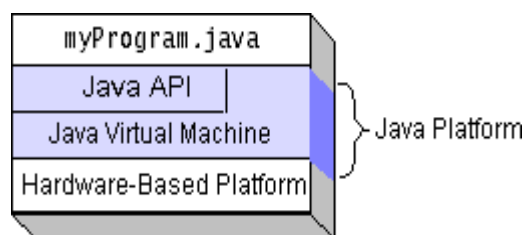


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned

6.2. What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.

- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
- **Software components:** Known as JavaBeans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure

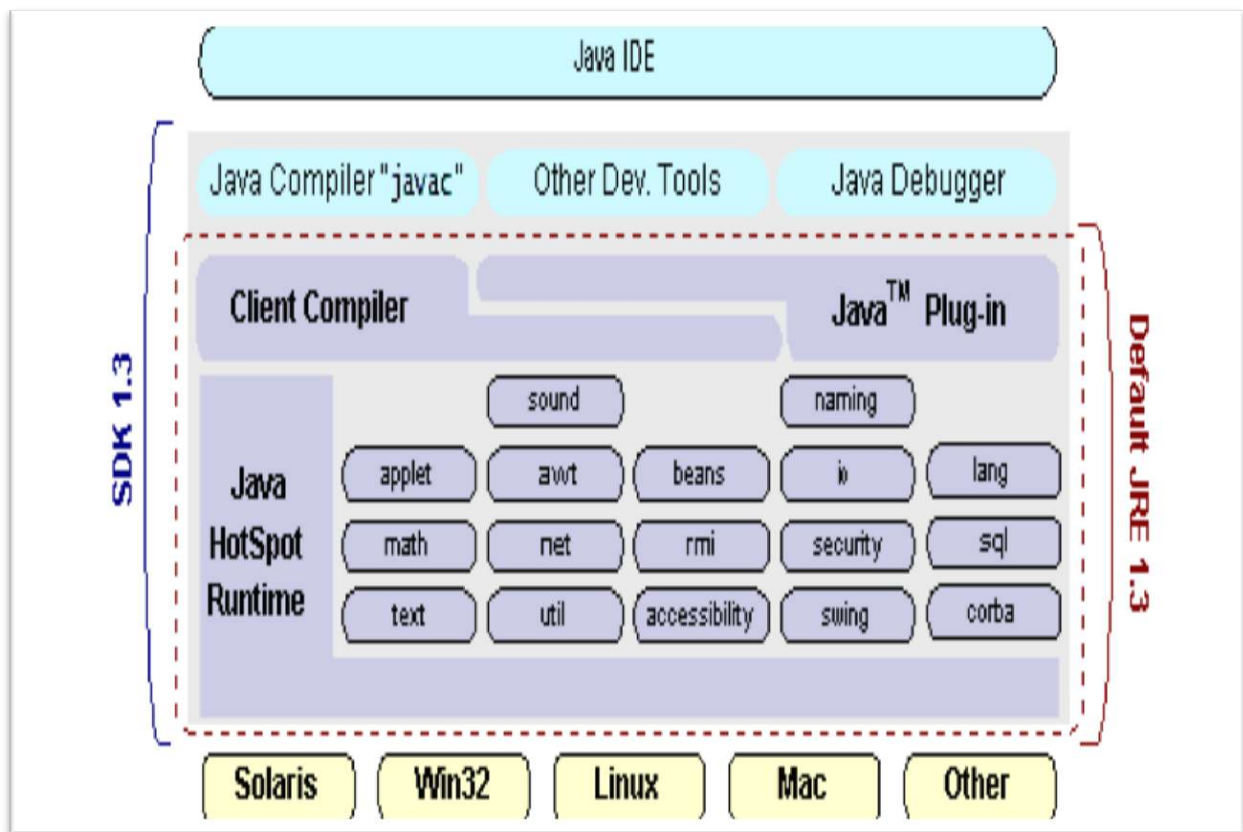


Fig 6.4: Java IDE

6.3. How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

6.4. ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There

is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

6.5. JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interfaces achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC

Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

6.6. JDBC

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to "generate" JDBC code and to hide many of JDBC's complexities from the end user.

SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver.

JDBC must be implemental on top of common database interfaces

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

Provide a Java interface that is consistent with the rest of the Java system

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

Use strong, static typing wherever possible

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

Keep the common cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to precede the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java ha two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

6.7. SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
#include
<sys/socket
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

6.8 JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file

formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, and testing some more, documenting some more.

Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts --
- to display separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

6.9. J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the Java One Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

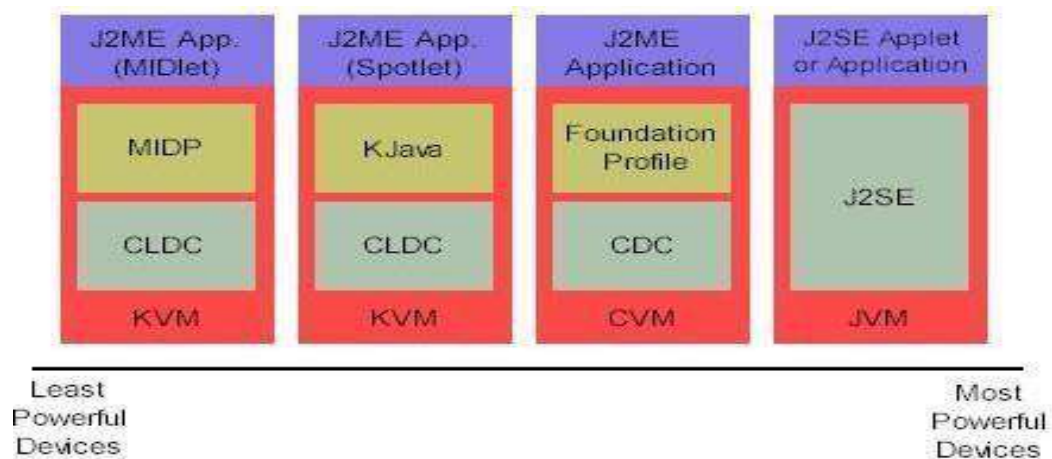


Fig 6.7: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine. While the

J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

Developing J2ME applications

Introduction In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "got has" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis.

Configurations overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

7.SYSTEM REQUIREMENTS

7.1. HARDWARE REQUIREMENTS

Processor : Intel (R) Core (TM) i3-4200U
CPU : 1.6 GHz
RAM : 4 GB
Hard Disk : 40 GB.

7.2. SOFTWARE REQUIREMENTS

Operating System : Windows 7 / 8.1 / 10
Server : Apache Tomcat 6.0
Database : MYSQL Server 5.0
Frontend : HTML, CSS, JS
Backend : JSP

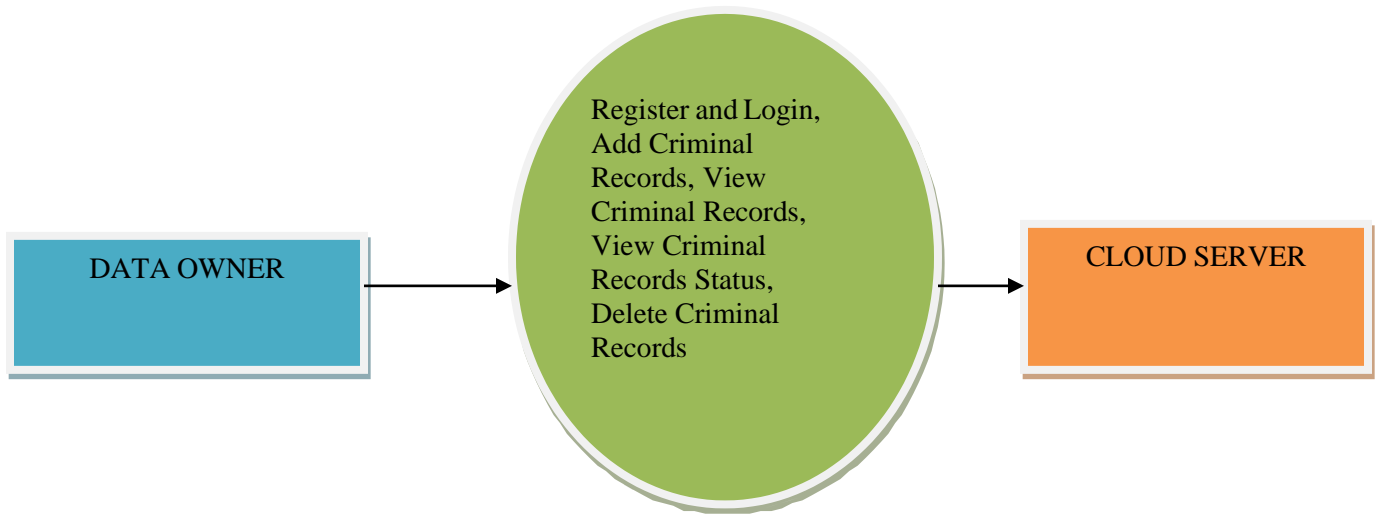
8.SYSTEM DESIGN

8.1 DATA FLOW DIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modeling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

8.1 DATA FLOW DIAGRAM

Level -0



LEVEL 1

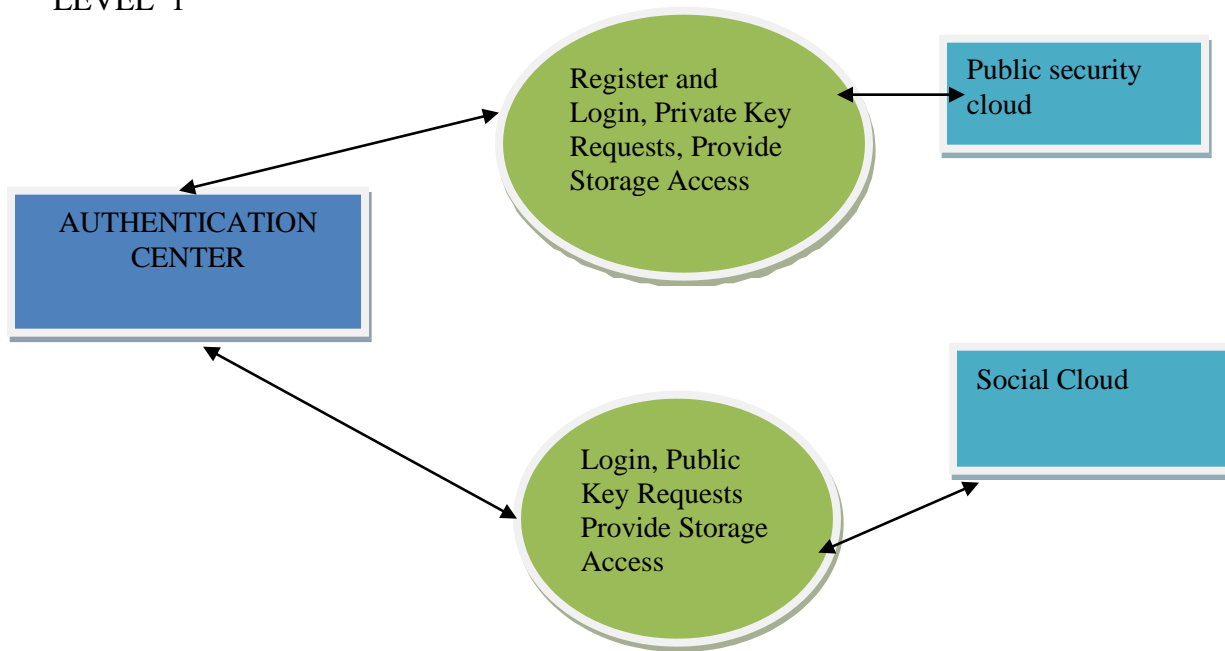
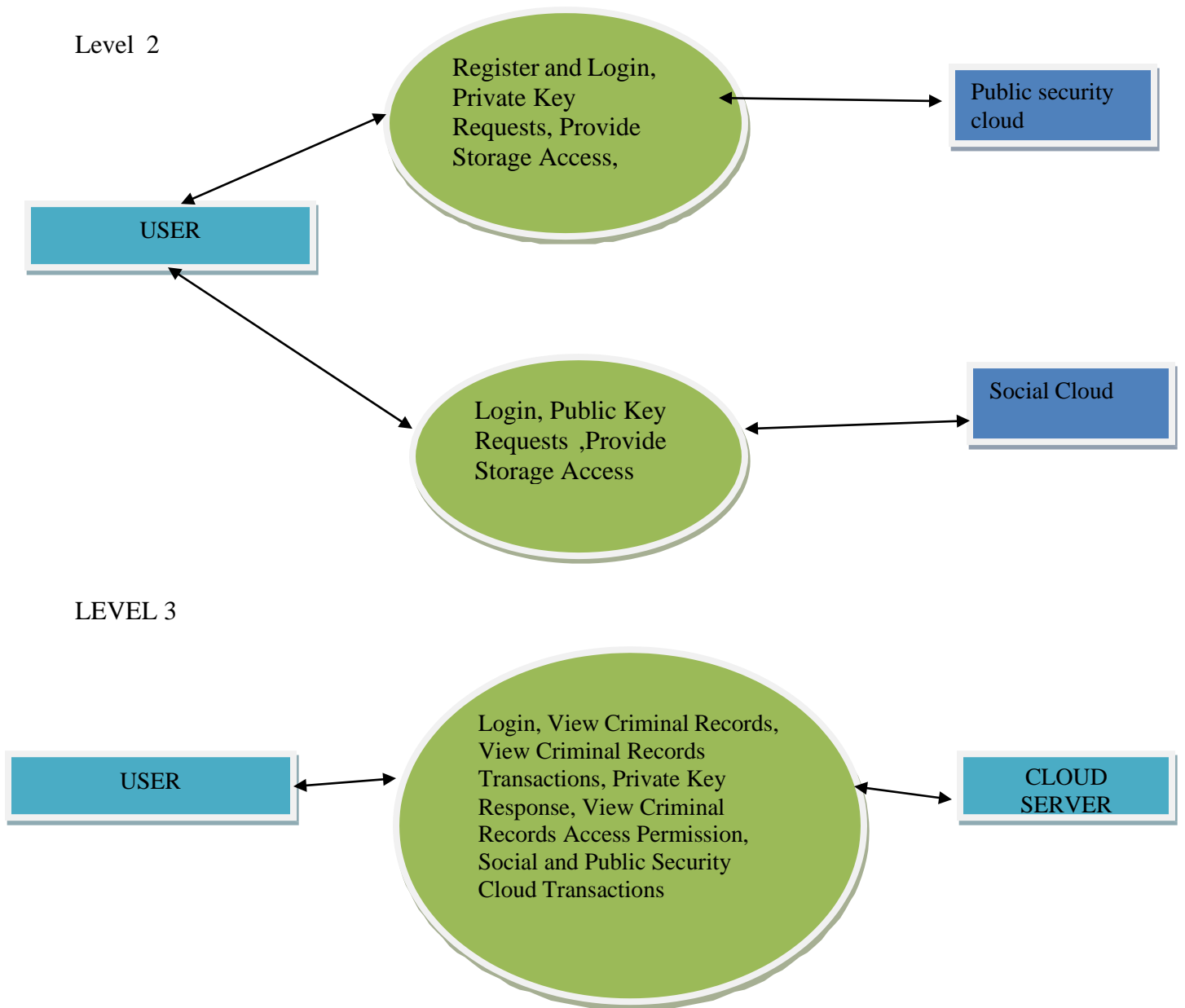


Fig 8.1: Data flow Diagram



8.2 UML DIAGRAMS

Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

Activity Diagram for Data Owner

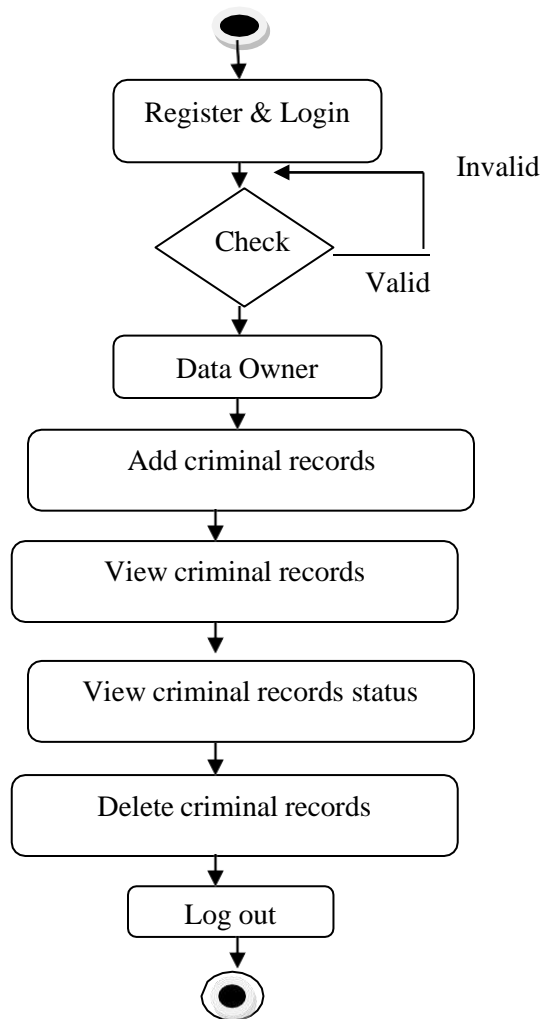


Fig 8.2 Activity Diagram for Data Owner

Activity Diagram for Cloud Serverh

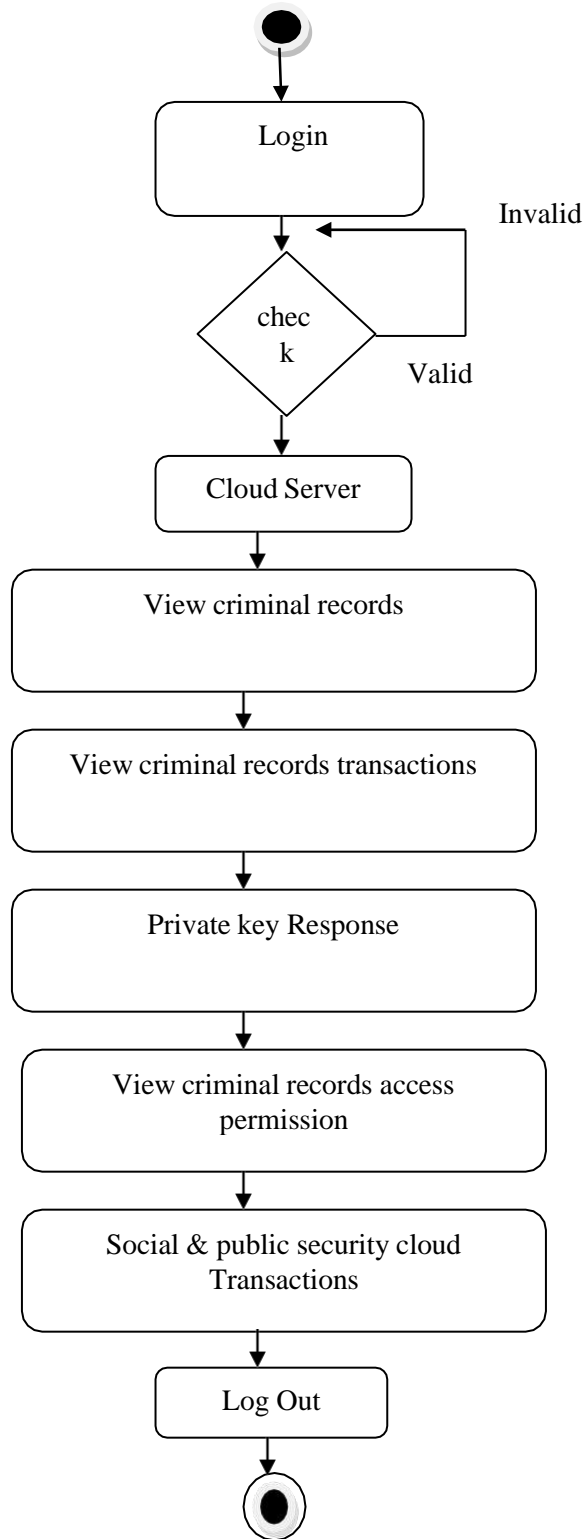


Fig 8.3 Activity Diagram for Cloud Server

8.4 Activity Diagram for Authentication

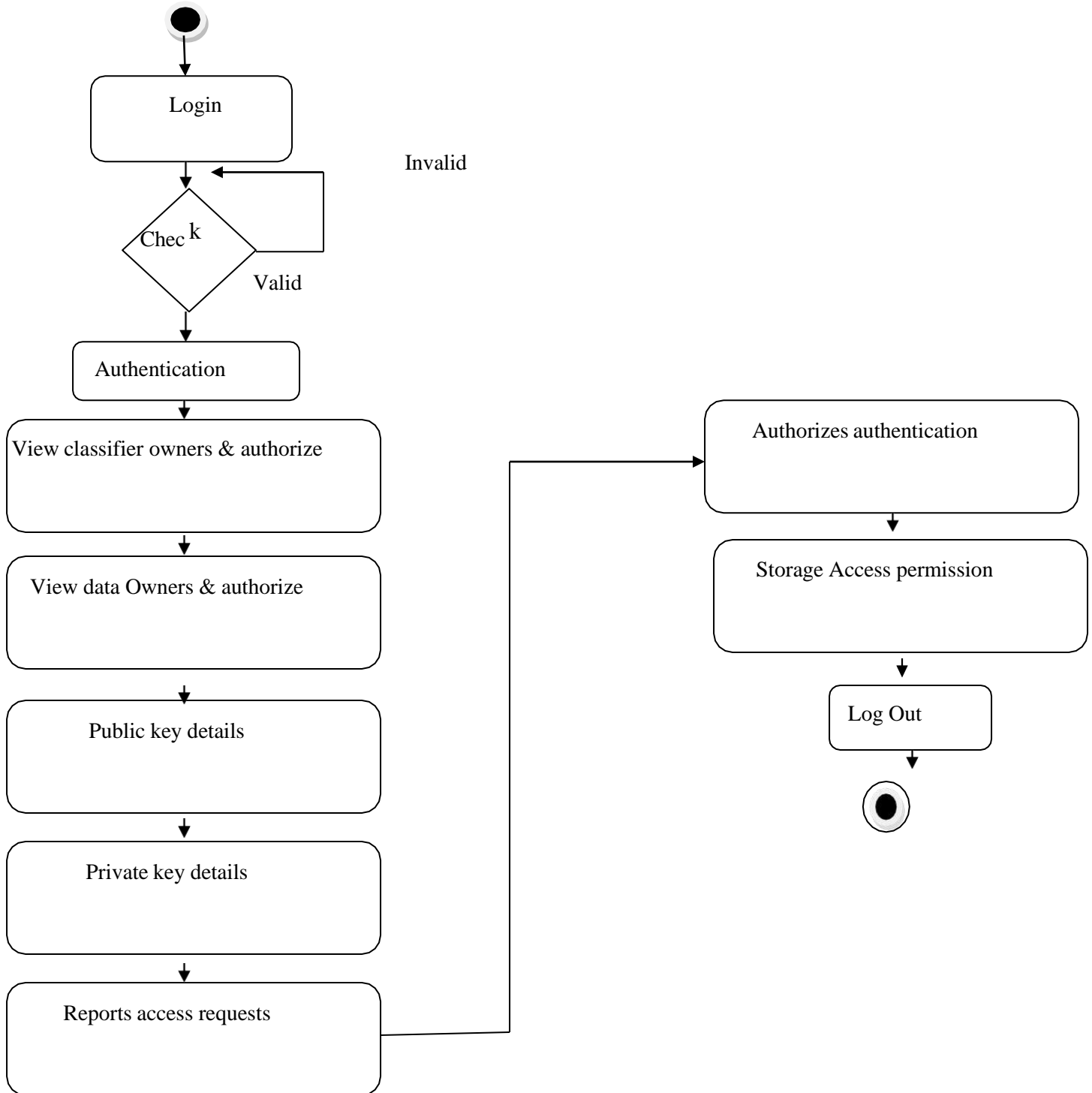


Fig 8.3 Activity Diagram for Authentication

8.4 Activity Diagram for User

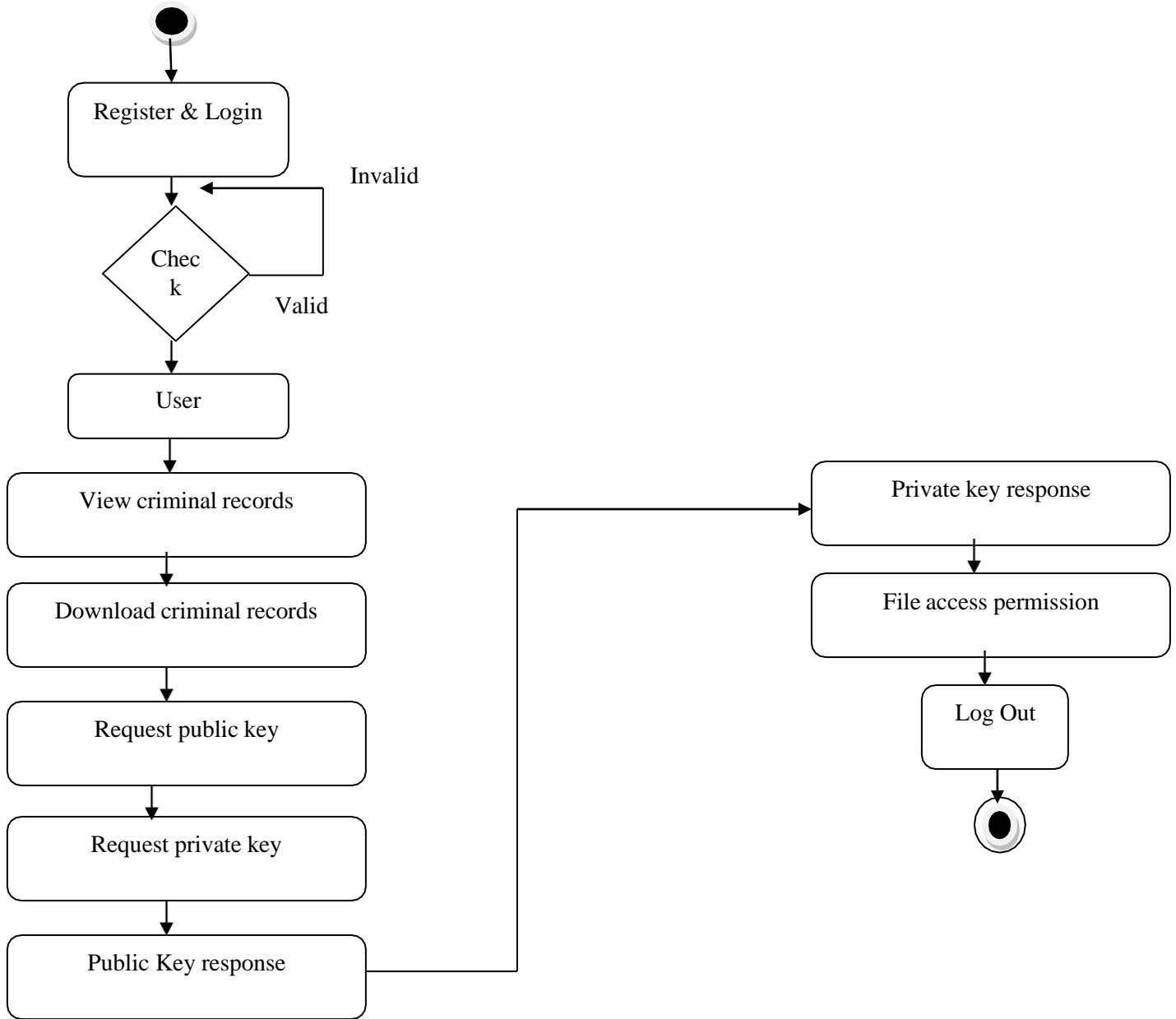


Fig 8.4 Activity Diagram for User

8.5 Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

Use case Diagram for Data Owner

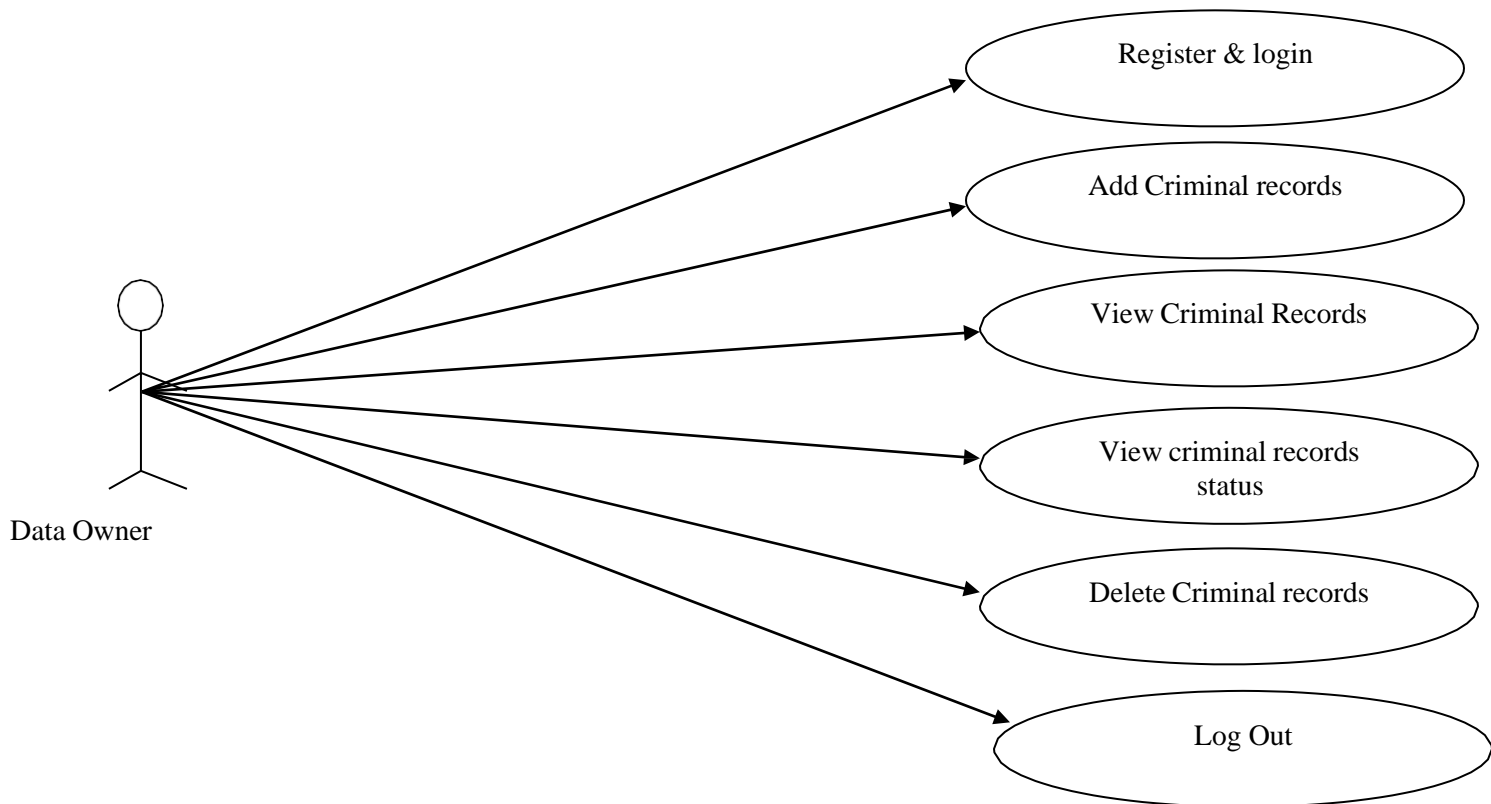


Fig 8.5 Use case Diagram for Data Owner

8.6 Use case Diagram for Cloud Server

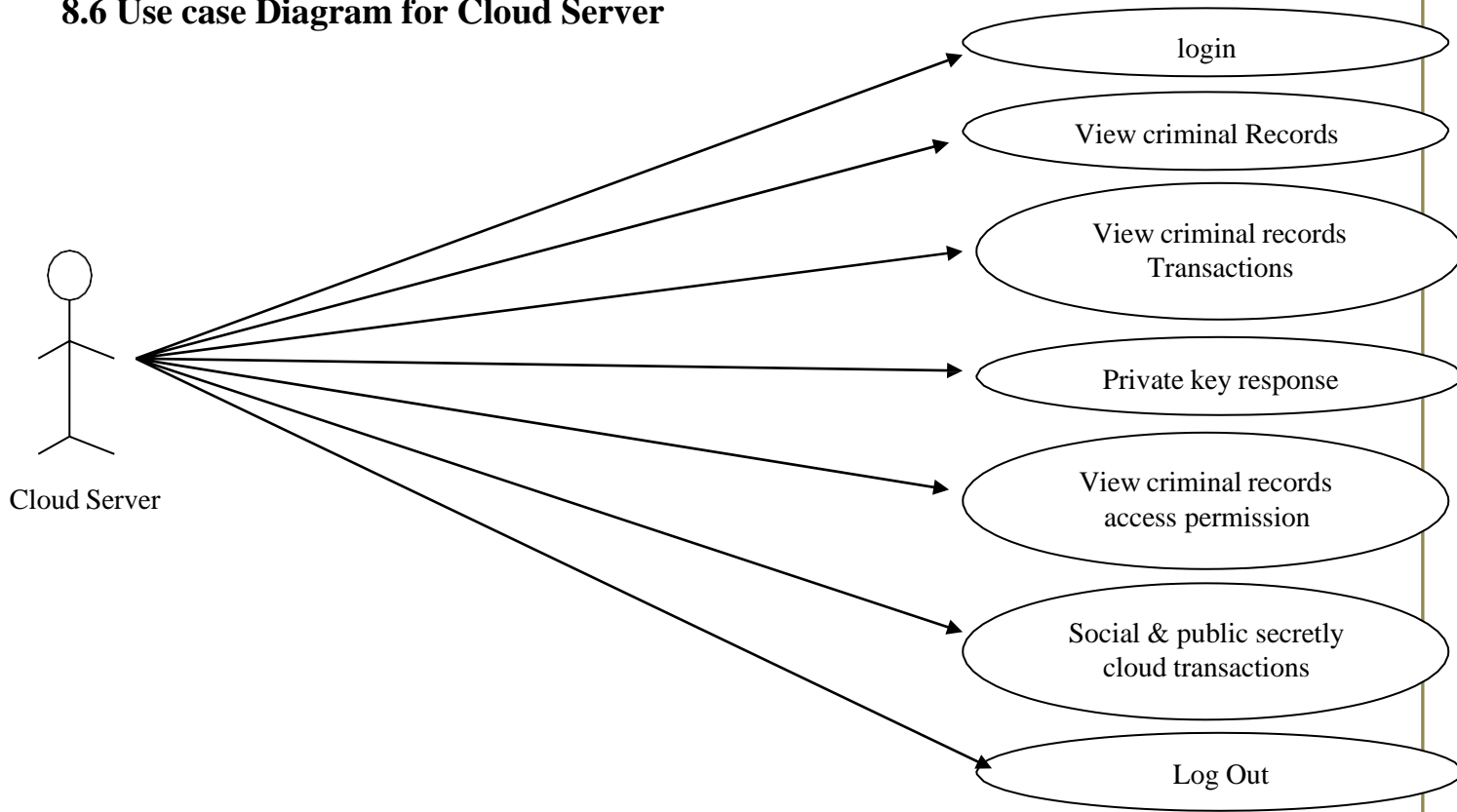


Fig 8.5 Use case Diagram for Cloud Server

8.6 Use case Diagram for

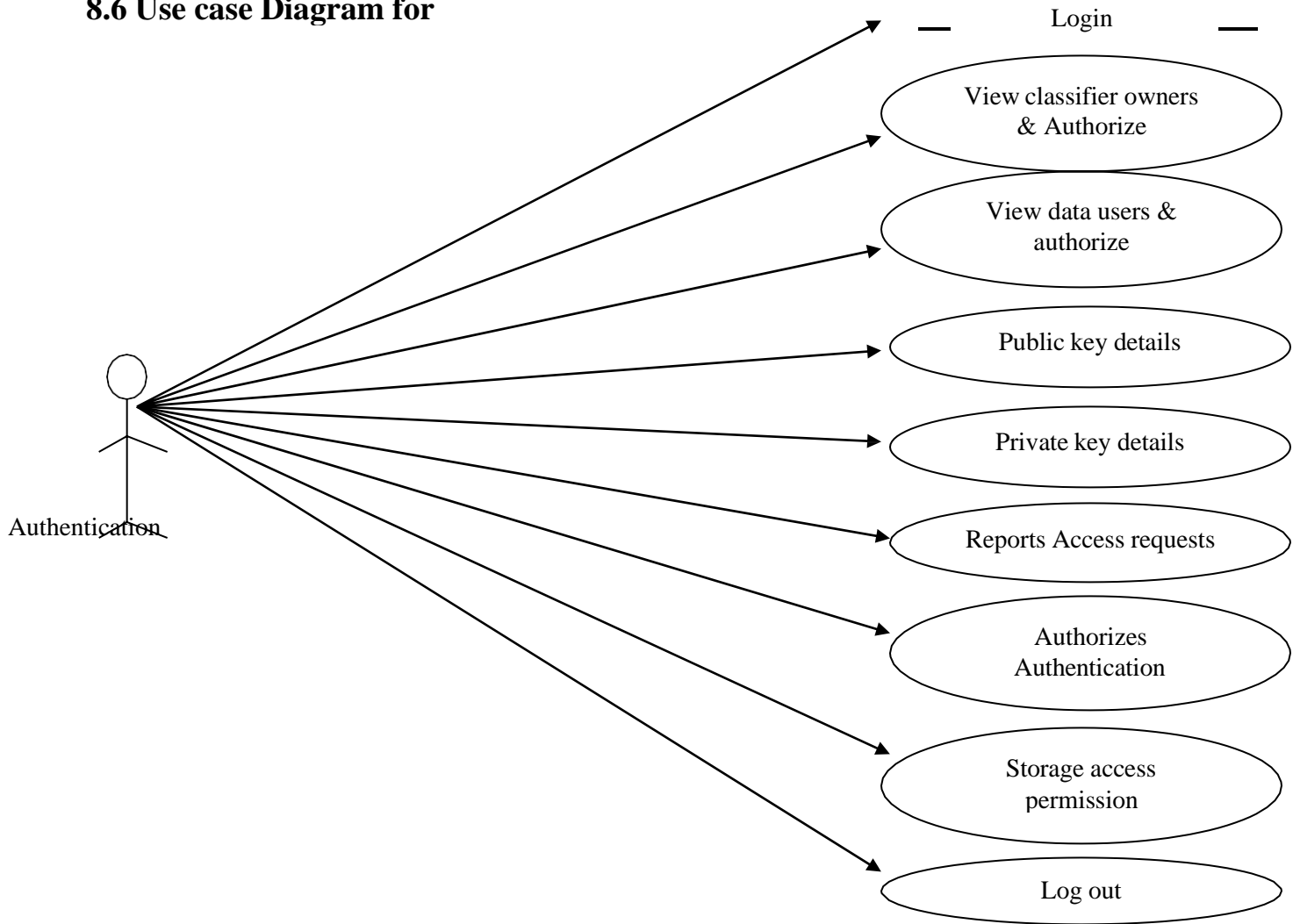


Fig 8.6 Use case Diagram for Authentication

8.7 Use case Diagram for user

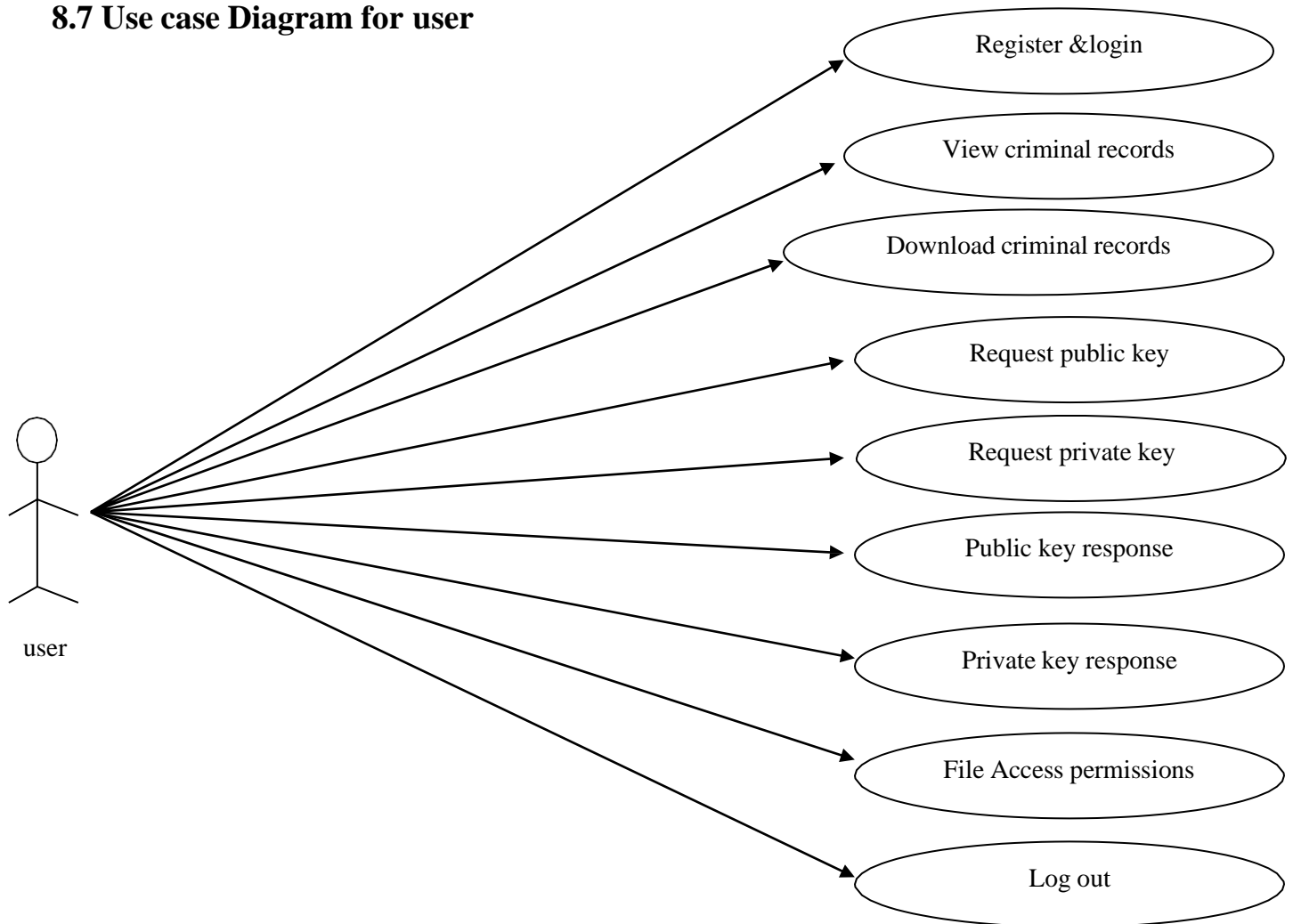


Fig 8.7 Use case Diagram for User

8.8 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are sometimes called event diagram.

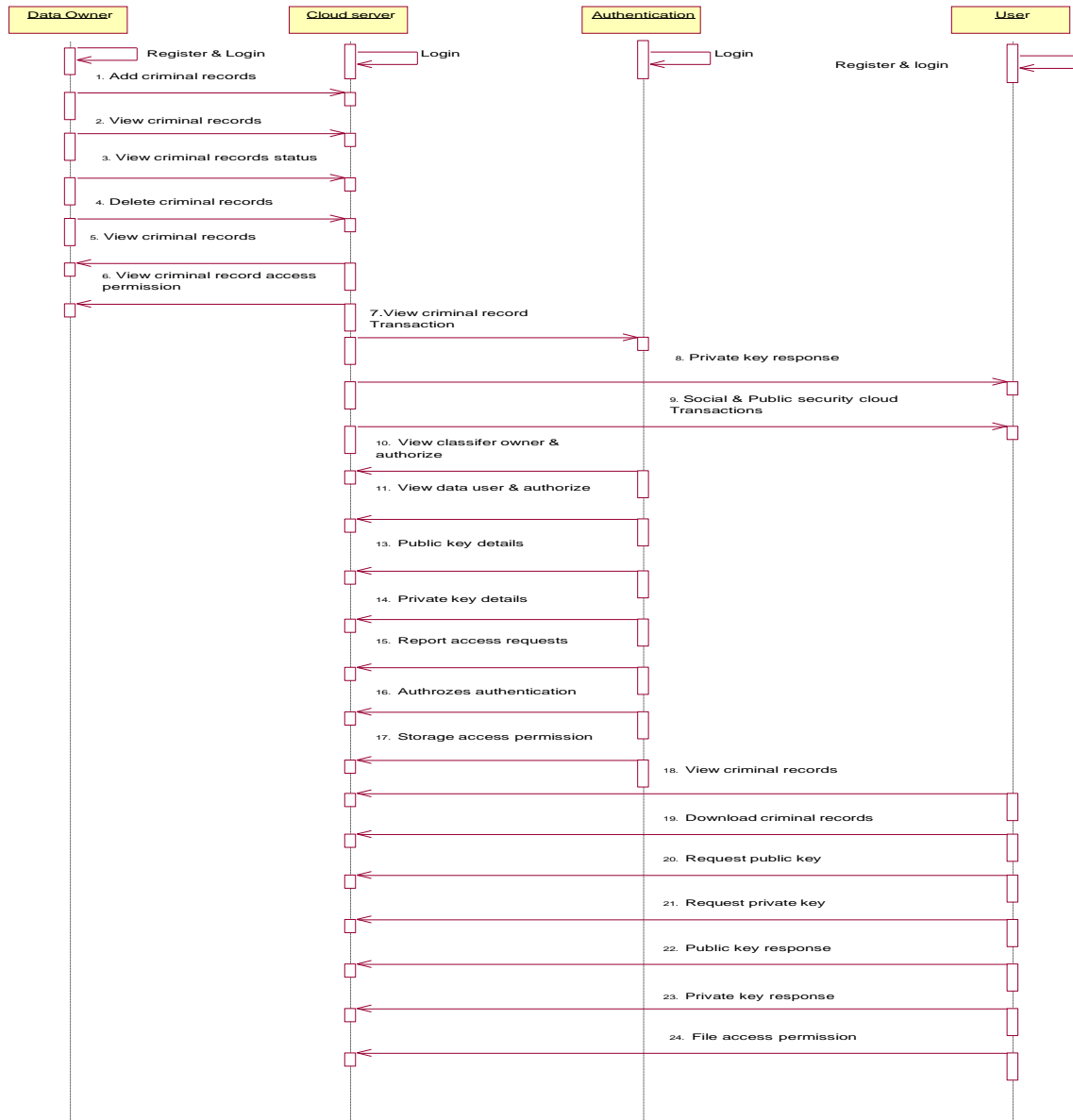


Fig 8.8 Sequence Diagram

8.9 Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

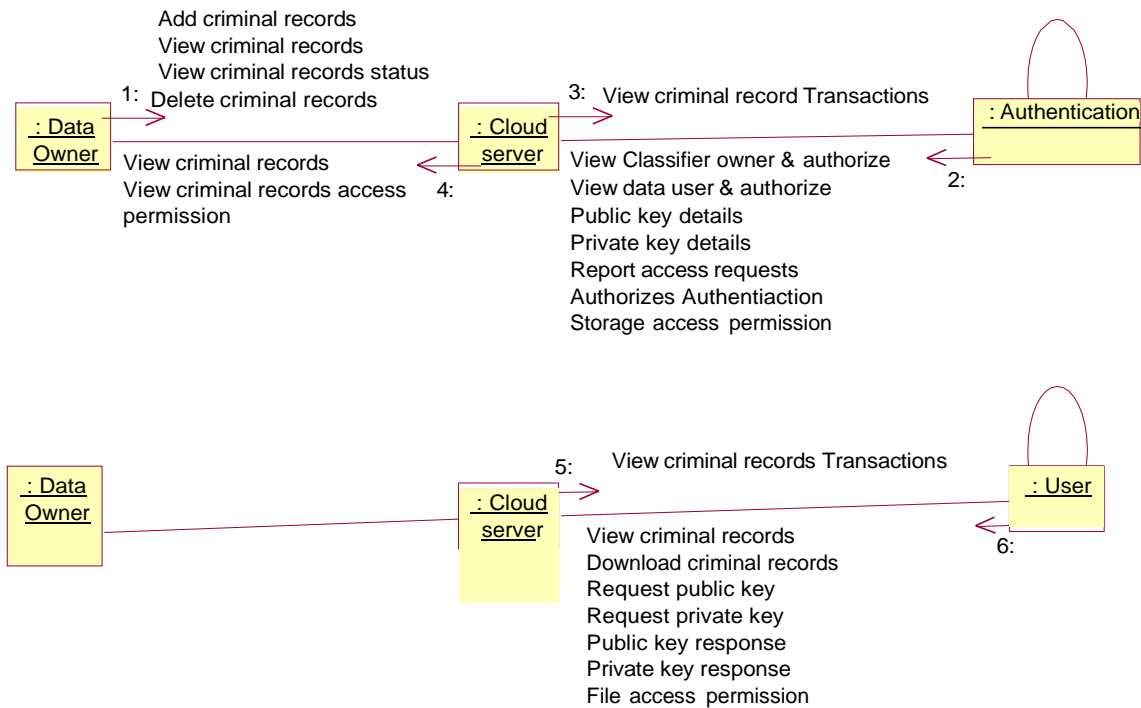


Fig 8.9 Collaboration Diagram

8.1.0 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

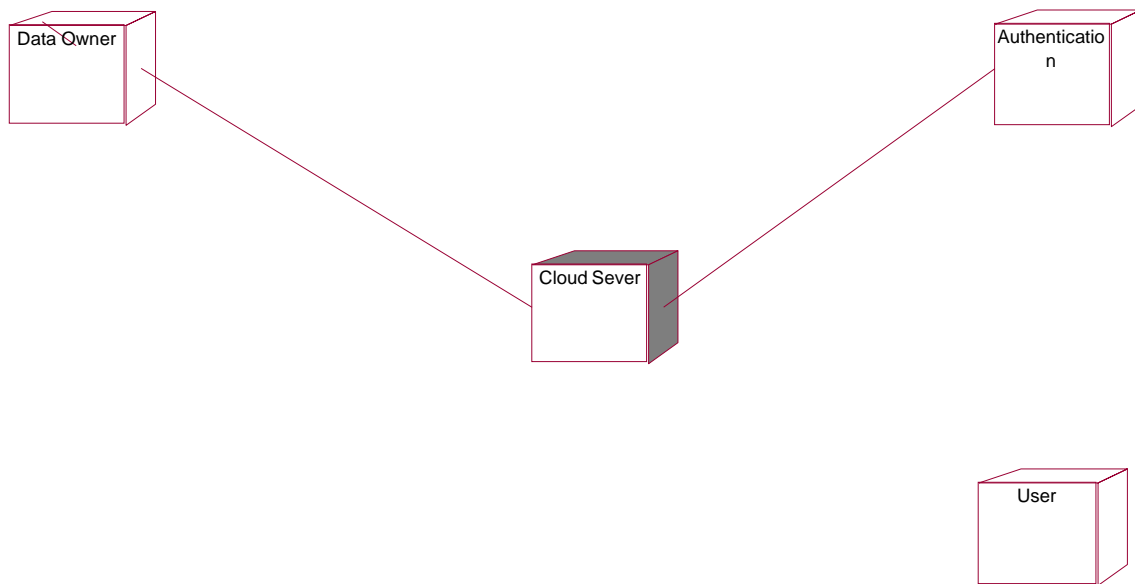


Fig8.1.0 Deployment diagram

8.1.1 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items. There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes, Responsibilities and Collaborators approach.

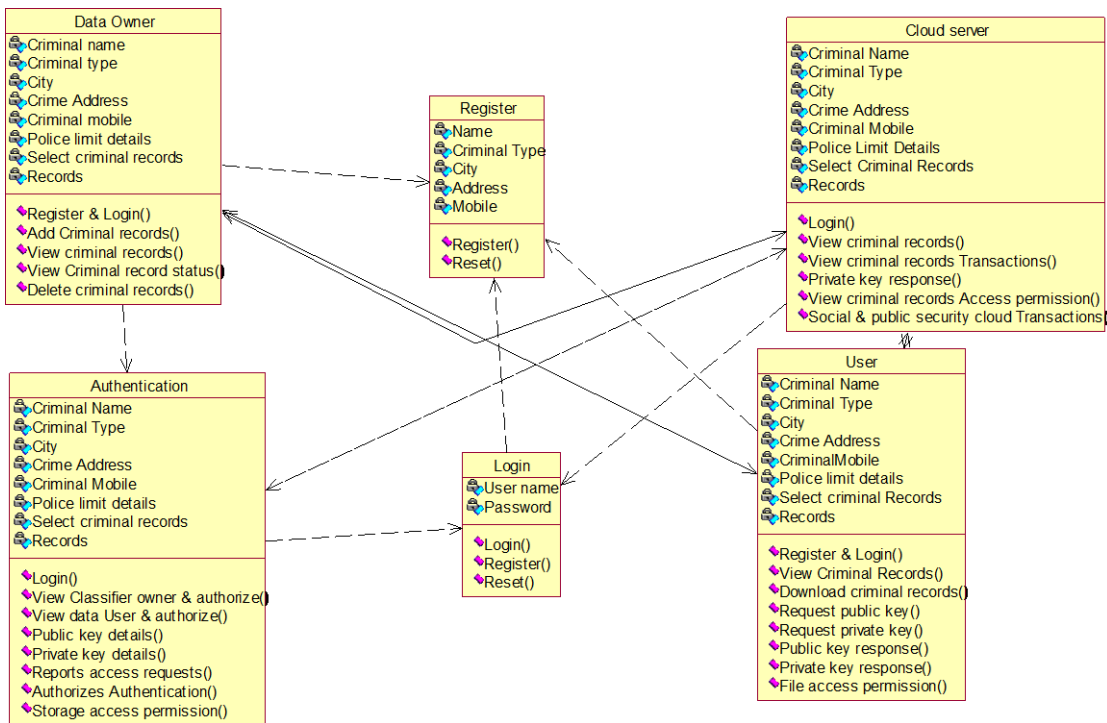


Fig 8.1.1 Class Diagram

8.1.2 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.

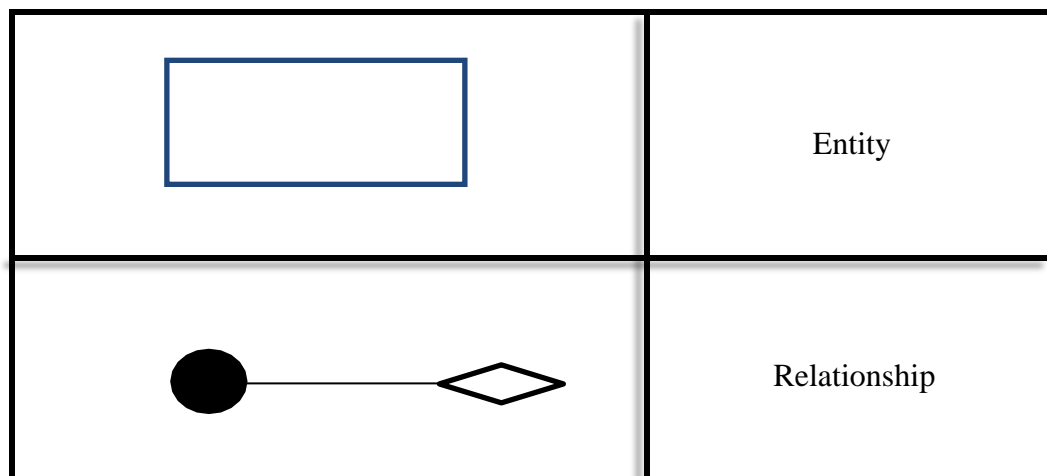


Fig 8.1.2 E-R Notations

9. IMPLEMENTATION

9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

9.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
 - Convey information about past activities, current status or projections of the
 - Future.
 - Signal important events, opportunities, problems, or warnings.

9.4 CODING

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!--
Design by Free CSS
Templates
http://www.freecsstemplates.o
rg
Released for free under a Creative Commons Attribution 2.5 License

Name : Unilluminated
Description: A two-column, fixed-width design with dark color scheme.
Version : 1.0
Released : 20110821

-->
<html xmlns="http://www.w3.org/1999/xhtml">
<Head>
<meta name="keywords" content="" />
<meta name="description" content="" />
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<title>SPCSS Social Network Based Privacy-Preserving Criminal Suspects Sensing</title>
<link href="style.css" rel="stylesheet" type="text/css" media="screen" />
<style type="text/css">
<!--
.style1 {font-size: 18px}
.style2 {font-size: 36px; }
-->
</style>
</head>
<body>
<div id="wrapper">
  <div id="header-wrapper">
    <div id="header">
      <div class="style1" id="logo">
        <h2>&nbsp;</h2>
        <h2>&nbsp;</h2>
        <h2><a href="#" class="style2">SPCSS Social Network Based
Privacy-Preserving Criminal Suspects Sensing</a></h2>
        <h2>&nbsp;</h2>
      </div>
    </div>
  </div>
</div>
```

```

<!-- end #header -->
<div id="menu">
  <ul>
    <li class="current_page_item"><a href="index.html">Home</a></li>
    <li><a href="DO_Login.jsp">Classifier Owner</a></li>
    <li><a href="DU_Login.jsp">data user </a></li>
    <li><a href="KGC_Login.jsp">KGC</a></li>
    <li><a href="PSCloud_Login.jsp">Public Security Cloud </a></li>
    <li><a href="SocialCloud_Login.jsp">Social Cloud </a></li>
    <li><a href="PoliceStation_Login.jsp"> Police Station </a></li>
  </ul>
</div>
<!-- end #menu -->
<div id="page">
  <div id="page-bgtop">
    <div id="page-bgbtm">
      <div id="content">
        <div class="post">
          <h2 class="title"><a href="#">SPCSS Social
Network Based Privacy-Preserving Criminal Suspects Sensing</a></h2>
          <p class="meta">&nbsp;</p>
          <div class="entry">
            <p align="justify">With
development of online social networks, many criminal suspects use social network to
communicate with each other. In order to obtain valuable criminal clues, considerable research
works have been done to analyze criminal suspects' social data. However, most of them did not
pay much attention on privacy-preserving problems, which may leak some sensitive data in the
analysis process. To solve this problem, we propose a novel analysis approach of criminal
suspects by exploiting social data and crime data that are collected by social network and police
information systems. We enable the social cloud server and public security cloud server to
exchange social information of criminal suspects and user's public information in a
privacypreserving way. Specifically, we propose a privacy-preserving data retrieving method
based on oblivious transfer to guarantee that only the authorized entities can perform queries on
suspects' social data, while the social cloud server cannot infer anything during the query.
Moreover, several building blocks, such as encrypted data comparing, secure classification and
regression tree (CART) model are also proposed. Based on these building blocks, we designed a
privacy-preserving criminal suspects sensing scheme. Finally, we demonstrate a performance
evaluation which shows that our scheme can enhance analysis of criminal suspects without
privacy leakage, while with low overhead..</p>
          </div>
        </div>
      </div>
    <div style="clear: both;">&nbsp;</div>
  </div>
<!-- end #content -->

```

Released for free under a Creative Commons Attribution 2.5 License

Name : Unilluminated

Description: A two-column, fixed-width design with dark color scheme.

Version : 1.0

Released : 20110821

```
-->
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="keywords" content="" />
<meta name="description" content="" />
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<title>Social Main</title>
<link href="style.css" rel="stylesheet" type="text/css" media="screen" />
<style type="text/css">
<!--
.style1 {font-size: 18px}
.style2 {font-size: 36px; }
-->
</style>
</head>
<body>
<div id="wrapper">
  <div id="header-wrapper">
    <div id="header">
      <div class="style1" id="logo">
        <h2>&nbsp;</h2>
        <h2>&nbsp;</h2>
        <h2><a href="#" class="style2">SPCSS Social Network Based
Privacy-Preserving Criminal Suspects Sensing</a></h2>
        <h2>&nbsp;</h2>
      </div>
    </div>
  </div>
  <!-- end #header -->
  <div id="menu">
    <ul>
      <li><a href="SocialCloud_Main.jsp">Social Cloud </a></li>
      <li><a href="SocialCloud_Login.jsp">Logout </a></li>
    </ul>
  </div>
  <!-- end #menu -->
  <div id="page
```

```
        <!-- end #sidebar -->
        <div style="clear: both;">&nbsp;</div>
    </div>
</div>
</div>
</div>
<!-- end #page -->
</div>
<div id="footer-wrapper">
    <div id="footer">
        <p>&nbsp;</p>
    </div>
</div>
<!-- end #footer -->
<div align=center></div>
</body>
</html>
```

SocialCloud_Login.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!--
```

Design by Free CSS Templates

<http://www.freecsstemplates.org>

Released for free under a Creative Commons Attribution 2.5 License

Name : Unilluminated

Description: A two-column, fixed-width design with dark color scheme.

Version : 1.0

Released : 20110821

```
-->
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="keywords" content="" />
<meta name="description" content="" />
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<title>SOCIAL CLOUD</title>
<link href="style.css" rel="stylesheet" type="text/css" media="screen" />
<style type="text/css">
<!--
.style1 {font-size: 18px}
.style2 {font-size: 36px; }
-->
</style>
```

```

<body>
<div id="wrapper">
  <div id="header-wrapper">
    <div id="header">
      <div class="style1" id="logo">
        <h2>&nbsp;</h2>
        <h2>&nbsp;</h2>
        <h2><a href="#" class="style2">SPCSS Social Network Based
Privacy-Preserving Criminal Suspects Sensing</a></h2>
        <h2>&nbsp;</h2>
      </div>
    </div>
  </div>
  <!-- end #header -->
  <div id="menu">
    <ul>
      <li class="current_page_item"><a href="index.html">Home</a></li>
      <li><a href="DO_Login.jsp">Classifier Owner</a></li>
      <li><a href="DU_Login.jsp">data user </a></li>
      <li><a href="KGC_Login.jsp"> authentication center </a></li>
      <li><a href="PSCloud_Login.jsp">Public Security Cloud </a></li>
      <li><a href="SocialCloud_Login.jsp">Social Cloud </a></li>
      <li><a href="PoliceStation_Login.jsp"> Police Station </a></li>
    </ul>
  </div>
  <!-- end #menu -->
  <div id="page">
    <div id="page-bgtop">
      <div id="page-bgbtm">
        <div id="content">
          <div class="post">
            <h2 class="title"><a href="#">SOCIAL CLOUD
LOGIN </a></h2>
            <p class="meta">&nbsp;</p>
            <div class="entry">
              <form
action="SocialCloud_Authentication.jsp" method="post" id="leavereply">
                <label for="name"><br />
                Name
                (required)&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;</label>
                <input name="userid" type="text" class="box" id="name" value="" />
                <label for="email"><br />
                <br />
                Password (required)&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;</label>
                <input type="password" id="pass" name="pass" class="box" />
                <p>&nbsp;</p>
              </form>
            </div>
          </div>
        </div>
      </div>
    </div>
  </div>

```



```

                <p>
                    <input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" />
                    <input type="reset" name="imageField" id="imageField" class="RESET"
/>
                </p>
                <p>&nbsp;</p>
            </form>
            <p align="justify">&nbsp;</p>
        </div>
    </div>
    <div style="clear: both;">&nbsp;</div>
</div>
<!-- end #content -->
<div id="sidebar">
    <ul>
        <li>
            <h2>Menu</h2>
        </li>
        <li><ul>
            <li><a href="PoliceStation_Login.jsp">
Police Station </a></li>
            <li><a href="DU_Login.jsp">Data User
</a></li>
            <li><a href="DO_Login.jsp">Classifier
Owner </a></li>
            <li><a href="PSCloud_Login.jsp">Public
Security Cloud </a></li>
            <li><a
href="SocialCloud_Login.jsp">Social Cloud</a></li>
            <li><a
href="KGC_Login.jsp">Authentication Center </a></li>
        </ul>
        </li>
    </ul>
</div>
<!-- end #sidebar -->
<div style="clear: both;">&nbsp;</div>
</div>
</div>
<!-- end #page -->
</div>
<div id="footer-wrapper">

```

```

        <p>&nbsp;</p>
    </div>
</div>
<!-- end #footer -->
<div align=center></div>
</body>
</html>

```

PSCloud Main.isp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!--
Design by Free CSS Templates
http://www.freecsstemplates.org
Released for free under a Creative Commons Attribution 2.5 License

```

Name : Unilluminated
 Description: A two-column, fixed-width design with dark color scheme.
 Version : 1.0
 Released : 20110821

```

-->
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="keywords" content="" />
<meta name="description" content="" />
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<title>Public Security Cloud Main</title>
<link href="style.css" rel="stylesheet" type="text/css" media="screen" />
<style type="text/css">
<!--
.style1 {font-size: 18px}
.style2 {font-size: 36px; }
-->
</style>
</head>
<body>
<div id="wrapper">
    <div id="header-wrapper">
        <div id="header">
            <div class="style1" id="logo">
                <h2>&nbsp;</h2>
                <h2>&nbsp;</h2>
                <h2><a href="#" class="style2">SPCSS Social Network Based

```

```

                <h2>&nbsp;</h2>
            </div>
        </div>
    </div>
<!-- end #header -->
<div id="menu">
    <ul>
        <li><a href="PSCloud_Main.jsp">Public Security Cloud </a></li>
        <li><a href="PSCloud_Login.jsp"> Logout </a></li>
    </ul>
</div>
<!-- end #menu -->
<div id="page">
    <div id="page-bgtop">
        <div id="page-bgbtm">
            <div id="content">
                <div class="post">
                    <h2 class="title"><a href="#">Welcome ::
PUBLIC SECURE CLOUD </a></h2>
                    <p class="meta">&nbsp;</p>
                    <div class="entry">With development of online social
networks, many criminal suspects use social network to communicate with each other. In order
to obtain valuable criminal clues, considerable research works have been done to analyze
criminal suspects' social data. However, most of them did not pay much attention on privacy-
preserving problems, which may leak some sensitive data in the analysis process. To solve this
problem, we propose a novel analysis approach of criminal suspects by exploiting social data and
crime data that are collected by social network and police information systems. We enable the
social cloud server and public security cloud server to exchange social information of criminal
suspects and user's public information in a privacy-preserving way. Specifically, we propose a
privacy-preserving data retrieving method based on oblivious transfer to guarantee that only the
authorized entities can perform queries on suspects' social data, while the social cloud server
cannot infer anything during the query. Moreover, several building blocks, such as encrypted
data comparing, secure classification and regression tree (CART) model are also proposed.
Based on these building blocks, we designed a privacy-preserving criminal suspects sensing
scheme. Finally, we demonstrate a performance evaluation which shows that our scheme can
enhance analysis of criminal suspects without privacy leakage, while with low overhead.
                    <p align="justify">&nbsp;</p>
                </div></div>
            <div style="clear: both;">&nbsp;</div>
        </div>
    <!-- end #content -->
    <div id="sidebar">
        <ul>

```

```

<h2>Menu</h2>
                                </li>
                                <li><ul>
                                    <li><a
href="PSCloud_Main.jsp">Home </a></li>
                                    <li><a
href="PSCloud_GenPrvk.jsp">Private Key Requests </a></li>
                                    <li><a
href="PSCloud_GiveStorageAccess.jsp">Provide Storage Access</a></li>
                                    <li><a href="PSCloud_Login.jsp">
Logout </a></li>
                                </ul>
                                </li>
                                <li></li>
                                </ul>
                            </div>
                        <!-- end #sidebar -->
                        <div style="clear: both;">&nbsp;</div>
                    </div>
                </div>
            </div>
            <!-- end #page -->
        </div>
        <div id="footer-wrapper">
            <div id="footer">
                <p>&nbsp;</p>
            </div>
        </div>
    </div>
    <!-- end #footer -->
    <div align=center></div>
</body>
</html>

```

SocialCloud Authentication.jsp

```

<title>Authentication Page</title>
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<% @page import="java.util.*"%>
<% @ include file="connect.jsp"%>
<% @page
    import="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.
spec.SecretKeySpec,org.bouncycastle.util.encoders.Base64"%>
<% @ page
import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io.FileIn

```

```
va.io.BufferedInputStream"%>
<% @ page
import="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto.Ci
pher"%>
<% @page
import="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,jav
a.io.FileOutputStream,java.io.PrintStream"%>

<%
String name = request.getParameter("userid");
String pass = request.getParameter("pass");

try {

String sql = "SELECT * FROM subaut2 where name='" + name+ "' and pass='" +
pass + "' ";
Statement stmt = connection.createStatement();
ResultSet rs = stmt.executeQuery(sql);

if (rs.next()==true)
{

String sql1 = "SELECT * FROM subaut2 where name='" + name+ "' and
pass='" + pass + "' and status='Activated' ";
ResultSet rs1 = stmt.executeQuery(sql1);
if (rs1.next())
{
response.sendRedirect("SocialCloud_Main.jsp");
}
else
{
response.sendRedirect("SocialCloud_autho.jsp");
}

}
else
{

response.sendRedirect("wronglogin.html");
}

}
catch (Exception e)
{
out.print(e); e.p
```

```
    }
%>
```

PoliceStation Main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!--
```

```
Design by Free CSS Templates
http://www.freecsstemplates.org
Released for free under a Creative Commons Attribution 2.5 License
```

```
Name      : Unilluminated
Description : A two-column, fixed-width design with dark color
scheme.Version      : 1.0
Released  : 20110821
```

```
-->
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="keywords" content="" />
<meta name="description" content="" />
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<title>Police Station Main</title>
<link href="style.css" rel="stylesheet" type="text/css" media="screen" />
<style type="text/css">
<!--
.style1 {font-size: 18px}
.style2 {font-size: 36px; }
-->
</style>
</head>
<body>
<div id="wrapper">
    <div id="header-wrapper">
        <div id="header">
            <div class="style1" id="logo">
                <h2>&nbsp;</h2>
                <h2>&nbsp;</h2>
                <h2><a href="#" class="style2">SPCSS Social Network Based
Privacy-Preserving Criminal Suspects Sensing</a></h2>
                <h2>&nbsp;</h2>
            </div>
        </div>
    </div>
</div>
```



```

    <div id="menu">
      <ul>
        <li><a href="PoliceStation_Main.jsp"> Police Station </a></li>
        <li><a href="PoliceStation_Login.jsp"> Logout </a></li>
      </ul>
    </div>
    <!-- end #menu -->
    <div id="page">
      <div id="page-bgtop">
        <div id="page-bgbtm">
          <div id="content">
            <div class="post">
              <h2 class="title"><a href="#">Welcome Police
Station </a></h2>
              <p class="meta">&nbsp;</p>
              <div class="entry">With development of online social
networks, many criminal suspects use social network to communicate with each other. In order
to obtain valuable criminal clues, considerable research works have been done to analyze
criminal suspects' social data. However, most of them did not pay much attention on privacy-
preserving problems, which may leak some sensitive data in the analysis process. To solve this
problem, we propose a novel analysis approach of criminal suspects by exploiting social data and
crime data that are collected by social network and police information systems. We enable the
social cloud server and public security cloud server to exchange social information of criminal
suspects and user's public information in a privacy-preserving way. Specifically, we propose a
privacy-preserving data retrieving method based on oblivious transfer to guarantee that only the
authorized entities can perform queries on suspects' social data, while the social cloud server
cannot infer anything during the query. Moreover, several building blocks, such as encrypted
data comparing, secure classification and regression tree (CART) model are also proposed.
Based on these building blocks, we designed a privacy-preserving criminal suspects sensing
scheme. Finally, we demonstrate a performance evaluation which shows that our scheme can
enhance analysis of criminal suspects without privacy leakage, while with low overhead.
              <p align="justify">&nbsp;</p>
            </div></div>
            <div style="clear: both;">&nbsp;</div>
          </div>
        <!-- end #content -->
        <div id="sidebar">
          <ul>
            <li>
              <h2>Menu</h2>
            </li>
            <li><ul>href="PoliceStation_Main.jsp">Home </a></li>

```

```

href="PoliceStation_ViewFiles.jsp">View Criminal Records </a></li>
      <li><a
href="PoliceStation_Transactions.jsp">View Criminal Records Transactions</a></li>
      <li><a
href="PoliceStation_ResPrvk.jsp">PrivateKey Response </a></li>
      <li><a
href="PoliceStation_FileAccess.jsp">View Criminal Records Access Permission </a></li>
      <li><a
href="PoliceStation_ACtransactions.jsp">Social and Public Security Cloud Transactions
</a></li>
      <li><a
href="PoliceStation_Login.jsp"> Logout </a></li>
    </ul>
  </li>
</li>
</ul>
</div>
<!-- end #sidebar -->
<div style="clear: both;">&nbsp;</div>
</div>
</div>
</div>
<!-- end #page -->
</div>
<div id="footer-wrapper">
  <div id="footer">
    <p>&nbsp;</p>
  </div>
</div>
<!-- end #footer -->
<div align=center></div>
</body>
</html>

```

PoliceStation_Login.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!--
Design by Free CSS Templates
http://www.freecsstemplates.org
Released for free under a Creative Commons Attribution 2.5 License

```

Name : Unilluminated
 Description: A two-column, fixed-width design with dark color scheme.

Released : 20110821

```
-->
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="keywords" content="" />
<meta name="description" content="" />
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<title>Police Station Login</title>
<link href="style.css" rel="stylesheet" type="text/css" media="screen" />
<style type="text/css">
<!--
.style1 {font-size: 18px}
.style2 {font-size: 36px; }
-->
</style>
</head>
<body>
<div id="wrapper">
  <div id="header-wrapper">
    <div id="header">
      <div class="style1" id="logo">
        <h2>&nbsp;</h2>
        <h2>&nbsp;</h2>
        <h2><a href="#" class="style2">SPCSS Social Network Based
Privacy-Preserving Criminal Suspects Sensing</a></h2>
        <h2>&nbsp;</h2>
      </div>
    </div>
  </div>
  <!-- end #header -->
  <div id="menu">
    <ul>
      <li class="current_page_item"><a href="index.html">Home</a></li>
      <li><a href="DO_Login.jsp">Classifier Owner</a></li>
      <li><a href="DU_Login.jsp">data user </a></li>
      <li><a href="KGC_Login.jsp"> Key Generation Center</a></li>
      <li><a href="PSCloud_Login.jsp">Public Security Cloud </a></li>
      <li><a href="SocialCloud_Login.jsp">Social Cloud </a></li>
      <li><a href="PoliceStation_Login.jsp"> Police Station </a></li>
    </ul>
  </div>
  <!-- end #menu -->
  <div id="page">
    <div id="page-bgtop">
```

```

Security Cloud </a></li>
                                <li><a
href="SocialCloud_Login.jsp">Social Cloud</a></li>
                                <li><a
href="KGC_Login.jsp">Authentication Center</a></li>
                                </ul>
                                </li>
                                </li></li>
                                </ul>
                                </div>
                                <!-- end #sidebar -->
                                <div style="clear: both;">&nbsp;</div>
                                </div>
                                </div>
                                </div>
                                <!-- end #page -->
</div>
<div id="footer-wrapper">
  <div id="footer">
    <p>&nbsp;</p>
  </div>
</div>
<!-- end #footer -->
<div align=center></div>
</body>
</html>

```

PoliceStation_Authentication.jsp

```

<title>Authentication Page</title>
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
<% @page import="java.util.*"%>
<% @ include file="connect.jsp"%>
<% @page
import="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.
spec.SecretKeySpec,org.bouncycastle.util.encoders.Base64"%>
<% @ page
import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io.FileIn
putStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDigest,ja
va.io.BufferedInputStream"%>
<% @ page
import="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto.Ci
pher"%>
<% @page

```

```
a.io.FileOutputStream,java.io.PrintStream"%>

<%
    String name = request.getParameter("userid");
    String pass = request.getParameter("pass");

    try {

        String sql = "SELECT * FROM cloud where name='" + name+ "' and pass='" +
pass + "'";
        Statement stmt = connection.createStatement();
        ResultSet rs = stmt.executeQuery(sql);

        if (rs.next()==true)
        {

            response.sendRedirect("PoliceStation_Main.jsp");

        }
        else
        {

            response.sendRedirect("wronglogin.html");

        }

    }
    catch (Exception e)
    {
        out.print(e);
        e.printStackTrace();
    }
%>
```

Ownprofileimage.jsp

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
<% @ page import="java.sql.*,java.io.*,java.util.*" %>
<% @ include file="connect.jsp" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>PPI: Image display page</title>
</head>
```

```
<body>
<%
    int id = Integer.parseInt(request.getParameter("imgid"));
    String type=request.getParameter("type");
    try{

        Statement st=connection.createStatement();
        String strQuery = "select imagess from downer where id="+id ;
        ResultSet rs = st.executeQuery(strQuery);

        String imgLen="";
        if(rs.next())
        {
            imgLen = rs.getString(1);
        }
        rs = st.executeQuery(strQuery);
        if(rs.next())
        {
            int len = imgLen.length();
            byte [] rb = new byte[len];
            InputStream readImg = rs.getBinaryStream(1);
            int index=readImg.read(rb, 0, len);
            st.close();
            response.reset();
            response.getOutputStream().write(rb,0,len);
            response.getOutputStream().flush();
        }
    }
    catch (Exception e){
        e.printStackTrace();
    }
%>

</body>
</html>
```

KGC_UserDetails.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
    <% @page import ="java.util.*"%>
<% @ include file="connect.jsp" %>
    <% @page import
```



```

        <td width="100" align="left" valign="middle" height="40" style="color:
#2c83b0;"><div align="left" class="style27" style="margin-left:20px;">Date Of
Birth:</div></td>
        <td width="82" align="left" valign="middle" height="40"><div align="left"
class="style28" style="margin-left:20px;">
        <%out.println(s5);%>
        </div></td>
    </tr>
    <tr>
        <td width="100" align="left" valign="middle" height="40" style="color:
#2c83b0;"><div align="left " class="style27" style="margin-left:20px;">Address:</div></td>
        <td width="82" align="left" valign="middle" height="40"><div align="left"
class="style28" style="margin-left:20px;">
        <%out.println(s4);%>
        </div></td>
    </tr>
    <%
        }
        connection.close();
    }
    catch(Exception e)
    {
        out.println(e.getMessage());
    }
    %>
</table>
        <p align="justify">&nbsp;</p>
        <p align="right"><a
href="KGC_Main.jsp">Back</a></p>
    </div>
</div>
<div style="clear: both;">&nbsp;</div>
</div>
<!-- end #content -->
<div id="sidebar">
    <ul>
        <li>
            <li>
                <u
href="KGC_Main.jsp">Home</a></li>
                <li>
                    <u
href="KGC_Login.jsp">Logout</a></li>
    </ul>

```

```

        </table>
        <p align="justify">&nbsp;</p>
        <p align="right"><a
href="KGC_Main.jsp">Back</a></p>
    </div>
</div>
<div style="clear: both;">&nbsp;</div>
</div>
<!-- end #content -->
<div id="sidebar">
    <ul>
        <li>
            <h2>Menu</h2>
            </li>
            <li>
                <ul>
                    <li><a
href="KGC_Main.jsp">Home</a></li>
                    <li><a
href="KGC_Login.jsp">Logout</a></li>
                </ul>
            </li>
        </ul>
    </div>
<!-- end #sidebar -->
<div style="clear: both;">&nbsp;</div>
</div>
</div>
<!-- end #page -->
</div>
<div id="footer-wrapper">
    <div id="footer">
        <p>&nbsp;</p>
    </div>
</div>
<!-- end #footer -->
<div align=center></div>
</body>
</html>

```

DU Login.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"

```

```
-->
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta name="keywords" content="" />
<meta name="description" content="" />
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<title>Data User </title>
<link href="style.css" rel="stylesheet" type="text/css" media="screen" />
<style type="text/css">
<!--
.style1 { font-size: 18px}
.style2 { font-size: 36px; }
.style3 { font-size: 12px}
.style17 { font-size: 14; }
.style18 { color: #3f3f3f}
-->
</style>
</head>
<body>
<div id="wrapper">
  <div id="header-wrapper">
    <div id="header">
      <div class="style1" id="logo">
        <h2>&nbsp;</h2>
        <h2>&nbsp;</h2>
        <h2><a href="#" class="style2">SPCSS Social Network Based
Privacy-Preserving Criminal Suspects Sensing</a></h2>
        <h2>&nbsp;</h2>
      </div>
    </div>
  </div>
  <!-- end #header -->
  <div id="menu">
    <ul>
      <li class="current_page_item"><a href="DU_Main.jsp">Data User
</a></li>
      <li><a href="DU_Login.jsp"> Logout </a></li>
    </ul>
  </div>
</div>
```

```

<!-- end #menu -->
<div id="page">
  <div id="page-bgtop">
    <div id="page-bgbtm">
      {
        out.print(e);
      }
      */%>
      <a href="DU_Main.jsp">Back</a></p>
    </div>
    <label for="name"></label>
  </form>
  <p align="justify">&nbsp;</p>
  </div>
</div>
<div style="clear: both;">&nbsp;</div>
</div>
<!-- end #content -->
<div id="sidebar">
  <ul>
    <li>
      <h2>Menu</h2>
    </li>
    <li><ul>
      <li><a
href="DU_Main.jsp">Home</a></li>
      <li><a href="DU_FileAccessRes.jsp">File
Access Permission- Response</a></li>
      <li><a
href="DU_Login.jsp">Logout</a></li>
    </ul>
    </li>
    <li></li>
  </ul>
</div>
<!-- end #sidebar -->
<div style="clear: both;">&nbsp;</div>
</div>
</div>
</div>
<!-- end #page -->
</div>
<div id="footer-wrapper">
  <div id="footer">
    <p>&nbsp;</p>
  </div>
</div>
</div>

```

```
<!-- end #footer -->  
<div align=center></div>  
</body>  
  
</body
```

10. SYSTEM TESTING

10.1 SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

10.2 TYPES OF TESTING

Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Functional test

Functional tests provide systematic demonstrations that functions tested are available as

specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs

10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

11.SCREENSHOTS



Fig 11.1 Home page

- It describes the of home of SPCSS



Fig 11.2 Owner registration

- It displays Classifier Owner registration

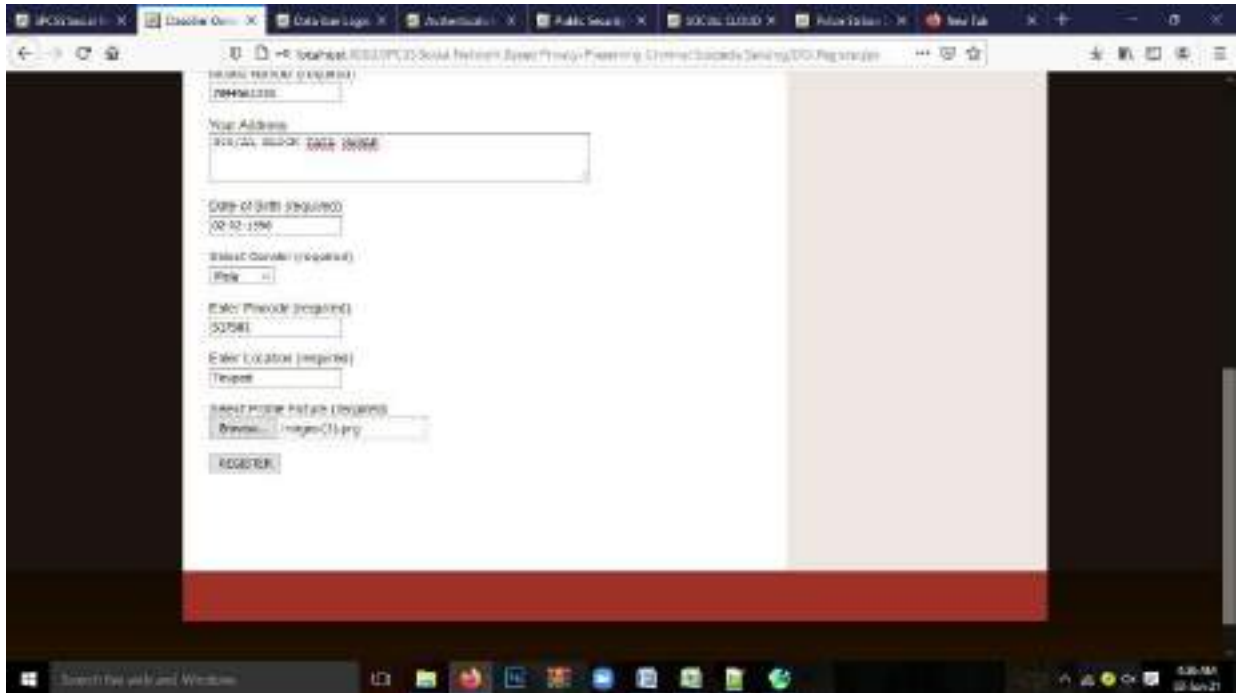


Fig 11.2 Owner registration

- It shows complete registration of owner



Fig 11.3 KGC Login page

- It shows Key Generation Center login page



Fig 11.3 KGC Home Page

- It shows about KGC details



Fig 11.4 View owner and authorize

- It can displays Authorize classifier owner name

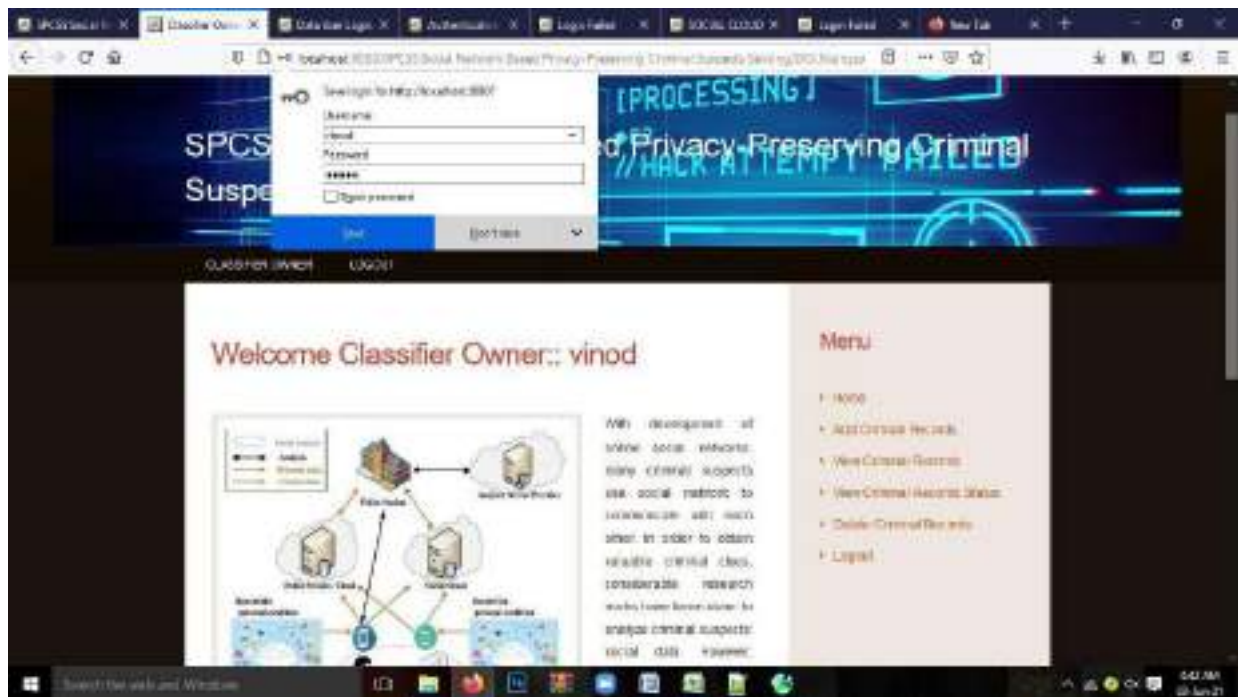


Fig 11.5 Classifier owner home page

- It displays Classifiers owner detail



Fig 11.6 Add criminal Records

- It shows adding the criminal records

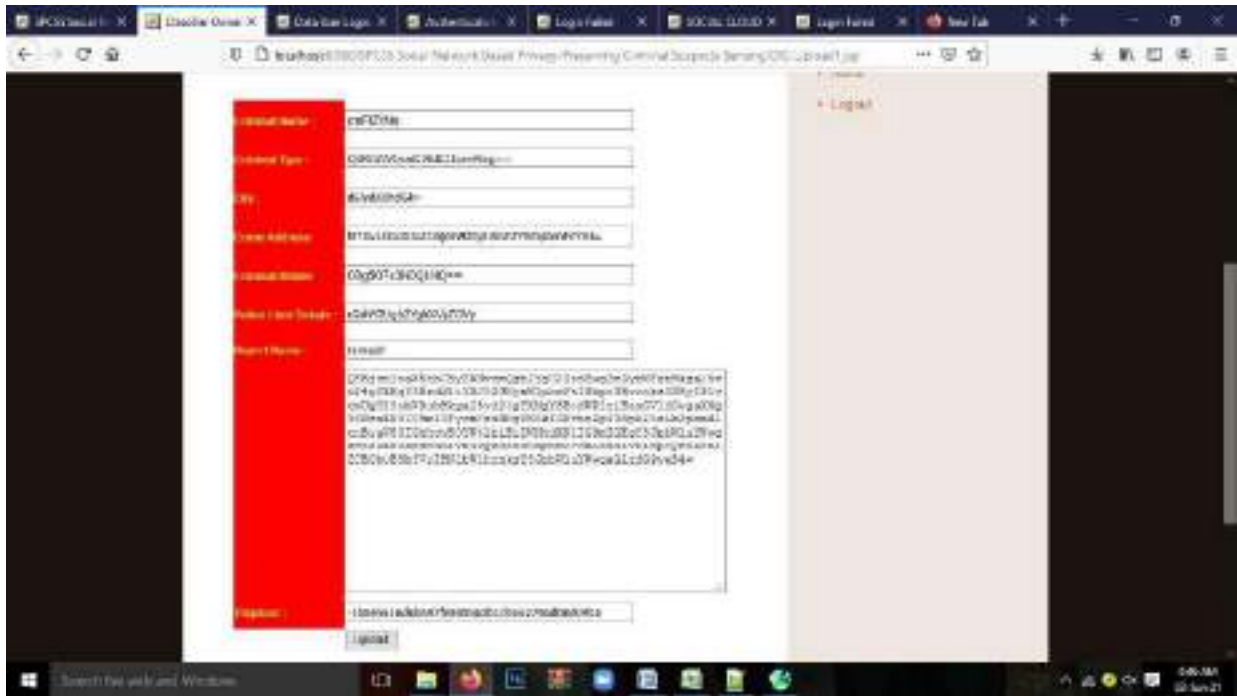


Fig 11.7 Final phase of adding criminal records

- It shows details of encrypted criminal record



Fig 11.8 criminal record upload status

- It shows criminal record status



Fig 11.9 View criminal records

- It shows criminal records



Fig 11.1.1 View criminal report status

- It displays status of criminal report



Fig 11.1.2 Delete criminal record

- It shows delete criminal record



Fig 11.1.3 Data User registration

- It shows data user registration process



Fig 11.1.4 login page

- It shows Data user login or registration page



Fig 11.1.4 Data user home page

- It displays home page for Data user



Fig 11.1.5 View criminal records

- It shows criminal records



Fig 11.1.6 Private key request

- It displays public key request



Fig 11.1.7 Request private key

- It shows private key request

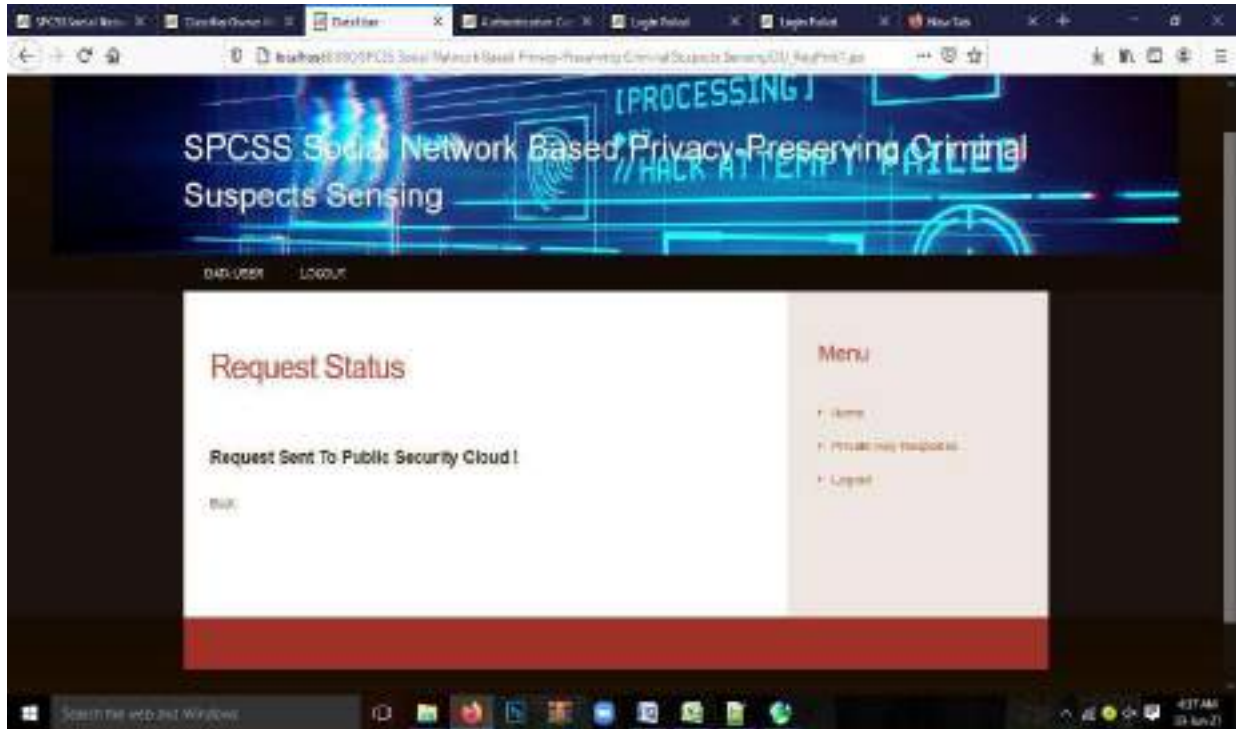


Fig 11.1.8 request status

- It shows request key status



Fig 11.1.9 View authorize data users

- It shows Authorize Data users

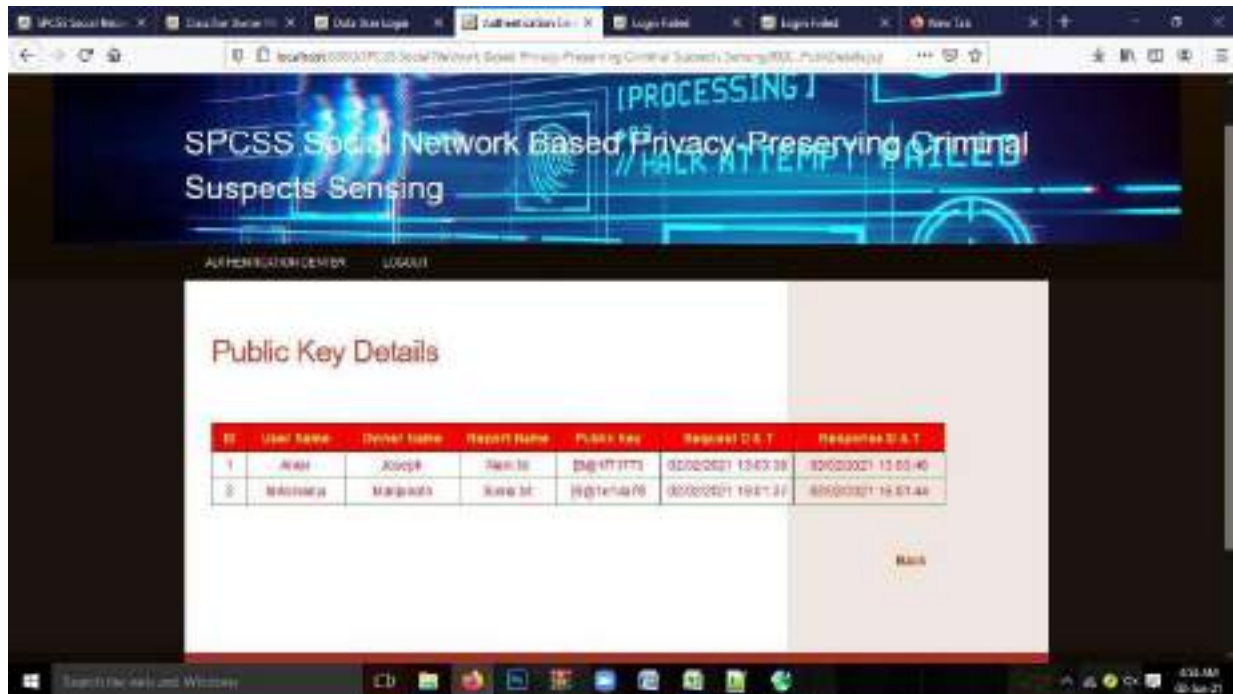


Fig 11.2.1 public key details

- It shows public key details



Fig 11.2. 3 Report access permission

- It shows report access permission



Storage access permission

CONCLUSION

In this article, we have proposed a criminal suspects analysis approach by utilizing social data and crime data to enhance crime analysis without privacy leakage. In our scheme, nothing of personal and social data is leaked to either of the service providers. Moreover, the access pattern is protected and CART model has been trained, encrypted, and outsourced to the ASP to provide criminal suspects analysis. During the analysis phase, any un trusted party can deduce nothing from the classification model, the police station's inputs, and analysis results. Besides, in our scheme, the police station does not need to take part in the analysis, i.e., they just send a query and wait for the results. The experiments evaluation results show that our approach can achieve good analysis results with the acceptable overhead. For the future work, we plan to extend our work to support CO Offline.

FUTURE ENHANCEMENT

For the future work, we plan to extend our work to support Classifier Owner offline. Unconstrained by physical spaces, online web users, new intersecting means to communicate, interact, and socialize. In this context, we address privacy –related issues by resorting to social media analysis. Afterwards, We particularly show how data is safe from attackers. we look at privacy preserving reputation in Social networks, where there is central authority or trusted parties

REFERENCES

- [1] H. Arshad, A. Jantan, and E. Omolara, “Evidence collection and forensics on social networks: Research challenges and directions,” *Digit. Invest.* vol. 28, pp. 126–138, Mar. 2019.
- [2] S. Seo et al., “Partially generative neural networks for gang crime classification with partial information,” in *Proc. AAAI/ACM Conf. AI, Ethics, Soc.*, New York, NY, USA, 2018, pp. 257–263, doi: 10.1145/3278721.3278758.
- [3] D. Ramalingam, V. Chinnaiah, and A. Jeyagobi, “Privacy preserving schemes for secure interactions in online social networks,” in *Proc. Int. Conf. Soft Compute. Syst.*, vol. 837, 2018, pp.548–557.
- [4] S. Jiang, M. Duan, and L. Wang, “Toward privacy-preserving symptoms matching in SDN-based mobile healthcare social networks,”*IEEE Internet Things J.*, vol. 5, no. 3, pp. 1379–1388, Jun. 2018,doi: 10.1109/JIOT.2018.2799209.
- [5] K. Zhang, J. Ni, K. Yang, X. Liang, J. Ren, and X. S. Shen, “Security and privacy in smart city applications: Challenges and solutions,” *IEEE Common. Mag.*, vol. 55, no. 1, pp. 122–129, Jan. 2017, doi: 10.1109/MCOM.2017.1600267CM.
- [6] R. Yu, J. Kang, X. Huang, S. Xie, Y. Zhang, and S. Gjessing, “Mix Group: Accumulative pseudonym exchanging for location privacy enhancement in vehicular social networks,” *IEEE Trans. Depend. Secure Compute.* vol. 13, no. 1, pp. 93–105, Jan./Feb. 2016.
- [7] B. Desmet and V. Hoste, “Online suicide prevention through optimized text classification,” *Inf. Sci.*, vol. 439, pp. 61–78, May 2018.

A
Project Report
on
CASHLESS SOCIETY MANAGING PRIVACY AND SECURITY IN THE
TECHNOLOGICAL AGE

Submitted in partial fulfilment for the award of the degree

of
Master of Computer Applications

Submitted by

A NAGA ASHOK KUMAR
(Reg. No. 18F61F0009)

Under the esteemed guidance of

Mr. J S ANANDA KUMAR, MCA.,
Assistant Professor, Department of MCA.



Department of Master of Computer Applications

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

2020-2021

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

This is to certify that this project report titled “CASHLESS SOCIETY MANAGING PRIVACY AND SECURITY IN THE TECHNOLOGICAL AGE” that is being submitted by A NAGA ASHOK KUMAR (Reg. No. 18F61F0009) in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **A NAGA ASHOKKUMAR** hereby declare that the project report entitled “**CASHLESS SOCIETY MANAGING PRIVACY AND SECURITY IN THE TECHNOLOGICAL AGE**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. J S ANANDA KUMAR, MCA.,** Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, (AUTONOMOUS),** Puttur, for the award of the degree of **MASTER OF COMPUTER APPLICATIONS.** The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

Date:

A NAGA ASHOKKUMAR

Reg. No.: 18F61F0009

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. J SANANDA KUMAR, MCA.**, Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance and suggestions in analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to project Supervisor **MR. P. KARTHIKEYAN, MCA., ME. HOD.** Department of **MASTER OF COMPUTER APPLICATIONS**, for his Valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere heartfelt thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(A NAGA ASHOKKUMAR)

CONTENTS

S.NO	CHAPTERS	PAGE NO.
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF ABBREVIATIONS	II
	LIST OF SCREENS	III
1	INTRODUCTION	1 – 4
2	SYSTEM STUDY	5– 6
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	7
	3.2 DISADVANTAGES	7
	3.3 PROPOSED SYSTEM	7
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9 - 10
5	SYSTEM ARCHITECTURE	11 - 13
6	SOFTWARE ENVIRONMENT	14 – 28
7	SYSTEM REQUIREMENTS	29
8	SYSTEM DESIGN	30 – 43
9	IMPLEMENTATION	44 –78
10	SYSTEM TESTING	79 – 82
11	OUTPUT SCREENS	83 -115
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

ABSTRACT

A cashless society is an economic state which handles financial transactions not in the form of traditional mediums of currency, such as cash or coins, but by transferring digital data (usually by electronic means, such as credit cards and mobile data) between participating parties. Participants of a cashless society must figure out a way to protect their transaction data, acknowledging the risks of organizations collecting mass amounts of said data, which result in a reduction of personal privacy. Balancing individual privacy with data security is vital in the information age, especially considering the increasing risk of data breaches and exploitation. In order to increase privacy in a cashless society, a few courses of action can be combined to produce a lasting and desirable result for users: A new kind of banking service that assigns randomized numbers to credit cards, the use of blockchain to monitor all transactions from individuals, and a campaign to educate and inform key stakeholders about security and privacy risks to provide the necessary tools and background knowledge to safeguard their own information before interaction with a foreign entity or other third parties (i.e. cybersecurity departments, IT technicians, etc). Blockchain and card number randomization are both susceptible to zero-day errors, bugs, and varied levels of social acceptance. This preliminary research draws on a systems analysis of cashless systems to identify and analyze a set of social and technical solutions to support a robust cashless system that protects users' privacy and maintains the security of the system.

LIST OF FIGURES

S. No.	Name	Page No.
1	5.1. System Architecture	11
2	5.2. Block Diagram	33
3	6.1. Compilation & Interpretation	14
4	6.2. Execution for different platforms	14
5	6.3. Java Platform	15
6	6.4. Java IDE	17
7	6.7. General J2ME Architecture	25
8	8.1 Data Flow Diagram	32
9	8.2 Activity Diagram Bank Admin	33
10	8.3 Activity Diagram of E-commerce User	34
11	8.4 Activity Diagram Of End User	35
12	8.5 Use case Diagram Of End User	36
13	8.6 Use Case Diagram Of bank Admin	37
14	8.7 Use Case Diagram Of E-Commerce User	38
15	8.8 Sequence Diagram	39
16	8.9 Collaboration Diagram	40
17	8.10 Deployment Diagram	41
18	8.11 Class Diagram	42
19	8.12 E-R Diagram	43

LIST OF ABBREVIATIONS

S. No.	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	CS	Cashless Society
11	DBMS	Database Management System
12	PS	Privacy and Security
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

LIST OF SCREENS

S No	Screen Name	Page No.
1	Home page	83
2	Registration page	84
3	Registration page of bank admin	85
4	Registration successful	86
5	Login page	87
6	SBI bank admin login page	88
7	Admin profile page	89
8	Authorize page	90
9	Authorize page	91
10	Authorize e-commerce users	92
11	SBI bank details	93
12	Credit card request	94
13	All users credit card details	95
14	Fraudulent transctions	96
15	Fraudulent transctions	97
16	All abnormal transctions	98
17	Vie in chart	99
18	View all normal users for no cash	100
19	All abnormal views	101
20	E-commerce user login page	102
21	E-commerce user home page	103
22	View all products	104
23	User purchased products	105

24	All normal and abnormal users	106
25	In chart	107
26	User login	108
27	User home page	109
28	User profile	110
29	Bank account details	111
30	View credit card details	112
31	View credit card transactions	113
32	View all products	114

1. INTRODUCTION

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called *Knowledge Discovery in Database (KDD)*. The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation.

Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

1.1 What is Data Mining?

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining.

In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information.

Data Mining is similar to Data Science carried out by a person, in a specific situation, on a particular data set, with an objective. This process includes various types of services such as text

mining, web mining, audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tonnes of information available on various platforms, but very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

1.1 Types of Data Mining

Data mining can be performed on the following types of data:

Relational Database:

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data searchability, reporting, and organization.

Data Repositories:

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

Object-Relational Database:

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance, etc.

1.3 Advantages of Data Mining

- The Data Mining technique enables organizations to obtain knowledge-based data.
- Data mining enables organizations to make lucrative modifications in operation and production.
- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.
- It Facilitates the automated discovery of hidden patterns as well as the prediction of trends and behaviors.
- It can be induced in the new system as well as the existing platforms.
- It is a quick process that makes it easy for new users to analyze enormous amounts of data in a short time.

1.4 Applications of Data Mining

Data mining in Education:

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

Data Mining in Manufacturing Engineering:

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.

Data Mining Financial Banking:

The Digitalization of the banking system is supposed to generate an enormous amount of data with every new transaction. The data mining technique can help bankers by solving business-related problems in banking and finance by identifying trends, casualties, and correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by experts. The manager may find these data for better targeting, acquiring, retaining, segmenting, and maintain a profitable customer.

2. SYSTEMSTUDY

2.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

2.1.1 ECONOMICALFEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

2.1.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

2.1.3 SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

The 2017 report "A Cashless Society - Benefits, Risks and Issues" from a volunteer working the 2018 update. It focuses on the trends of that year only. Only countries with substantial events party focused on global developments for the topic of a cashless society during the year. This is or announcements are talked about, and only new findings are reported for the ones that featured in the 2017 copy. This copy was collated in the spirit of further developing knowledge, compared to last year. The paper first identifies the driving trends for the year, pointing to structural disruption of the payments ecosystem from conflicting forces. It then reports on regional developments for the topic, with emphasis on India, Kenya, the UK and Australia.

3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, scheme is less effective due to lack of Randomized Credit Card Numbers.
- The existing system, the system is a cashless society poses risks for its members because all of their transactions which will be tracked online.

3.3 PROPOSED SYSTEM

- In order to prevent stores and businesses from collecting information about their customers, randomized card numbers can be used. If a customer using the randomized card system purchases groceries from a store, the items bought will be linked to a certain card number. If the customer with the same card returns to the same store on another day, the purchase will be linked to a different card number than the previous day. The system depicts the difference between using a standard credit card and a randomized card, in relation to a store's database. The database saves the real card number for standard credit cards, and a different number for the randomized one.

- Another system that all levels of government will need to set in place will be a nationalized block chain network, which will handle tracking transactions in a secure and private manner. According to Melanie Swan's Block chain: Blueprint for a New Economy, block chain operates as a public ledger of all transactions. The block chain will have complete information related to each transaction and the data of each person involved in said transaction. Such technology is more secure than other record-keeping systems.
- Block chain's ability to track in real time allows for the elimination of error handling, which also allows for improved traceability. Such a feat would first need to be built by the collective efforts of developers, engineers and designers. Regulations and operators/maintainers can be established through lawmakers initially passing laws that address who will be operating and maintaining the secure block chain network and moving the financial aspects of life to the network

3.4 ADVANTAGES OF PROPOSED SYSTEM

- The system is more effective since The idea of a cashless society includes using digitally based technology to complete transactions, which can range from buying a soda at the convenience store to transferring large amounts of money from one account to another.
- The system is more secured since the system is implemented by Randomized Credit Card Numbers.

4. SOFTWARE MODULES

4.1 MODULES

- Bank Admin
- User
- Ecommerce User

4.2 MODULESDESCRIPTION

Bank Admin

In this module, the Admin has to login by using valid user name and password. After login successful he can do some operations such as View all users and authorize, View E – Commerce Website users and authorize, Add bank with its details such as ,View Credit card request and Process with ,Generate card transaction Bill for a period, Show all Bank Fraud detection in Random-tree-based random forest, View all Normal and Abnormal CC Users for cash limit and give link to show in chart, View all Normal and Abnormal CC Users for no.Cash for purchase transactions and give link to show in chart, View all Normal and Abnormal CC Users for no.Cash to pay and give link to show in chart

User

In this module, there are n numbers of users are present. User should register with group option before doing some operations. After registration successful he has to wait for admin to authorize him and after admin authorized him. He can login by using authorized user name and password. Login successful he will do some operations like View your profile, Manage Bank Account, Request Credit card, View Card Transactions ,Withdraw cash, View your payments and transfer to your cc account, Search products by keyword and purchase View all purchased products.

Ecommerce User

In this module, there are n numbers of users are present. Transport Company user should register with group option before doing some operations. After registration successful he has to wait for admin to authorize him and after admin authorized him. He can login by using authorized user name and password. Login successful he will do some operations like Add Products and view the same ,View all products with ranks, View all purchased products with total bill ,Find fraud detection ,View all normal and abnormal users ,View No.Of Normal and abnormal users in chart.

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

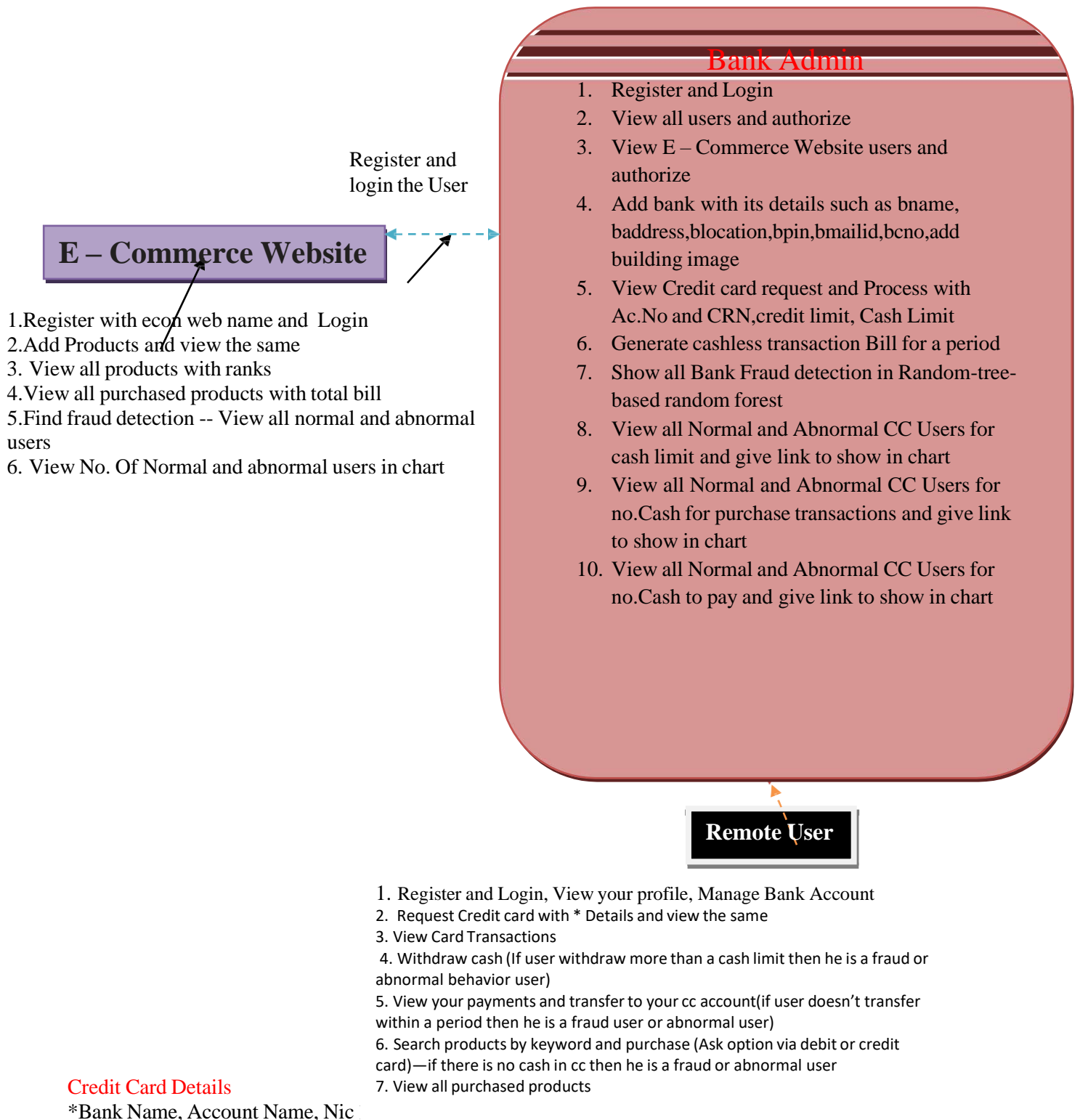
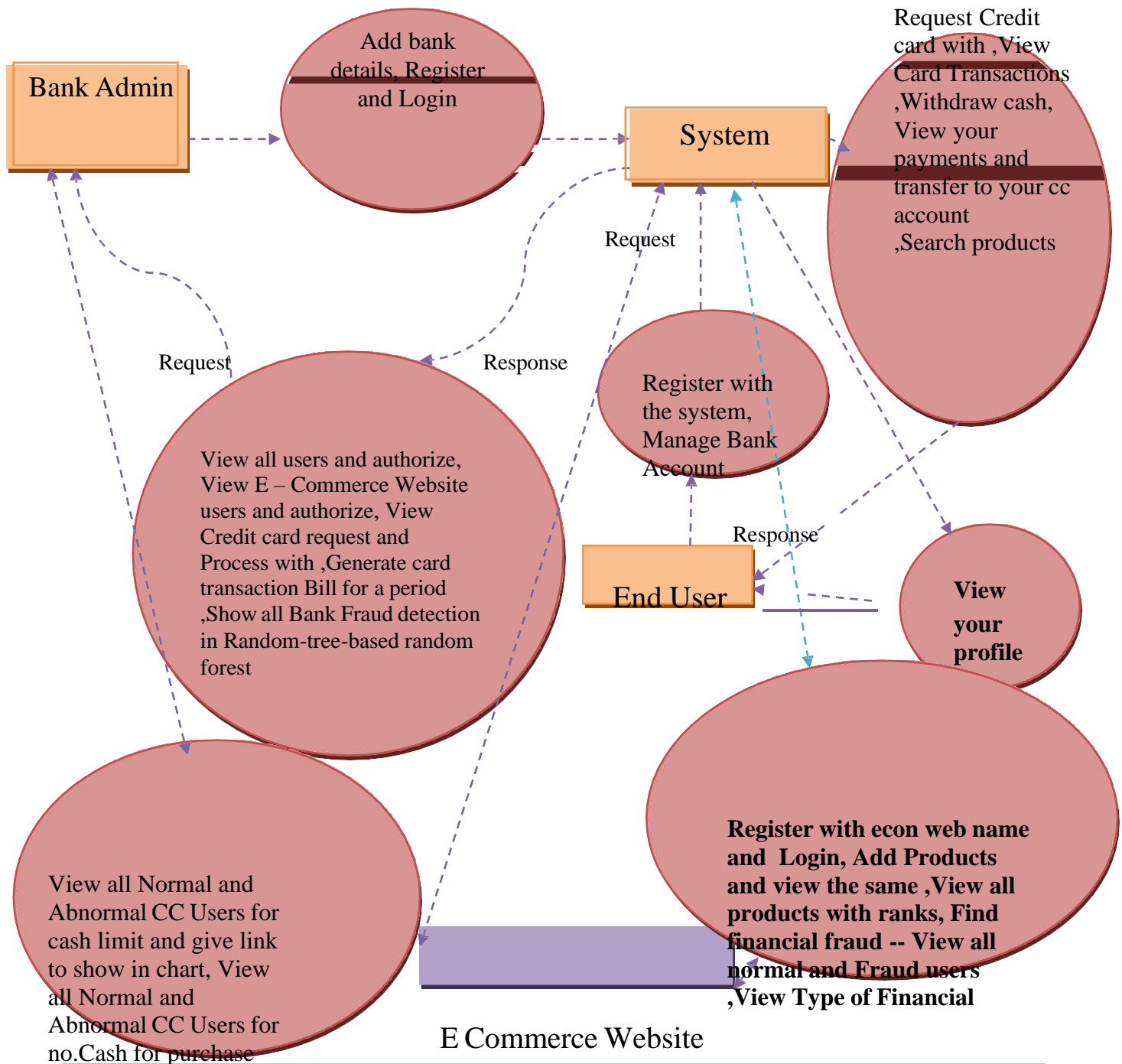


Fig 5.1 System Architecture

5.2 DATA FLOW DIAGRAM



6. SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

Simple Architecture neutral Object oriented Portable Distributed

High performance Interpreted Multithreaded Robust

Dynamic Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

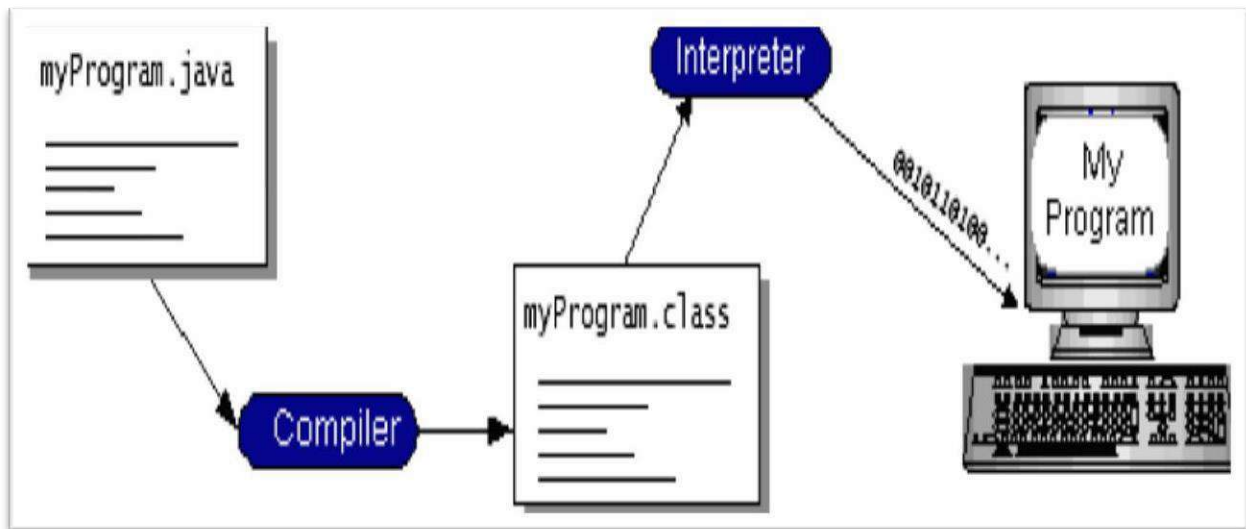


Fig 6.1: Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.

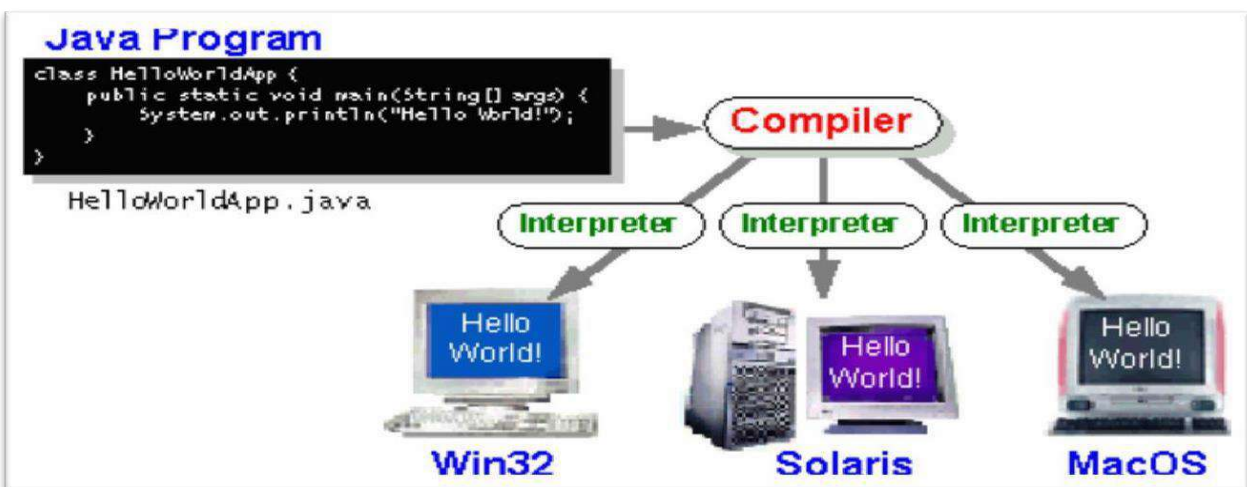


Fig 6.2: Execution for different platforms

6.1 The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

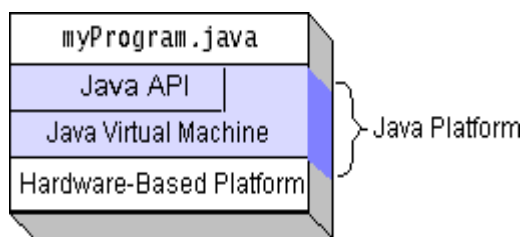


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance

6.2 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific

- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
- **Software components:** Known as JavaBeans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

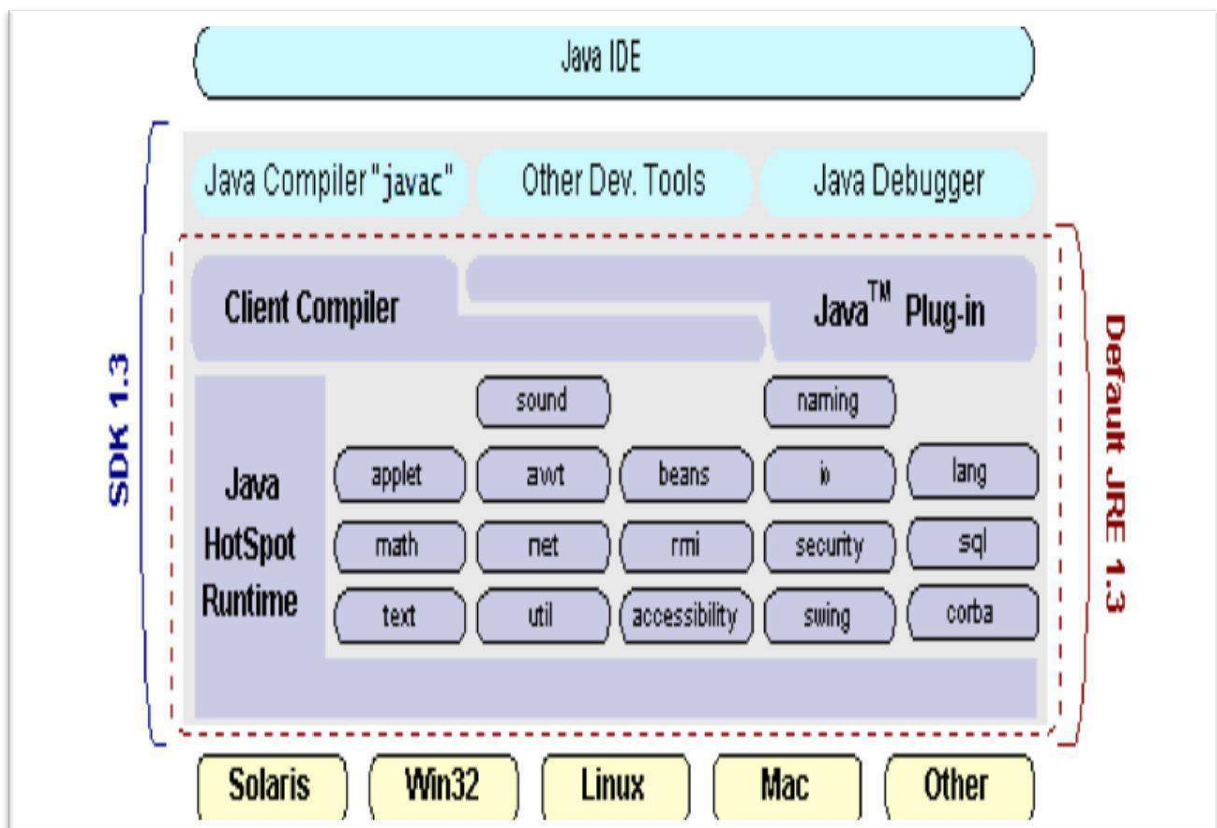


Fig 6.4: Java IDE

6.3 How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

6.4 ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There

is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

6.5 JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and

Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

6.6 JDB

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC's complexities from the end user.

SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the

connectivity module to handle non- standard functionality in a manner that is suitable for its users.

JDBC must be implemental on top of common database interfaces

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

Provide a Java interface that is consistent with the rest of the Java system

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

Use strong, static typing wherever possible

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

Keep the common cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

6.7 SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
> #include
<sys/socket.
h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

6.8 JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file

formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public License (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting some more.

Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts --
- to displays separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the Java One Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

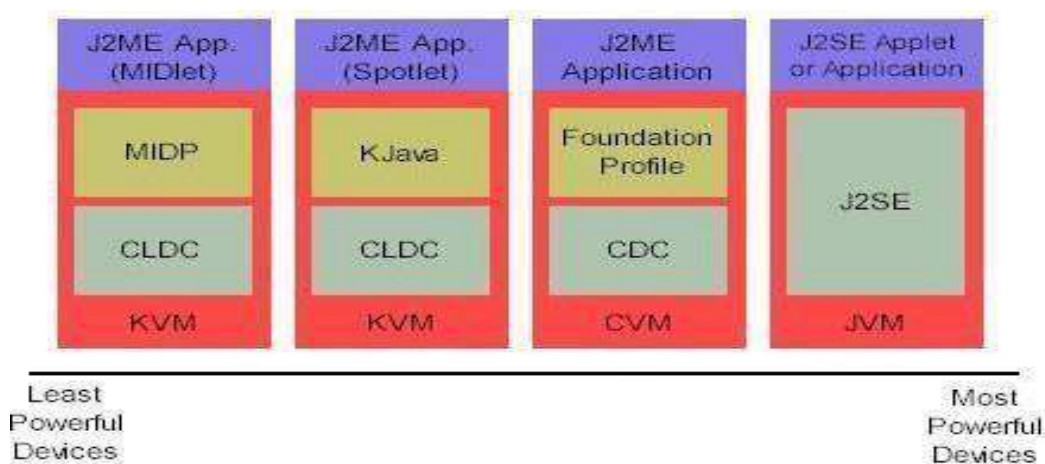


Fig 6.7: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It

also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

Developing J2ME applications

Introduction In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other

ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

Configurations overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

7. SYSTEM REQUIREMENTS

7.1 HARDWARE REQUIREMENTS

- Processor- Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM:4 GB
- Hard Disk: 40 GB.

7.2 SOFTWARE REQUIREMENTS

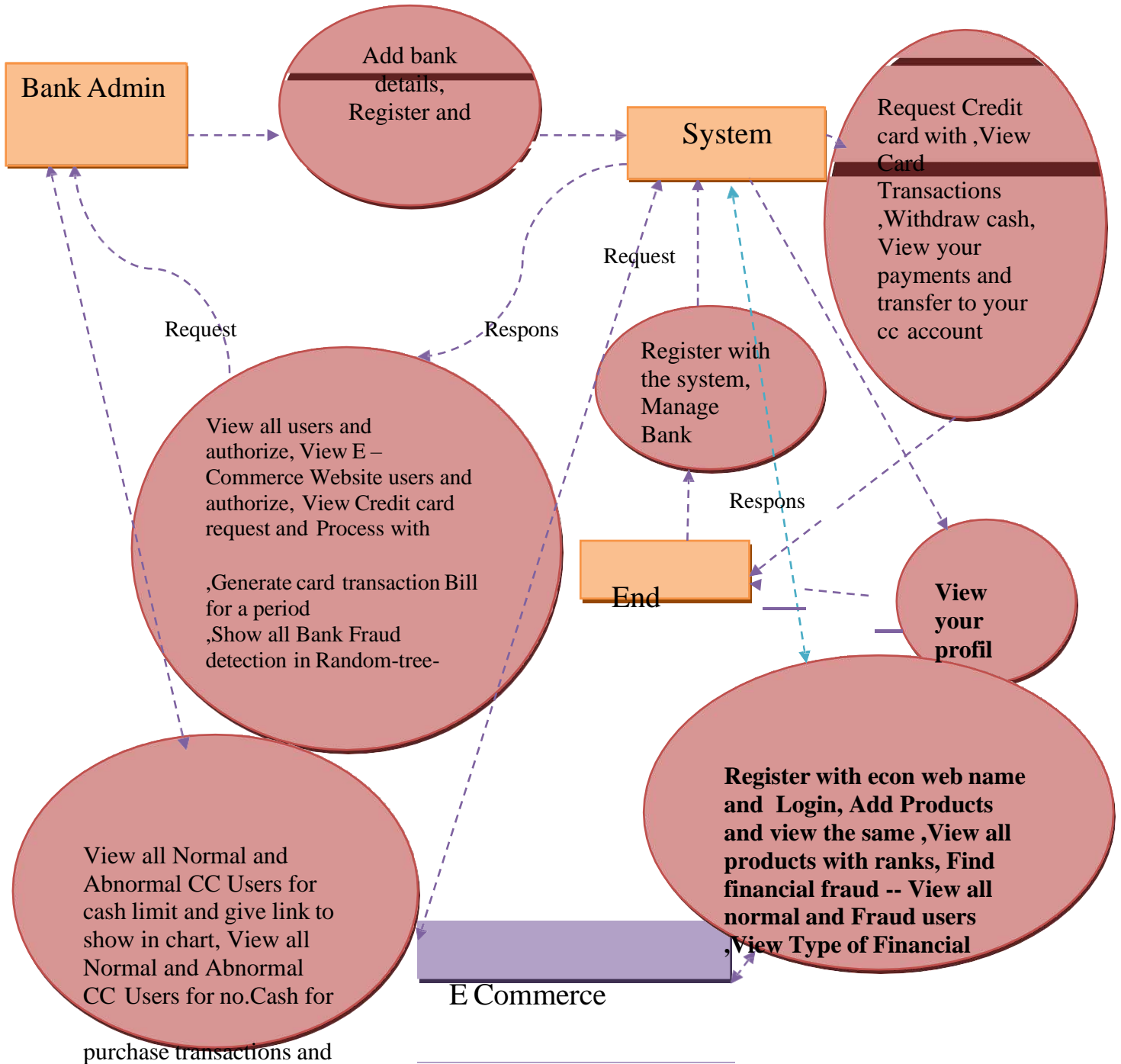
- Operating System: windows 7 / 8.1 / 10/
- Server: Apache Tomcat
- Database: MYSQL Server 5.0
- Frontend: HTML, CSS, JS
- Backend: JSP

8. SYSTEM DESIGN

8.1 DATAFLOWDIAGRAM:

- The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
- The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
- DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
- DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

8.1 DATA FLOW DIAGRAM

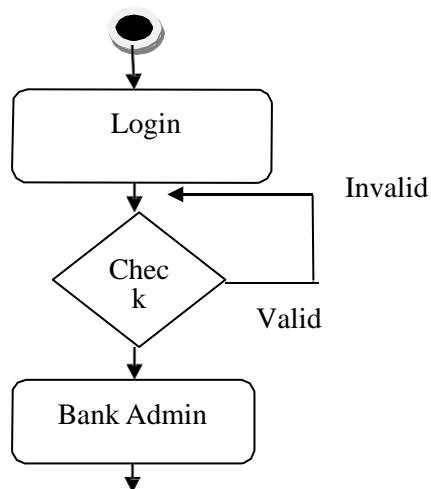


8.1 UML DIAGRAMS

Activity Diagram

Activity diagrams are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language, activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the overall flow of control.

Activity Diagram for Bank Admin



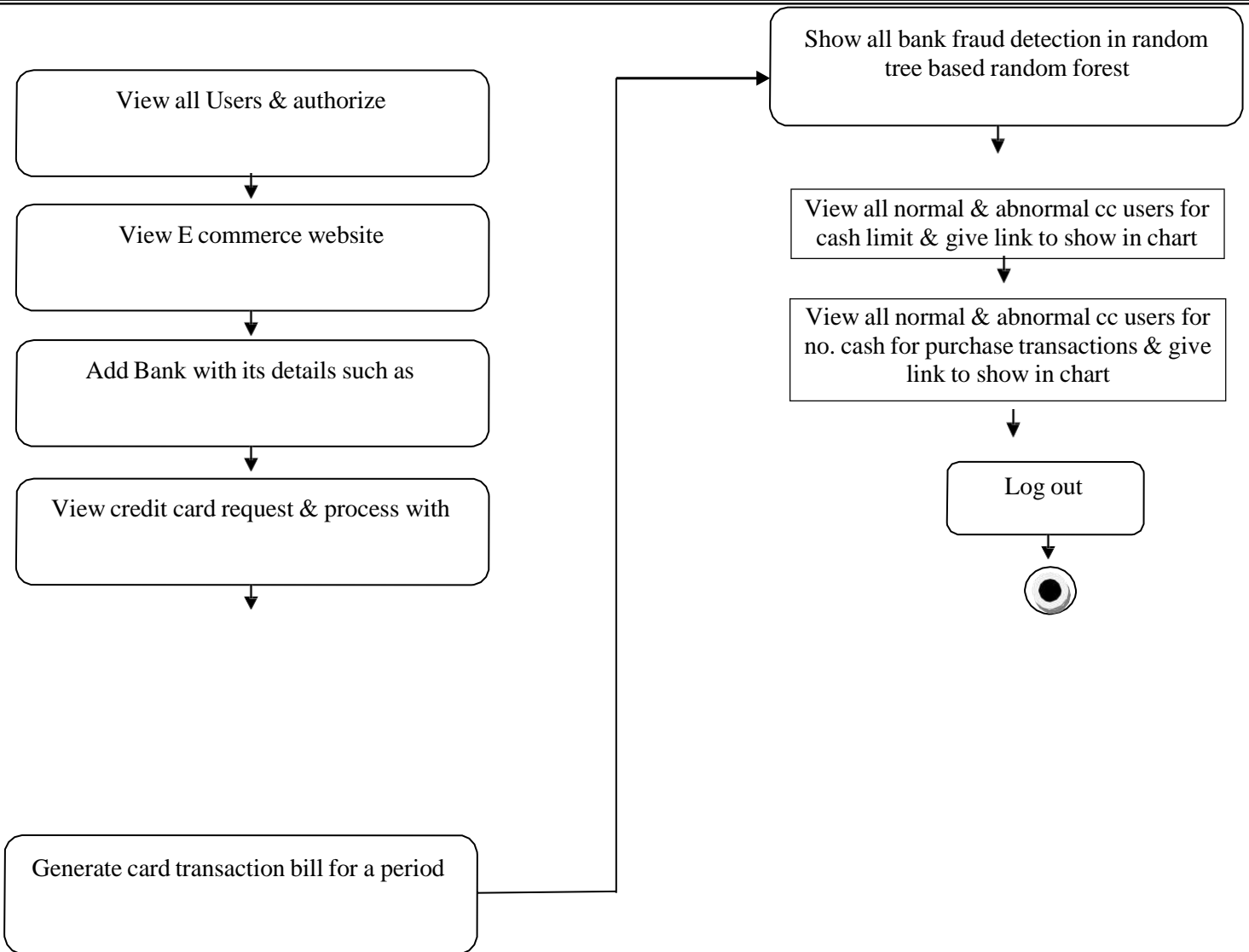


Fig 8.2 Activity Diagram of bank Admin

Activity Diagram for E-Commerce User

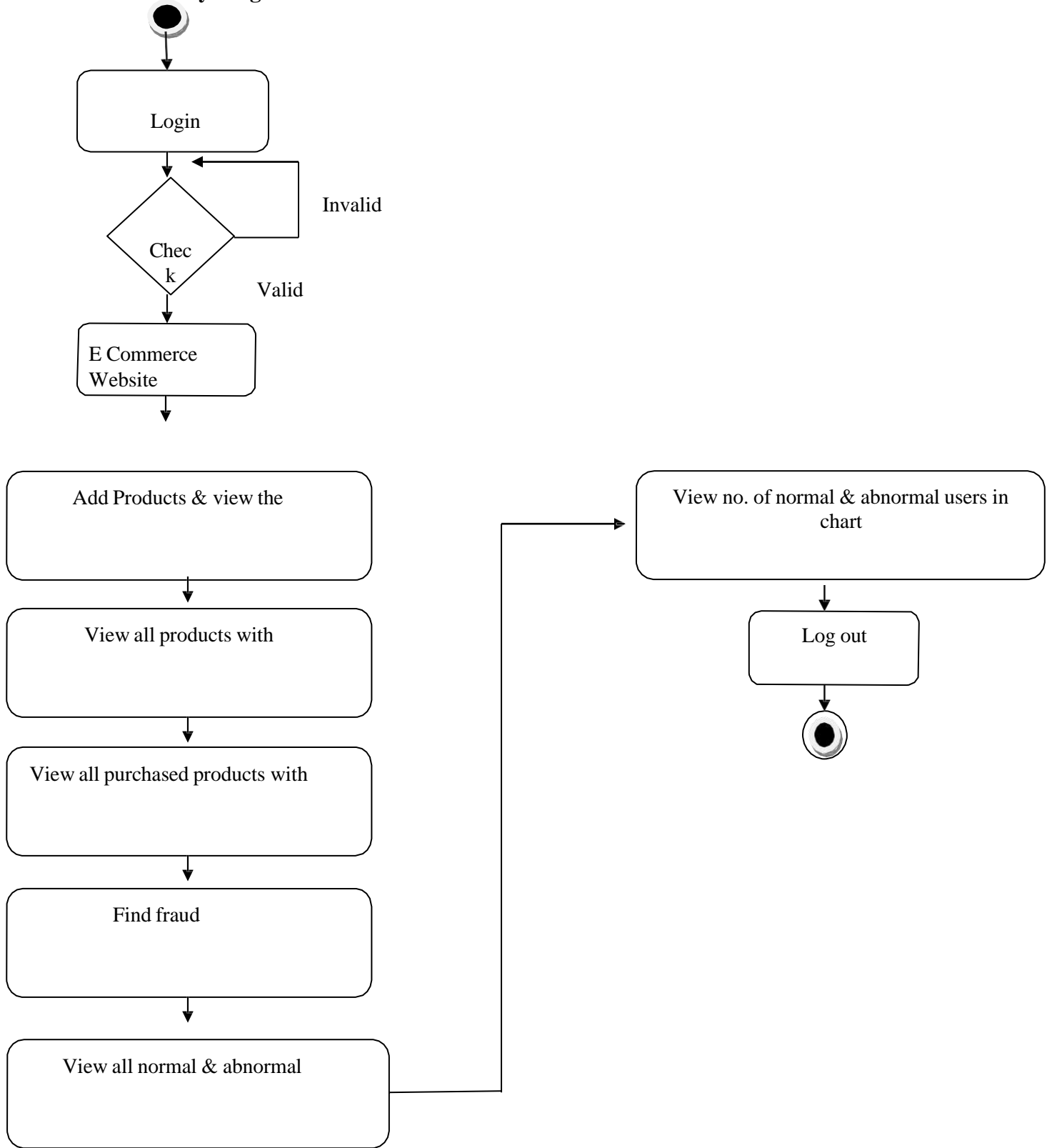


Fig 8.3 Activity Diagram For E-Commerce User

Activity Diagram For End User

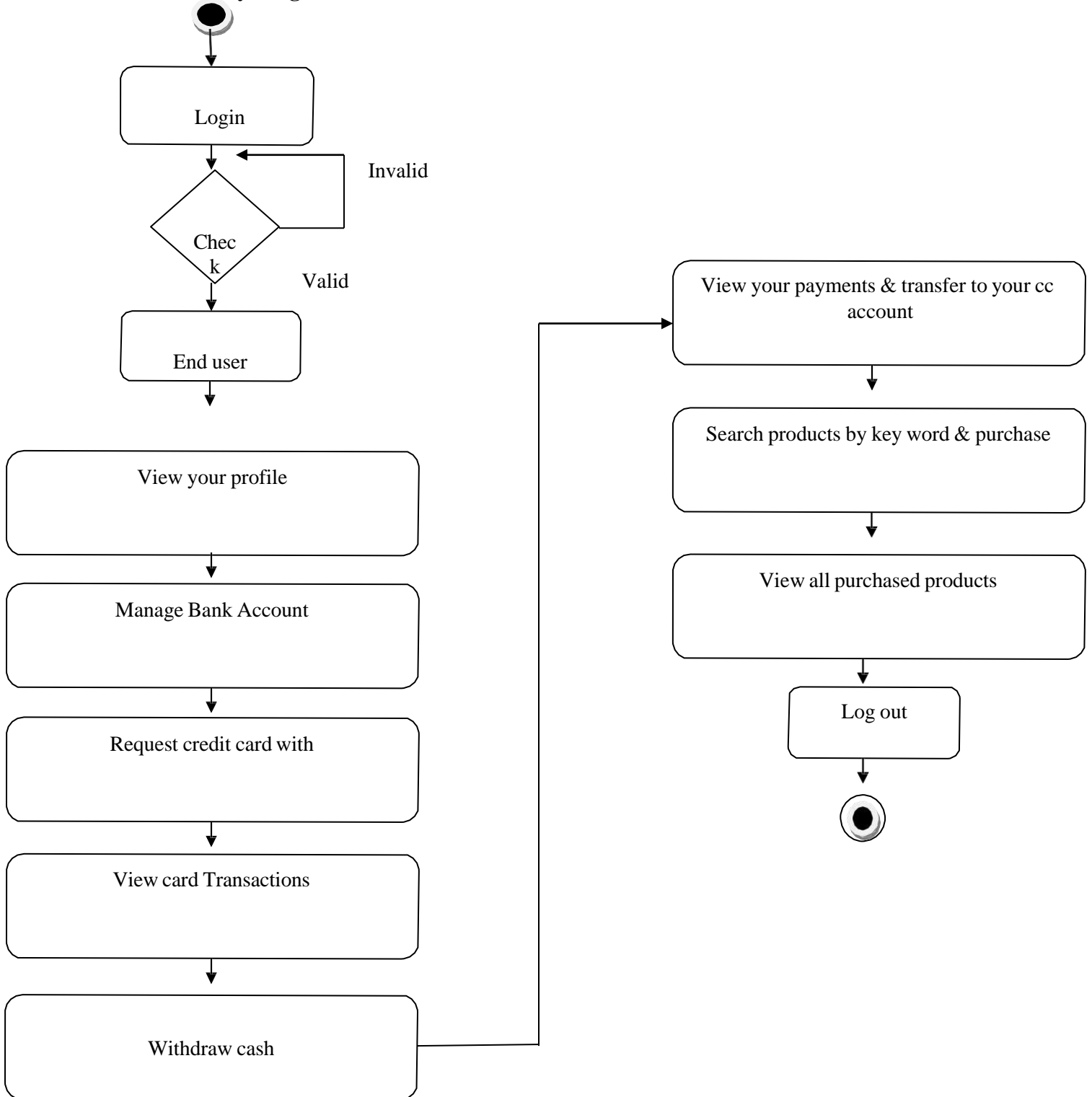


Fig 8.4 Activity Diagram For End User

Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

Use case Diagram for End user

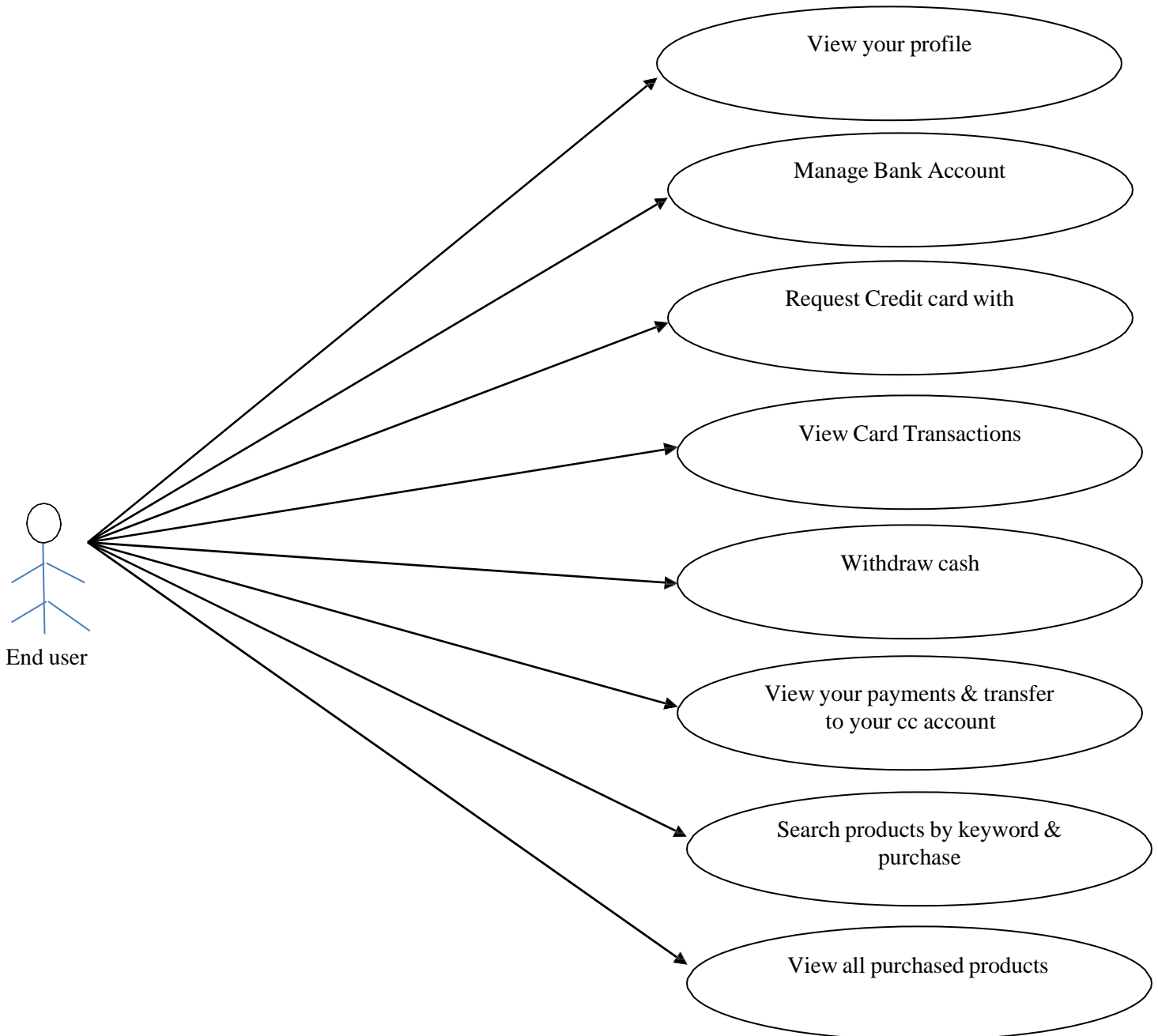


Fig 8.5 Use case Diagram For End User

Use case Diagram for Bank Admin

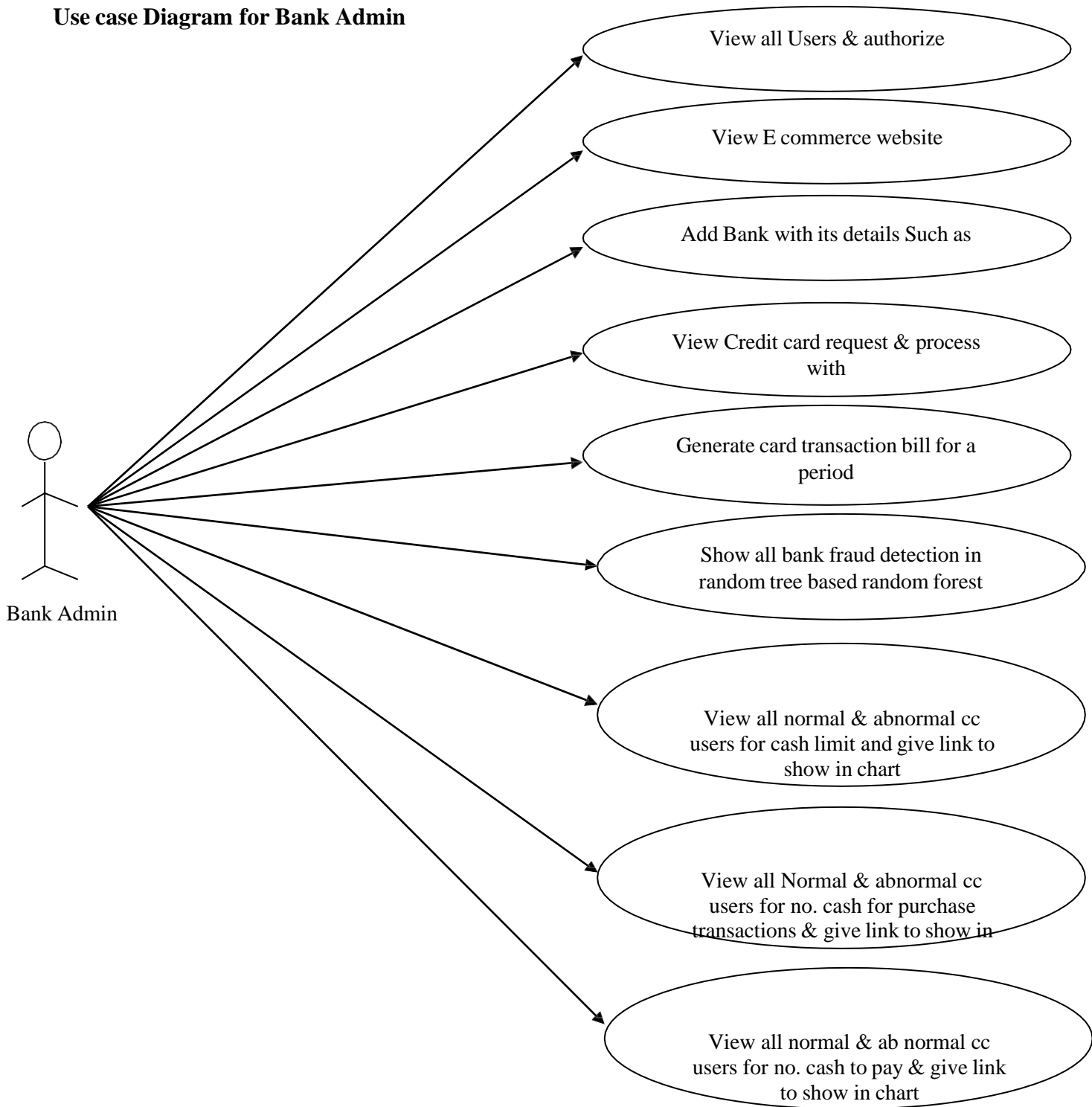


Fig 8.6 Use Case Diagram For Bank Admin

Use Case Diagram for E-Commerce User

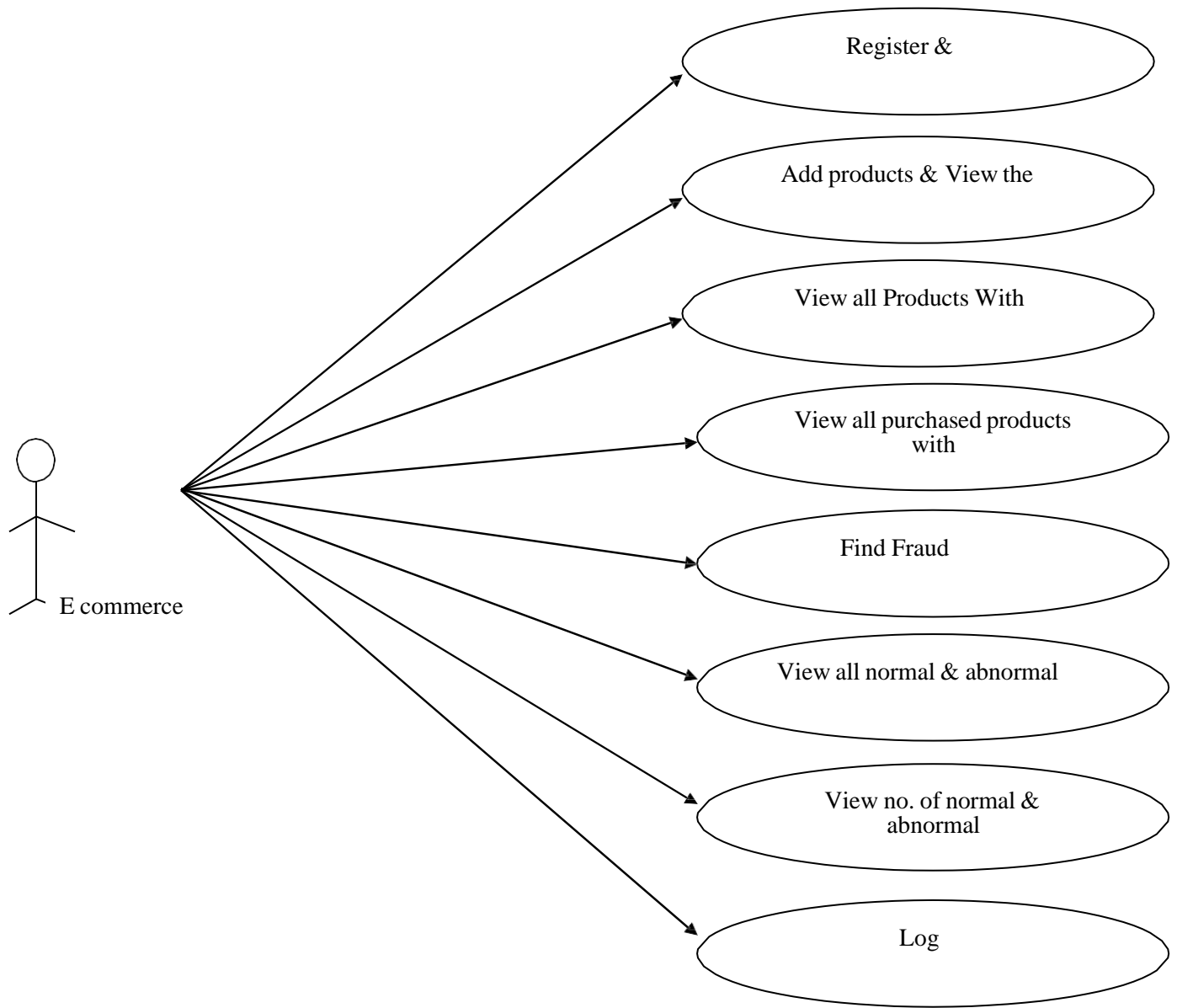


Fig 8.7 Use Case Diagram for E-Commerce User

Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

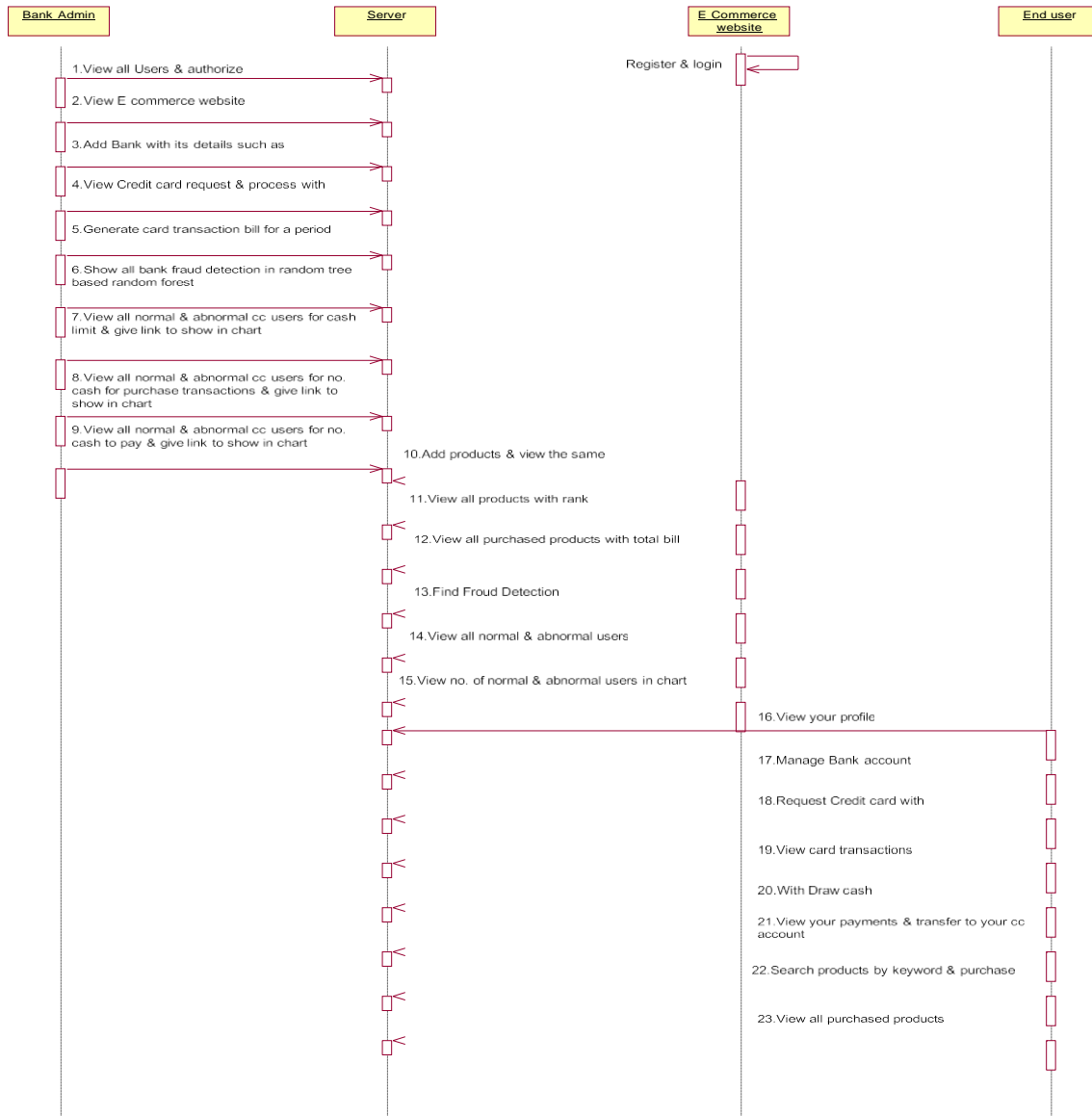


Fig 8.8 Sequence Diagram

Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

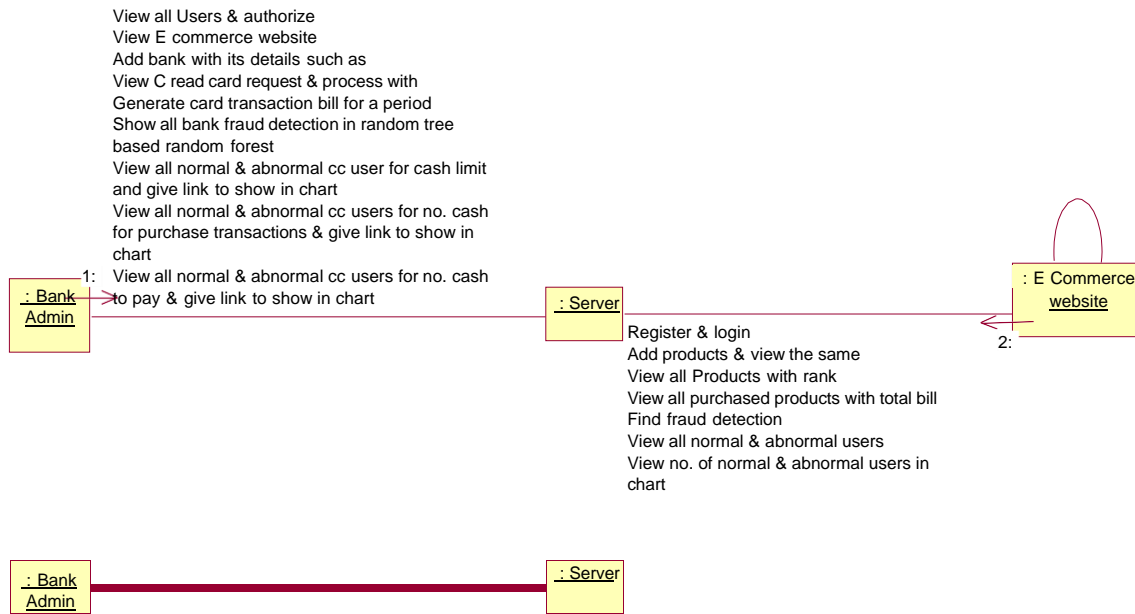


Fig 8.9 Collaboration Diagram

Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

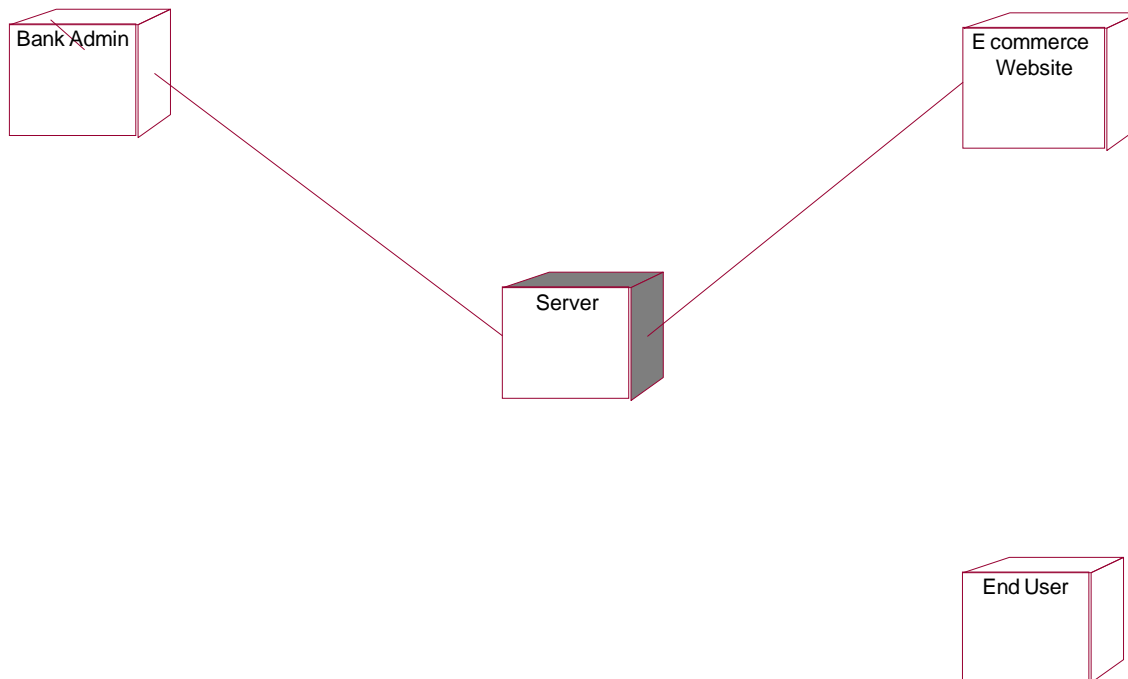


Fig 8.10 Deployment Diagram

Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items. There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.

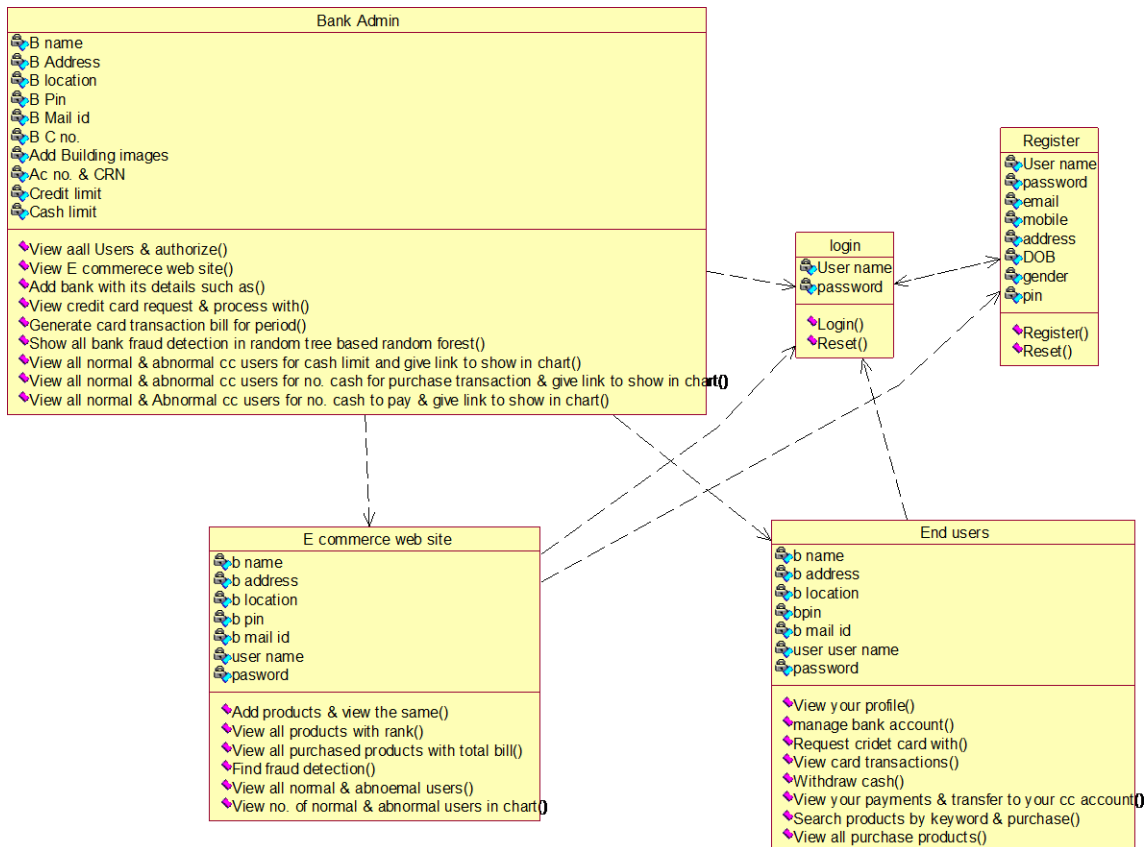


Fig 8.11 Class Diagram

E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.

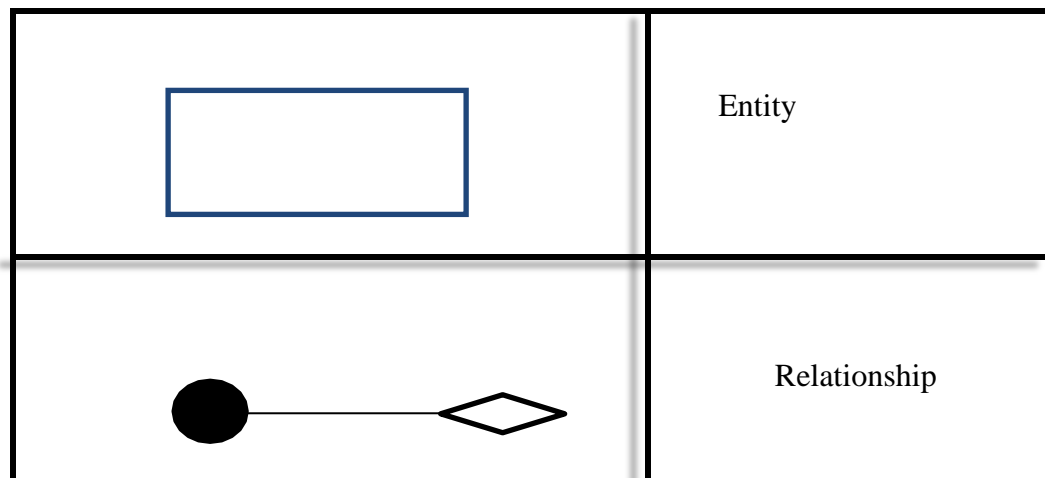


Fig 8.12 E-R Diagram

9. IMPLEMENTATION

9.1. INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

What data should be given as input?

How the data should be arranged or coded?

The dialog to guide the operating personnel in providing input.

Methods for preparing input validations and steps to follow when error occur.

9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

9.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
 - Convey information about past activities, current status or projections of the
 - Future.
 - Signal important events, opportunities, problems, or warnings.

9.4 CODING

A-AddBank.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Adding Bank Details</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/CSS">
<!--
style1 {color:
#FFFF00}style2 {
font-size:
3
6px;
color:
#FF0000;
font-
weight:
bold;
}
.style3 {color: #000000}
.style4 {color: #660000}
-->
</style>
</head>
<body>
<div class="main">
<div class="header_resize">
<div class="logo">
<h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
</div>
<div class="menu_nav">
<ul>
<li class="active"><a href="index.html">Home</a></li>
<li><a href="AdminLogin.jsp">Bank Admin</a></li>
<li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
<li><a href="UserLogin.jsp">User</a></li></ul>

```



```

<div class="mainbar">
  <div class="article">
    <h2 class="style4">Adding Bank Details..</h2>
    <div class="clr"></div>
    <form
action="A_AddBank1.jsp" method="post" enctype="multipart/form-data" id="s" ">
  <%
try{
String bank=request.getParameter("bank");
%>
    <table width="433" border="0" align="center">
      <tr>
        <td width="146" height="36"><div align="justify"><span class="style8 style38
style3"> Bank Name </span> </div></td>
        <td width="277"><label>
          <input type="text" id="t1" name="bname" value="<%=bank%>" />
        </label></td>
      </tr>
      <tr>
        <td height="53"><div align="justify"><span class="style3 style8 style38">Bank
Address</span></div></td>
        <td><label>
          <textarea name="address" cols="19" rows="2" id="textarea"></textarea>
        </label></td>
      </tr>
      <tr>
        <td height="35"><div align="justify"><span class="style3 style8 style38">Bank
Location </span></div></td>
        <td><label>
          <input type="text" id="t3" name="loc" />
        </label></td>
      </tr>
      <tr>
        <td height="35"><div align="justify"><span class="style3 style8 style38">Bank
Pincode </span></div></td>
        <td><label>
          <input type="text" id="t3" name="pin" />
        </label></td>
      </tr>
      <tr>
        <td height="35"><div align="justify"><span class="style3 style8 style38">Bank

```

```

Contact No </span></div></td>
    <td><label>
        <input type="text" id="t3" name="cno" />
    </label></td>
</tr>

<tr>
    <td height="35"><div align="justify"><span class="style3 style8 style38">Bank
Email Id </span></div></td>
    <td><label>
        <input type="text" id="t3" name="mail" />
    </label></td>
</tr>
<tr>
    <td height="38"><div align="justify"><span class="style3 style8 style38">
Select Building Image </span></div></td>
    <td><input type="file" id="userImage" name="image" style="width:100%"
/></td>
</tr>
<tr>
<td>&nbsp;</td>
<td>&nbsp;</td>
</tr>
<tr>
<td height="26">&nbsp;</td>
<td>

    <div align="left">
        <input type="submit" name="Submit" value="Add Bank" />
    </div></td>
</tr>
</table>

```

```

<%
}
catch(Exception e)
{
    out.print(e);
}
%>

```

```

    </form>

<p>&nbsp;</p>

<div align="center"><a href="AdminMain.jsp"
class="style11"><strong>Back</strong></a></div>

</div>

</div>
<div class="sidebar">
  <div class="gadget">
    <h2 class="star"><span>Admin Menu</span></h2>
    <div class="clr"></div>
    <ul class="ex_menu">
      <li><a href="AdminMain.jsp">Home</a></li>
      <li><a href="AdminLogin.jsp">Logout</a></li>
    </ul>
  </div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
  <div class="fbg_resize">

    <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
  </div>
</div>
<div class="footer">
  <div class="footer_resize"></div>
</div>
</div>
</body>
</html>
AddMoney.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
<% @ page import="java.util.*"%>
<% @ page import="java.text.*"%>
<% @ page import="java.util.Date"%>
<% @ page import="java.sql.*"%>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Bank Account Details</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

```

```

<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style3 {color:#FF3300}
.style4 {color: #660000}
.style5 {color: #000000}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li class="active"><a href="index.html">Home</a></li>
          <li><a href="AdminLogin.jsp">Bank Admin</a></li>
          <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
          <li><a href="UserLogin.jsp">User</a></li></ul>
        </div>
      <div class="clr"></div>
    </div>
  </div>
  <div class="content">
    <div class="content_resize">
      <div class="mainbar">
        <div class="article">
          <h2 class="style10" style="float: right;">
            <span class="style4">Adding Money To User</span> <span
            class="style3"><%= (String)application.getAttribute("uname")%></span><span
            class="style4">'s Bank Account.</span></h2>
          <div class="clr"></div>
          <p>&nbsp;</p>

```

```

    <div>
        <%
String user=(String)application.getAttribute("uname");
String accno="";
    String sql="SELECT acc_no FROM userbankaccount where user='"+user+"'";Statement stmt =
connection.createStatement();
ResultSet rs =stmt.executeQuery(sql);
if(rs.next()==true)
{

accno=rs.getString(1);

}

        %>
        <form action="AddMoneyAuthentication.jsp" method="post" >
            <span class="style48">
                <label for="name"><span class="style49 style5">Bank Account Number
(required)</span></label>
            </span>
            <p class="style50">
                <input type="text" name="accno" value="<%=accno%>" readonly/>
            </p>
            <span class="style50">
                <label for="amount"><span class="style5">Amount (required)</span></label>
            </span>
            <p class="style50">
                <input type="text" name="amount" class="text" />
            </p>
            <span class="style50">
                <label for="email"></label>
            </span>
            <p class="style48"><br />
                <input name="submit" type="submit" value="Add Money" />
            </p>
            <p align="left"
class="style22"><a href="U_ManageBankAccount.jsp" class="style11">Back</a></p>
        </form>
    </div>
</div>
<div class="sidebar">

```

```
<div class="gadget">
  <h2 class="star"><span>User Menu</span></h2>
  <div class="clr"></div>
  <ul class="ex_menu">
    <li><a href="UserMain.jsp">Home</a></li>
    <li><a href="UserLogin.jsp">Logout </a></li>
  </ul>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
  <div class="fbg_resize">
    <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
  </div>
</div>
<div class="footer">
  <div class="footer_resize"></div>
</div>
</div>
</body>
</html>
```

AdminLogin.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>BankAdminLoginPage</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style3 {color: #660000}
```

```
.style4 {color: #000000}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li class="active"><a href="index.html">Home</a></li>
          <li><a href="AdminLogin.jsp">Bank Admin</a></li>
          <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
          <li><a href="UserLogin.jsp">User</a></li>
        </ul>
      </div>
      <div class="clr"></div>
    </div>
  </div>
  <div class="content">
    <div class="content_resize">
      <div class="mainbar">
        <div class="article">
          <h2 class="style3">Welcome To Bank Admin Login..</h2>
          <p class="style3">&nbsp;</p>
          <p class="style3"></p>
          <div class="clr"></div>
          <form id="form1" name="form1" method="post" action="AdminAuthentication.jsp">
            <table width="570" border="0" align="left" cellpadding="2" cellspacing="2">
              <tr>
                <td width="185" align="center" valign="middle"><label for="email">
                  <div align="center"><span class="style4"><strong>Select Bank
(required)</strong></span></div>
                </label></td>
                <td><p align="left">
                  <select name="bank">
                    <option>Select</option>
                    <option>SBI Bank</option>
                    <option>Karnataka Bank</option>
                    <option>Corporation Bank</option>
                    <option>Canara Bank</option>
                </p>
            </table>
          </form>
        </div>
      </div>
    </div>
  </div>
</div>
</body>
</html>
```



```

        <option>Indian Bank</option>
    </select></p>        </td>
</tr>
<tr>
<td height="46" align="center" valign="middle"><span class="style4">
<label for="label">        </label>
</span>
<label for="label">
<div align="center"><span class="style4"><strong>Bank Admin Name
(required)</strong></span></div>
</label>
<span class="style35">
<label for="name"></label>
</span></td><td width="371"><input id="name" name="adminid" class="text" /></td>
</tr>
<tr>
<td height="40" align="center" valign="middle"><span class="style35">
<label for="email">        </label>
</span>        <label for="email">
<div align="center"><span class="style4"><strong>Password
(required)</strong></span></div>
</label></td><td><input type="password" id="pass" name="pass" class="text" /></td>
</tr>

<tr>
<td height="47">&nbsp;</td>
<td><input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" />
<span class="style4">New Bank Admin?</span><span class="style38"></span><span
class="style10"><a href="AdminRegister.jsp" class="style30"> <strong>Register</strong>
</a></span></td>
</tr>

<tr>

<td height="49"></td>

<td> <p align="right"><a href="index.html" class="style36">Back</a></p></td>
</tr>
</table>
</form>

</div>
</div>
<p>&nbsp;</p>
<div class="sidebar">
<div class="gadget">
<h2 class="star"><span>Menu</span></h2>

```

```
<ul class="ex_menu">
  <li><a href="AdminLogin.jsp">Home</a></li>
  <li><a href="index.html">Index Page </a></li>
</ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
  <div class="fbg_resize">
    <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
  </div>
</div>
<div class="footer">
  <div class="footer_resize"></div>
</div>
</div>
</body>
</html>
```

AdminRegister.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>BankAdminRegistrationPage</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style3 {color: #660000}
.style4 {color: #000000}
-->
</style>
</head>
```

```
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li class="active"><a href="index.html">Home</a></li>
          <li><a href="AdminLogin.jsp">Bank Admin</a></li>
          <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
          <li><a href="UserLogin.jsp">User</a></li>

        </ul>
      </div>
      <div class="clr"></div>
    </div>
  <div class="content">
    <div class="content_resize">
      <div class="mainbar">
        <div class="article">
          <h2 class="style3">Welcome To Bank Admin Registration Page..</h2>
          <p class="style34">&nbsp;</p>
          <div class="clr"></div>
          <div class="clr"></div>
          <form action="AdminRegisterStatus.jsp" method="post" id="" enctype="multipart/form-
data">
            <label for="name"><span class="style4">Select Bank (required)
            <select name="bank">
              <option>Select</option>
              <option>SBI Bank</option>
              <option>Karnataka Bank</option>
              <option>Corporation Bank</option>
              <option>Canara Bank</option>
              <option>Indian Bank</option>
            </select>
          </span></label>
          <br/><br/>

          <label for="name"><span class="style4">
          Bank Admin Name (required)</span></label>
          <p class="style4">
            <input id="name" name="adminid" class="text" />

```

```
</p>
<span class="style4">
<label for="password">Password (required)</label>
</span>
<p class="style4">
  <input type="password" id="password" name="pass" class="text" />
</p>
<span class="style4">
<label for="email">Email Address (required)</label>
</span>
<p class="style4">
  <input id="email" name="email" class="text" />
</p>
<span class="style4">
<label for="mobile">Mobile Number (required)</label>
</span>
<p class="style4">
  <input id="mobile" name="mobile" class="text" />
</p>
<span class="style4">
<label for="address">Your Address</label>
</span>
<p class="style4">
  <textarea id="address" name="address" rows="2" cols="50"></textarea>
</p>
<span class="style4">
<label for="dob">Date of Birth (required)<br />
</label>
</span>
<p class="style4">
  <input id="dob" name="dob" class="text" />
</p>
<span class="style4">
<label for="gender">Select Gender (required)</label>
</span>
<p class="style4">
  <select id="s1" name="gender" style="width:480px;" class="text">
    <option>--Select--</option>
    <option>MALE</option>
    <option>FEMALE</option>
  </select>
</p>
<span class="style4">
<label for="pic">Select Profile Picture(required)</label>
</span>
<span class="style4">
```

```

<input type="file" id="pic" name="pic" class="text" />
</span>
<p><br />
  <input name="submit" type="submit" value="REGISTER" />
</p>
</form>
<div align="center"><a href="AdminLogin.jsp" class="style39">Back</a></div>
</div>
</div>
<div class="sidebar">
  <div class="gadget">
    <h2 class="star"><span>Menu</span></h2>
    <div class="clr"></div>
    <ul class="ex_menu">
      <li><a href="AdminRegister.jsp">Home</a></li>
      <li><a href="AdminLogin.jsp">Bank Admin</a></li>
    </ul>
  </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
  <div class="fbg_resize">
    <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
  </div>
</div>
<div class="footer">
  <div class="footer_resize"></div>
</div>
</div>
</body>
</html>

```

EcommerceRegister.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Ecommerce User Register Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>

```

```

<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style3 {color: #660000}
.style4 {color: #000000}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li class="active"><a href="index.html">Home</a></li>
          <li><a href="AdminLogin.jsp">Bank Admin</a></li>
          <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
          <li><a href="UserLogin.jsp">User</a></li></ul>
        </div>
        <div class="clr"></div>
      </div>
    </div>
  <div class="content">
    <div class="content_resize">
      <div class="mainbar">
        <div class="article">
          <h2 class="style3">Welcome To E-Commerce User Registration</h2>
          <p class="style3"></p>
          <div class="clr"></div>
          <form action="EcommerceRegisterAuthentication.jsp" method="post" >
            <label for="name"><span class="style4">

```

User Name

```

(required)</span></label>
      <p class="style4">

```

```
<input id="name" name="userid" class="text" />
</p>
<span class="style4">
<label for="password">Password (required)</label>
</span>
<p class="style4">
<input type="password" id="password" name="pass" class="text" />
</p>
<span class="style4">
<label for="email">Email Address (required)</label>
</span>
<p class="style4">
<input id="email" name="email" class="text" />
</p>
<span class="style4"> <label for="mobile">Mobile Number (required)</label>
</span>
<p class="style4">
<input id="mobile" name="mobile" class="text" />
</p>
<span class="style">
<label for="address">Your Address</label>
</span>
<class="style4">
<textarea id="address" name="address" rows="3" cols="50"></textarea>
</p>
<span class="style4">
<label for="dob">Date of Birth (required)<br />
</label>
</span>
<p class="style4">
<input id="dob" name="dob" class="text" />
</ <span class="style4"><label for="gender">Select Gender (required)</label>
</span>
<p class="style4">
<select id="s1" name="gender" style="width:480px;" class="text">
<option>--Select--</option>
<option>MALE</option>
<option>FEMALE</option>
</select>
</p>
<span class="style4">
<label for="gender">Select E-Commerce Site (required)</label>
</span>
```



```

<p class="style4">
    <select id="s2" name="Esite" style="width:480px;" class="text">
        <option>--Select--</option>
        <option>Flipkart</option>
        <option>Amazon</option>
        <option>ebay</option>
        <option>Myntra</option>
    </select>
</p>
<br />
    <input name="submit" type="submit" value="REGISTER" />
</p>
<p>&nbsp;</p>
<p align="left" class="style14"><a href="EcommerceLogin.jsp" class="style11">Back</a></p>
</form>

</div>
</div>
<div class="sidebar">
    <div class="gadget">
        <h2 class="star"><span>Menu</span></h2>
        <div class="clr"></div>
        <ul class="ex_menu">
            <li><a href="EcommerceLogin.jsp">Home</a></li>

        </ul>
    </div>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
    <div class="fbg_resize">
        <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
    </div>
</div>
<div class="footer">
    <div class="footer_resize"></div>
</div>
</div>
</body>
</html>0

```

UserLogin.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Login Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style4 {color: #660000}
```

```

.style5 {color: #000000}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li class="active"><a href="index.html">Home</a></li>
          <li><a href="AdminLogin.jsp">Bank Admin</a></li>
          <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
          <li><a href="UserLogin.jsp">User</a></li>
        </ul>
      </div>
      <div class="clr"></div>
    </div>
  </div>
  <div class="content">
    <div class="content_resize">
      <div class="mainbar">
        <div class="article">
          <h2 class="style4">Welcome To User Login</h2>
          <p class="style4">&nbsp;</p>
          <p class="style4"></p>
          <div class="clr"></div>
          <form id="form1" name="form1" method="post" action="UserAuthentication.jsp">
            <table width="570" border="0" align="left" cellpadding="2" cellspacing="2">
              <tr>
                <td width="185" align="center" valign="middle"><label for="email">
                  <div align="center"><span class="style34 style5"><strong>Select Bank
(required)</strong></span></div>
                </label></td>
                <td><p align="left">
                  <select name="bank">
                    <option>Select</option>
                    <option>SBI Bank</option>
                    <option>Karnataka Bank</option>
                    <option>Corporation Bank</option>
                    <option>Canara Bank</option>
                    <option>Indian Bank</option>
                </p>
            </table>

```

```

        </select></p>                </td>
    </tr>
    <tr>
        <td height="46" align="center" valign="middle"><span class="style35">
            <label for="label">                </label>
        </span>
        <label for="label">
        <div align="center"><span class="style35 style5"><strong>User Name
(required)</strong></span></div>
        </label>
        <span class="style35">
            <label for="name"></label>
        </span></td><td width="371"><input id="name" name="userid" class="text" /></td>
    </tr>
    <tr>
        <td height="40" align="center" valign="middle"><span class="style35">
            <label for="email">                </label>
        </span>                <label for="email">
        <div align="center"><span class="style35 style5"><strong>Password
(required)</strong></span></div>
        </label></td><td><input type="password" id="pass" name="pass" class="text" /></td>
    </tr>

    <tr>
        <td height="47">&nbsp;</td>
        <td><input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" />
        <span class="style38 style5">New User?</span><span class="style10"><strong><a
href="UserRegister.jsp" class="style30"> Register </a></strong></span></td>
    </tr>

    <tr>
        <td height="49"></td>

        <td><p align="right"><a href="index.html" class="style36">Back</a></p></td>
    </tr>
</table>
</form>

</div>
</div>
<div class="sidebar">
    <div class="gadget">
        <h2 class="star"><span>Menu</span></h2>
        <div class="clr"></div>
        <ul class="ex_menu">
            <li><a href="UserLogin.jsp">Home</a></li>
            <li><a href="index.html">Index Page</a></li>

```

```
</ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
  <div class="fbg_resize">
    <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
  </div>
</div>
<div class="footer">
  <div class="footer_resize"></div>
</div>
</body>
</html>
```

UserMain.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Main Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style3 {color:#FF3300}
.style4 {color: #660000}
-->
</style>
</head>
<body>
<div class="main"
```

```

<div class="header">
  <div class="header_resize">
    <div class="logo">
      <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
    </div>
    <div class="menu_nav">
      <ul>
        <li class="active"><a href="index.html">Home</a></li>
        <li><a href="AdminLogin.jsp">Bank Admin</a></li>
        <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
        <li><a href="UserLogin.jsp">User</a></li></ul>
      </div>
    <div class="clr"></div>
  </div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">
        <h2 class="style10 style14"><span class="style4">Welcome User</span> <span
class="style3"><%= (String)application.getAttribute("uname")%></span><span
class="style4">..</span> </h2>
        <p class="style10 style14">&nbsp;</p>
        <p class="style10 style14"></p>
        <p class="style10 style14">&nbsp;</p>
        <p class="style10 style14">&nbsp;</p>
        <p class="style10 style14">&nbsp;</p>
        <div class="clr"></div>
      </div>
    </div>
  </div>
<div class="sidebar">
  <div class="gadget">
    <h2 class="star"><span>User Menu</span></h2>
    <div class="clr"></div>
    <ul class="ex_menu">
      <li><a href="UserMain.jsp">Home</a></li>
      <li><a href="UserProfile.jsp">View My Profile</a></li>
      <li><a href="U_ManageBankAccount.jsp">Manage Bank Account </a></li>
<li><a href="U_CreditCardRequest.jsp">Request Credit Card </a></li>
<li><a href="U_CreditCard.jsp">View Credit Card Details </a></li>
      <li><a href="U_ViewCCTransactions.jsp">View Card Transactions </a></li>
      <li><a href="U_WithdrawMoney.jsp">Withdraw Cash</a> </li>
    </ul>
  </div>
</div>

```

```

    <li><a href="U_ViewPayments.jsp">View Your Payments and Transfer to Your Credit
Card Account</a></li>
    <li><a href="SearchProducts.jsp">Search products by keyword and purchase </a></li>
    <li><a href="U_PurchasedProducts.jsp">View All Purchased Products </a></li>
    <li><a href="UserLogin.jsp">Log Out </a></li>
  </ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
  <div class="fbg_resize">
    <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
  </div>
</div>
<div class="footer">
  <div class="footer_resize"></div>
</div>
</div>
</body>
</html>

```

ECommerceMain.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Ecommerce Main</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style4 {color: #660000}
.style6 {font-size: 24px; }
-->
</style>

```



```

</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li class="active"><a href="index.html">Home</a></li>
          <li><a href="AdminLogin.jsp">Bank Admin</a></li>
          <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
          <li><a href="UserLogin.jsp">User</a></li></ul>
        </div>
        <div class="clr"></div>
      </div>
    </div>
    <div class="content">
      <div class="content_resize">
        <div class="mainbar">
          <div class="article">
            <h2 class="style4">Welcome <span class="style6"
style="color:#FF6600"><%= (String)application.getAttribute("esite")%></span> User <span
class="style6"
style="color:#FF0066"><%= (String)application.getAttribute("ename")%></span>..</h2>
            <p class="style4"></p>
            <div class="clr"></div>
          </div>
        </div>
      </div>
      <div class="sidebar">
        <div class="gadget">
          <h2 class="star"><span>Ecommerce Menu</span></h2>
          <div class="clr"></div>
          <ul class="ex_menu">
            <li><a href="EcommerceMain.jsp"><strong>Home</strong></a></li>
            <li><a href="E_AddProduct.jsp"> <strong>Add Products</strong></a></li>
            <li><a href="ViewProducts.jsp"><strong>View all products with ranks</strong></a></li>
            <li><a href="E_PurchasedProducts.jsp"><strong>View all purchased products with total
bill</strong></a></li>
            <li><a href="E_AllccPurchaseFraud.jsp"><strong>Find Fraud Detection (View all normal and
abnormal users)</strong></a></li>
            <li><a href="E_AllccPurchaseFraudInChart.jsp"><strong>View No of Normal and Abnormal

```

users in chart

Logout

</div>

</div>

<div class="clr"></div>

</div>

</div>

<div class="fbg">

<div class="fbg_resize">

<div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>

</div>

</div>

<div class="footer">

<div class="footer_resize"></div>

</div>

</div>

</body>

</html>

BankAccountCreation.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
    <% @ page import="java.io.*" %>
    <% @ page import="java.util.*" %>
    <% @ page import="com.oreilly.servlet.*" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>BankAdminMain</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style3 {color: #660000}
.style5 {color: #2C83B0}
.style7 {color: #FF3300}
-->
</style>
</head>
<body>
<div class="main">
    <div class="header">
        <div class="header_resize">
            <div class="logo">
                <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
            </div>
            <div class="menu_nav">
                <ul>
                    <li class="active"><a href="index.html">Home</a></li>
                    <li><a href="AdminLogin.jsp">Bank Admin</a></li>
                    <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
                    <li><a href="UserLogin.jsp">User</a></li>
                </ul>
            </div>
        </div>
    </div>

```

```

    <div class="clr"></div>
  </div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">
        <h2 class="style10 style14"><span class="style3">Welcome To</span><span
class="style5"> <%= (String)application.getAttribute("adbank")%> </span><span
class="style3">Authority</span> <span
class="style7"><%= (String)application.getAttribute("adname")%></span><span
class="style3">..</span> </h2>

<p> <%
                                                                    String bank
                                                                    = (String)application.getAttribute("adbank");
                                                                    %>

</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p></p>
<p>&nbsp;</p>
    </div>
  </div>
  <div class="sidebar">
    <div class="gadget">
      <h2 class="star"><span>Admin Menu</span></h2>
      <div class="clr"></div>
      <ul class="ex_menu">
        <li><a href="AdminMain.jsp">Home</a></li>
        <li><a href="AdminProfile.jsp">Bank Admin's Profile</a> </li>
        <li><a href="A_AuthorizeUsers.jsp">View Users and Authorize</a> </li>
                                                                    <li><a
href="A_AuthorizeEUsers.jsp">View E-Commerce Users and Authorize</a> </li>
                                                                    <li><a
href="A_AddBank.jsp?bank=<%=bank%>">Add Bank</a> </li>
                                                                    <li><a
href="A_ViewBank.jsp">View Bank Details</a> </li>
                                                                    <li><a href="A_ViewCCRequest.jsp">View Credit Card Requests</a> </li>
                                                                    <li><a href="A_CardTransactionBill.jsp">Generate Card Transaction Bill for a Period
</a></li>
                                                                    <li><a href="A_AllBankFraud.jsp">Show all Bank Fraudulent Transactions</a> </li>

```

```
href="A_AllccPurchaseFraud.jsp">View all Normal and Abnormal Users for No Cash for
purchase transactions </a> </li>
</li><a
href="A_AllccNoCashFraud.jsp">View all Normal and Abnormal CC Users for no.Cash to pay
</a> </li>
<li><a href="AdminLogin.jsp">Logout </a></li>
</ul>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
<div class="fbg_resize">
<div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
</div>
</div>
<div class="footer">
<div class="footer_resize"></div>
</div>
</div>
</body>
</html>
```

AdminProfile.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
<% @ page import="org.bouncycastle.util.encoders.Base64"%>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Admin's Profile</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold
```

```
}
.style3 {color: #660000}
.style7 {color: #FF3300}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
      </div>
      <div class="menu_nav">
        <ul>
          <li class="active"><a href="index.html">Home</a></li>
          <li><a href="AdminLogin.jsp">Bank Admin</a></li>
          <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
          <li><a href="UserLogin.jsp">User</a></li>

        </ul>
      </div>
      <div class="clr"></div>
    </div>
  </div>
  <div class="content">
    <div class="content_resize">
      <div class="mainbar">
        <div class="article">
          <h2 class="style10 style14"><span class="style3">Bank Admin</span> <span
class="style7"><%= (String)application.getAttribute("adname")%></span><span
class="style3">'s Profile..</span></h2>
          <div class="clr"></div>
          <p>&nbsp;</p>
          <table width="519" border="1.5" align="center" cellpadding="0" cellspacing="0" >

            <%
String name=(String )application.getAttribute("adname");
String bank=(String )application.getAttribute("adbank");

String s1,s2,s3,s4,s5,s6;
int i=0;
try
```

```

        {
String query="select * from bankadmin where username='"+name+"' and bank='"+bank+"'";
Statement st=connection.createStatement();
ResultSet rs=st.executeQuery(query);

if ( rs.next() )

{
i=rs.getInt(1);
s1=rs.getString(2);
s2=rs.getString(5);
s3=rs.getString(6);

                                                                                               %>
        <tr>
            <td width="226" rowspan="6" ><div class="style7 style26" style="margin:10px 13px 10px 13px;" ><strong><a class="#" id="img1" href="#" >
                <input name="image" type="image"
src="user_Pic.jsp?picture=<%= "bankadmin"%>&id=<%=i%>" style="width:200px;
height:200px;" />
                </a></strong></div></td>
            </tr>
            <tr>
                <td valign="middle" height="40" style="color: #2c83b0;"><div align="left"
class="style15 style22 style33 style3" style="margin-left:20px;"><strong>Bank Name
</strong></div></td>
                <td valign="middle" height="40" style="color:#000000;"><div align="left"
class="style42 style41 style10" style="margin-left:20px;"><strong>
                    <%out.println(s1);%>
                    </strong></div></td>
            </tr>
            <tr>
                <td width="122" valign="middle" height="40" style="color: #2c83b0;"><div
align="left" class="style15 style22 style33 style3" style="margin-left:20px;"><strong>E-
Mail</strong></div></td>
                <td width="163" valign="middle" height="40" style="color:#000000;"><div
align="left" class="style42 style41 style10" style="margin-left:20px;"><strong>
                    <%out.println(s2);%>
                    </strong></div></td>
            </tr>
            <tr>
                <td width="122" valign="middle" height="40" style="color: #2c83b0;"><div
align="left" class="style15 style22 style33 style3" style="margin-
left:20px;"><strong>Mobile</strong></div></td>
                <td width="163" valign="middle" height="40" style="color:#000000;"><div
align="left" class="style42 style41 style10" style="margin-left:20px;"><strong>

```



```

        <% out.println(s3);%>
            </strong></div></td>
    </tr>
    <tr>
        <td width="122" align="left" valign="middle" height="40" style="color:
#2c83b0;"><div align="left" class="style15 style22 style33 style3" style="margin-
left:20px;"><strong>Address</strong></div></td>
        <td width="163" align="left" valign="middle" height="40"
style="color:#000000;"><div align="left" class="style42 style41 style10" style="margin-
left:20px;"><strong>
            <% out.println(s4);%>
                </strong></div></td>
    </tr>
    <tr>
        <td width="122" align="left" valign="middle" height="40" style="color:
#2c83b0;"><div align="left" class="style15 style3 style22 style33" style="margin-
left:20px;"><strong>Date of Birth</strong></div></td>
        <td width="163" align="left" valign="middle" height="40"
style="color:#000000;"><div align="left" class="style42 style41 style10" style="margin-
left:20px;"><strong>
            <% out.println(s5);%>
                </strong></div></td>
    </tr>
    <%
        </table>
        <p align="right">&nbsp;</p>
        <p align="center"><a href="AdminMain.jsp" class="style11">Back</a></p>
        </div>
    </div>
    <div class="sidebar">
        <div class="gadget">
            <h2 class="star"><span>Menu</span></h2>
            <div class="clr"></div>
            <ul class="ex_menu">
                <li><a href="AdminMain.jsp">Home</a></li>
                <li><a href="AdminLogin.jsp">Logout</a></li>
            </ul>
        </div>
    </div>
    <div class="clr"></div>
</div>

```

```
</div>
<div class="fbg">
  <div class="fbg_resize">
    <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
  </div>
</div>
<div class="footer">
  <div class="footer_resize"></div>
</div>
</body>
</html>
```

PaymentType.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Payment Options</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
.style2 {
font-size: 36px;
color: #FF0000;
font-weight: bold;
}
.style3 {color:#FF3300}
.style4 {color: #660000}
.style5 {color: #FF3300; font-weight: bold; }
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
        <h1 class="style1"><a href="index.html" class="style1"> Cashless Society Managing
Privacy and Security in the Technological Age</a></h1>
```

```

</div>
<div class="menu_nav">
  <ul>
    <li class="active"><a href="index.html">Home</a></li>
    <li><a href="AdminLogin.jsp">Bank Admin</a></li>
    <li><a href="EcommerceLogin.jsp">E-Commerce</a></li>
    <li><a href="UserLogin.jsp">User</a></li></ul>
  </div>
  <div class="clr"></div>
</div>
</div>
<div class="content">
  <div class="content_resize">
    <div class="mainbar">
      <div class="article">
<h2 class="style4">Select Cashless Payment Option..</h2>
        <div class="clr"></div>
        <p>&nbsp;</p>

<table width="206" border="0" align="left" cellpadding="2" cellspacing="2">
  <tr>
    <td width="198"><ul class="sb_menu"><li>
      <p class="style3"><a
href="PurchaseViaDebit.jsp?p_Name=<%=p_Name%>&amp;p_Mfg=<%=p_Mfg%>&amp;price=<%=price%>&amp;site=<%=site%>" class="style5" style="color:#CC0066">Debit Card
</a></p>
      </li>
      <li>
        <p class="style40"><a
href="PurchaseViaCredit.jsp?p_Name=<%=p_Name%>&amp;p_Mfg=<%=p_Mfg%>&amp;price=<%=price%>&amp;site=<%=site%>" class="style3"
style="color:#CC0066"><strong>Credit Card </strong></a></p>
        </li>
      </ul></td>
    </tr>
  </table>

<p>&nbsp;</p>

class="style19">&nbsp;<

<p><a href="UserMain.jsp" class="style16">Back</a></p>

</div>
<div class="sidebar">

```

```
<div class="gadget">
  <h2 class="star"><span>User Menu</span></h2>
  <div class="clr"></div>
  <ul class="ex_menu">
    <li><a href="UserMain.jsp">Home</a></li>
    <li><a href="UserLogin.jsp">Log Out </a></li>
  </ul>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
  <div class="fbg_resize">
    <div class="clr style2">Cashless Society Managing Privacy and Security in the
Technological Age</div>
  </div>
</div>
<div class="footer">
  <div class="footer_resize"></div>
</div>
</div>
</body>
</html>
```

10. SYSTEM TESTING

SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

10.1 TYPES OF TESTING

Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, the combination of components is incorrect and inconsistent. Integration testing is specifically aimed at exposing

Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals. Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

10.1 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

10.1.1 All field entries must work properly.

10.1.2 Pages must be activated from the identified link.

10.1.3 The entry screen, messages and responses must not be delayed.

Features to be tested

10.1.4 Verify that the entries are of the correct format

10.1.5 No duplicate entries should be allowed

All links should take the user to the correct page.

Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects. The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

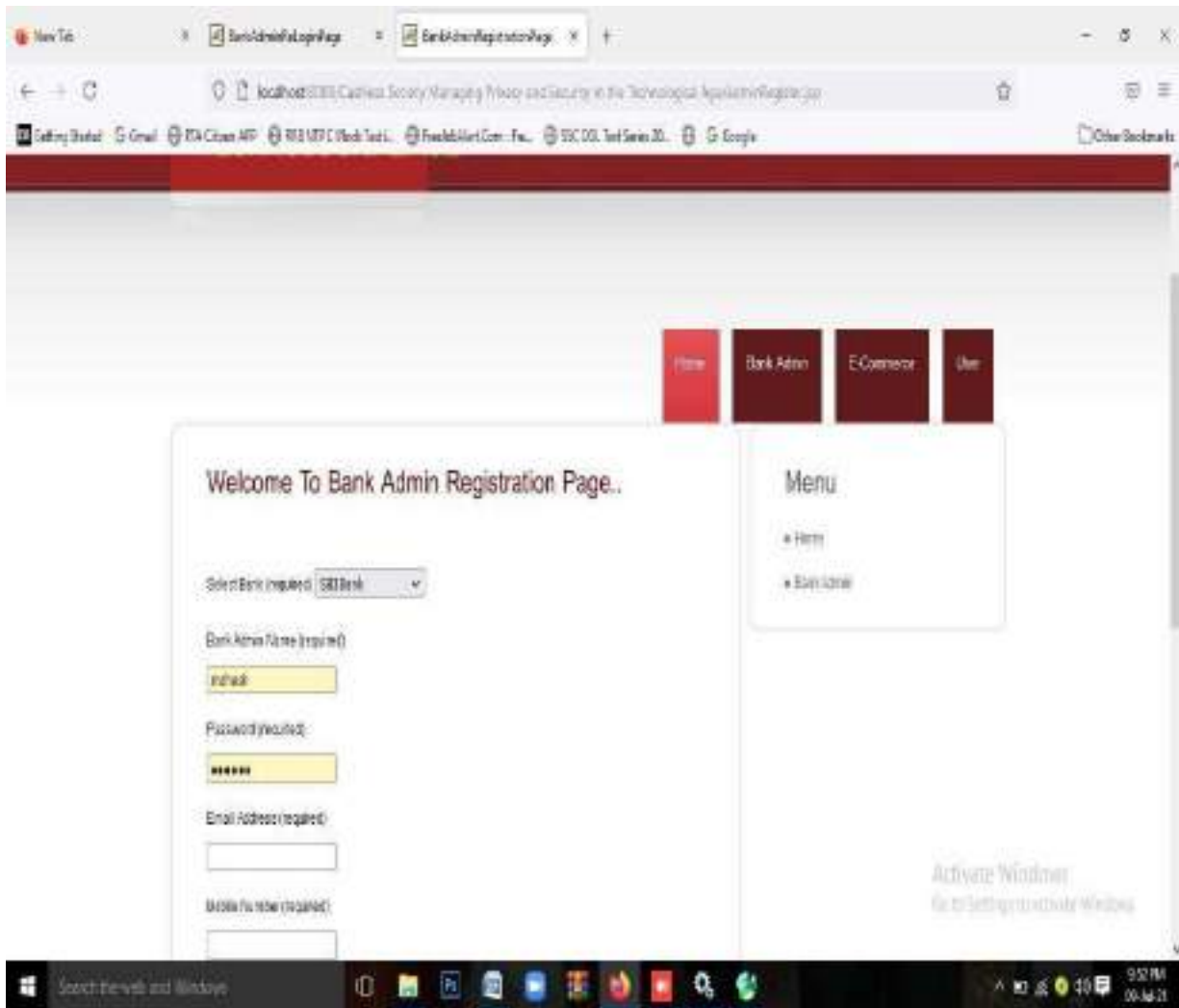
11. OUTPUT SCREENS

SCREEN 1 : HOME PAGE



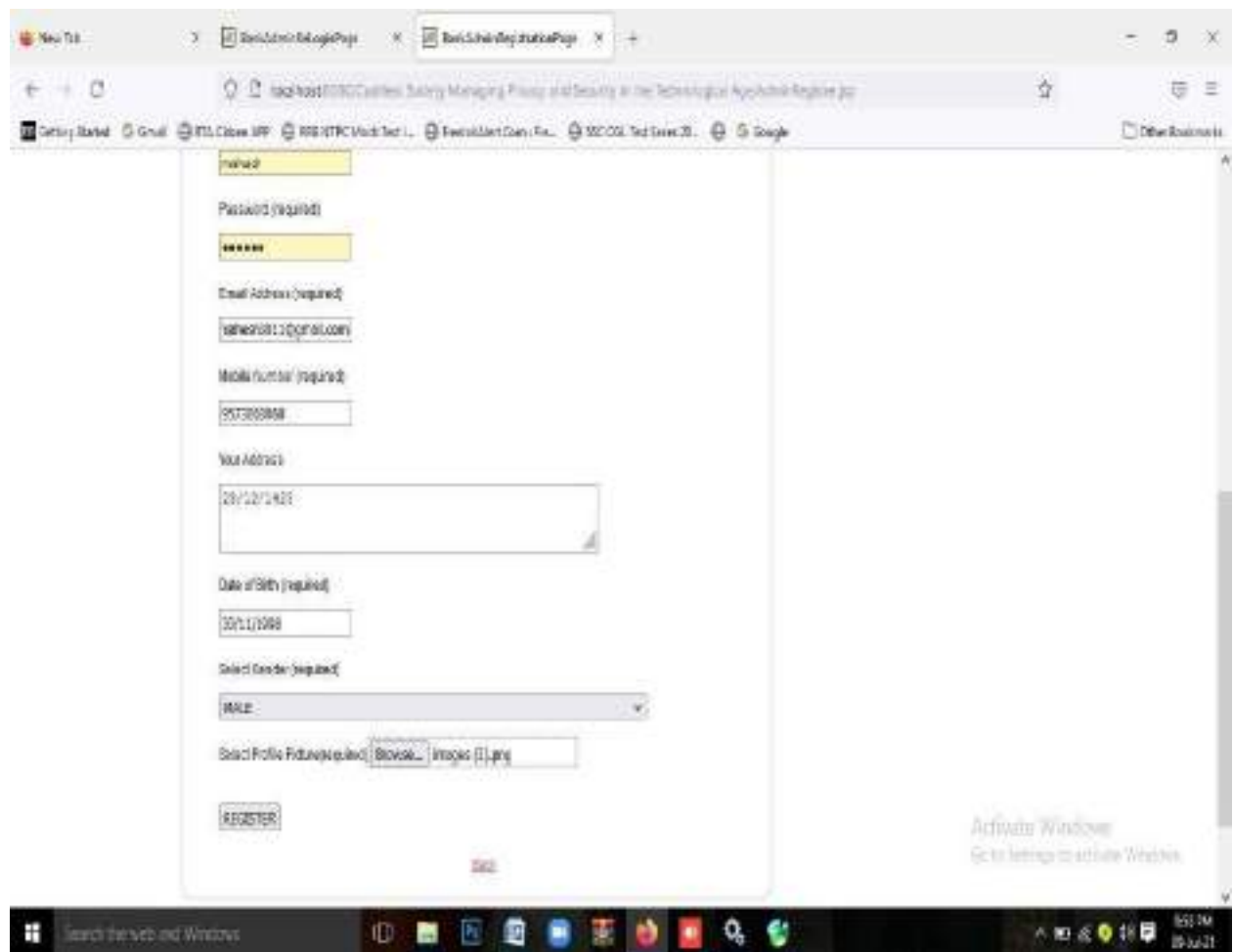
This above screen represents the home page of my project.

SCREEN 2 : REGISTRATION PAGE



This screen represents the registration page of the bank admin.

SCREEN 3 : REGISTRATION PAGE OF BANK ADMIN

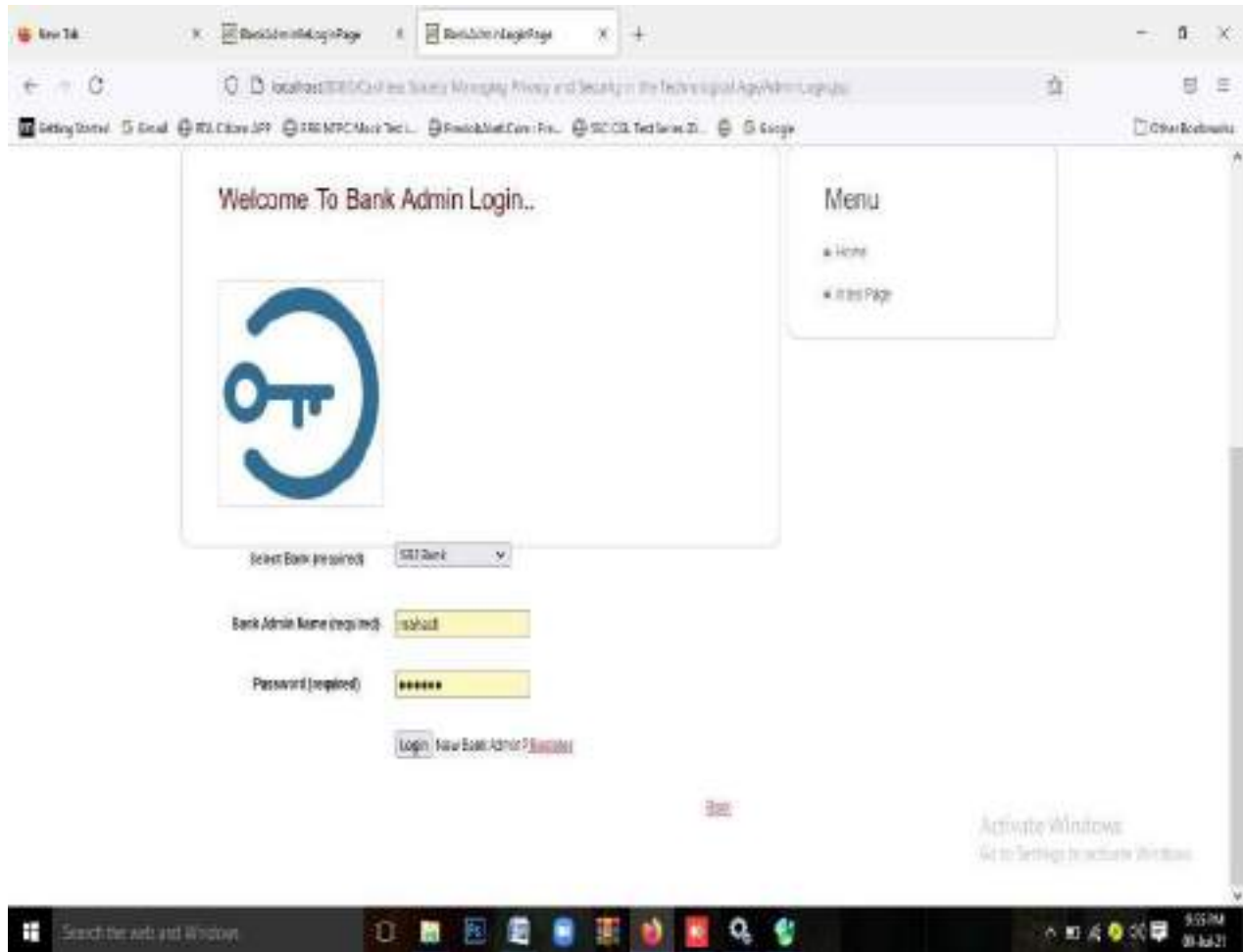


This screenshot represents the registration process of bank admin,in this you can enter details User.

SCREEN 4 : REGISTRATION SUCCESSFUL

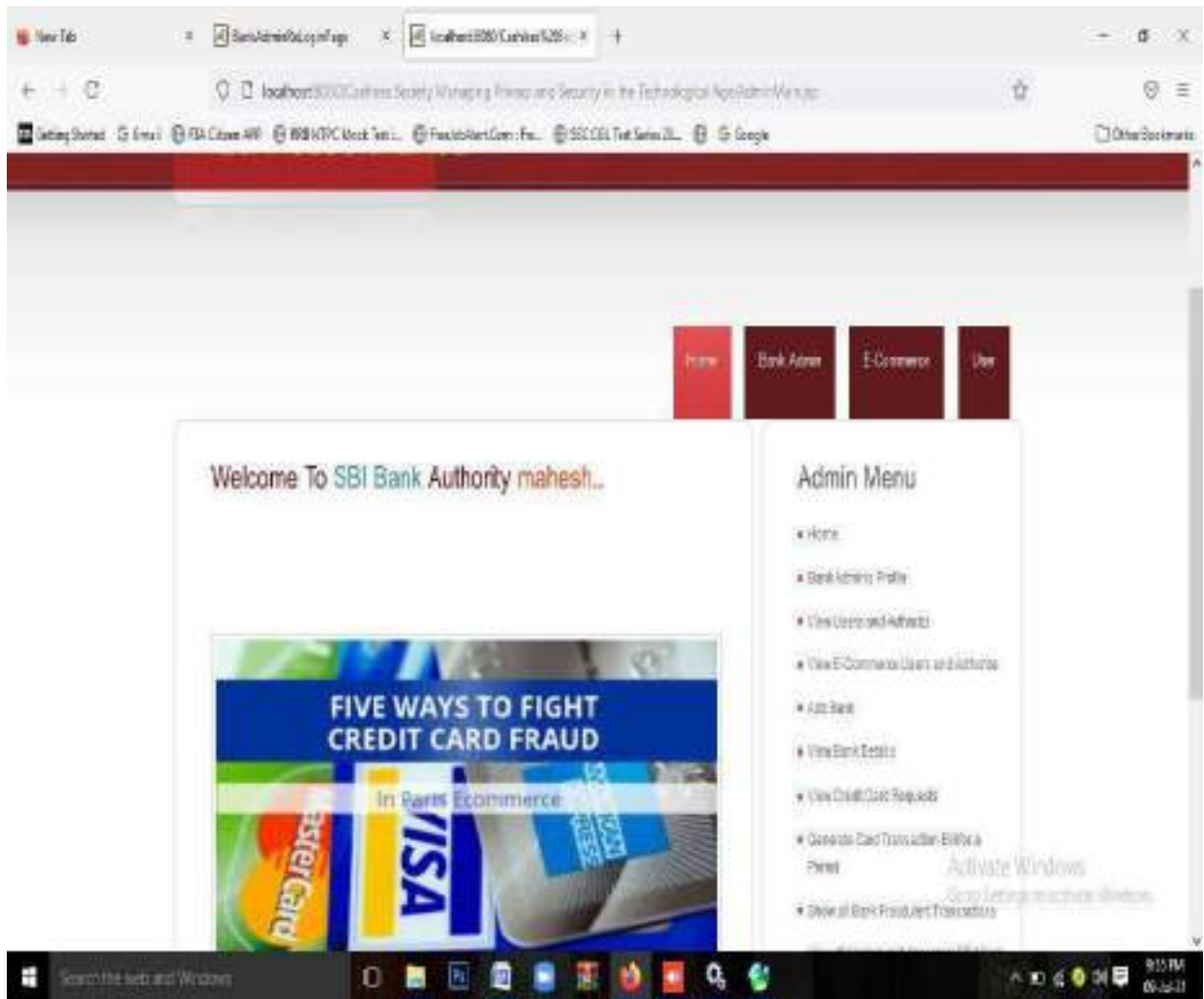


The above screenshot shows registration successfully after you complete the registration process.

SCREEN 5 : LOGIN PAGE

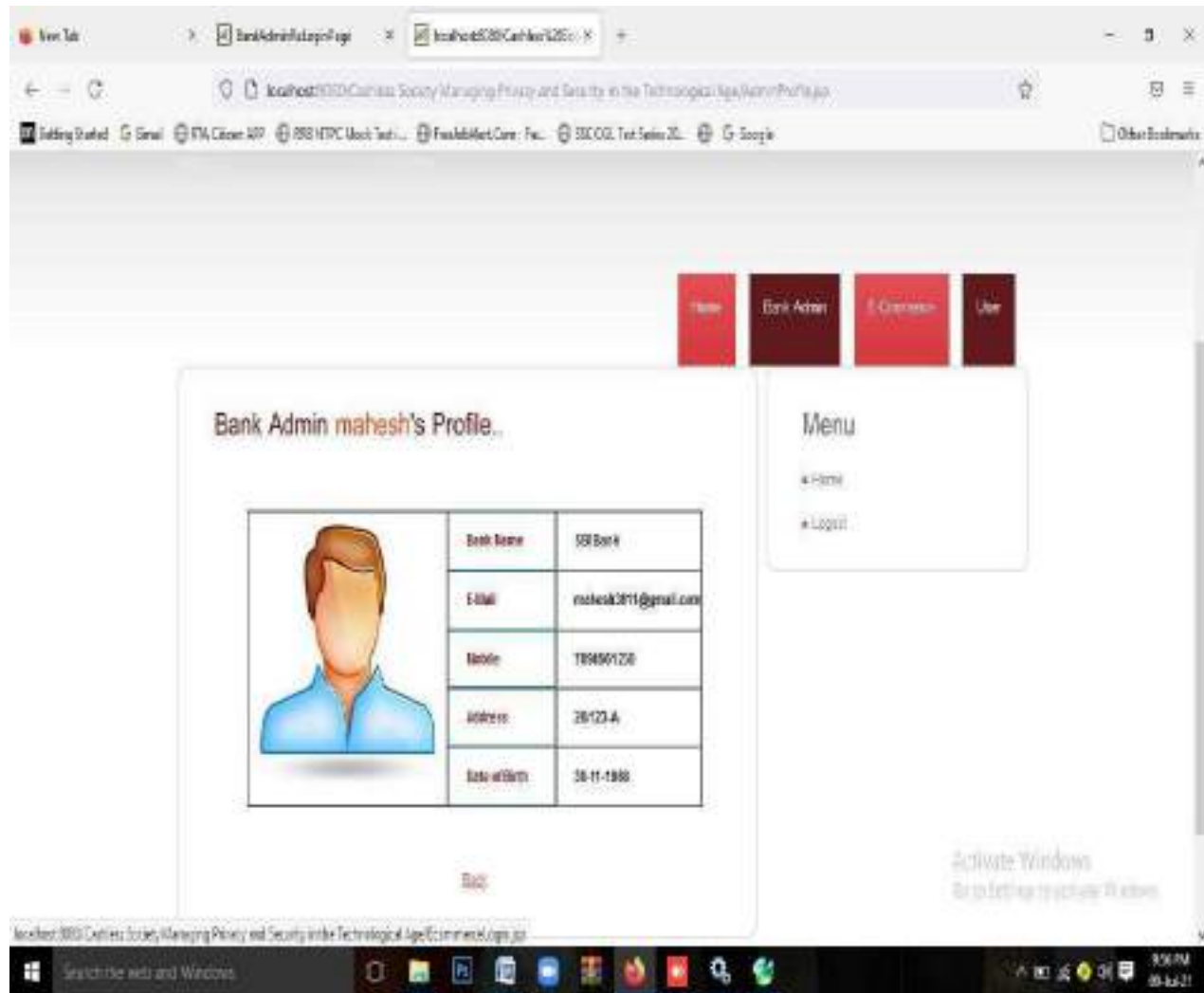
This screen represents the log in page of bank admin, In this you can enter bank name, Bank admin name, password and click on the log in button.

SCREEN 6 :SBI BANK ADMIN LOGIN PAGE



The above screen display after the log in ,this is the welcome page of bank admin.

SCREEN 7 : ADMIN PROFILE PAGE

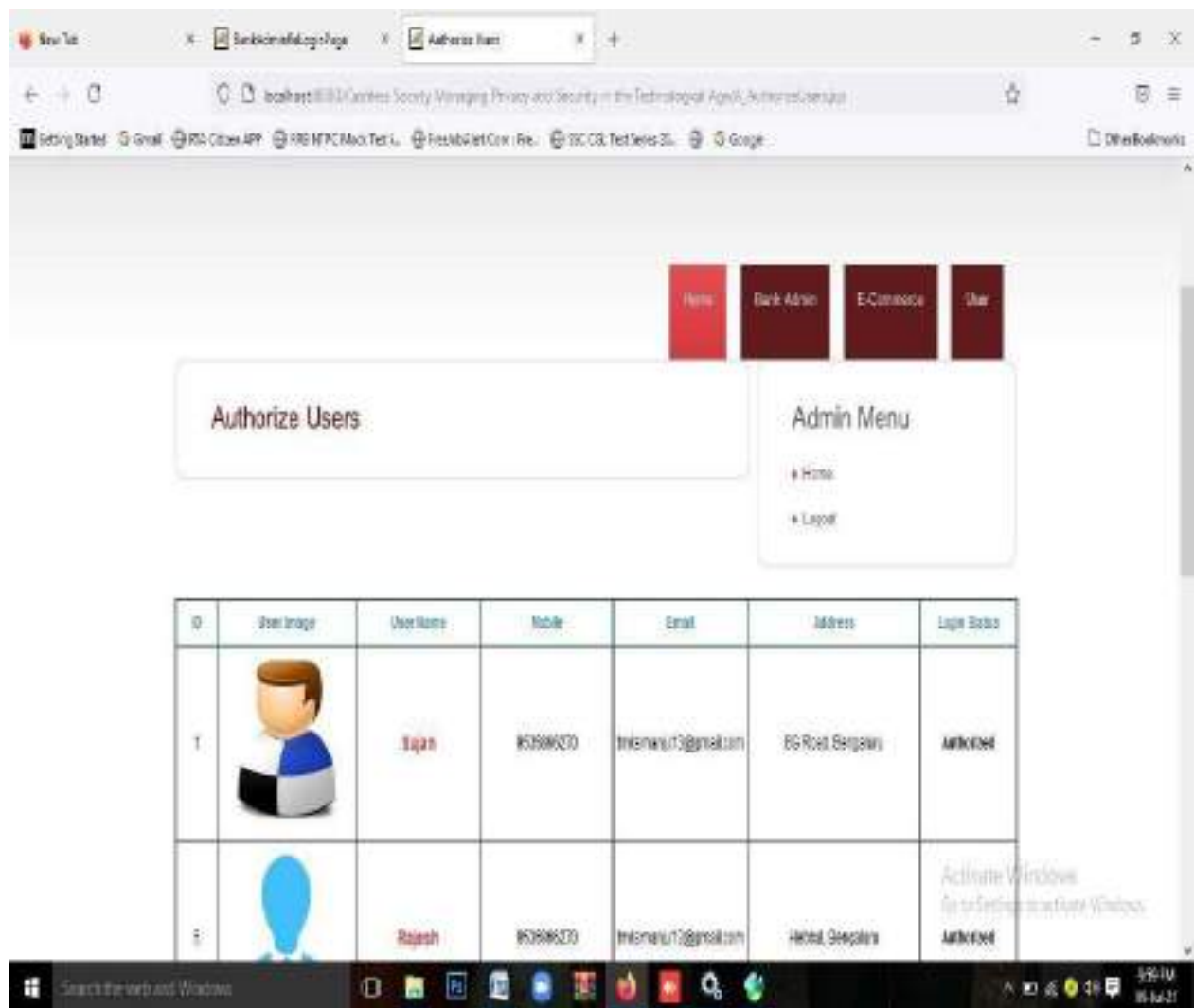


The screenshot shows a web browser window displaying the 'Bank Admin mahesh's Profile' page. The page features a navigation bar with 'Home', 'Bank Admin', 'Connection', and 'User' tabs. The main content area includes a profile card with a placeholder image and a table of personal details. A 'Menu' sidebar on the right contains 'Home' and 'Logout' options. The Windows taskbar at the bottom shows the time as 8:58 PM on 10-12-21.

Bank Name	SSR Bank
Email	mahesh2811@gmail.com
Mobile	98490120
Address	28/123-A
Date of birth	28-11-1988

This above screen represents the bank admin of Mahesh profile it shows bank name ,bank address , mobile no, email of Mahesh.

SCREEN 8 : AUTHORIZE USERS



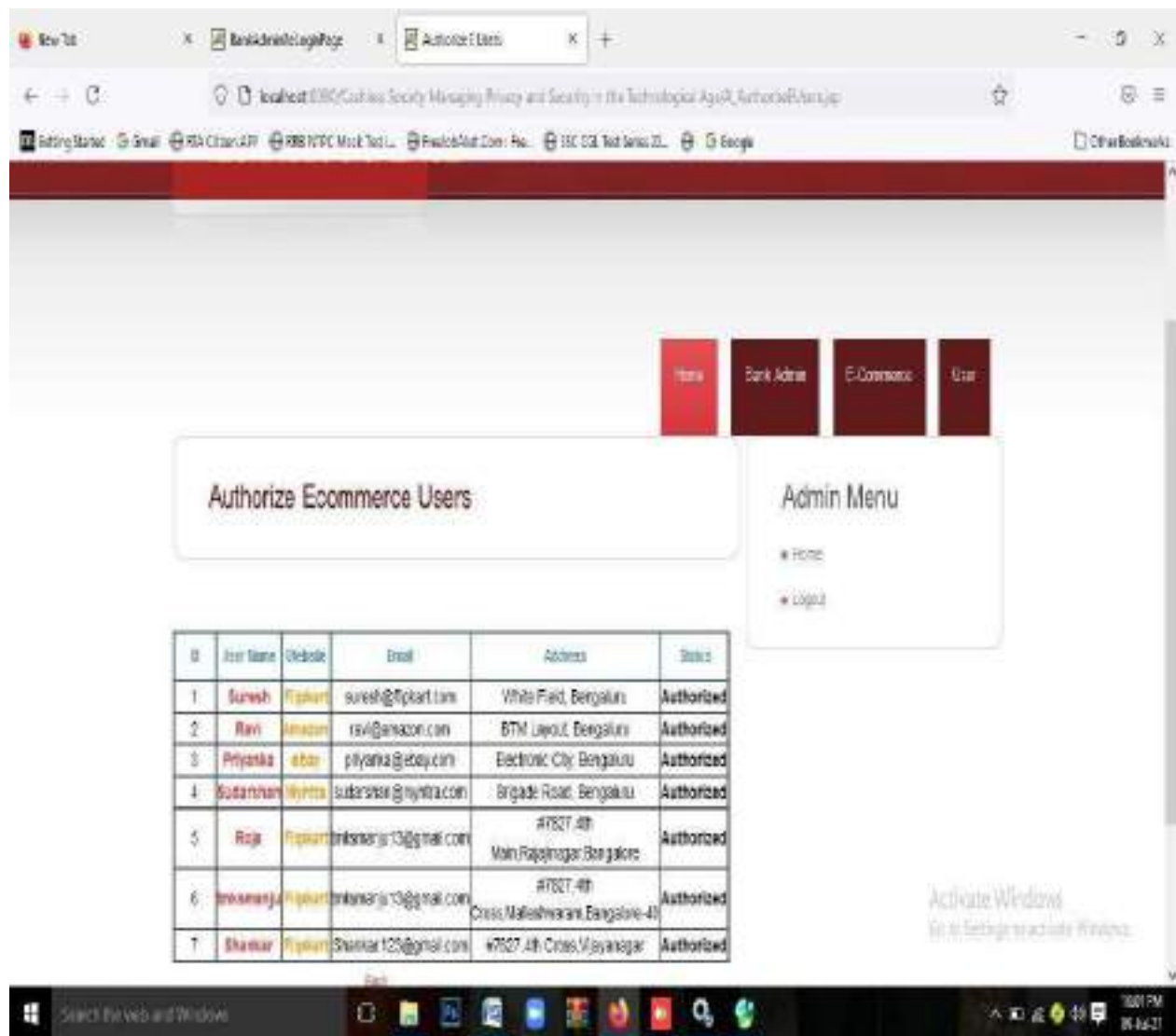
This screen represents the which users authorized by bank admin of Mahesh profile, In this above Screen sujan, Rajesh are authorized users by bank admin.

SCREEN 9 : AUTHORIZE PAGE

6		Rajesh	9639863276	intomaxu1@gmail.com	Habitat, Bangalore	Authorized
6		Kamalash	9639863276	intomaxu1@gmail.com	#202, 4th floor, Halli Chikkar, Bangalore-40	Authorized
7		Mahesh	9639863276	intomaxu1@gmail.com	#202, 4th Cross, Maheshwaram, Bangalore-40	Authorized
8		Kurush	9639863276	Kurush123@gmail.com	#202, 4th Cross, Rajajaygar	Authorized

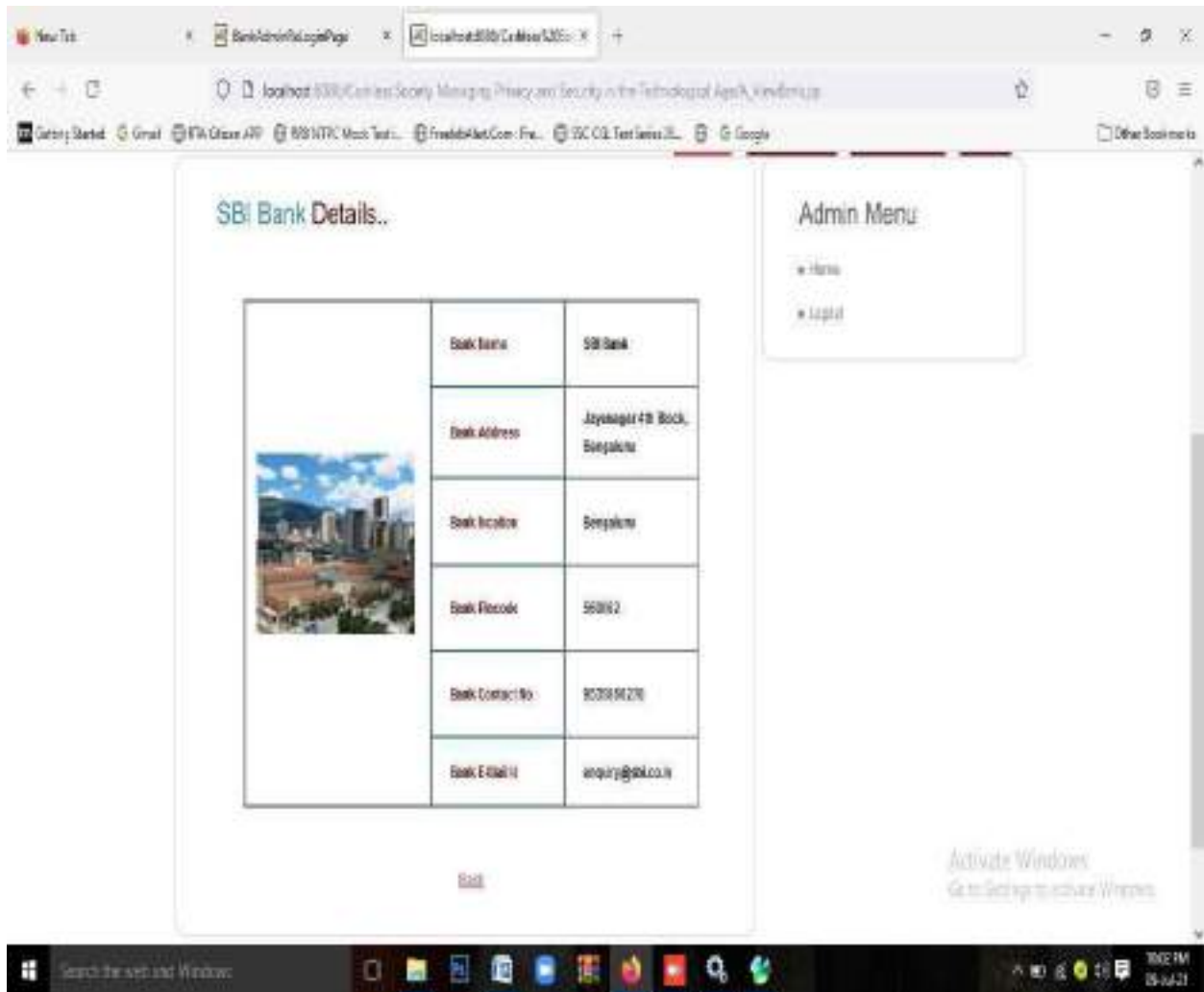
This screen shows the authorize users In the bank admin log in page.

SCREEN 10 : AUTHORIZE ECOMMERCE USERS




This screen represents the E-commerce authorize users.

SCREEN 11: SBI BANK DETAILS



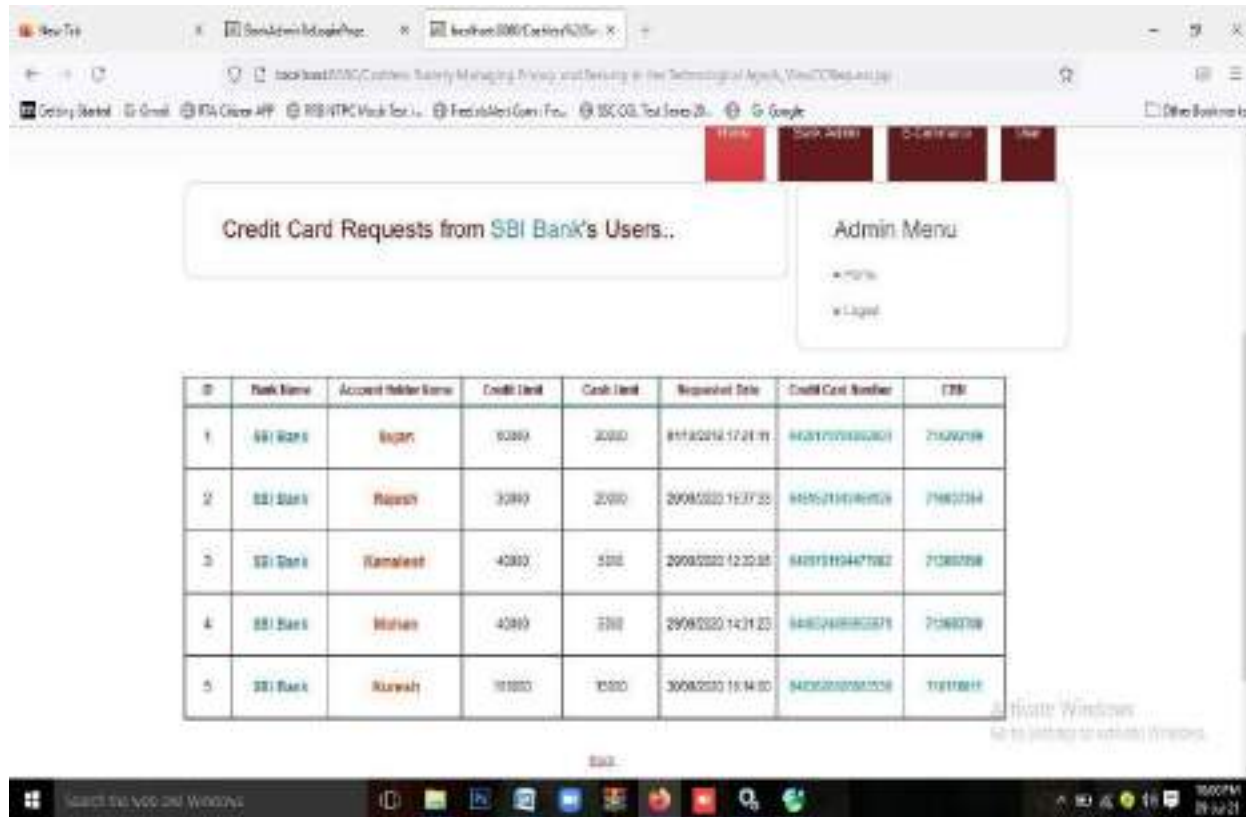
The screenshot displays a web browser window with the following elements:

- Browser Tabs:** "New Tab", "BankAdminLoginPage", and "localhost:8080/CashlessSOCI...".
- Address Bar:** "localhost:8080/Cashless Society Managing Privacy and Security in the Technological Age/A...".
- Page Title:** "SBI Bank Details..".
- Admin Menu:** A sidebar menu with "Home" and "Logout" options.
- Table:** A table containing bank details, with a placeholder image on the left.
- Buttons:** A "Back" button at the bottom of the table area.
- System Tray:** Windows taskbar at the bottom showing the search bar, task icons, and system clock (10:02 PM, 25-04-21).

	Bank Name	SBI Bank
	Bank Address	Jaynagar 4B Block, Bangalore
	Bank Location	Bangalore
	Bank Pincode	56002
	Bank Contact No.	903996270
	Bank Email Id	enquiry@sbi.co.in

This screen shows the bank admin profile of details like bank name, address, etc

SCREEN 12 :CREDIT CARD REQUESTS



This screen represents how many users are applied or requested for credit card

In the SBI bank.

SCREEN 13 : ALL USERS CREDIT CARD DETAILS

All User's Credit Card Details and Transaction Bill.

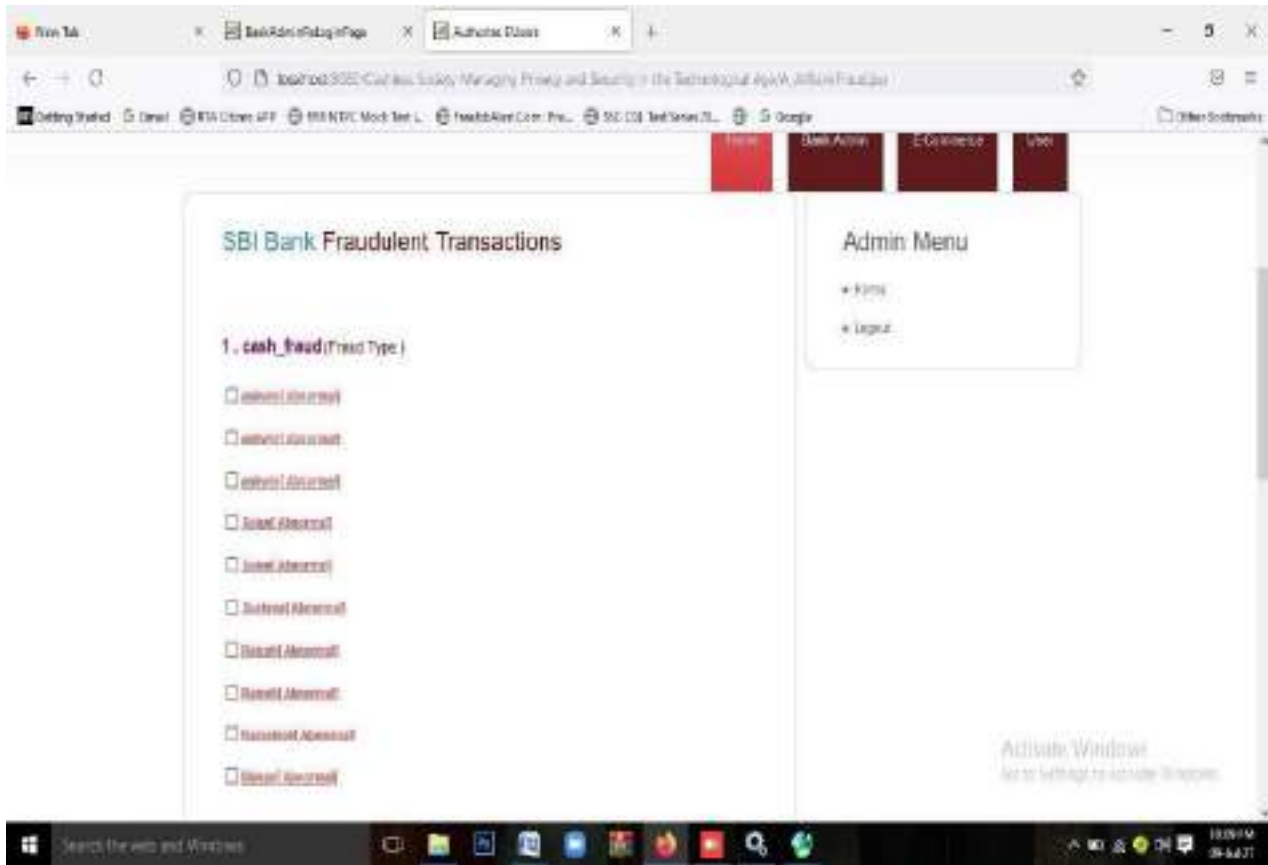
Admin Menu

- Home
- Logout

ID	User Name	Bank	Account No	CBN	
1	Rajan	SBI Bank	64267320982888	71822188	View Transaction Bill
2	Mohan	SBI Bank	34422488182897	71822188	View Transaction Bill
3	Ramesh	SBI Bank	9431218488125	71822188	View Transaction Bill
4	Hanuman	SBI Bank	3481817948788	71822188	View Transaction Bill
5	Anush	SBI Bank	6423231882328	71822188	View Transaction Bill

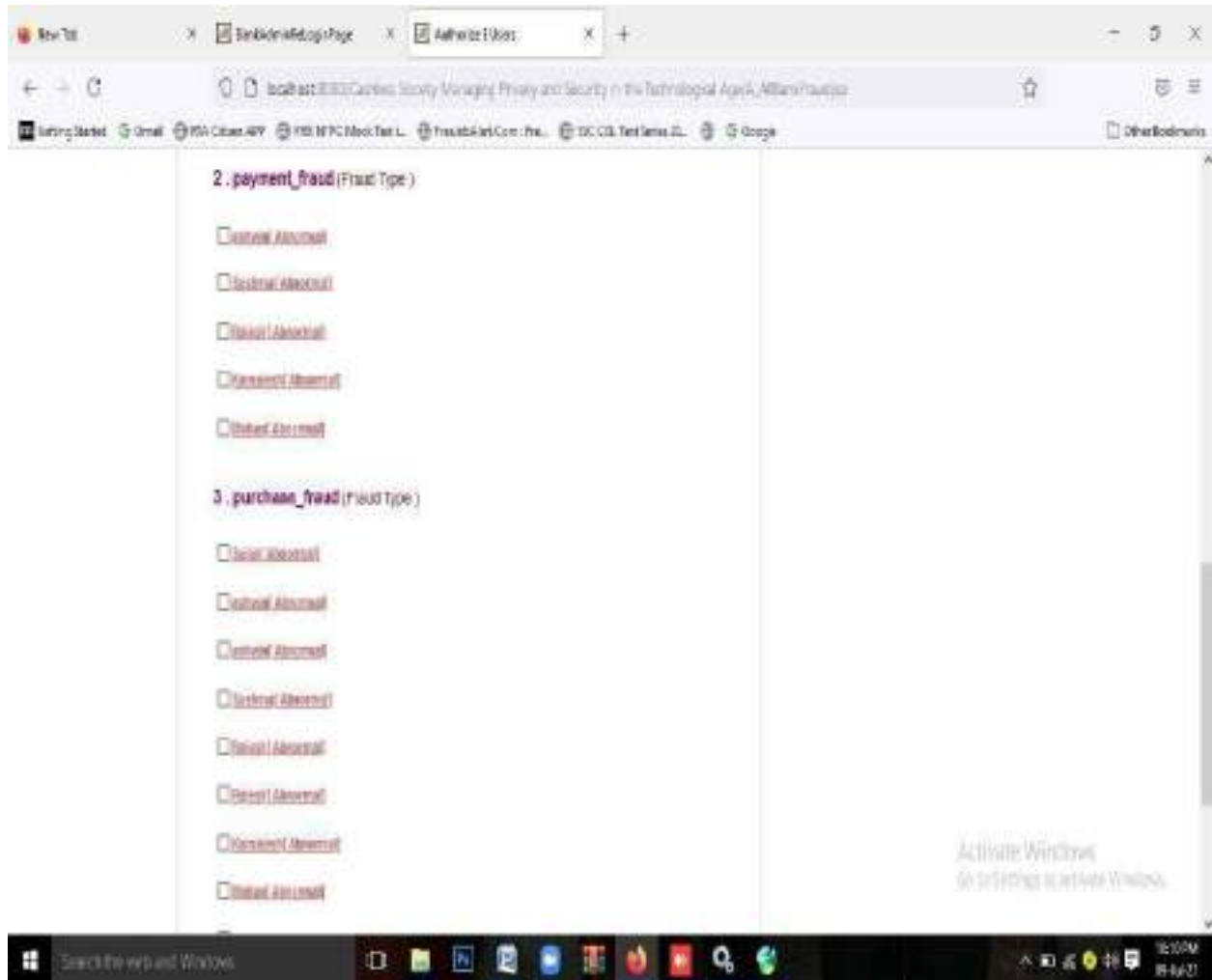
This Screen Represents The All Users Credit Card Details

SCREEN 14 : FRAUDULENT TRANSACTIONS



This screen shows the fraudulent transactions.

SCREEN 15 :FRAUDULENT TRANSACTIONS



This above screen represents the fraudulent transactions.

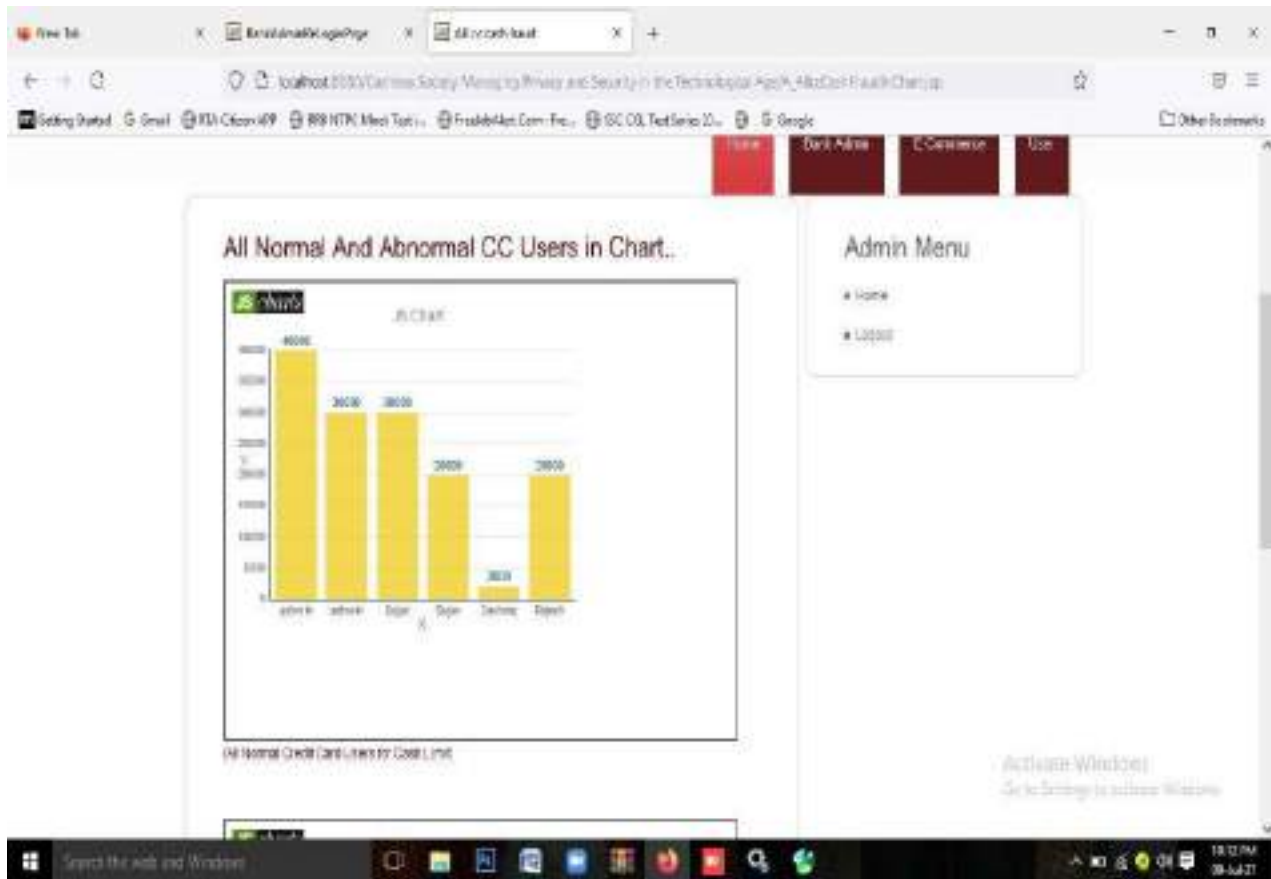
SCREEN 16 : ALL ABNORMAL TRANSACTIONS

The screenshot displays a web application interface. At the top, there are browser tabs and a search bar. The main content area is titled 'All Bank Fraudulent transactions' and includes a sub-section 'Fraud Detection in Cash Limit'. Below this, a table lists 'Activity : Abnormal' transactions. To the right, an 'Admin Menu' is visible with options for 'Home' and 'Logout'. The Windows taskbar is at the bottom, showing the time as 10:11 AM on 15-MAR.

ID	User Name	Amount	Date
1	ashwin	50000	20/03/2023 14:45:18
2	ashwin	40001	20/03/2023 14:08:16
4	ashwin	50001	20/03/2023 11:48:35
6	Sojan	50000	20/03/2023 17:05:16
8	Sojan	21000	20/03/2023 17:47:16
10	Sushita	50000	20/03/2023 14:45:16
12	Rajesh	25000	20/03/2023 15:38:32
13	Rajesh	21000	20/03/2023 15:41:56
15	Kamalesh	6000	20/03/2023 12:48:37
16	Mohan	7000	20/03/2023 14:58:37

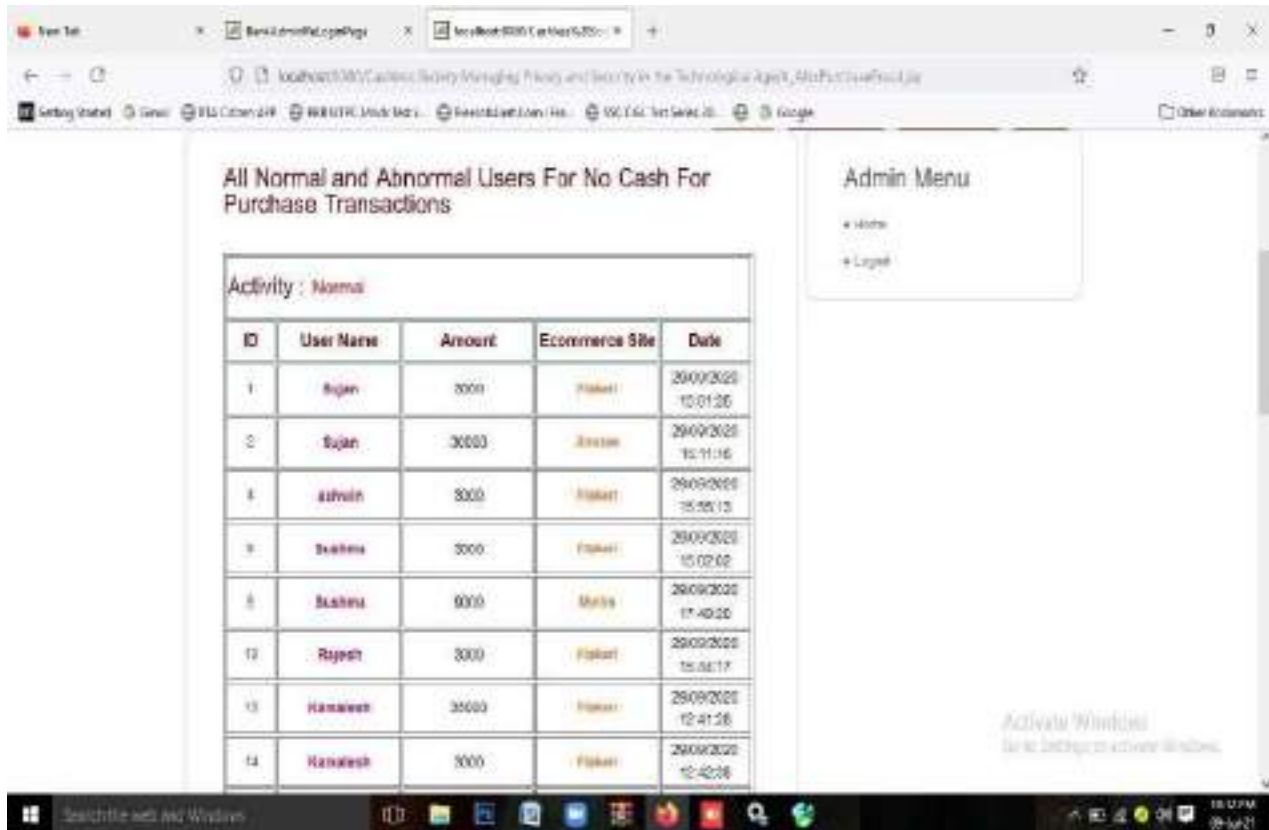
This screen shows the all abnormal transactions

SCREEN 17 : VIEW IN CHART



This screen shows the all normal and abnormal cc users in chart.

SCREEN 18 : VIEW ALL NORMAL USER FOR NO CASH



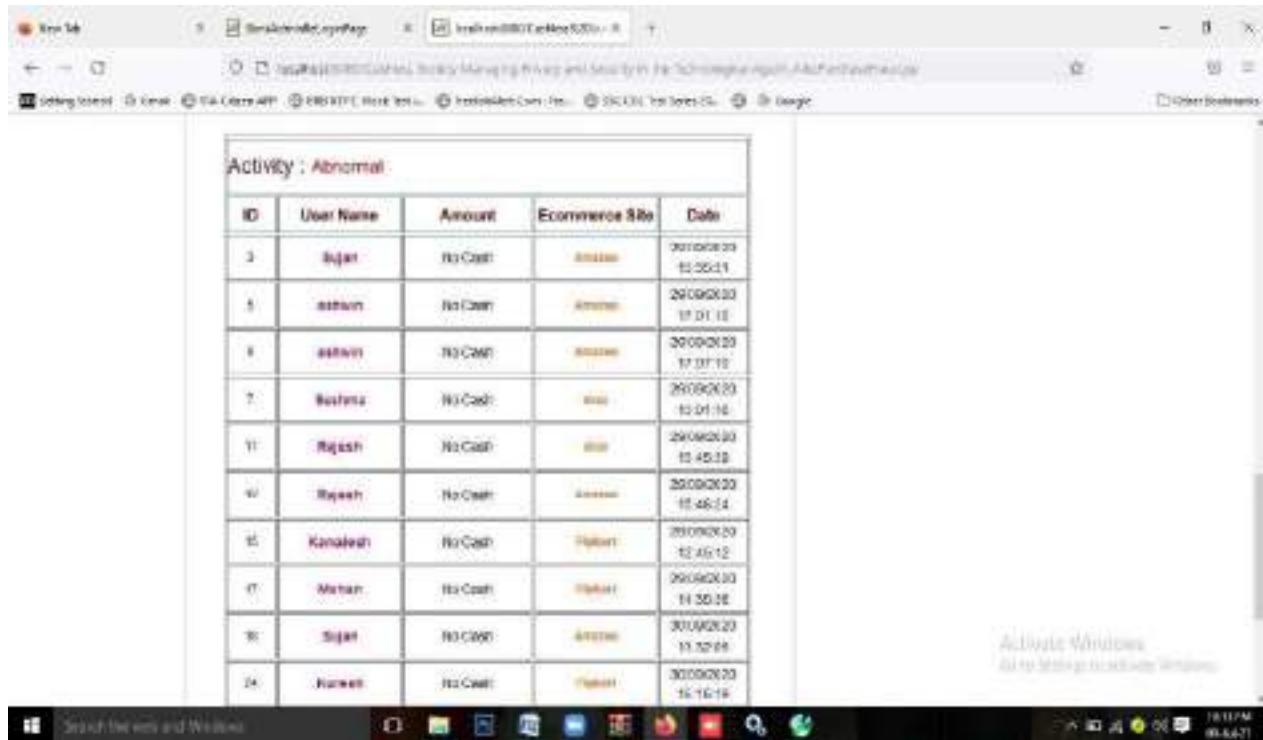
The screenshot displays a web application interface with the following components:

- Page Title:** All Normal and Abnormal Users For No Cash For Purchase Transactions
- Activity:** Normal
- Table:** A table listing transaction details for normal users.
- Admin Menu:** A sidebar menu with options for Home and Logout.
- System Tray:** Windows taskbar at the bottom showing the time as 10:07 AM on 29-Mar-21.

ID	User Name	Amount	Ecommerce Site	Date
1	Rajan	3000	Flipkart	29/09/2020 10:01:26
2	Rajan	3000	Amazon	29/09/2020 10:11:16
3	Ashwin	8000	Flipkart	29/09/2020 10:55:13
4	Sushma	3000	Flipkart	29/09/2020 10:02:02
5	Sushma	9000	Meesho	29/09/2020 11:40:20
12	Rajesh	3000	Flipkart	29/09/2020 10:06:17
13	Hanuash	35000	Flipkart	29/09/2020 12:41:26
14	Hanuash	3000	Flipkart	29/09/2020 12:42:08

This screen represents the view all normal users for no cash

SCREEN 19 : ALL ABNORMAL VIEWS

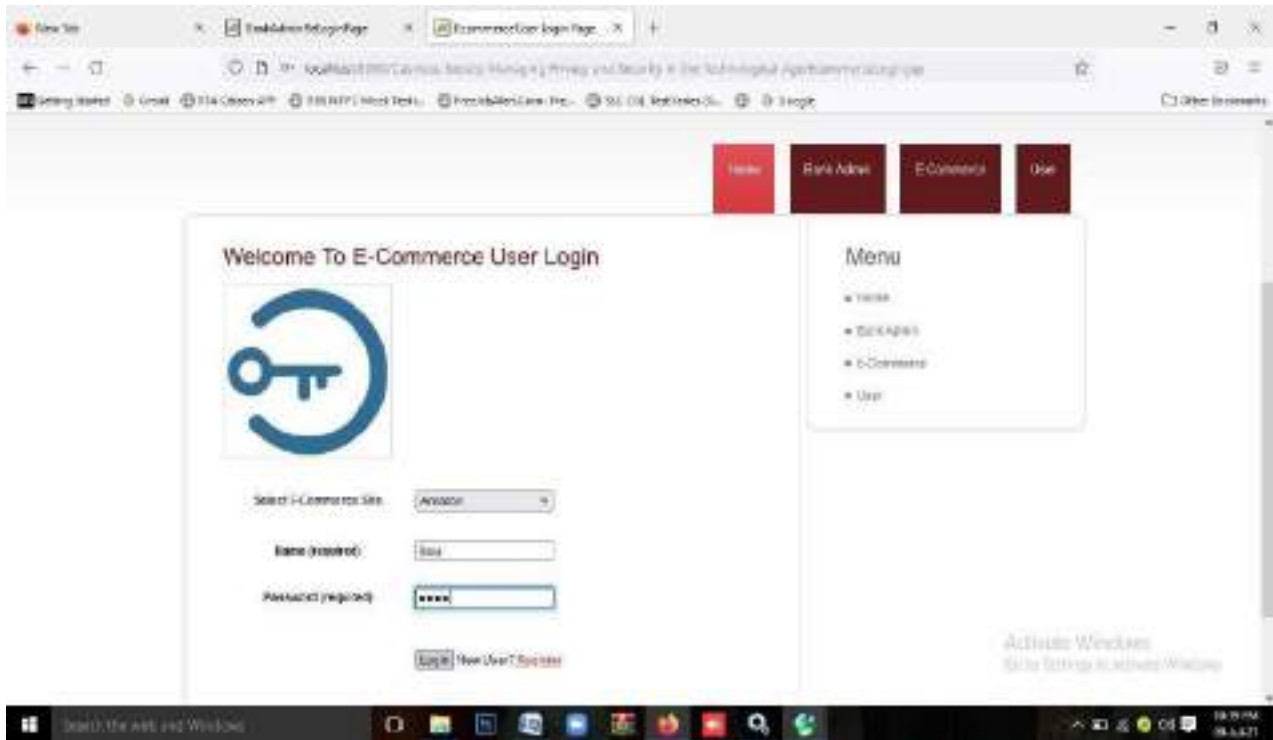


Activity : Abnormal

ID	User Name	Amount	Ecommerce Site	Date
3	Sujat	No Cash	Amazon	20/09/20 12:25:11
5	Ashwin	No Cash	Amazon	20/09/20 12:01:12
6	Ashwin	No Cash	Amazon	20/09/20 12:07:12
7	Sushma	No Cash	ibid	20/09/20 12:01:14
11	Rajesh	No Cash	ibid	20/09/20 12:45:12
40	Rajesh	No Cash	Amazon	20/09/20 12:46:14
15	Kanalesh	No Cash	ibid	20/09/20 12:45:12
17	Anshu	No Cash	ibid	20/09/20 11:20:12
30	Sujat	No Cash	Amazon	20/09/20 12:22:14
24	Rajesh	No Cash	ibid	20/09/20 12:16:14

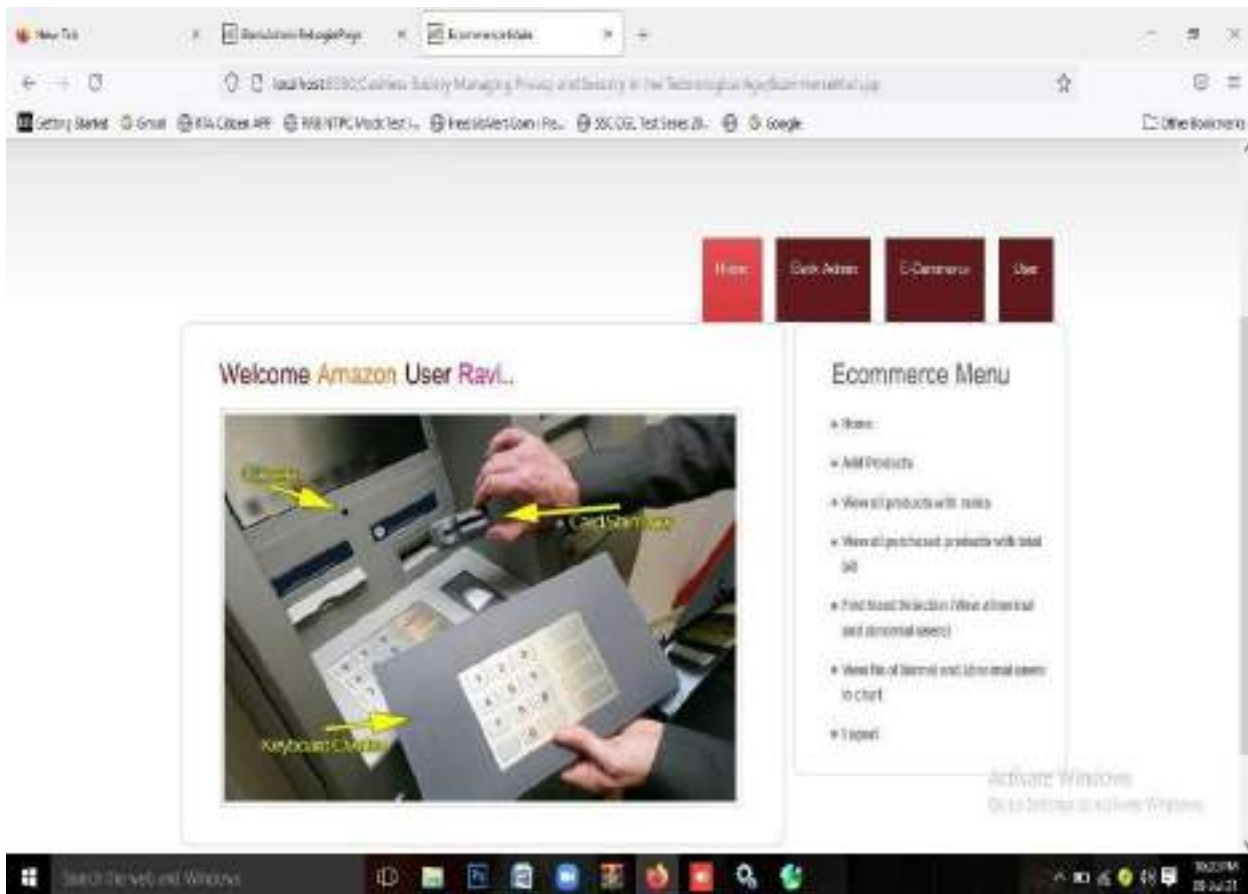
This screen represents the all abnormal users details

SCREEN 20 : WELCOME TO E-COMMERCE USER LOGIN



This screen represents the e-commerce user login


SCREEN 21 : E-COMMERCE USER HOME PAGE



This screen shows the e-commerce home page.

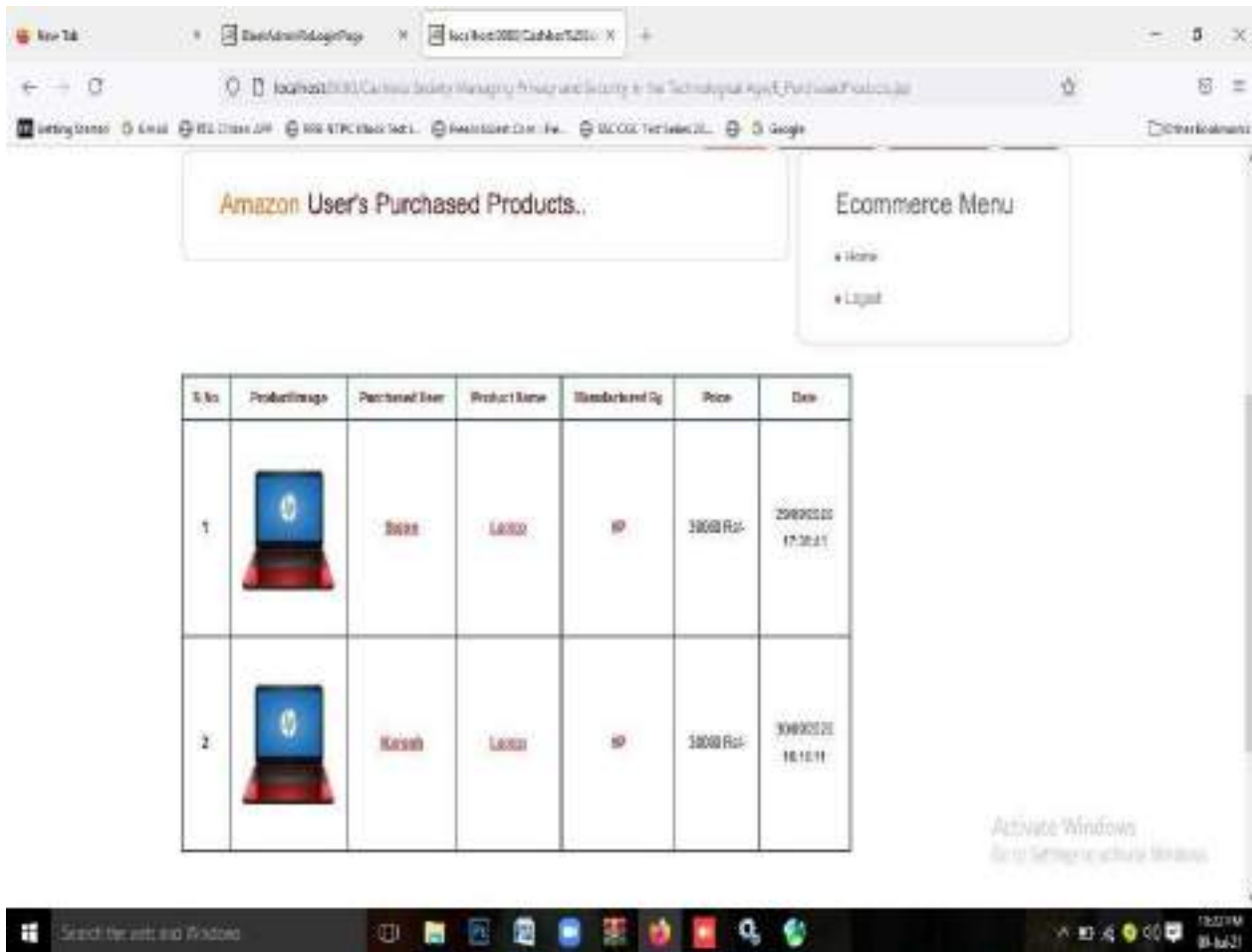
SCREEN 22 : ALL PRODUCTS

The screenshot displays a web application interface. At the top, there is a navigation bar with four buttons: 'Home' (red), 'Bank Admin' (dark red), 'E-Commerce' (dark red), and 'User' (dark red). Below this is a search bar containing the text 'Amazon's AI Products..' and a dropdown menu titled 'Ecommerce Menu' with two items: 'Home' and 'Logout'. The main content area features a table with the following data:



ID	Product Name	Product Image	Manufacturer	Uses	Description	Date	Bank	Price
2	Laptop		HP	It is used for Education, Business, and convenient to carry anywhere.	HP Pavilion Laptop comes with the configuration of 8GB RAM, 1TB Harddisk and loaded with Microsoft Windows 10 Genuine Operating System.	28/08/2021 17/18/21	1	30000Rs

At the bottom of the browser window, the Windows taskbar is visible, showing the search bar and various application icons. The system tray on the right indicates the time as 10:21 AM on 09 Jul 21.

This screen represents the amazon all products

SCREEN 23 : USER PURCHASED PRODUCTS

The screenshot displays a web browser window with the title 'Amazon User's Purchased Products'. The browser's address bar shows the URL 'localhost:2000/Cashless Society Managing Privacy and Security in the Technological Age/Ecommerce/PurchasedProducts.jsp'. An 'Ecommerce Menu' is visible in the top right corner, containing links for 'Home' and 'Logout'. Below the menu is a table listing purchased products. The table has seven columns: S.No, Product Image, Purchased User, Product Name, Standardized Qty, Price, and Date. Two rows of data are shown, both featuring a laptop image. The first row shows a purchase by 'Suresh' for 'Laptop' at 18000 Rs on 29/03/2021. The second row shows a purchase by 'Kishan' for 'Laptop' at 18000 Rs on 16/10/11. An 'Activate Windows' watermark is present in the bottom right corner of the browser window.

S.No	Product Image	Purchased User	Product Name	Standardized Qty	Price	Date
1		Suresh	Laptop	01	18000 Rs	29/03/2021 17:38:21
2		Kishan	Laptop	01	18000 Rs	30/03/2021 16:10:11

This screen shows the user purchased products of the user.

SCREEN 24 : ALL NORMAL AND ABNORMAL USERS

The screenshot displays a web application interface with the title "All Normal and Abnormal Users". It features two tables of user activity data, one for normal and one for abnormal activities. An "Ecommerce Menu" is visible on the right side of the page.

Activity : Normal

ID	User Name	Amount	Activity	Date
2	Rajiv	2000	Normal	29/02/2018 15:11:18
13	Kanch	5000	Normal	29/02/2018 16:16:11

Activity : Abnormal

ID	User Name	Amount	Activity	Date
3	Rajiv	NoCash	Abnormal	29/02/2018 16:25:21
4	ashish	NoCash	Abnormal	29/02/2018 17:01:18
5	ashish	NoCash	Abnormal	29/02/2018 17:01:18

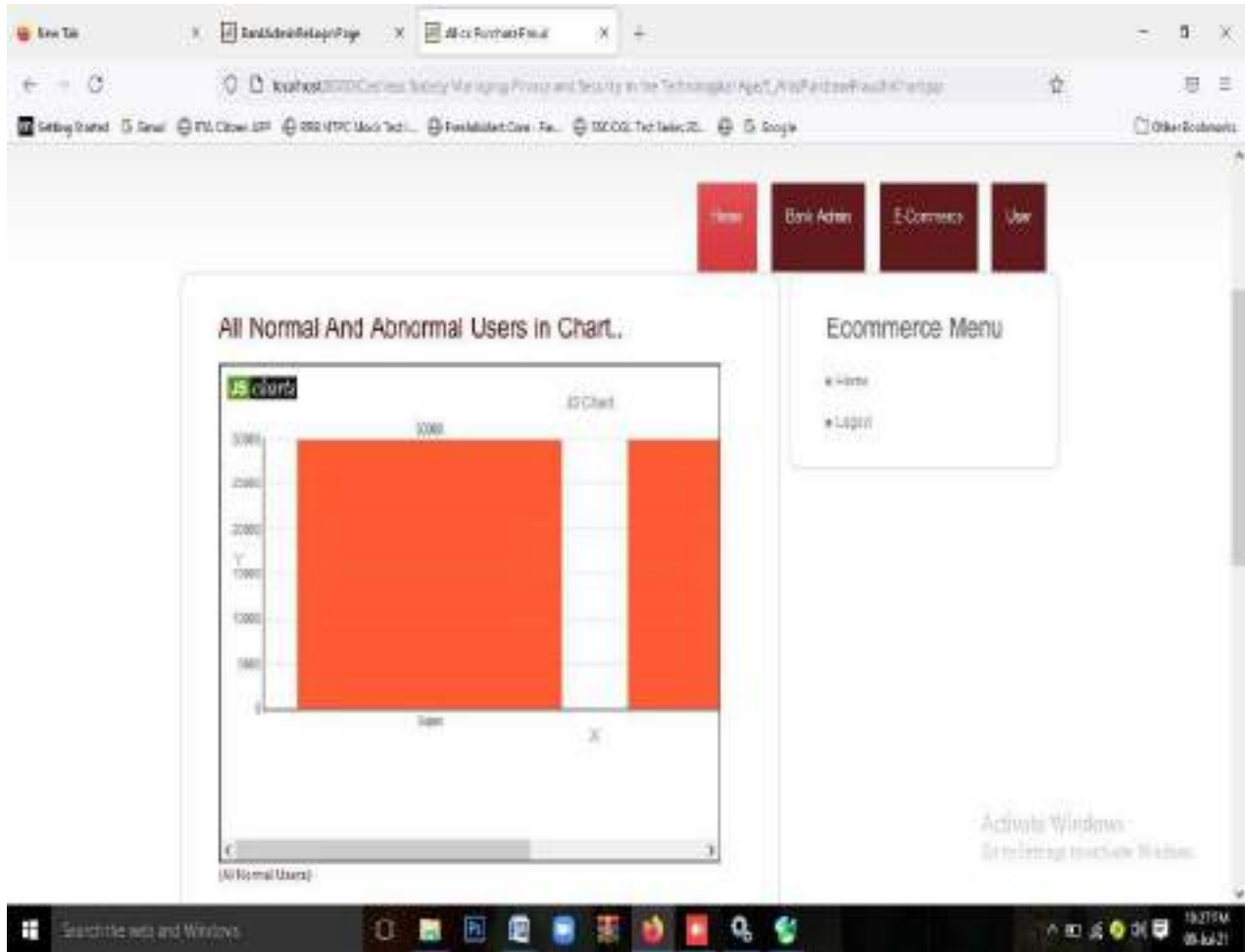
Ecommerce Menu

- Home
- Logout

Windows watermark: Activate Windows. Go to Settings to activate Windows.

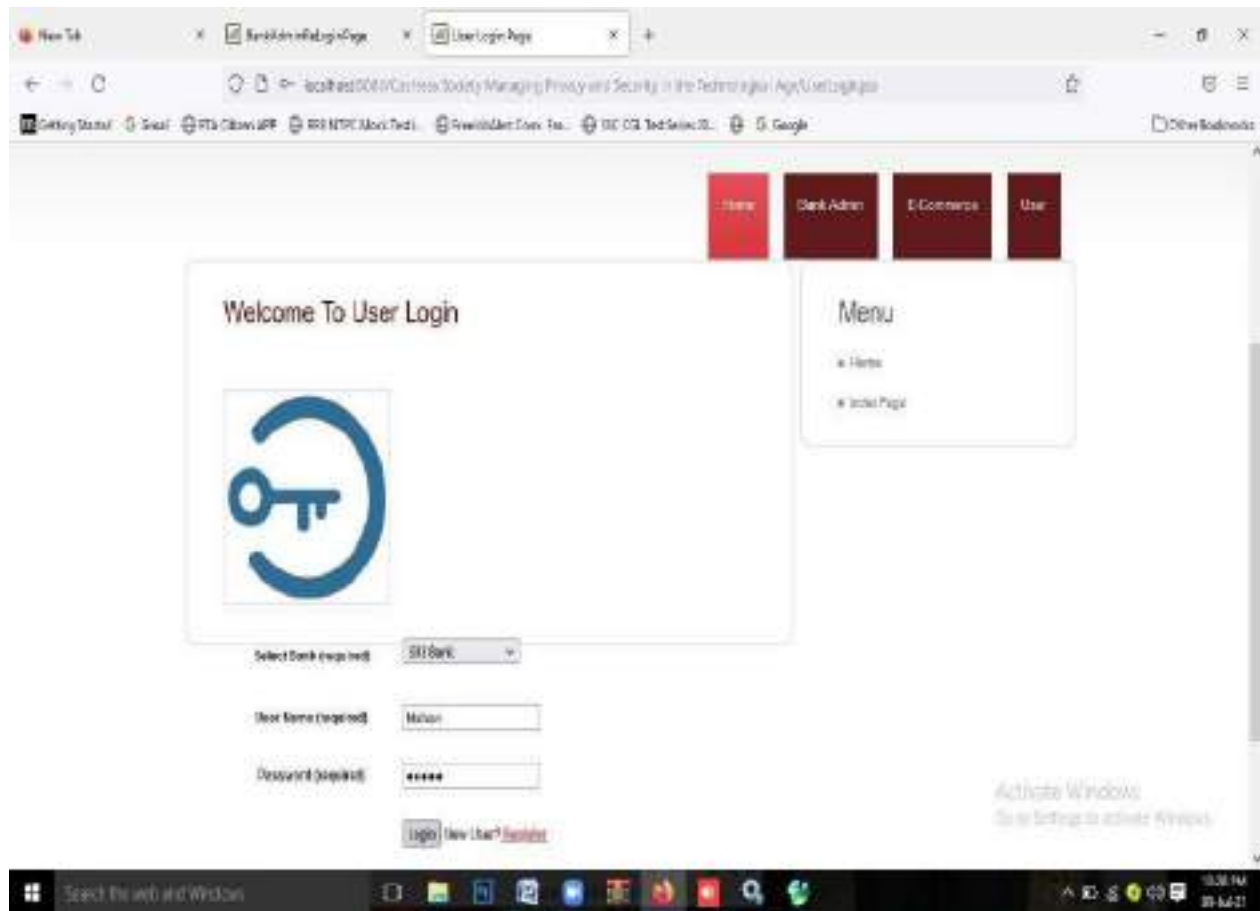
This screen shows the all normal and abnormal users.

SCREEN 25 : IN CHART



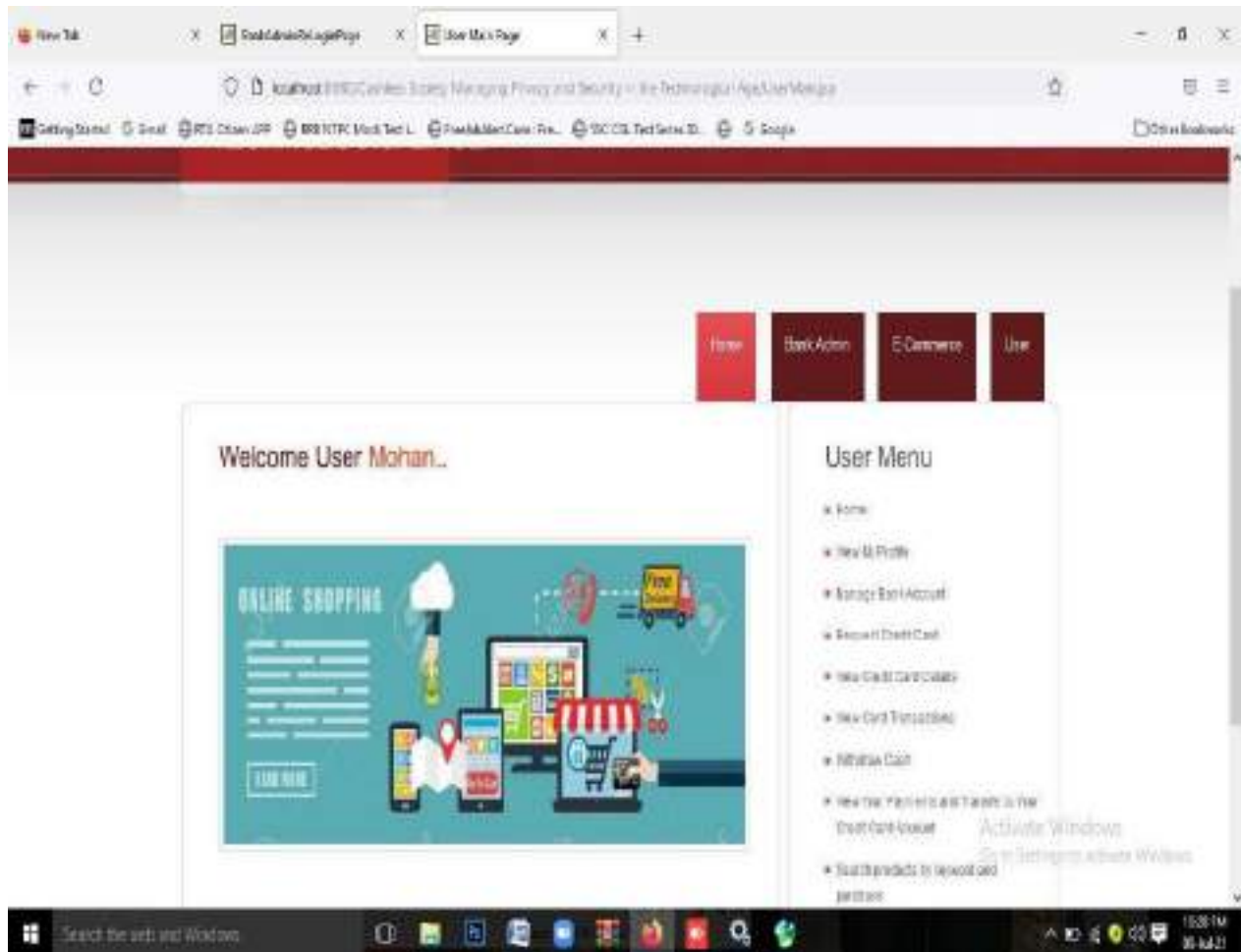
This screen shows the all normal and abnormal user in chart

SCREEN 26 : USER LOGIN



This is user login page.


SCREEN 27 : USER HOME PAGE



This screen shows the user homepage of Mohan.

SCREEN 28 : USER PROFILE

The screenshot displays a web browser window with the URL `localhost:8080/Cashless Society: Managing Privacy and Security in the Technological Age/UserProfile.jsp`. The page features a navigation bar with buttons for Home, Bank Admin, E-Commerce, and User. The main content area is titled "User Mohan's Details.." and contains a table of user information. To the right of the table is a "User Menu" with links for Profile and Logout. A Windows watermark is visible in the bottom right corner of the browser window.

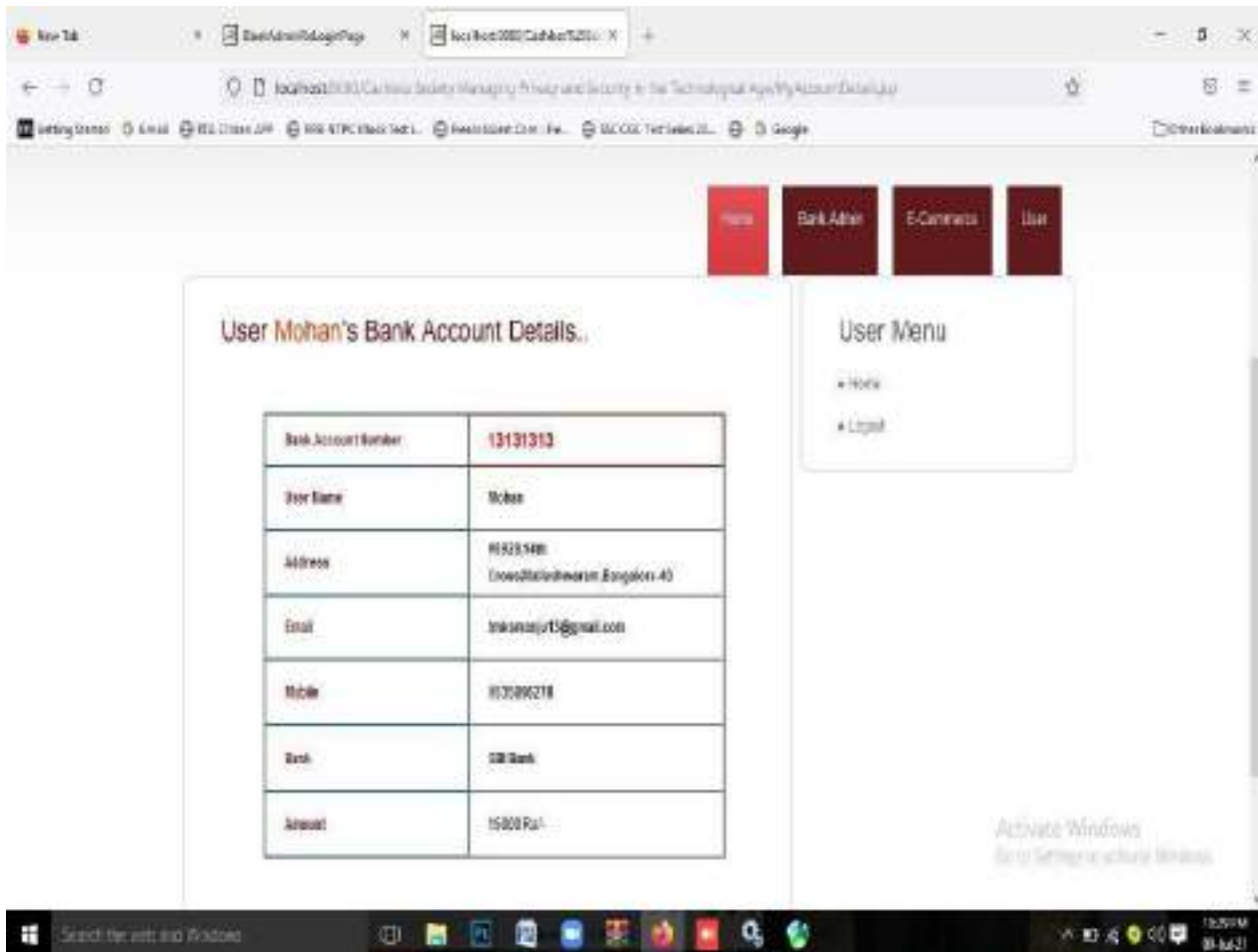
	Bank Name	SB Bank
	E-Mail	mohansayer13@gmail.com
	Mobile	95280228
	Address	1923, 14th Cross, Malleshwara, Singapore-46
	Date of Birth	06/01/1992

User Menu

- Profile
- Logout

This screen shows the user details of Mohan like bank name, email, mobile etc.

SCREEN 29 : BANK ACCOUNT DETAILS



The screenshot displays a web browser window with the URL `localhost:21030/CashlessSociety/ManagingPrivacyandSecurityIntheTechnologicalAge/MyAccountDetails.jsp`. The page title is "User Mohan's Bank Account Details..". On the right side, there is a "User Menu" with options for "Home" and "Logout". The main content area contains a table with the following details:

Bank Account Number	13131313
User Name	Mohan
Address	H3235488 [CrossStreet]Newam Bangalore 40
Email	mksmstjv15@gmail.com
Mobile	813199218
Bank	CB Bank
Amount	15000 Rupees

At the bottom right of the page, there is a watermark that says "Activate Windows Go to Settings to activate Windows". The Windows taskbar is visible at the bottom of the screenshot.

This screen shows the user bank account details Like account no,user name,address,email etc

SCREEN 30 : VIEW CREDIT CARD DETAILS

The screenshot displays a web browser window with the following elements:

- Header:** A dark red banner with the text "CASHLESS SOCIETY MANAGING PRIVACY AND SECURITY IN THE TECHNOLOGICAL AGE" in yellow.
- Navigation:** A horizontal menu with four buttons: "Home" (highlighted in red), "Bank Admin", "ECommerce", and "User".
- User Information:** A box containing the text "User Mohan's Credit Card Details..".
- User Menu:** A dropdown menu with two options: "Home" and "Logout".
- Table:** A table with 6 columns: Credit Card Number, Bank Name, Account Holder Name, Credit Limit, Cash Limit, and CIB. The data row shows: 04862489900075, SBI Bank, Mohan, 4000, 500, and 31081708.
- Footer:** A Windows taskbar at the bottom showing the search bar, taskbar icons, and system tray with the time 10:20 AM on 30 Jul 21.

Credit Card Number	Bank Name	Account Holder Name	Credit Limit	Cash Limit	CIB
04862489900075	SBI Bank	Mohan	4000	500	31081708

This screen shows ,user credit card details Like credit card number,bank name,account holder details etc.

SCREEN 31 : CREDIT CARD TRANSACTIONS

The screenshot displays a web browser window with the URL `localhost:8080/Cashless Society Managing Privacy and Security in the Technological Age/ViewCreditCardTransac.jsp`. The page features a red header with the text "CASHLESS SOCIETY MANAGING PRIVACY AND SECURITY IN THE TECHNOLOGICAL AGE". Below the header, there are navigation buttons for Home, Bank Admin, E-Governance, and User. A user menu is visible, showing options for Home and Logout. The main content area displays "User Mohan's Credit Card Transaction Details.." and a table with the following data:

ID	Credit Card Number	Transaction Purpose	Transaction Amount	Transaction Date & Time	Status
28	5480246000000019	Purchase	30000	20/02/2020 14:25:00	Success

The Windows taskbar at the bottom shows the search bar, taskbar icons, and system tray with the time 19:31:14 on 07-04-21.

This screen shows the user credit card transaction details.

SCREEN 32 : VIEW ALL PRODUCTS

The screenshot displays a web browser window with the URL `localhost:2000/Cashless Society Managing Privacy and Security in the Technological Age/PurchasedProducts.jsp`. The page features a navigation bar with buttons for 'Home', 'Bank Admin', 'E-Commerce', and 'User'. Below the navigation bar, a section titled 'User Mohan's Purchased Products.' is visible. To the right of this section is a 'User Menu' with options for 'Home' and 'Logout'. The main content area contains a table with the following data:

Sr No.	Product Image	Product Name	Manufacturer By	Price	Date
1		Smart Laptop	Apple	20000 INR	20/08/2023 14:15:30

At the bottom left of the page, there is a 'Total 08,0000' label. At the bottom right, there is an 'Activate Windows' watermark with the text 'Go to Settings to activate Windows'.

This screen shows the all products of the user purchased.

CONCLUSION

A cashless society poses risks for its members because data and metadata about their transactions are being collected and used. The members of said cashless society will have to figure out a way to protect their data in order to increase their privacy. Our group has found the idea of a cashless society to involve many systemic complexities. Within the complex system, opportunities arise to implement solutions to privacy and security problems. The various actors in said system have different desires and will respond in unique ways to changes made. Sometimes the best solution to a problem is the culmination of multiple approaches. Spreading information to the general public helps people learn about the systems they are using and allows for them to make informed decisions. Blockchain helps promote privacy and security through its authentication process. Randomized credit cards help users keep their account numbers private. All three approaches are effective ways of adapting to a dynamic currency system.

FUTURE ENHANCEMENT

In Future, Sometimes the best solution to a problem is the culmination of multiple approaches. Spreading information to the general public helps people learn about the systems they are using and allows for them to make informed decisions.

REFERENCES

- [1] "Bitcoin - Open Source P2P Money." n.d. Accessed December 12, 2019.
<https://bitcoin.org/en/>.
- [2] Wolters, Timothy. "'Carry Your Credit in Your Pocket': The Early History of the Credit Card at Bank of America and Chase Manhattan." *Enterprise & Society* 1.2 (2000): 315-54. Print.
- [3] Mercer, Christina. n.d. "History of PayPal: 1998 to Now." *Tec world*. Accessed December 12, 2019. <https://www.techworld.com/picturegallery/business/history-of-paypal-1998-now-3630386/>.
- [4] Meadows, Donella H., and Diana Wright. *Thinking in Systems: a Primer*. Chelsea Green Publishing, 2015.
- [5] Andrew Ferguson, *The rise of big data policing: surveillance, race, and the future of law enforcement*, New York; New York University Press, 2017.
- [6] "The Rise of Big Data Policing — TechCrunch." n.d. Accessed February 5, 2020.
<https://techcrunch.com/2017/10/22/the-rise-of-bigdata-policing/>.
- [7] Symanovich, Steve. "What Is a VPN?" Official Site, us.norton.com/internetsecurity-privacy-what-is-a-vpn.html.

A

Project Report

on

**CRISIS CRITICAL INTELLECTUAL PROPERTY FINDINGS FROM
THE COVID-19 PANDEMIC**

Submitted in partial fulfillment for the award of the degree

of

Master of Computer Applications

Submitted by

VPRATHIBA

(Reg. No.18F61F0011)

Under the esteemed guidance of

Mrs. P. SUKANYA, MCA.

Assistant Professor, Department of MCA.



Department of Master of Computer Applications

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

2020 - 2021

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

This Is to certify that this project report titled "CRISIS CRITICAL INTELLECTUAL PROPERTY FINDINGS FROM THE COVID-19 PANDEMIC" that is being submitted by V. PRATHIBA (Reg. No. 18F61F0011) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by her under my guidance and supervision during the academic year 2020-2021.

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **V. PRATHIBA** hereby declare that the project report entitled “**CRISIS CRITICAL INTELLECTUAL PROPERTY FROM THE COVID-19 PANDEMIC**” is **original** and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mrs. P. SUKANYA, MCA.**, Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APPLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

Date:

V. PRATHIBA

Reg. No.:18F61F0011

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mrs. P. SUKANYA, MCA.**, Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for her valuable guidance and suggestions in analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.**, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his Valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to project coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(V. PRATHIBA)

CONTENTS

S.No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF ABBREVIATIONS	II
1	INTRODUCTION	1
2	SYSTEM STUDY	5
3	SYSTEM ANALYSIS	7
	3.1 EXISTING SYSTEM	7
	3.2 DISADVANTAGES	7
	3.3 PROPOSED SYSTEM	8
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9
5	SYSTEM ARCHITECTURE	10
6	SOFTWARE ENVIRONMENT	13
7	SYSTEM REQUIREMENTS	28
8	SYSTEM DESIGN	29
9	IMPLEMENTATION	42
10	SYSTEM TESTING	75
11	SCREENSHOTS	78
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

ABSTRACT

A pandemic calls for large-scale action across national and international innovation systems in order to mobilize resources for developing and manufacturing crisis-critical products efficiently and in the huge quantities needed. Nowadays, these products also include a wide range of digital innovations. Given that many responses to the pandemic are technology driven, stakeholders involved in the development and manufacturing of crisis-critical products are likely to face intellectual property (IP)-related challenges. To (governmental) decision makers, IP challenges might not appear to be of paramount urgency compared to the many undoubtedly huge operational challenges to deploy critical resources. However, if IP challenges are considered too late, they may cause delays to urgently mobilize resources effectively. Innovation stakeholders could then be reluctant to fully engage in the development and manufacturing of crisis-critical products. This article adopts an IP and innovation perspective to learn from the currently unfolding COVID-19 pandemic using secondary data, including patent data, synthesized with an IP roadmap. We focus on technical aspects related to research, development, and up scaling of capacity to manufacture crisis-critical products in the huge volumes suddenly in demand. In this article, we offer a set of contributions. We provide a structure, framework, and language for those concerned with steering clear of IP challenges to avoid delays in fighting a pandemic. We provide a reasoning why IP needs to be considered earlier rather than too late in a global health crisis.

LIST OF FIGURES

S.No.	Name	Page No.
1	5.1. System Architecture	11
2	5.2. Block Diagram	12
3	6.1. Compilation & Interpretation	14
4	6.2. Execution for different platforms	14
5	6.3. Java Platform	15
6	6.4. Java IDE	17
7	6.7. General J2ME Architecture	25
8	8.1. Data Flow Diagram	30
9	8.2. Use Case Diagram	34
10	8.3. Sequence Diagram	37
11	8.4. Collaboration Diagram	38
12	8.5. Class Diagram	40
13	8.6. E-R Notations	41
14	Screen Shots	77

LIST OF ABBREVIATIONS

S.No.	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	IP	Intellectual Property
11	DBMS	Database Management System
12	CC	Crisis Critical
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

1. INTRODUCTION

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called Knowledge Discovery in Database (KDD). The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation. Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

1.1 What is Data Mining?

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining.

In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information.

Data Mining is similar to Data Science carried out by a person, in a specific situation, on a particular data set, with an objective. This process includes various types of services such as text mining, web mining, audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tones of information available on various platforms, but very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

Types of Data Mining

Data mining can be performed on the following types of data:

1.2 Relational Database:

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data searchability, reporting, and organization.

Data Repositories:

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

Object-Relational Database:

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance, etc.

1.3 Advantages of Data Mining

- The Data Mining technique enables organizations to obtain knowledge-based data.
- Data mining enables organizations to make lucrative modifications in operation and production.
- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.
- It facilitates the automated discovery of hidden patterns as well as the prediction of trends and behaviors.
- It can be induced in the new system as well as the existing platforms.
- It is a quick process that makes it easy for new users to analyze enormous amounts of data in a short time.

1.4 Applications of Data Mining

Data mining in Education:

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

Data Mining in Manufacturing Engineering:

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.

Data Mining Financial Banking:

The Digitalization of the banking system is supposed to generate an enormous amount of data with every new transaction. The data mining technique can help bankers by solving business-related problems in banking and finance by identifying trends, casualties, and correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by experts. The manager may find these data for better targeting, acquiring, retaining, segmenting, and maintain a profitable customer.

2. SYSTEM STUDY

FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are:

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high

Demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

The literature that investigates IP challenges during times of global crisis appears very limited. A limited number of papers focus on IP challenges during economic crises, such as the global financial crisis in 2008–2009. During that crisis, strong IP protection was found to be beneficial for companies to recover, e.g., through facilitating collaboration, IP monetization, licensing, and the use of IP as collateral. Another small set of papers actually focuses on global health crises.

Most authors, however, focus on crises that unfold much slower than the current COVID-19 pandemic, such as the HIV/AIDS pandemic. For ending the global HIV/AIDS pandemic, IP rights were found to be a barrier for low-income countries to access HIV/AIDS medicines after they became available. As a consequence, parallel import options and compulsory licensing were introduced at the international level to relax IP restrictions on essential medicines.

Existing literature also studies compulsory licensing, changes to patent laws, such as fast track grant procedures, “western subsidies”, restricted patentability standards, and patent pools involving voluntary nonexclusive licenses among private innovators (e.g., UNITAIDS Medicine Patent Pool). While these papers undoubtedly discuss topics that are potentially relevant to the COVID-19 pandemic (compulsory licensing has already been enacted by a few countries), findings from those papers must be treated carefully and should not be overly generalized to the COVID-19 pandemic.

The current pandemic spreads so much faster than the global health crises studied in prior literature. However, two general conclusions can be drawn from prior literature focusing on IP in the context of crises that are very much in line with what is known from extensive economic research on IP and innovation

3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, the system is not accurate due to lack of understanding about the corona virus and its early identification.
- This system does not aim to contribute to the many efforts to contain the pandemic as quickly as possible

3.3 PROPOSED SYSTEM

The proposed system is develop to contribute to filling the knowledge gap concerning IP considerations during pandemics, we deploy an exploratory method employing an IP and innovation perspective. One could argue that we treat the COVID-19 pandemic as a single longitudinal case study to make better informed decisions during this, but also future global health crises. Our findings are based on secondary data collected during the ongoing COVID-19 pandemic. The data include publicly available documents, such as news articles, government announcements, pressreleases, industryreports, and patent data.

The proposed system also complement our analysis of secondary data with a patent analysis for the severe acute respiratory syndrome (SARS) Corona virus, where we make use of the open patent data sets compiled by Lens.org,¹ to enhance our understanding into preventive, diagnostic, and treatment measures. We focus on the broader spectrum of corona viruses to identify patterns from earlier outbreaks that could be applied in the case of SARS-Cov-2.

We use the data set compiled by Lens.org “Coronavirus: Broad Keywords Based Patents” and extract all the related patent information.² We choose to focus on the key words to capture a large variety of corona virus-related patents, in a time of high uncertainty, to improve our overall understanding.

3.4 ADVANTAGES OF PROPOSED SYSTEM

- Prevention (reducing the spread, including vaccine development).
- Diagnosis (increase our understanding about the corona virus and its early identification using test kits or symptom identification).
- Treatment (treatment development of the acute respiratory pneumonia caused by COVID-19, with a preventative vision

4. SOFTWARE MODULES

MODULES

- Client Company
- Admin
- EndUser

MODULES DESCRIPTION

Admin

In this module, the Admin login with valid user name and password. he can do some operations such as Login, View all Users and Authorize, View all Company Users and Authorize, Add all Company Name, View all Company details with rank and reviews, View all Companies by Crisis Tree Format, View all User search transaction by keyword, Show search ratio by keyword, Find top k companies by ranks, View all Companies rank by chart, View all search ratio by keyword in chart.

Client Company

In this module, the Client Company should register and login with valid details. and the doing any operations. In this module, the Social Network has to login by using valid user name and password. After login successful he can do some operations such as Login, View all Users and Authorize, View all Company Users and Authorize, Add all Company Name, View all Company details with rank and reviews, View all Companies by Crisis Tree Format, View all User search transaction by keyword, Show search ratio by keyword, Find top k companies by ranks, View all Companies rank by chart, View all search ratio by keyword in chart.

End Users

In this module, End User should register and login with valid details. Their details will be stored to the database. User will do some operation like view My Profile, Search Companies, and View My Search Transactions.

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

5.1 SYSTEM ARCHITECTURE

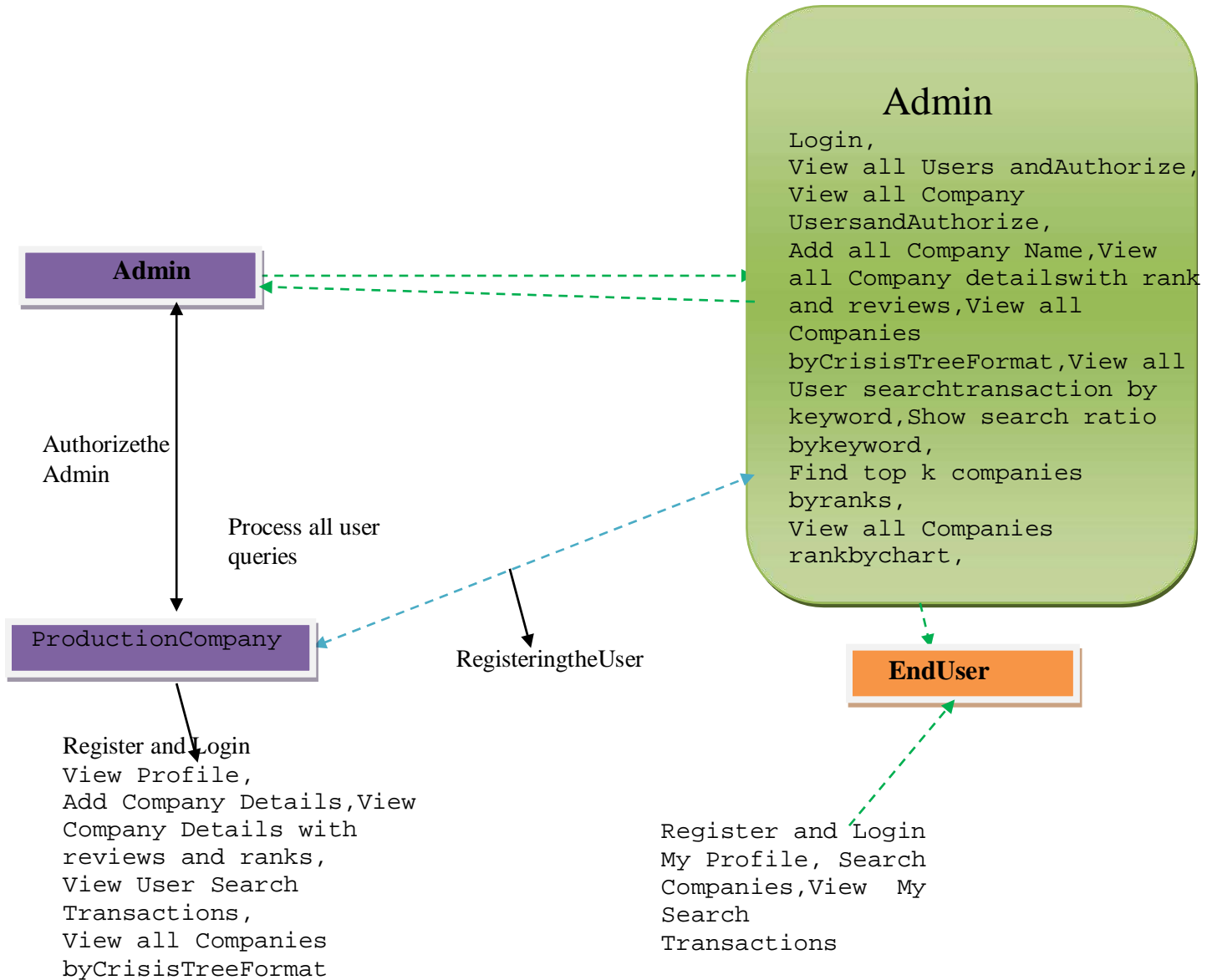


Fig 5.1 System Architecture

5.2 DATAFLOW DIAGRAM

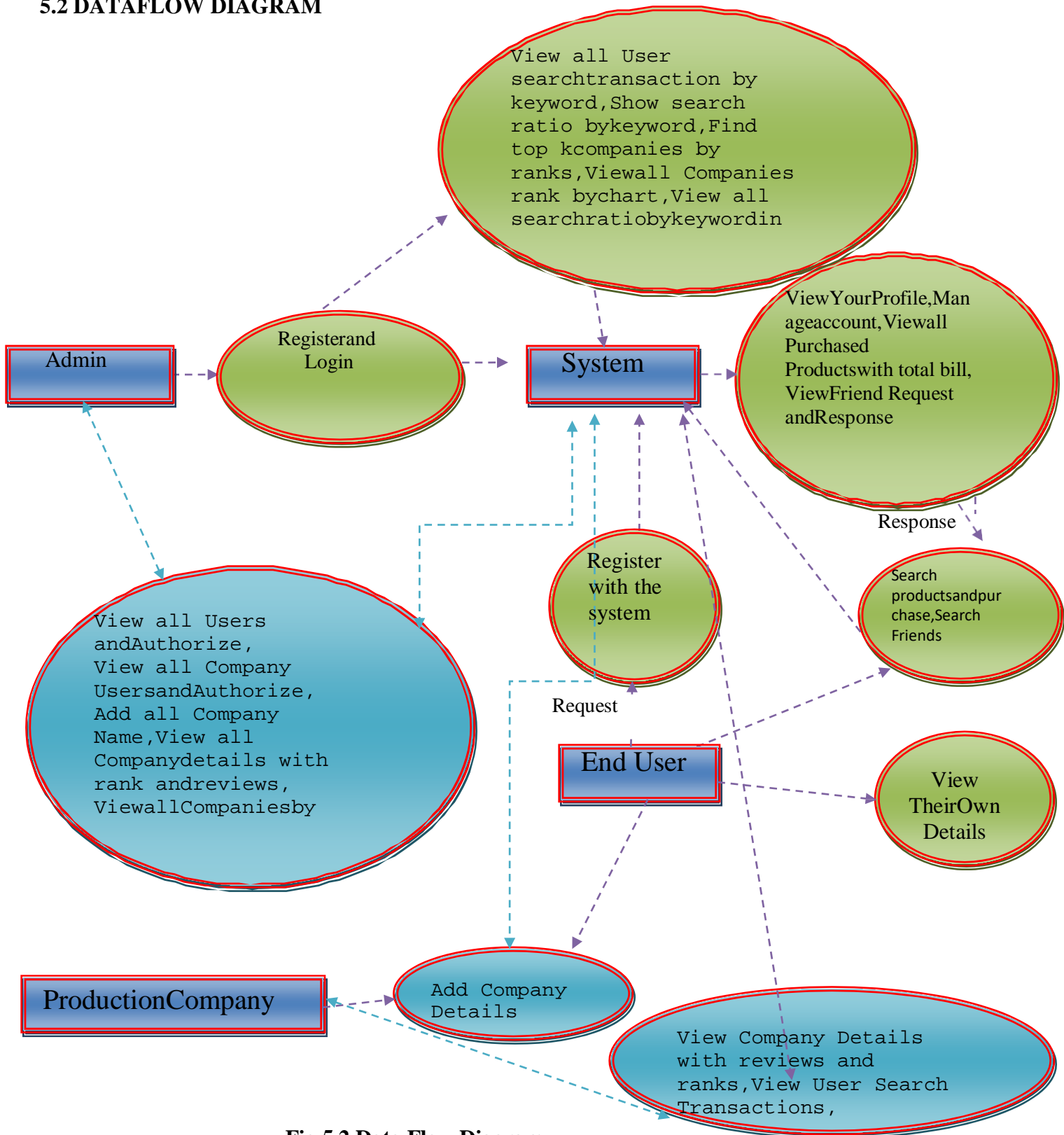


Fig 5.2 Data Flow Diagram

6. SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes – the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

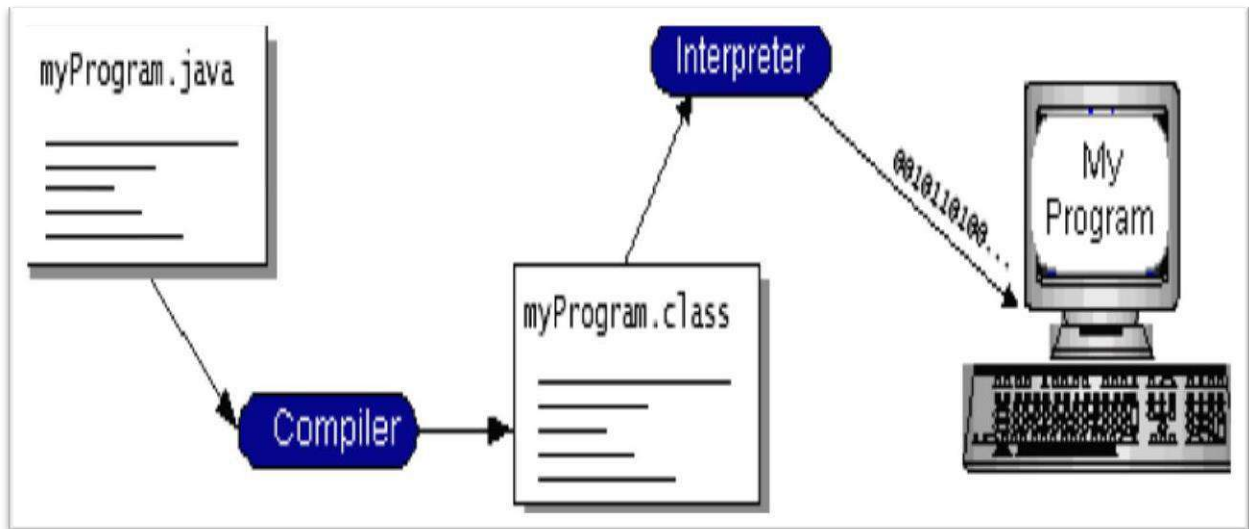
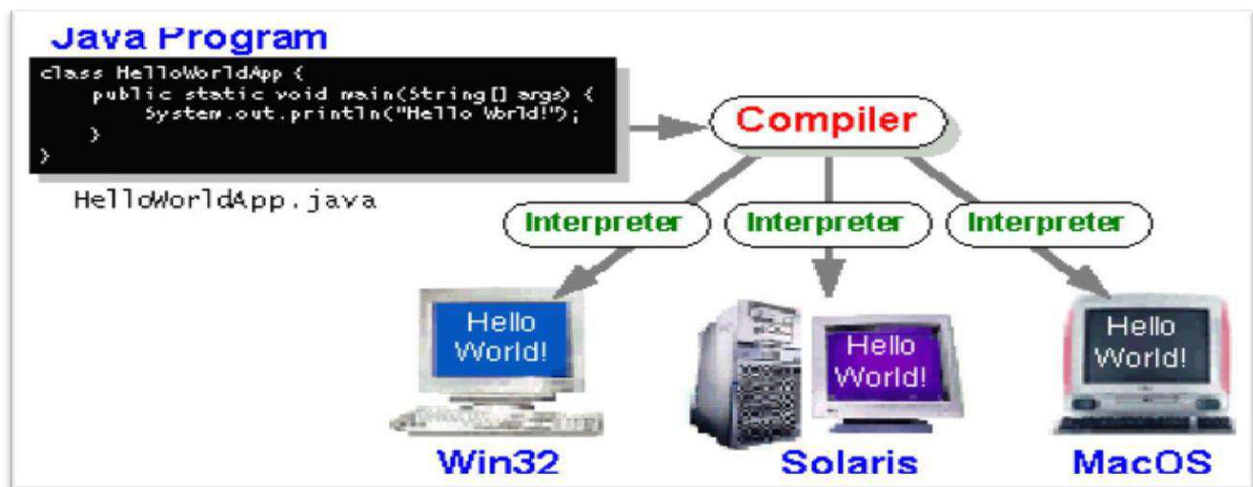


Fig 6.1: Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming



Language can run on Windows 2000, a Solaris workstation, or on an iMac.

Fig 6.2: Execution for different platforms

The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

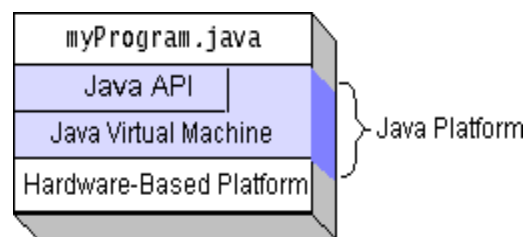


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring performance close to that portability.

What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are run time extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language

- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
- **Software components:** Known as JavaBeans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a widerange of relational databases.

The Java platform alsohas APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

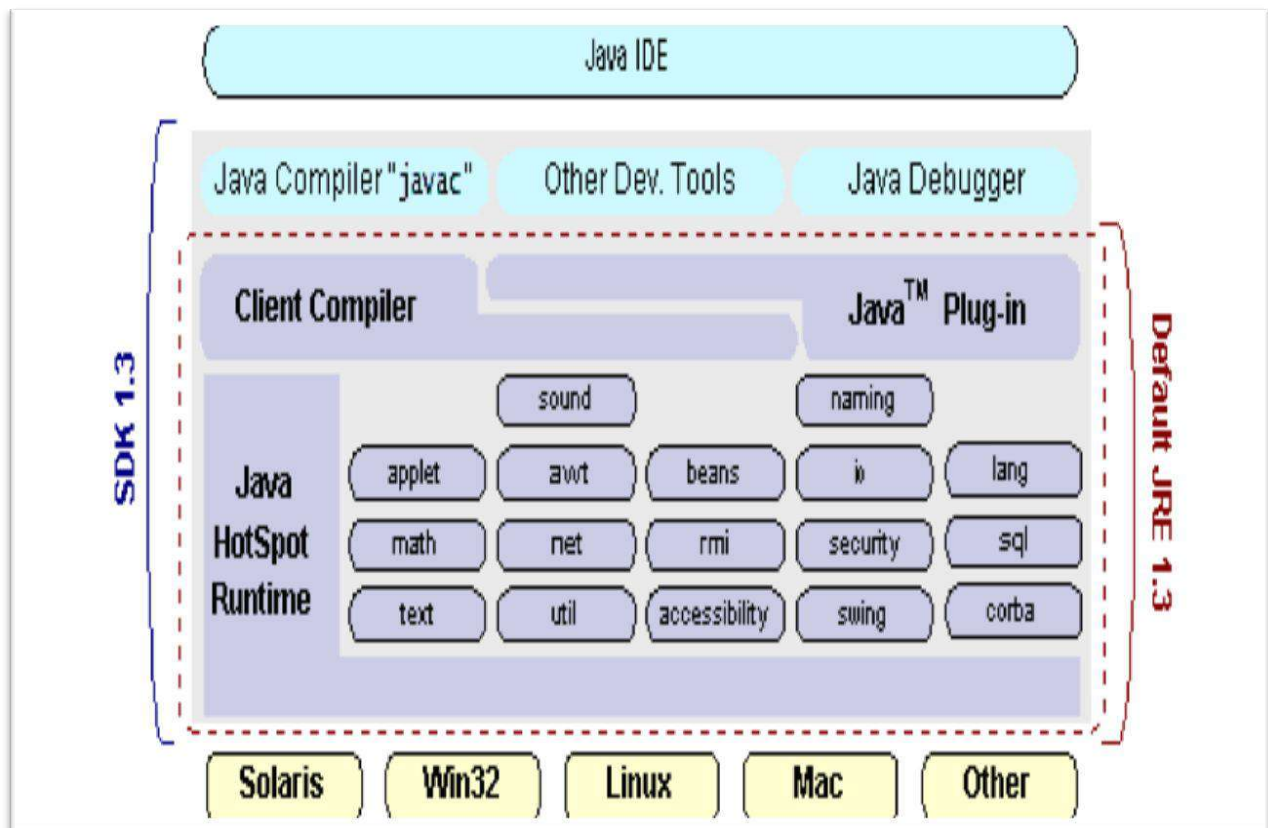


Fig 6.4: Java IDE

How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a de facto standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There

Is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. May be not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you, finish sooner. Mean while, computers get faster every year.

JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC

Java runs on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

JDB

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid frame work for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to "generate" JDBC code and to hide many of JDBC's complexities from the end user.

SQLConformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the

Connectivity module to handle non-standard functionality in a manner that is suitable for its users.

JDBC must be implemental on top of common database interfaces

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

Provide a Java interface that is consistent with the rest of the Javasytem

Because of Java’s acceptance in the user community thus far, the designers Feel that theyshould not stray from the current design of the core Java system.

Use strong, static typing wherever possible

Strong typing allows for more error checking to be done at compile time; also, less errorappear at runtime.

Keep the common cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to precede the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java ha two things: a programming language and a platform. Java is also unusualin that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program isexecuted.The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
>#include
<Sys/sock.>

Int socket (int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe-but the actual pipe does not yet exist.

JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support form any output types, including Swing components, image files (including PNG and JPEG), and vector graphics file

Formats (including PDF, EPS and SVG), JFreeChart is "opensource" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting some more.

Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts--
- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the mechanisms to the chart editors.

J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the JavaOne Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

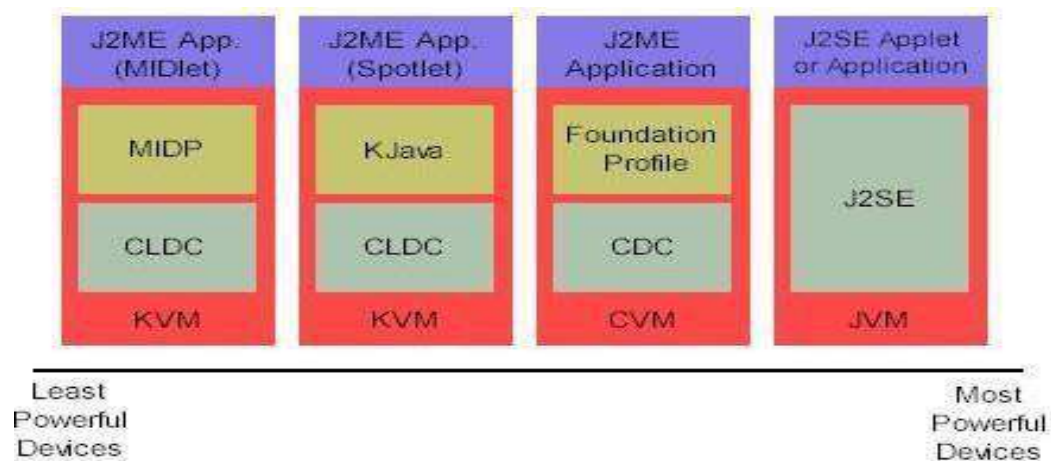


Fig 6.5: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the the profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the the following graphic depicts the relationship between the different virtual machines, configurations, and profiles it also draws a parallel with the the J2SE API

J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine-- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

Developing J2ME applications

Introduction In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices

Configurations overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

7. SYSTEM REQUIREMENTS

7.1 HARDWARE REQUIREMENTS

- Processor - Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM - 4GB
- Hard Disk - 40 GB.

7.2 SOFTWARE REQUIREMENTS

- Operating System - windows7 /8.1 /10/
- Server - Apache Tomcat
- Database - MYSQL Server 5.0
- Frontend - HTML, CSS, JS
- Backend - JSP

8. SYSTEM DESIGN

8.1 DATAFLOWDIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modeling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. ADFD may be used to represent a system at any level of abstraction.

8.1 DATAFLOW DIAGRAM

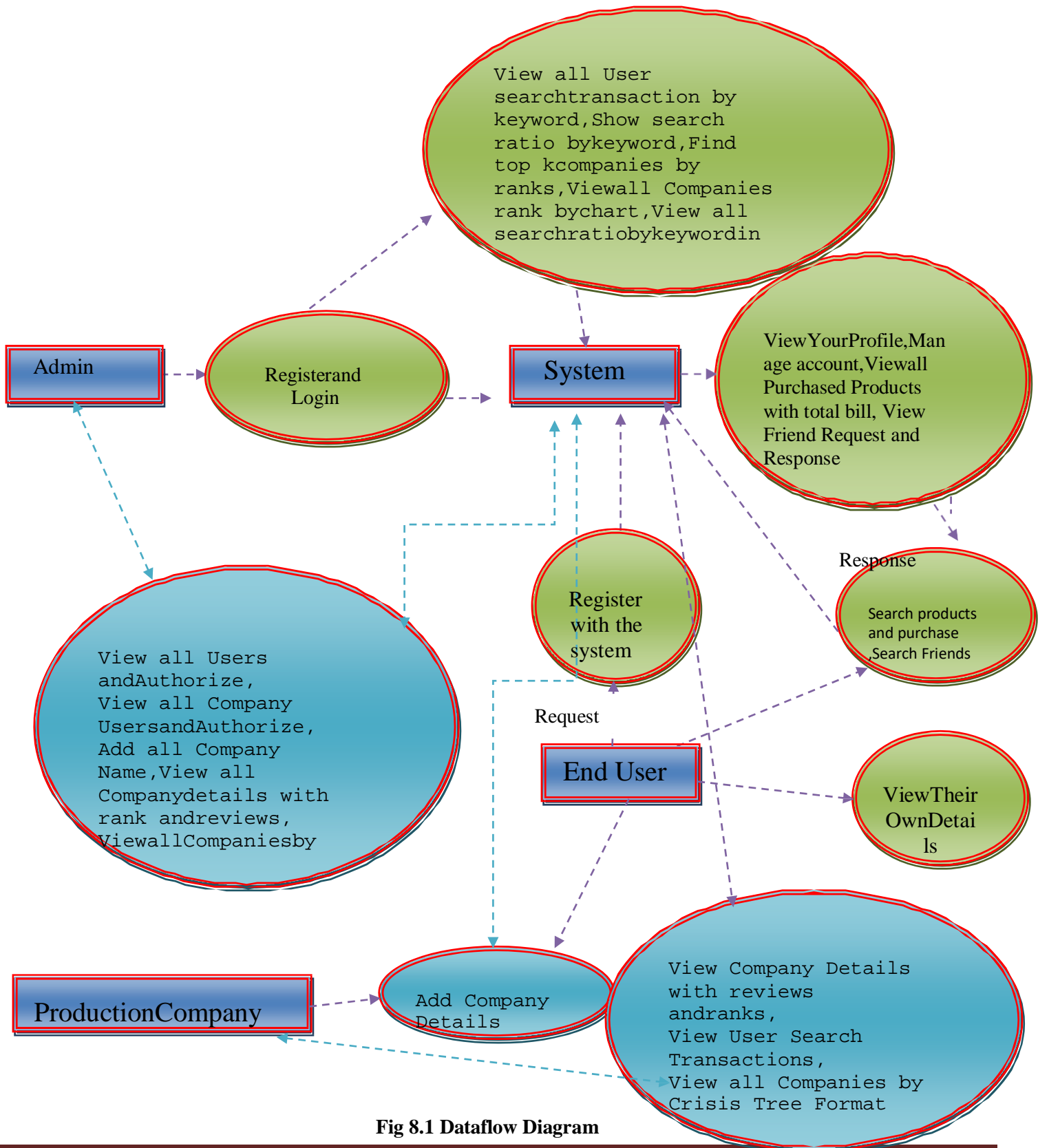


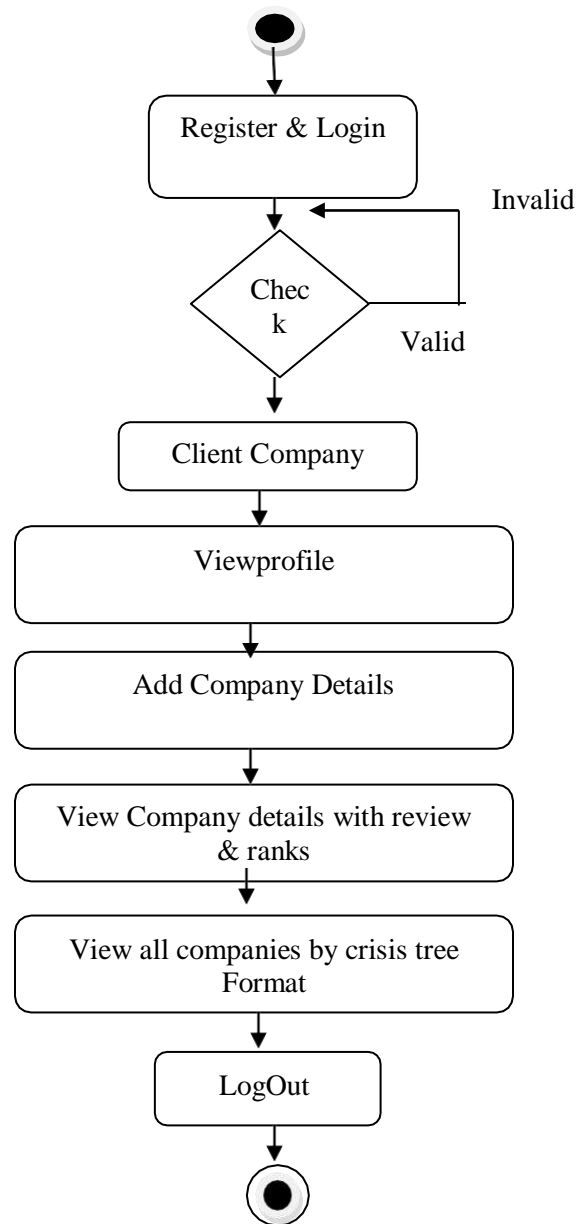
Fig 8.1 Dataflow Diagram

UML DIAGRAMS

Activity Diagram

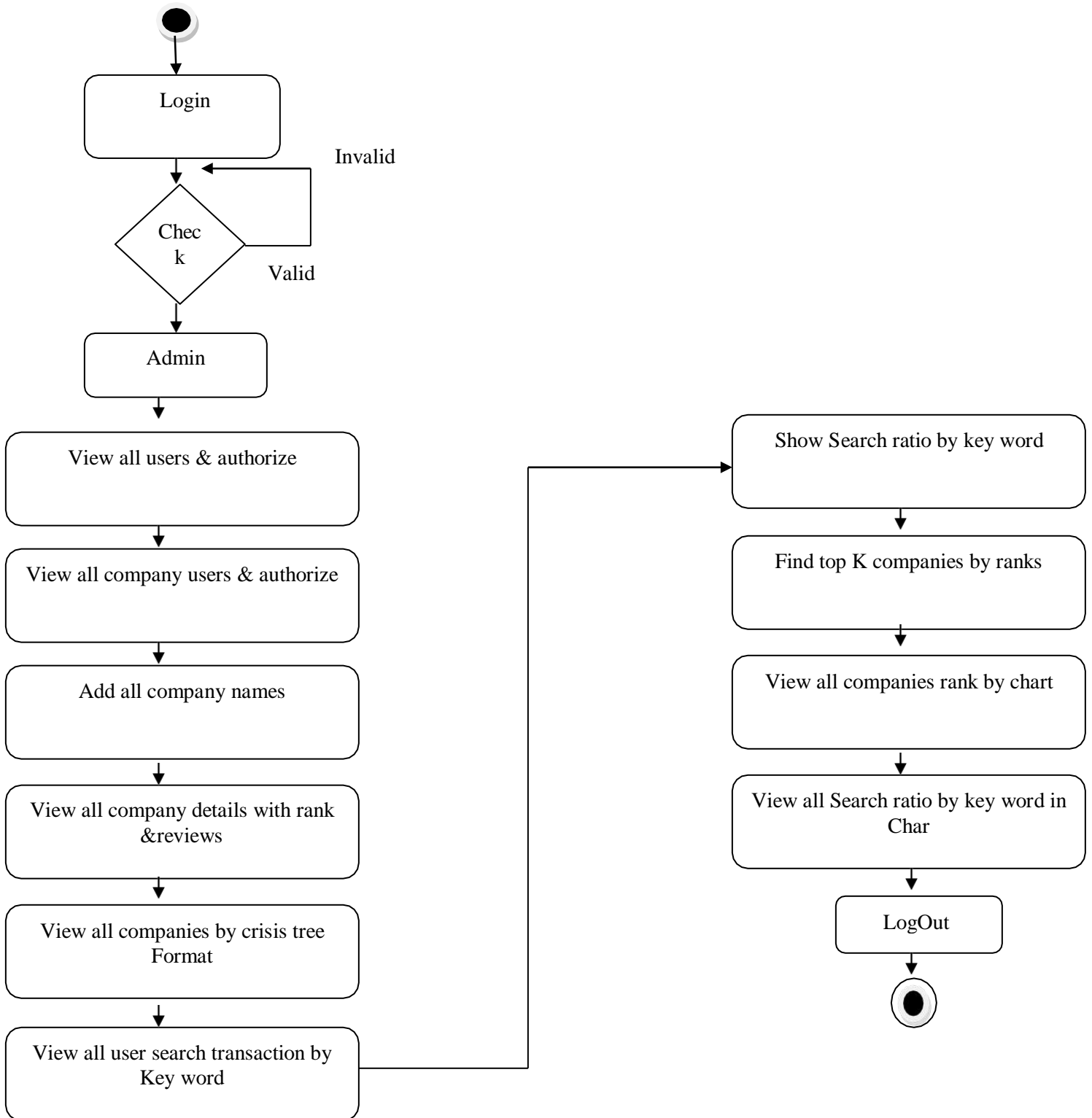
Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

Activity Diagram for Client Company



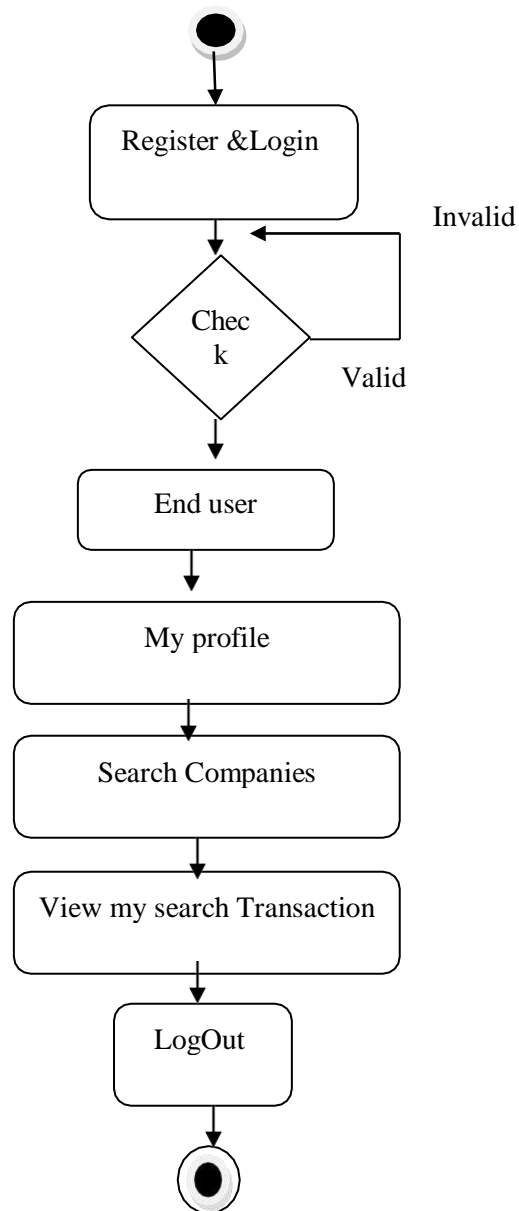
Activity Diagram for Client Company

Activity Diagram for Admin



Activity Diagram for admin

Activity Diagram for End User

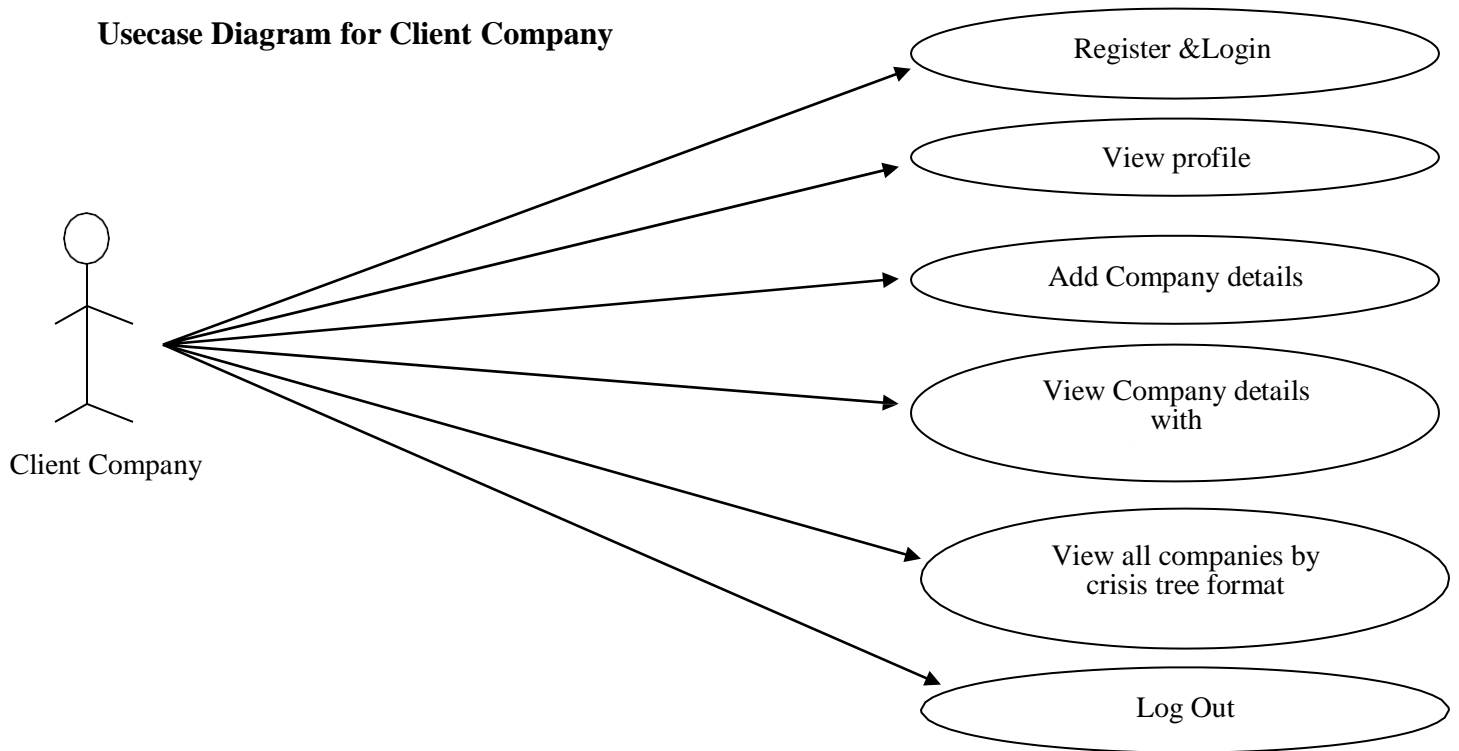


Activity Diagram for End user

Use case Diagram

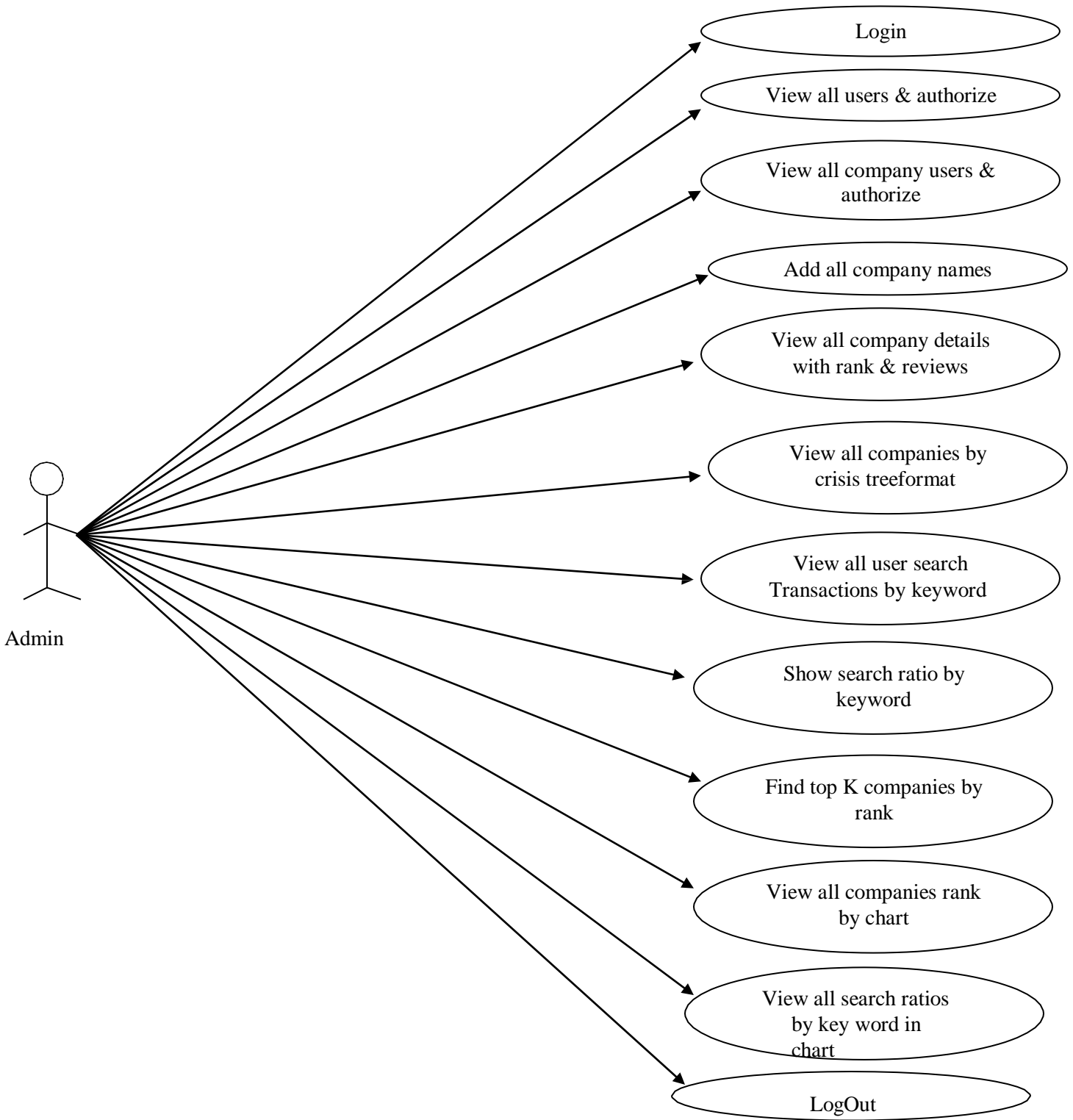
A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

Usecase Diagram for Client Company



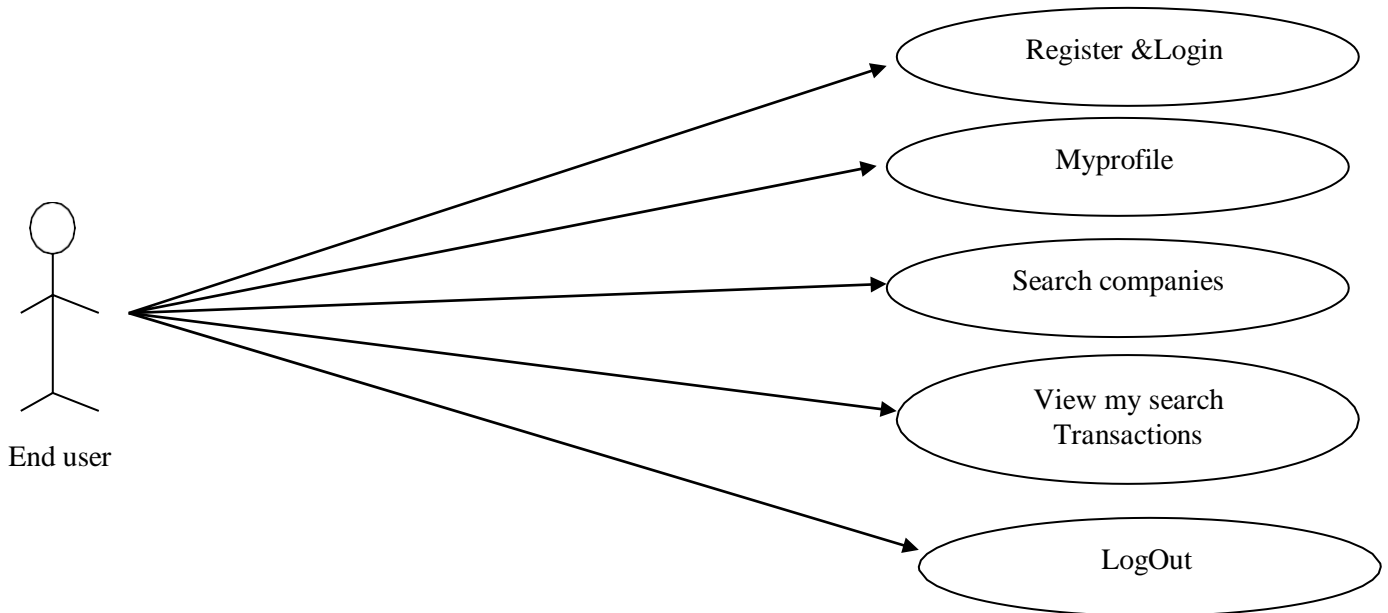
Use case Diagram for Client Company

Use case Diagram for Admin



Use case Diagram for Admin

Use case Diagram for End user



Use case Diagram for End user

8.3 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

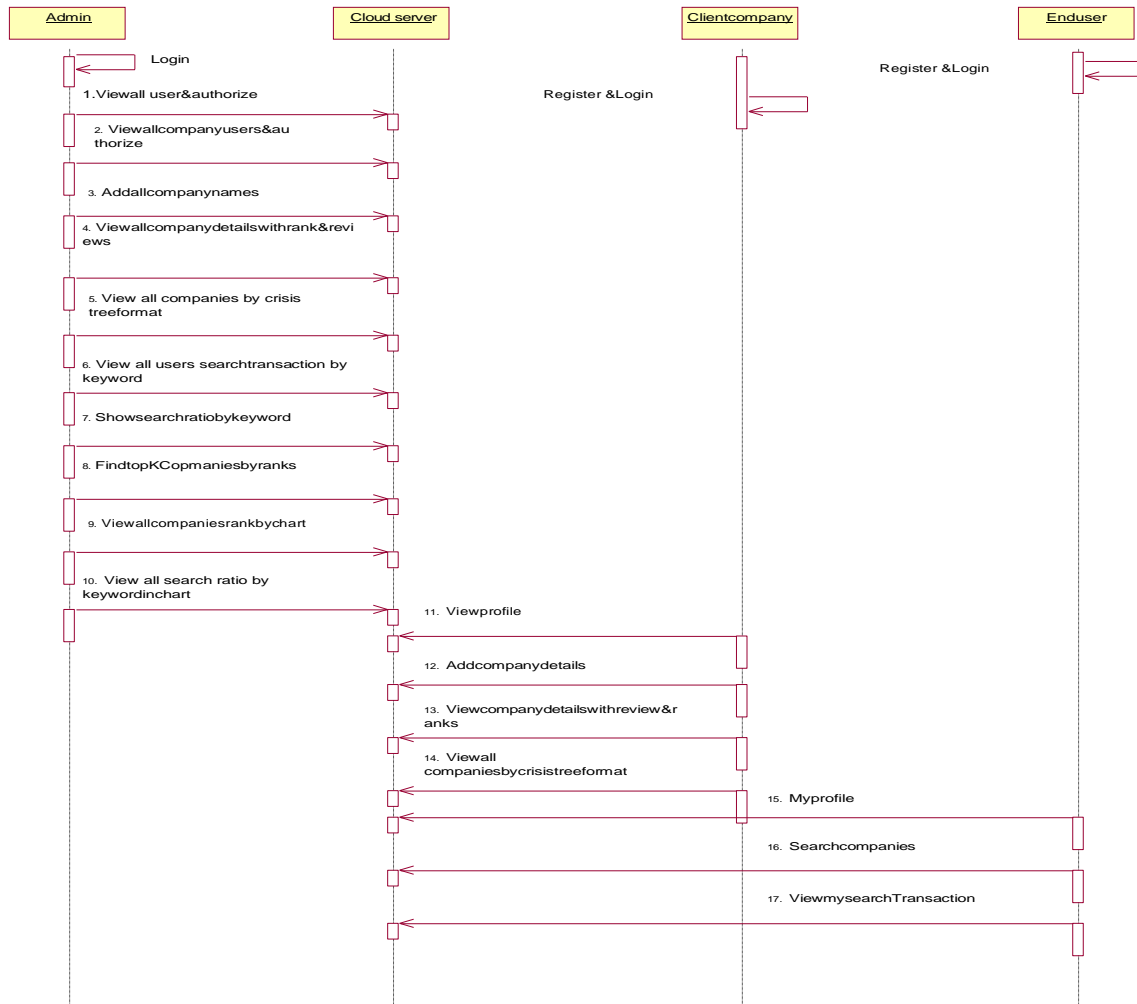


Fig 8.3 Sequence Diagram

8.4 Collaboration Diagram

A Collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

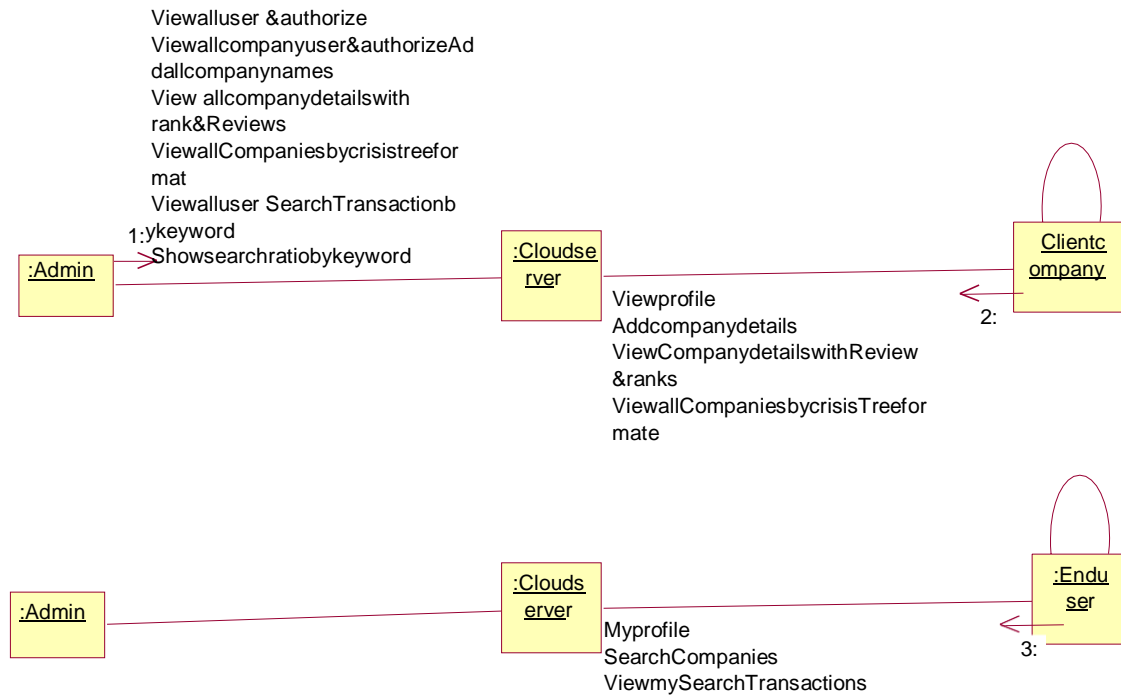


Fig 8.4 Collaboration Diagram

8.5 Deployment Diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

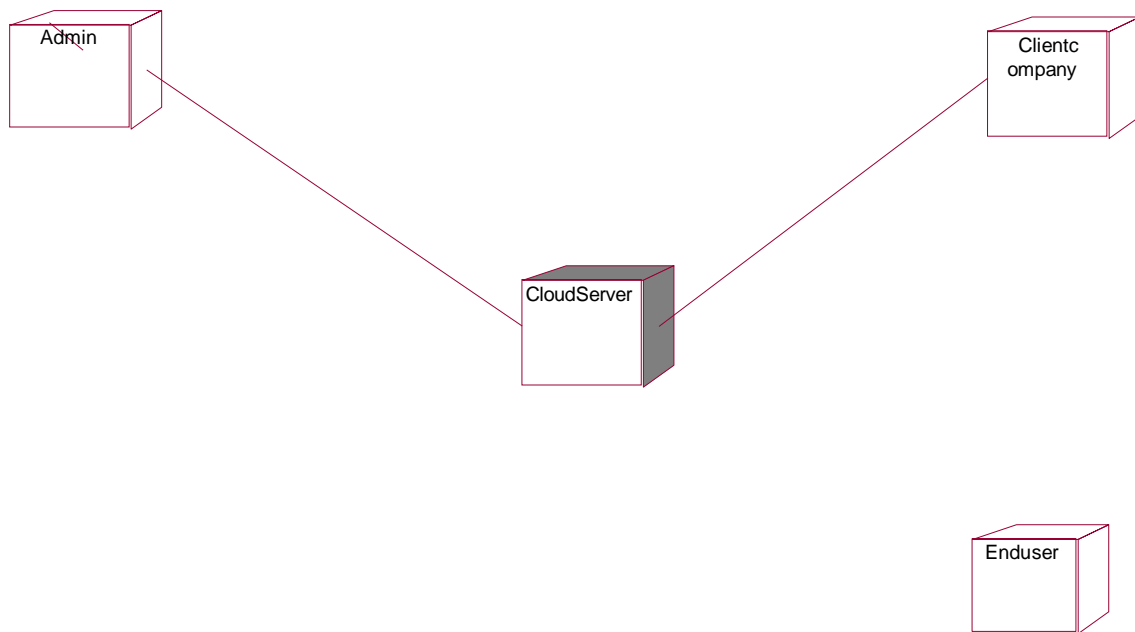


Fig 8.5 Deployment Diagram

8.6 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items. There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Usecase driven sequence or collaboration approach.
4. Classes, Responsibilities and Collaborators approach.

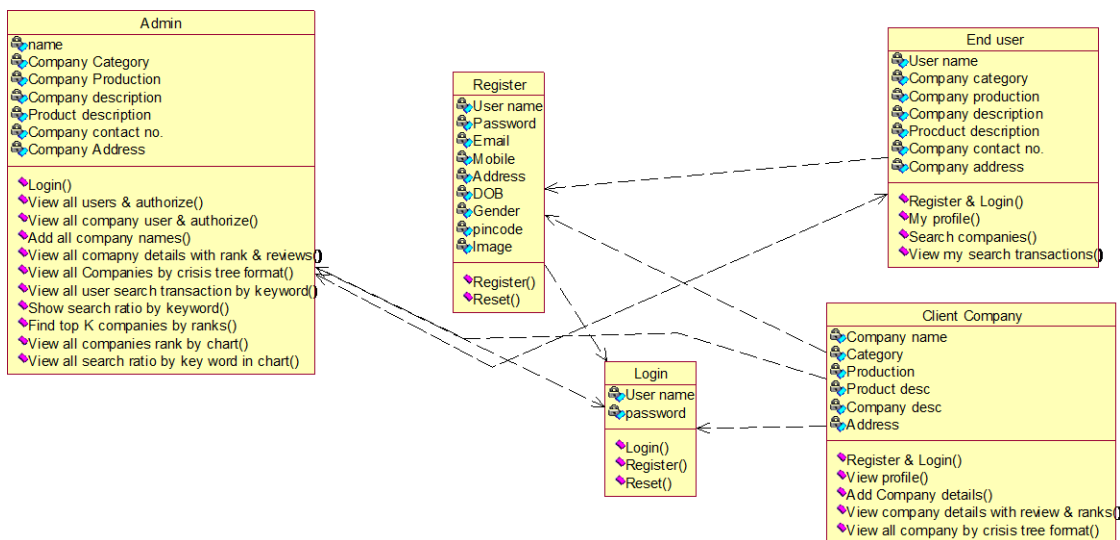


Fig 8.5 Class Diagram

8.7 ER Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent dataobjects and the relationship.E-R diagram notationis relatively simply, data objectsare represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in theE-Rdiagram.

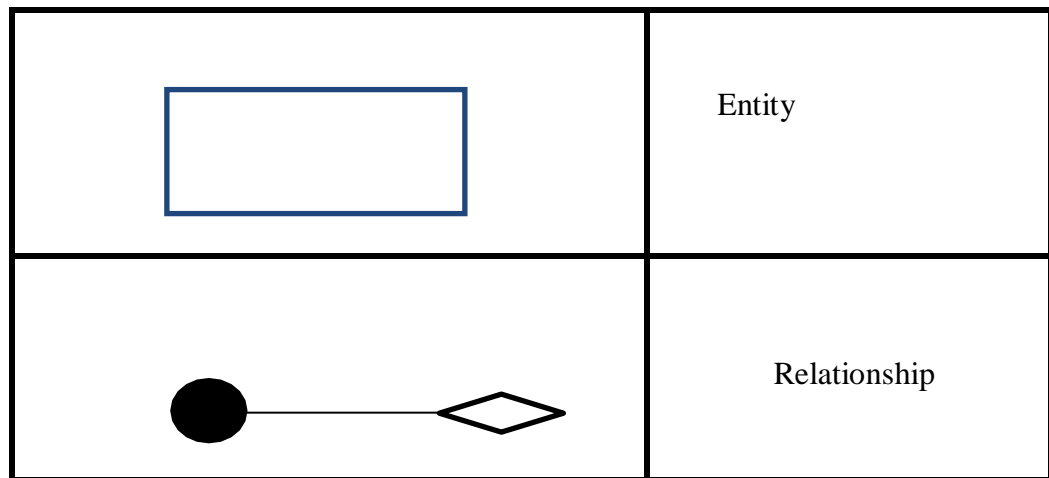


Fig 8.7 ER Notations

9. IMPLEMENTATION

INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management forgetting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analys is design computer output, they should identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
 - Convey information about past activities, current status or projections of the
 - Future.
 - Signal important events, opportunities, problems, or warnings.

CODING

Index.html

```
<!DOCTYPE htmlPUBLIC"/W3C//DTD XHTML1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Home</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style1 { font-size: 14px}
.style2 { font-size: 24px}
.style3 { font-weight: bold}
.style4 {
    color:
    #FF0000;font-
    weight:bold;
}
-->
</style>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">
<ul>
<liclass="active"><a href="index.html"><span>HomePage</span></a></li>
<li><a href="AdminLogin.jsp">Admin</a></li>
<strong></strong>
<li><a href="CompanyLogin.jsp">ProductionCompany</a></li>
<li><a href="UserLogin.jsp"><span>EndUser</span></a></li>
</ul>
</div>
<divclass="logo">
<h1class="style1"><a href="index.html" class="style2">Crisis Critical Intellectual
Property Findings From the COVID-19 Pandemic</a></h1>
```

```
<divclass="clr"></div>
<divclass="slider">
  <div id="coin-slider"><a href="#"><imgsrc="images/slide1.jpg"
width="970"height="305" alt="" /></a><a href="#"><imgsrc="images/slide2.jpg"
width="970"height="305" alt="" /></a><a href="#"><imgsrc="images/slide3.jpg"
width="970"height="305"alt="" /></a></div>
</div>
<divclass="clr"></div>
</div>
<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
        <h2>CrisisCriticalIntellectualPropertyFindingsFromthe COVID-19Pandemic</h2>
        <pclass="infopost">&nbsp;</p>
        <divclass="clr"></div>
        <divclass="img"><imgsrc="images/img3.jpg"width="156"height="470"alt=""class="fl"
/></div>
        <divclass="post_content">
          <p align="justify" class="style4">A pandemic calls for large-scale action across national
and international innovation systems in order to mobilize resources for developing and
manufacturing crisis-critical products efficiently and in the huge quantities needed. Now a day,
these products also include a wide range of digital innovations. Given that many responses to the
pandemic are technology driven, stakeholders involved in the development and manufacturing
ofcrisis-critical products are likely to face intellectual property (IP)- related challenges. To
(governmental) decision makers, IP challenges might not appear to be of paramount urgency
compared to the many un doubtedly huge operational challenges to deploy
However, if IP challenges are considered too late, they may cause delays to urgently mobilize
resources effectively. Innovation stakeholders could then be reluctant to fully engage in the
development and manufacturing of crisis-critical products. This article adopts an IP and
innovation perspective to learn from the currently unfolding COVID-19 pandemic using
secondary data, including patent data, synthesized with an IP roadmap.We focus on technical
aspects related to research, development, and upscaling of capacity to manufacture crisis-critical
products in the huge volumes suddenly in demand. In this article, we offer a set of
contributions.We provide a structure, framework, and language for those concerned with
steering clear of IPchallenges to avoid delays in fighting a pandemic. We provide a reasoning
why IP needs to beconsidered earlier rather than too late in a global health crisis. Major
stakeholders we identifyinclude 1) governments; 2) manufacturing firms owning existing crisis-
critical IP (incumbents incrisis-critical sectors); 3) manufacturing firms normally not producing
crisis-critical productssuddenly rushing into crisis-critical sectors to support the manufacturing
of crisis-critical productsinthe quantities that farexceed in cumbents'productioncapacities;<br/>
          </p>
        </div>
      </divclass="clr"></div>
```

```
</div>
<divclass="sidebar">
  <divclass="searchform">
    <formid="formsearch"name="formsearch"method="post"action="#">
      <span>
        <inputname="editbox_search"class="editbox_search"id="editbox_search"maxlength="
80"value="Searchourste:"type="text" />
      </span>
      <inputname="button_search"src="images/search.gif"class="button_search"t
ype="image"/>
    </form>
  </div>
  <divclass="clr"></div>
  <divclass="gadget">
    <h2class="star"><span>Sidebar</span>Menu</h2>
    <divclass="clr"></div>
    <ulclass="sb_menu">
      <li><spanclass="style3"><a href="#">Home</a></span></li>
      <li><strong><a href="AdminLogin.jsp">Admin</a></strong></li>
      <li><strong><a href="CompanyLogin.jsp">ProductionCompany</a></strong></li>
      <li><strong><a href="UserLogin.jsp">EndUser</a></strong></li>
      <li><a href="#"></a></li>
    </ul>
  </div>
  <divclass="gadget">
    <h2class="star"><span>Concepts</span></h2>
    <p>Coronavirus,COVID-19,globalhealthcrisis,<br/>
    Incumbents, innovation, intellectualproperty (IP), licensing,
    new<br/>entrants, pandemic.</p>
    <ulclass="ex_menu"><li><br />
    </li>
    </ul>
  </div>
</div>
<divclass="clr"></div>
</div>
<divclass="fbg">
  <divclass="fbg_resize">
    <divclass="clr"></div>
  </div>
</div>
<divclass="footer">
  <divclass="footer_resize">
    <divstyle="clear: both;"></div>
  </div>
</div>
```

```
</div>
</div>
<div align=center></a></div></body>
</html>
```

Register.html

```
<!DOCTYPEhtmlPUBLIC"/W3C//DTD XHTML1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Luckyr|Contact</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">
<ul>
<li><a href="index.html"><span>HomePage</span></a></li>
<li><a href="support.html"><span>Support</span></a></li>
<li><a href="about.html"><span>AboutUs</span></a></li>
<li><a href="blog.html"><span>Blog</span></a></li>
<liclass="active"><a href="contact.html"><span>ContactUs</span></a></li>
</ul>
</div>
<divclass="logo">
<h1><a href="index.html"><small>CompanySloganHere</small>
<span>Luckyr</span></a></h1>
</div>
<divclass="clr"></div>
<divclass="slider">
<div id="coin-slider"><a href="#"><imgsrc="images/slide1.jpg"
width="970"height="305"alt=""/></a><a href="#"><imgsrc="images/slide2.jpg"wid
th="970"height="305"alt=""/></a><a href="#"><imgsrc="images/slide3.jpg"width=
"970"height="305"alt="" /></a></div>
</div>
<divclass="clr"></div>
```



```

</div>
</div>
<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
        <h2><span>Contact</span></h2>
        <divclass="clr"></div>
        <p>Nullapede laorem velit curabitudin enim in nibh ero leo in pede.Semperpurus nibh elit
et convallis eutrices congue males monterdum elit.</p>
      </div>
      <divclass="article">
        <h2><span>Sendus</span>mail</h2>
        <divclass="clr"></div>
        <formaction="#"method="post" id="sendemail">
          <ol>
            <li>
              <labelfor="name">Name(required)</label>
              <input id="name" name="name" class="text"/>
            </li>
            <li>
              <labelfor="email">EmailAddress(required)</label>
              <input id="email" name="email" class="text"/>
            </li>
            <li>
              <labelfor="website">Website</label>
              <input id="website" name="website" class="text"/>
            </li>
            <li>
              <labelfor="message">YourMessage</label>
              <textarea id="message" name="message" rows="8" cols="50"></textarea>
            </li>
            <li>
              <input type="image" name="imageField" id="imageField" src="images/submit.gif" class="send"/>
            </li>
          </ol>
          <divclass="clr"></div>
        </form>
      </div>
    </div>
  <divclass="sidebar">
    <divclass="searchform">
      <form id="formsearch" name="formsearch" method="post" action="#">
        <span>
          <input name="editbox_search" class="editbox_search" id="editbox_search"

```

```
maxlength="80" value="Searchour ste:" type="text"/>
  </span>
  <input name="button_search" src="images/search.gif" class="button_search"
type="image"/>
</form>
</div>
<div class="clr"></div>
<div class="gadget">
  <h2 class="star"><span>Sidebar</span> Menu</h2>
  <div class="clr"></div>
  <ul class="sb_menu">
    <li><a href="#">Home</a></li>
    <li><a href="#">TemplateInfo</a></li>
    <li><a href="#">StyleDemo</a></li>
    <li><a href="#">Blog</a></li>
    <li><a href="#">Archives</a></li>
    <li><a href="#">WebTemplates</a></li>
  </ul>
</div>
<div class="gadget">
  <h2 class="star"><span>Sponsors</span></h2>
  <div class="clr"></div>
  <ul class="ex_menu">
    <li><a href="http://www.dreamtemplate.com/">DreamTemplate</a><br/>
      Over6,000+PremiumWebTemplates</li>
    <li><a href="http://www.templatesold.com/">TemplateSOLD</a><br/>
      PremiumWordPress&Joomla Themes</li>
    <li><a href="http://www.imhosted.com/">ImHosted.com</a><br/>
      AffordableWebHostingProvider</li>
    <li><a href="http://www.megastockphotos.com/">MegaStockPhotos</a><br/>
      UnlimitedAmazingStockPhotos</li>
    <li><a href="http://www.evrsoft.com/">Evrsoft</a><br/>
      WebsiteBuilderSoftware &Tools</li>
    <li><a href="http://www.csshub.com/">CSSHub</a><br/>P
      remiumCSSTemplates</li>
  </ul>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
  <div class="fbg_resize">
    <div class="colc1">
      <h2><span>Image</span> Gallery</h2>
      <a href="#"></a>
```

```
<a href="#"><imgsrc="images/gal2.jpg" width="75" height="75" alt="" class="gal"
/></a><ahref="#"><imgsrc="images/gal3.jpg" width="75" height="75" alt="" class="gal"
/></a><ahref="#"><imgsrc="images/gal4.jpg" width="75" height="75" alt="" class="gal"
/></a><ahref="#"><imgsrc="images/gal5.jpg" width="75" height="75" alt="" class="gal"
/></a><ahref="#"><imgsrc="images/gal6.jpg"width="75"height="75"alt=""class="gal"/></a></div>
<divclass="colc2">
<h2><span>Services</span>Overview</h2>
<p>Curabitur sed urna id nunc pulvinar semper. Nunc sit amet tortor sit amet lacus sagittis
posuere cursus vitae nunc.Etiam venenatis, turpis at eleifend porta, nisl nulla bibendum
justo.</p>
<ulclass="fbg_ul">
<li><ahref="#">Lorem ipsum dolorlabore et dolore.</a></li>
<li><ahref="#">Excepteur officia deserunt.</a></li>
<li><ahref="#">Integer tellus ipsum tempor sed.</a></li>
</ul>
</div>
<divclass="colc3">
<h2><span>Contact</span>Us</h2>
<p>Nullam quam lorem, tristique non vestibulum nec, consectetur inrisus. Aliquama quam
vel leo gravida gravid eu porttitor dui.</p>
<pclass="contact_info"><span>Address:</span>1458TemplateAccess,USA<br/>
<span>Telephone:</span>+123-1234-5678<br/>
<span>FAX:</span>+458-4578<br/>
<span>Others:</span>+301 - 0125-01258<br />
<span>E-mail:</span><ahref="#">mail@yoursitename.com</a></p>
</div>
<divclass="clr"></div>
</div>
<divclass="footer">
<divclass="footer_resize">
<pclass="lf">&copy;Copyright <ahref="#">MyWebSite</a>.</p>
<pclass="rf">DesignbyDream<ahref="http://www.dreamtemplate.com/">WebTemplates<
/a></p>
<divstyle="clear:both;"></div>
</div>
</div>
</div>
<div align=center>This template downloaded form<a href='http://all-free-download.com/free-
website-templates/'>free website templates</a></div></body>
</html>
```

User Main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN
""http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```

<% @includefile="connect.jsp"%>
<% @pageimport="java.io.*"%>
<% @pageimport="java.util.*"%>
<% @pageimport="com.oreilly.servlet.*"%>
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>UserMainPage</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style1 { font-size:14px }
.style2 { font-size:24px }
-->
</style>
</head>
<body>
<divclass="main">
  <divclass="header">
    <divclass="header_resize">
      <divclass="menu_nav">
        <ul>
          <liclass="active"><a href="index.html"><span>HomePage</span></a></li>
            <li><a href="AdminLogin.jsp">Admin</a></li>
            <strong></strong>
          <li><a href="CompanyLogin.jsp">ProductionCompany</a></li>
          <li><a href="UserLogin.jsp"><span>EndUser</span></a></li>
        </ul>
      </div>
      <divclass="logo">
        <h1class="style1"><a href="index.html" class="style2">Crisis Critical Intellectual
Property Findings From the COVID-19 Pandemic</a></h1>
      </div>
      <divclass="clr"></div>
      <divclass="slider">
        <div id="coin-slider"><a href="#"><imgsrc="images/slide1.jpg"
width="970"height="305"alt=""/></a><a href="#"><imgsrc="images/slide2.jpg"wid
th="970"height="305"alt=""/></a><a href="#"><imgsrc="images/slide3.jpg"width=
"970"height="305"alt=""/></a></div>
      </div>
    </div>
  </div>
</body>
</html>

```

```

    <divclass="clr"></div>
  </div>
</div>
<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
        <h2>WelcomeUser<%= (String)application.getAttribute("user")%></h2>
        <pclass="infopost">&nbsp;</p>
        <divclass="clr"></div>

        <divclass="post_content">
          <p><imgsrc="images/User.png"width="560"height="224"/></p>
        </div>
        <divclass="clr"></div>
      </div>
    </div>
  <divclass="sidebar">
    <divclass="searchform">
      <formid="formsearch"name="formsearch"method="post"action="#">
        <span>
          <inputname="editbox_search"class="editbox_search"id="editbox_search"maxlength="
80"value="Searchourste:"type="text" />
        </span>
        <inputname="button_search"src="images/search.gif"class="button_search"t
ype="image"/>
      </form>
    </div>
    <divclass="clr"></div>
    <divclass="gadget">
      <h2class="star"><span>User</span>Menu</h2>
      <divclass="clr"></div>
      <ulclass="sb_menu">
        <li><strong><a href="User_Main.jsp">Home</a></strong></li>
        <li><strong><a href="UserProfile.jsp">MyProfile</a></strong></li>
          <li><strong><a href="U_Search.jsp">Search
Companies</a></strong></li>
          <li><strong><a href="U_ViewSearchTransaction.jsp">View My
SearchTransactions</a></strong></li>
          <li><strong><a href="UserLogin.jsp">Logout</a></strong></li>
        </ul>
      </div>
    </div>
  </div>
</div>
<divclass="clr"></div>
</div>

```

```
<divclass="fbg">
  <divclass="fbg_resize">
    <divclass="clr"></div>
  </div>
</div>
<divclass="footer">
  <divclass="footer_resize">
    <divstyle="clear:both;"></div>
  </div>
</div>
<div>
<divalign=center></a></div></body>
</html>
```

UserLogin.jsp

```
<!DOCTYPE html PUBLIC"-
//W3C//DTD XHTML 1.0 Transitional//EN""http://www.w3.org/TR/xhtml1/
DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>UserLogin</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8"/>

<link href="css/style.css" rel="stylesheet" type="text/css"/>
<link rel="stylesheet" type="text/css" href="css/coin-slider.css"/>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 14px }
.style2 { font-size: 24px }
.style4 {
    color:
    #FF6600; font-
    weight: bold;
}
.style5 { color: #000000 }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">
<ul>
<li class="active"><a href="index.html"><span>HomePage</span></a></li>
<li><a href="AdminLogin.jsp">Admin</a></li>
<li><a href="CompanyLogin.jsp">Production Company</a></li>
<li><a href="UserLogin.jsp"><span>End User</span></a></li>
</ul>
</div>
<div class="logo">
<h1 class="style1"><a href="index.html" class="style2">Crisis Critical Intellectual
Property Findings From the COVID-19 Pandemic</a></h1>
```



```

<divclass="content">
  <divclass="content_resize">
    <divclass="mainbar">
      <divclass="article">
        <h2>WelcomeToUserLogin..!</h2>
        <p align="center" class="infopost"><imgsrc="images/Login.jpg"width="222"height="222"/></p>
        <divclass="clr"></div>

        <divclass="post_content">
          <formid="form1" name="form1" method="post" action="Authentication.jsp?type=<%= "user"%>">
            <tablewidth="464"border="0"cellspacing="2" cellpadding="2">
              <tr>
                <tdwidth="197"height="46"align="center"><spanclass="style34">
                  <label for="name"><spanclass="style5">Name(required)</span></label>
                </span></td>
                <tdwidth="253"><inputid="name" name="userid" class="text"/></td>
              </tr>
              <tr>
                <tdheight="40"align="center"><spanclass="style34style5">Password(required)</span><
              </td>
                <td><inputtype="password" id="pass" name="pass" class="text"/></td>
              </tr>
              <tr>
                <td>&nbsp;</td>
                <td>&nbsp;</td>
              </tr>
              <tr>
                <td>&nbsp;</td>
                <td><spanclass="style16">
                  <inputname="imageField" type="submit" class="LOGIN" id="imageField" value="Login"
                </strong>NewUser?</strong></span><a href="UserRegister.jsp" class="style30style4"> Register</a></td>
              </tr>
              <tr>
                <td>&nbsp;</td>
                <td>&nbsp;</td>
              </tr>
            </table>
          </form>
        </div>
      <divclass="clr"></div>
    </div>
  </div>

```

```

</div>
<divclass="sidebar">
  <divclass="searchform">
    <formid="formsearch"name="formsearch"method="post"action="#">
      <span>
        <inputname="editbox_search"class="editbox_search"id="editbox_search"maxlength="
80"value="Searchourste:"type="text" />
      </span>
      <inputname="button_search"src="images/search.gif"class="button_search"t
ype="image"/>
    </form>
  </div>
  <divclass="clr"></div>
  <divclass="gadget">
    <h2class="star"><span>Sidebar</span>Menu</h2>
    <divclass="clr"></div>
    <ulclass="sb_menu">
      <li><a href="index.html">Home</a></li>
      <li><a href="#"></a></li>
    </ul>
  </div>
</div>
<divclass="clr"></div>
</div>
<divclass="fbg">
  <divclass="fbg_resize">
    <divclass="clr"></div>
  </div>
</div>
<divclass="footer">
  <divclass="footer_resize">
    <divstyle="clear:both;"></div>
  </div>
</div>
</div>
<divalign=center></a></div></body>
</html>

```

CompanyUser Main.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @includefile="connect.jsp" %>
<% @pageimport="java.io.*"%>
<% @pageimport="java.util.*"%>

```

```
<% @pageimport="com.oreilly.servlet.*"%>
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>CompanyUserMainPage</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style1 { font-size:14px }
.style2 { font-size:24px }
-->
</style>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">
<ul>
<liclass="active"><a href="index.html"><span>HomePage</span></a></li>
<li><a href="AdminLogin.jsp">Admin</a></li>
<strong></strong>
<li><a href="CompanyLogin.jsp">ProductionCompany</a></li>
<li><a href="UserLogin.jsp"><span>EndUser</span></a></li>
</ul>
</div>
<divclass="logo">
<h1class="style1"><a href="index.html" class="style2">Crisis Critical Intellectual
Property Findings From the COVID-19 Pandemic</a></h1>
</div>
<divclass="clr"></div>
<divclass="slider">
<div id="coin-slider"><a href="#"><imgsrc="images/slide1.jpg"
width="970"height="305"alt=""/></a><a href="#"><imgsrc="images/slide2.jpg"wid
th="970"height="305"alt=""/></a><a href="#"><imgsrc="images/slide3.jpg"width=
"970"height="305"alt=""/></a></div>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="content">
```

```
<divclass="content_resize">
  <divclass="mainbar">
    <divclass="article">
      <h2>Welcome<%= (String)application.getAttribute("cname")%>CompanyUser
<%= (String)application.getAttribute("cuser")%></h2>
      <pclass="infopost">&nbsp;</p>
      <divclass="clr"></div>

      <divclass="post_content">

        <p><imgsrc="images/Company.jpg"width="580"height="343"/></p>
        <p>&nbsp;</p>
        <p>&nbsp;</p>
        <p>&nbsp;</p>
        <p>&nbsp;</p>
      </div>
      <divclass="clr"></div>
    </div>
  </div>
  <divclass="sidebar">
    <divclass="searchform">
      <formid="formsearch"name="formsearch"method="post"action="#">
        <span>
          <inputname="editbox_search"class="editbox_search"id="editbox_search"maxlength="
80"value="Searchourste:"type="text"/>
        </span>
        <inputname="button_search"src="images/search.gif"class="button_search"t
ype="image"/>
      </form>
    </div>
    <divclass="clr"></div>
    <divclass="gadget">
      <h2class="star"><span>Company</span>Menu</h2>
      <divclass="clr"></div>

      <ulclass="sb_menu">
        <li><a href="CompanyUser_Main.jsp">Home</a></li>
        <li><strong><a href="CompanyUserProfile.jsp">ViewProfile</a></strong></li>
          <li><strong><a href="AddCompanyData.jsp">Add
CompanyDetails</a></strong></li>
          <li><strong><a href="ViewCompanyDetails.jsp">ViewCompanyDetailsw
ithreviews andranks</a></strong></li>
          <li><strong><a href="ViewUserSearch.jsp">ViewUserSearchTransactions</a></s
trong></li>
          <li><strong><a href="ViewOtherCompanies.jsp">ViewallCompaniesbyCr
isisTreeFormat</a></strong></li>
          <li><a href="CompanyLogin.jsp">Logout</a></li>
        </ul>
      </div>
    </div>
  </div>
</div>
```

```
</ul>
</div>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="fbg">
  <divclass="fbg_resize">
    <divclass="clr"></div>
  </div>
</div>
<divclass="footer">
  <divclass="footer_resize">
    <divstyle="clear:both;"></div>
  </div>
</div>
</div>
<divalign=center></a></div></body>
</html>
```

CompanyUserRegisterStatus.jsp

```
<!DOCTYPEhtmlPUBLIC"/W3C//DTD XHTML1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>CompanyUserRegisterStatus</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<script type="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style1 { font-size:14px }
.style2 { font-size:24px }
.style4 { color:#000000 }
-->
</style>
</head>
<body>
<divclass="main">
  <divclass="header">
```

```
<divclass="header_resize">
<divclass="menu_nav">
<ul>
<liclass="active"><ahref="index.html"><span>HomePage</span></a></li>
<li><ahref="AdminLogin.jsp">Admin</a></li>
<strong></strong>
<li><ahref="CompanyLogin.jsp">ProductionCompany</a></li>
<li><ahref="UserLogin.jsp"><span>EndUser</span></a></li>
</ul>
</div>
<divclass="logo">
<h1class="style1"><ahref="index.html"class="style2">Crisis Critical Intellectual
Property Findings From the COVID-19 Pandemic</a></h1>
</div>
<divclass="clr"></div>
<divclass="slider">
<div id="coin-slider"><a href="#"><imgsrc="images/slide1.jpg"
width="970"height="305"alt=""/></a><ahref="#"><imgsrc="images/slide2.jpg"wid
th="970"height="305"alt=""/></a><ahref="#"><imgsrc="images/slide3.jpg"width=
"970"height="305"alt=""/></a></div>
</div>
<divclass="clr"></div>
</div>
<divclass="content">
<divclass="content_resize">
<divclass="mainbar">
<divclass="article">
<h2>Company User Registration Status!</h2>
<pclass="infopost">&nbsp;</p>
<divclass="clr"></div>
<divclass="post_content">
<% @includefile="connect.jsp"%>
<% @pageimport="java.io.*"%>
<% @pageimport="java.util.*"%>
<% @pageimport="com.oreilly.servlet.*"%>
<%
```

```
ArrayListlist=newArrayList();
```

```
ServletContextcontext=getServletContext();Strin
```

```
gdirName=context.getRealPath("Gallery/");String
```

```
paramname=null,cuname=null,pass=null,email=null,mno=null,addr=null,dob=null,gender=null,company
=null,image=null,cloud=null,bin="";
```

```
FileInputStreamfs=null;
```

```
File file1= null;
```

```
try{
    MultipartRequest multi=new
MultipartRequest(request,dirName,10 *1024*1024);

    Enumerationparams=multi.getParameterNames();w
    hile (params.hasMoreElements())
    {
        paramname=(String)
params.nextElement ();

        if(paramname.equalsIgnoreCase("userid"))
        {
            cuname=multi.getParameter(paramname);
        }
        if(paramname.equalsIgnoreCase("pass"))
        {
            pass=multi.getParameter(paramname);
        }
        if(paramname.equalsIgnoreCase("email"))
        {
            email=multi.getParameter(paramname);
        }
        if(paramname.equalsIgnoreCase("mobile"))
        {
            mno=multi.getParameter(paramname);
        }
        if(paramname.equalsIgnoreCase("address"))
        {
```



```
addr=multi.getParameter(paramname);
    }
    if(paramname.equalsIgnoreCase("dob"))
    {

dob=multi.getParameter(paramname);
    }
    if(paramname.equalsIgnoreCase("gender"))
    {

gender=multi.getParameter(paramname);
    }

    if(paramname.equalsIgnoreCase("company"))
    {

company=multi.getParameter(paramname);
    }
    }

    intf=0;
    Enumerationfiles=multi.getFileNames();while (files.hasMoreElements())
    {
        paramname=(String)files.nextElement();

        if(paramname!=null)
        {
            f=1;
            image

            =StringfPath

            =

            file1=newFile(fPath);
            fs=newFileInputStream(file1);list.add(fs);

FileInputStream(ss);StringBuffer()

;

            Stringss=fPath;FileInputS
            treamfis=new
```

```
StringBuffersb1=
newinti= 0;

//System.out.println(i);
Integer.toHexString(i);

while((i=fis.read())!=-1)
{
    if(i!=-1)
    {
        Stringhex=
```

```

session.put("hex",hex);

";

hex.length();i1++)

Integer.parseInt(""+hex.charAt(i1),16);I
nInteger.toBinaryString(iHex);

    while(binFragment.length(<4)

        binFragment="0"+binFragment;

binFragment;

        }
    }
}

FileInputStreamfs1=null;
Stringquery1="select*fromcuserwhere

Statementst1=connection.createStatement();
ResultSetrs1=st1.executeQuery(query1);

company=""+"company+"";

```

```
</p>
</label>

<pclass="style18style24style4">&nbsp;</p>
<pclass="style18style24style4style1">CompanyName Already
Exist.</p>
<palign="left">&nbsp;</p>
<palign="left"><a href="CompanyUserRegister.jsp" class="style5style16
style35">Back</a></p>
<%

        }
        else
        {

                Stringstatus="Waiting";
PreparedStatementps=connection.prepareStatement("insertinto cuser(cusername,password,email,mobile,a
ddress,dob,gender,company,status,image) values(?,?,?,?,?,?,?,?)");
                ps.setString(1,cuname);ps.setS
                tring(2,pass);ps.setString(3,em
                ail);ps.setString(4,mno);ps.set
                String(5,addr);ps.setString(6,d
                ob);ps.setString(7,gender);ps.s
                etString(8,company);ps.setStri
                ng(9,status);

                ps.setBinaryStream(10,(InputStream)fs,
(int)(file1.length()));

                if(f== 0)
                        ps.setObject(10,null);el
                seif(f== 12)
                {
                        fs1=
                        (FileInputStream)list.get(0);ps.setBinaryStream(10,f
                        s1,fs1.available());
                }

                int
                x=ps.executeUpdate();if(
                x>0)
                {
```

```

<pclass="style23style4">&nbsp;</p>
<pclass="style23style4style1">RegistrationSuccessfull.</p>
<pclass="style19">&nbsp;</p>
    <p><a href="CompanyLogin.jsp" class="style16">Back</a></p>
    <%
        catch(Exceptione)
        {
            out.println(e.getMessage());
        }
    %>

</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
    <div class="searchform">
        <form id="formsearch" name="formsearch" method="post" action="#">
            <span>
                <input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="
80" value="Searchourste:" type="text" />
            </span>
            <input name="button_search" src="images/search.gif" class="button_search" t
ype="image" />
        </form>
    </div>
<div class="clr"></div>
<div class="gadget">
    <h2 class="star"><span>Sidebar</span>Menu</h2>
    <div class="clr"></div>
    <ul class="sb_menu">
        <li><a href="index.html">Home</a></li>
        <li><a href="#"></a></li>
    </ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
    <div class="fbg_resize">
        <div class="clr"></div>
    </div>
</div>

```

```

</div>
<divclass="footer">
  <divclass="footer_resize">
    <divstyle="clear:both;"></div>
  </div>
</div>
</div>
<divalign=center></a></div></body>
</html>

```

U_Review.jsp

```

<!DOCTYPEhtmlPUBLIC"/W3C/DTD/xhtml1.0Transitional/EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @includefile="connect.jsp"%>
  <% @pageimport="java.util.*"%>
  <% @pageimport="java.text.*"%>
  <% @pageimport="java.util.Date"%>
  <% @pageimport="java.sql.*"%>
  <% @ page
import="com.oreilly.servlet.*,java.lang.*,java.text.SimpleDateFormat,java.io.*,javax.servlet.*,javax.servl
et.http.*"%>
  <% @page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.SecretKeySpec"%
>
  <% @pageimport="org.bouncycastle.util.encoders.Base64"%>
  <% @pageimport="java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io.FileInp
utStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDigest,java.io.Buf
feredInputStream"%>
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>UserReviewPage</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style1 { font-size:14px }
.style2 { font-size:24px }
.style3 { color:#330066 }

```

```
.style4{color:##330066}
-->
</style>
</head>
<body>
<divclass="main">
  <divclass="header">
    <divclass="header_resize">
      <divclass="menu_nav">
        <ul>
          <liclass="active"><ahref="index.html"><span>HomePage</span></a></li>
            <li><ahref="AdminLogin.jsp">Admin</a></li>
              <strong></strong>
            <li><ahref="CompanyLogin.jsp">ProductionCompany</a></li>
            <li><ahref="UserLogin.jsp"><span>EndUser</span></a></li>
          </ul>
        </div>
        <divclass="logo">
          <h1class="style1"><ahref="index.html"class="style2">CrisisCriticalIntellectualProperty
Findings FromtheCOVID-19Pandemic</a></h1>
        </div>
        <divclass="clr"></div>
        <divclass="slider">
          <div id="coin-slider"><a href="#"><imgsrc="images/slide1.jpg"
width="970"height="305" alt="" /></a><a href="#"><imgsrc="images/slide2.jpg"
width="970"height="305" alt="" /></a><a href="#"><imgsrc="images/slide3.jpg"
width="970"height="305"alt="" /></a></div>
        </div>
        <divclass="clr"></div>
      </div>
    </div>
  <divclass="content">
    <divclass="content_resize">
      <divclass="mainbar">
        <divclass="article">
          <h2>Reviewson<%=request.getParameter("cname")%>Company</h2>
          <pclass="infopost">&nbsp;</p>
          <divclass="clr"></div>

          <divclass="post_content">

<p>&nbsp;</p>
          <%
              Stringcname=request.getParameter("cname");
              String ccat=request.getParameter("ccat");
```



```
Stringuser=request.getParameter("user");
intid=Integer.parseInt(request.getParameter("id"));
```

```
%>
```

```
<form
name="s"action="U_ReviewIns.jsp?cname=<%=cname%>&ccat=<%=ccat%>&id=<%=id%>&user=<
%
=user%>"method="post"onSubmit="returnvalid()"onstarget="_top">
```

```
<tablewidth="600"border="0"align="center"cellpadding="0"cellspacing="0"styl
e="border-collapse: collapse; display:inline; margin:10px 10px 10px10px; font-
family: Verdana,Arial,Helvetica,sans-serif;font-size: 14px;">
```

```
<tr><td></td></tr>
```

```
<tdwidth="200"align="left" valign="middle"heig
ht="45" style="color: #003399;"><div align="right" class="style9"style="margin-
left:20px;">Write Review</div></td>
```

```
<tdwidth="100"align="left" valign="middle"he
ight="45" style="color: #2c83b0;"><div align="left"><div align="left" style="margin-
left:20px;"><textarea name="com"rows="3"cols="23"></textarea></div></td>
```

```
<tdheight="45" colspan="2" id="learn_more"al
ign="center"style="color:#003399;"><spanstyle="font-size: 18px">
<input type="submit" value="Add
Review"style="width: 100px;height:35px;background-color:#FFFFFF;color:#003399;">
```

```
</span></td>
</tr>
```

```
</table>
```

```
</form>
```

```
<p>&nbsp;</p>
```

```
<h2>AllUserReviewsOnThisCompany</h2>
```

```
<p><tablewidth="547"border="1.5"align="center"cellpadding="0"cel
lspacing="0">
```

```
<trbgcolor="#FFFFFF"><tdwidth="127"height="44" valign="middle"st
yle="color:#330066;">
```

```
<divalign="left" class="style5style14style7style6style3" style="mar
gin-left:20px;"><b>CompanyImage</b></div></td>
```

```
<tdwidth="80"height="44" valign="middle"style="color:#330066;">
```

```

style="margin-left:20px;"><b>CompanyName</b></div></td>
      <tdwidth="80"height="44"valign="middle"style="color:#330066;">
        <divalign="left"class="style7style14style5style6style4"styl
e="margin-left:20px;"><b>ReviewedBy</b></div></td>
      <tdwidth="80"height="44"valign="middle"style="color:#330066;">
        <divalign="left"class="style7style14style5style6style4"styl
e="margin-left:20px;"><b>Reviews</b></div></td>
      <tdwidth="80"height="44"valign="middle"style="color:#330066;">
        <divalign="left"class="style7style14style5style6style4"styl
e="margin-left:20px;"><b>ReviewedDate</b></div></td>
    </tr>

```

<%

```

int
count=0;try
{

```

```

cname="" + cname + "";
```

```

Stringquery="select*fromreviewswhere
```

```

Statementst1=connection.createStatement();
ResultSets1=st1.executeQuery(query);while
(rs1.next())
{

```

```

    intj=rs1.getInt(1);
    Stringcmpname=rs1.getString(2);
    String
    r_user=rs1.getString(4);Stringdt=
    rs1.getString(6);
    Stringreview=rs1.getString("reviews");

```

```

    count++;

```

%>

<tr>

```

      <tdwidth="50"bgcolor="#FFFFFF">

```

```

        <divclass="style8 style2"style="margin:10px13px10px13px;"><a

```

```

class="#"id="img1"href="#">

```

```

      <inputname="image"type="image"src="user_Pic.jsp?picture=<%=>co
mpanyimage">&id=<%=id%>"style="width:50px;height:50px;"/>

```

```

      </a></div></td>

```

```

      <tdwidth="182"height="44"valign="middle"bgcolor="#FFFFFF"sty
le="color:#000000;">

```

```

        <divalign="left"class="style1"style="margin-

```

```

left:20px;"><strong><em>
    <% out.println(cmpname);%>
    </em></strong></div></td>

    <% if(r_user.equalsIgnoreCase(user)){ %>
    <tdwidth="182"height="44"valign="middle"bgcolor="#FFFFFF"sty
le="color:#000000;">
    <divalign="left" class="style1" style="margin-
left:20px;"><strong><em><% out.println(r_user);%>
    </em></strong></div></td>

    <% }else{ %>
    <tdwidth="182"height="44"valign="middle"bgcolor="#FFFFFF"sty
le="color:#000000;">
    <div align="left" class="style1" style="margin-
left:20px;"><strong><em><a href="U_Profile.jsp?uname=<%=r_user%>&id=<%=id%>&cna
me=<%=cname%>&ccat=<%=ccat%>&user=<%=user%>"><% out.println(r_user);%>
    </a></em></strong></div></td>

    <% }%>
    <tdwidth="182"height="44"valign="middle"bgcolor="#FFFFFF"
style="color:#000000;">
    <divalign="left" class="style1" style="margin-
left:20px;"><strong><em>
    <% out.println(review);%>
    </em></strong></div></td>
    <tdwidth="182"height="44"valign="middle"bg
color="#FFFFFF" style="color:#000000;">
    <divalign="left" class="style1" style="margin-
left:20px;"><strong><em>
    <% out.println(dt);%>
    </em></strong></div></td>
</tr>
<%
    }
    if(count==0){
        out.print("NoUser
HasReviewedOnThisCompany");
    }
    connection.close();
}
catch(Exceptione)
{

```

```

        out.println(e.getMessage());
    }
    %>

</table>

<p><a href="User_Main.jsp" class="style14">Back</a></p>

</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">
<span>
<input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="
80" value="Searchourste:" type="text" />
</span>
<input name="button_search" src="images/search.gif" class="button_search" t
ype="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
<h2 class="star"><span>User</span>Menu</h2>
<div class="clr"></div>
<ul class="sb_menu">
<li><a href="User_Main.jsp">Home</a></li>
<li><a href="UserLogin.jsp">Logout</a></li>
</ul>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
<div class="fbg_resize">
<div class="clr"></div>
</div>
</div>
<div class="footer">
<div class="footer_resize">
<div style="clear:both;"></div>

```

```
</div>  
</div>  
</div>  
<div align=center></a></div></body>  
</html>
```

10. SYSTEM TESTING

SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of tests. Each test type addresses a specific testing requirement.

TYPES OF TESTING

Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised. Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; datafields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirement sdocument, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

TestResults: All the test cases mentioned above passed successfully.No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user.It also ensures that the system meets the functional requirements.

TestResults: All the test cases mentioned above passed successfully. No defects encountered.

11. SCREENSHOTS

SCREEN1: Home page

The below interface represents the home screen and abstract of the project.



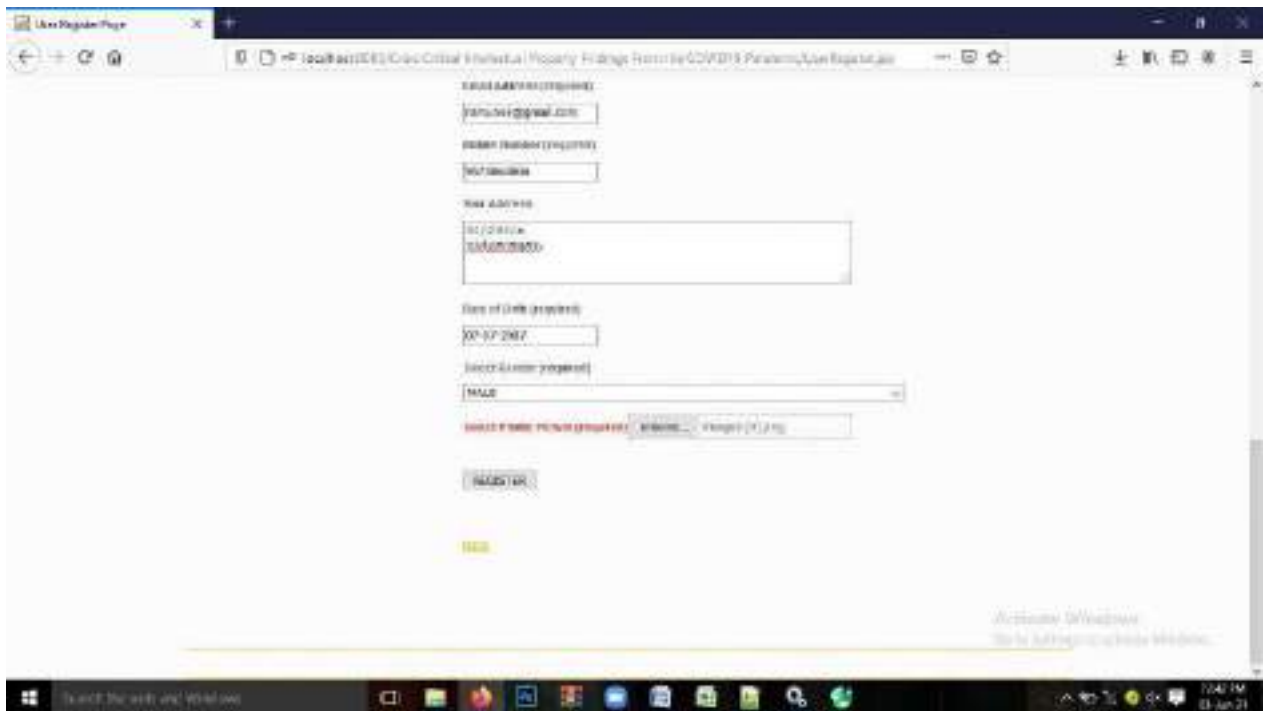
SCREEN2: Admin page

The below interface represents the admin page on the admin login



SCREEN3: User Registration Form

The below interface represents the user registered on the registration form



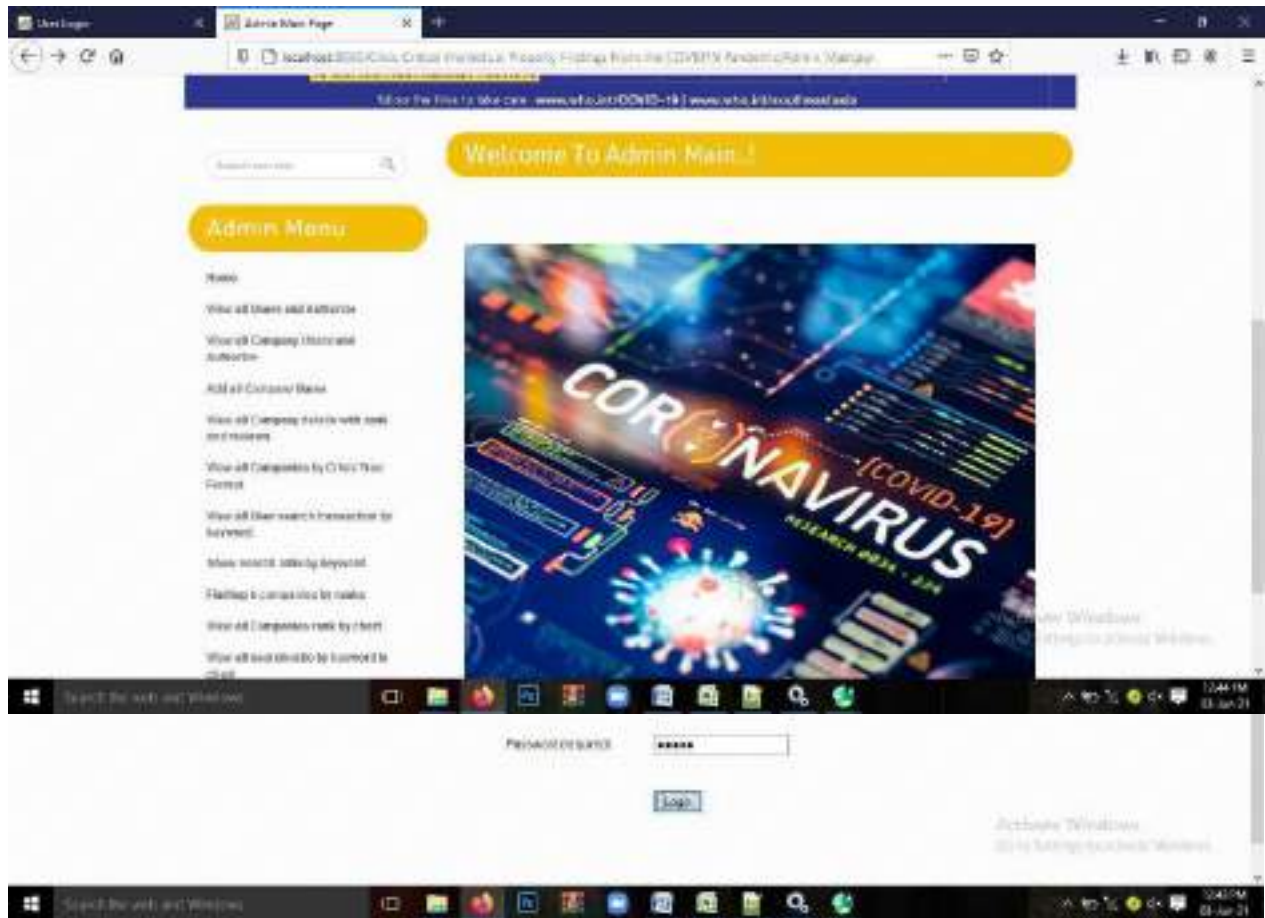
SCREEN4: Registration status

The below interface represent registrarion status



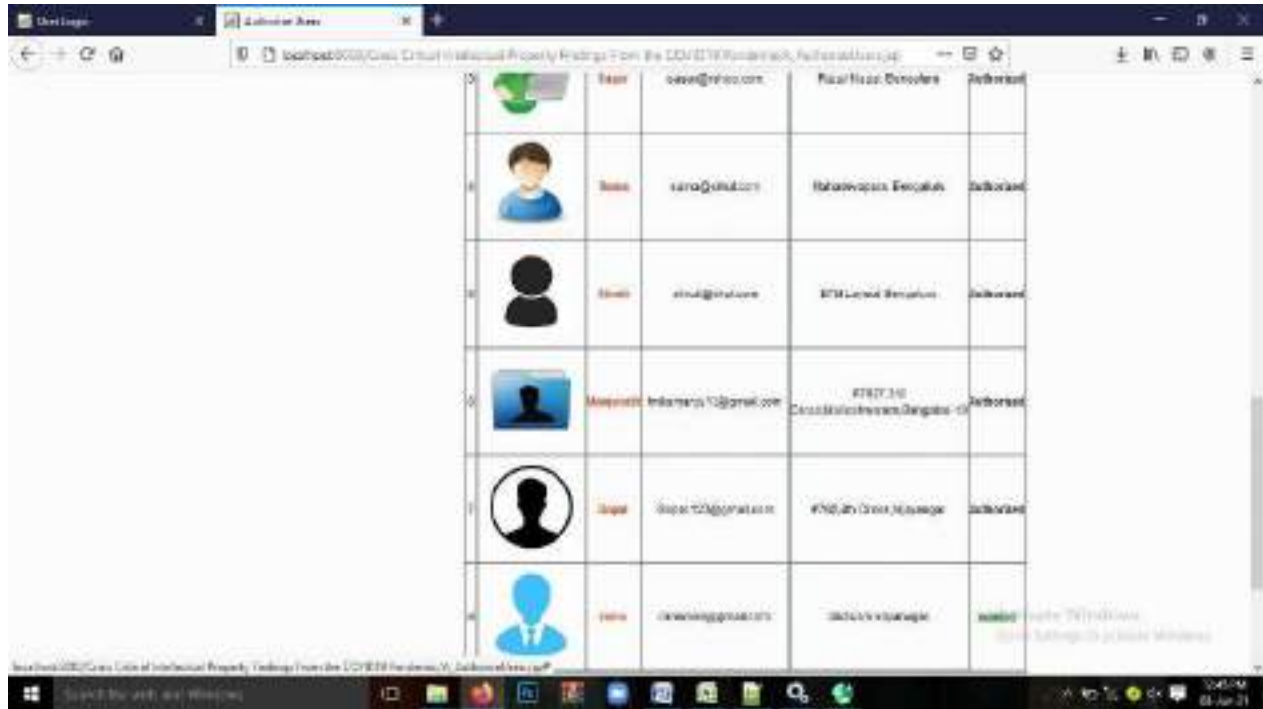
SCREEN5: Admin Home Page

The above interface represents the admin login through the login page



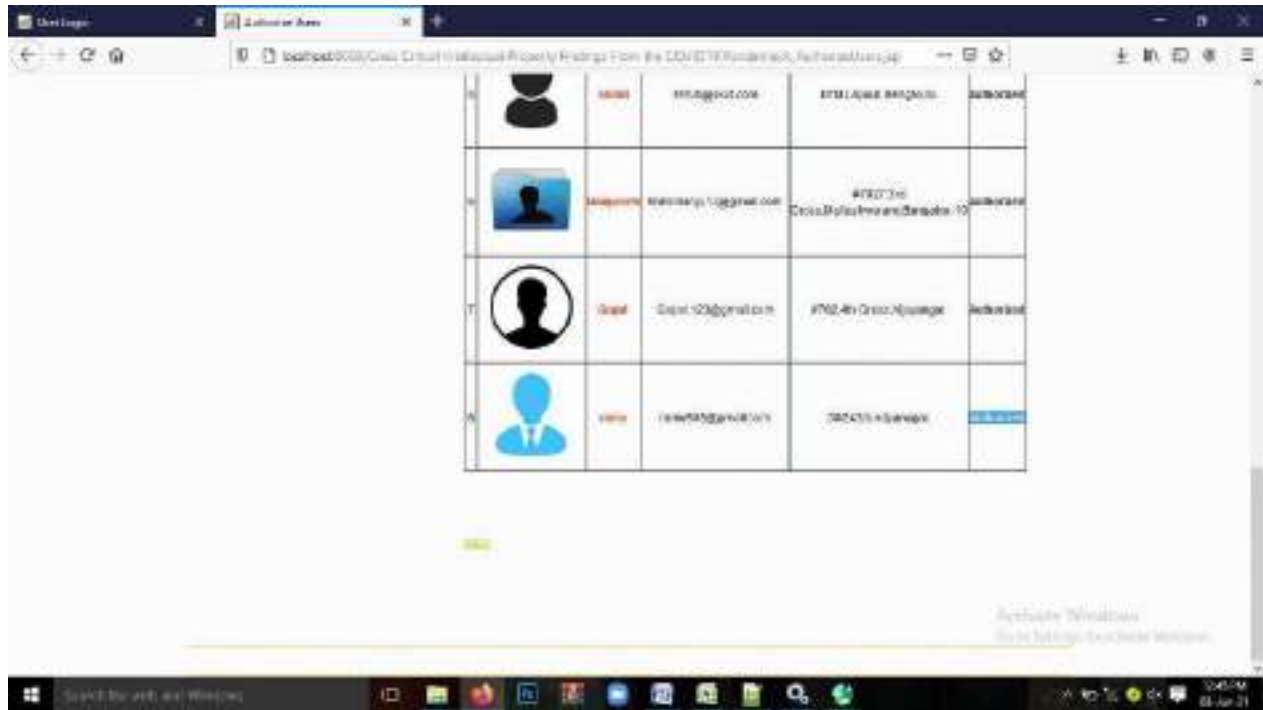
SCREEN6: view all user and authorize

The below interface represents view all user and authorize



SCREEN7:view all users and authorized

The below interface represents view all users and authorized



SCREEN8: User Home Page

The above interface represents user login to the server



SCREEN9: view user Profile

The below interface view user profile



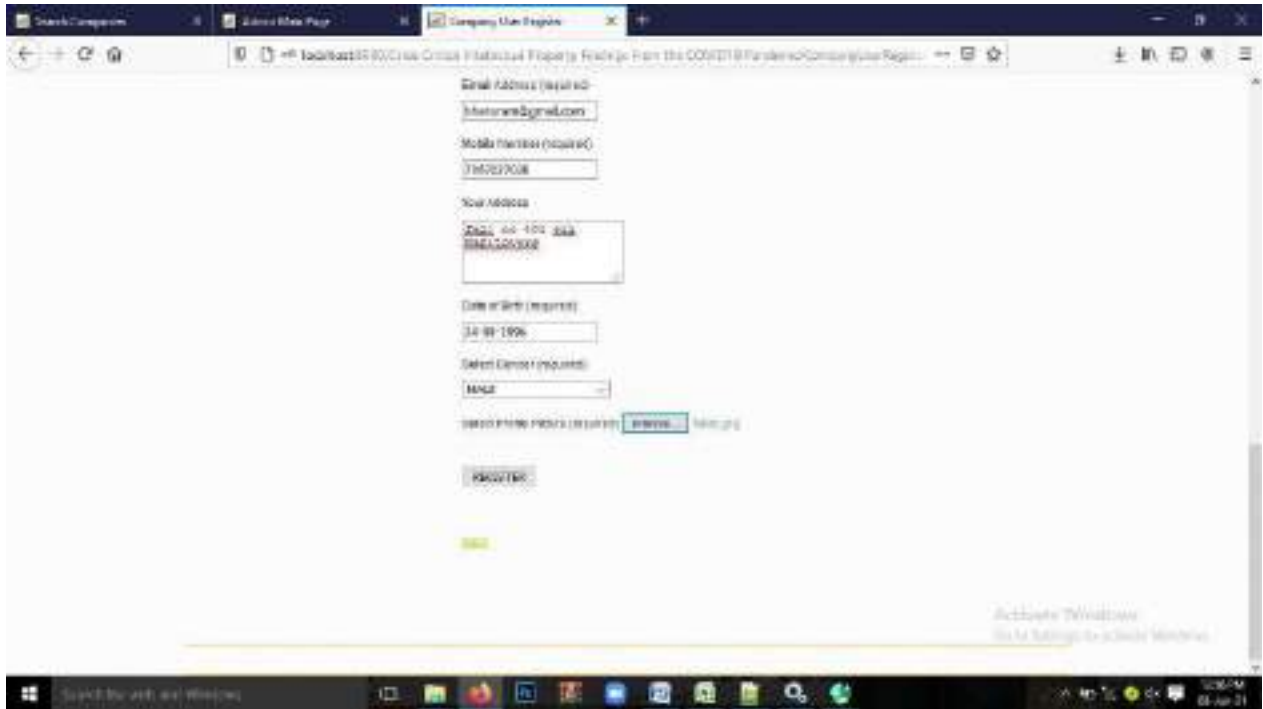
SCREEN10: Company user registration

The above interface represents company user registration on the user registration form



SCREEN11: company user registration

The below interface represents company user registration



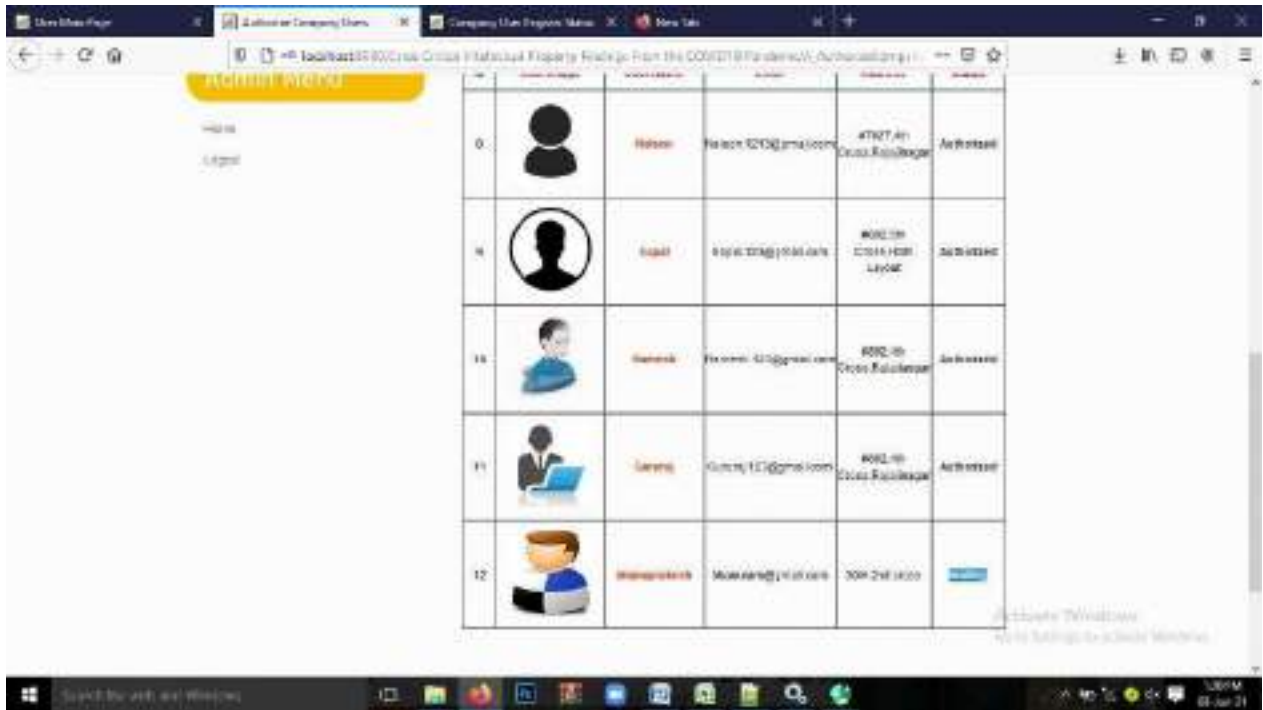
SCREEN12: Admin Login

The below interface represents the admin login through the login page



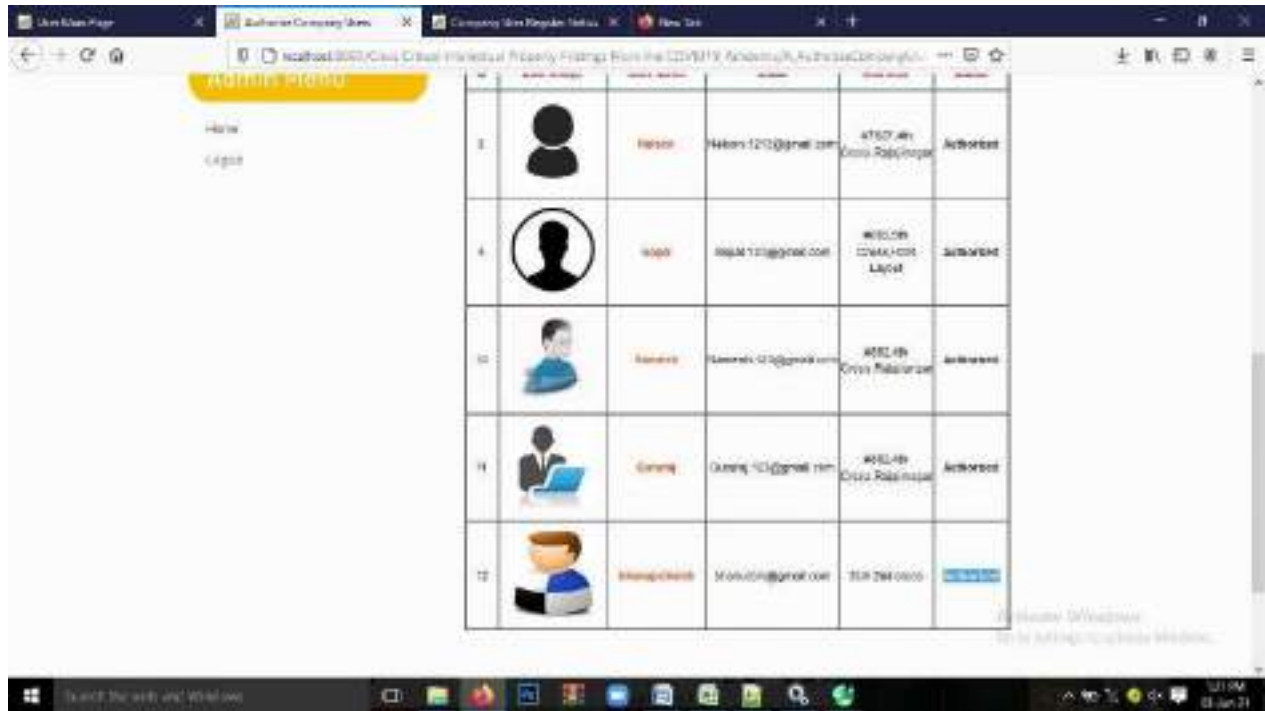
SCREEN13: all User Company and Authority

The below interface represents all user company and authority



SCREEN14: company user authorize

The below interface represents company user authorize



SCREEN15: Login of company user

The below interface represents login of company user.



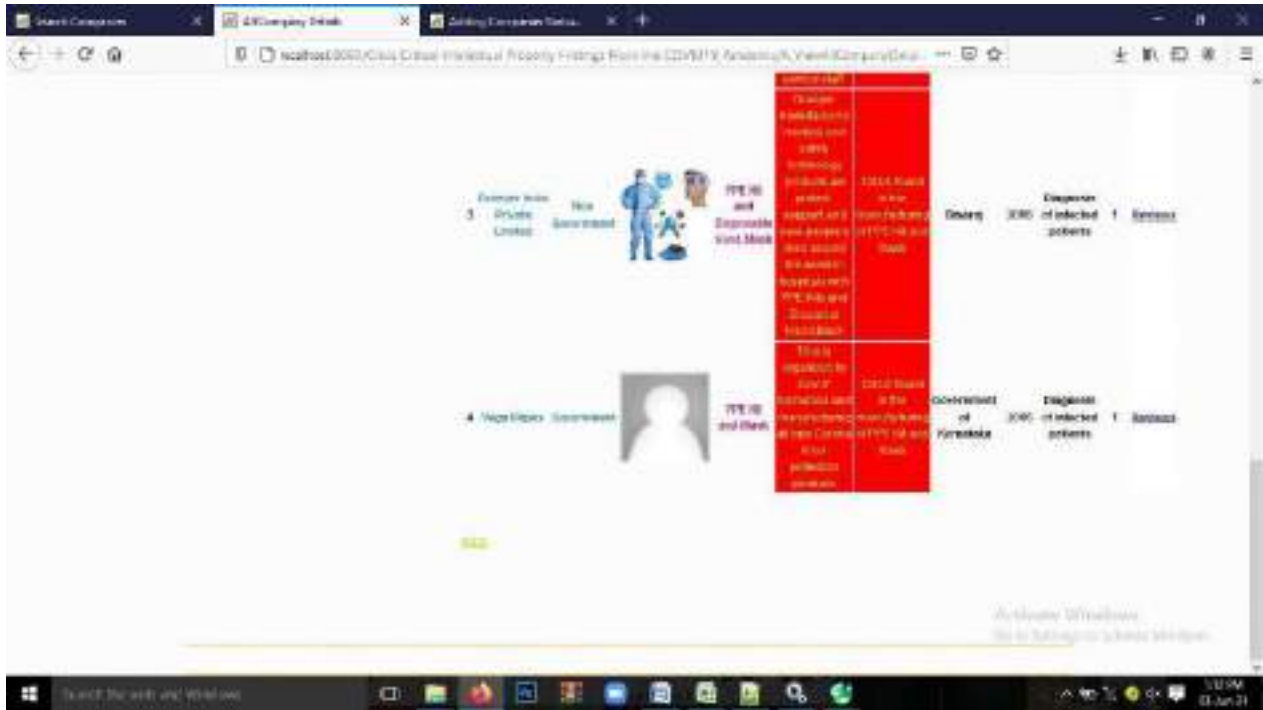
SCREEN16: Add I and t company details

The below interface represents add I and t company details



SCREEN17: view all companies

The below interface represents view all companies



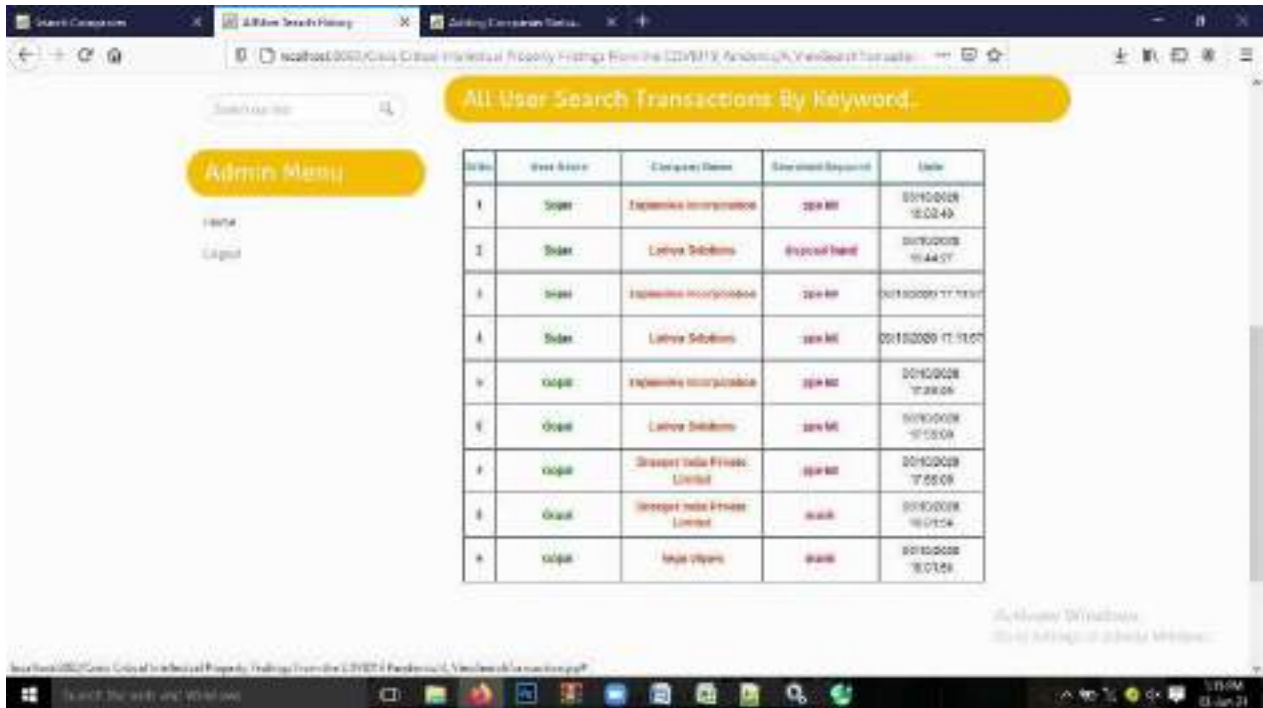
SCREEN18: view companies in tree format

The below interface represents the view companies in tree format



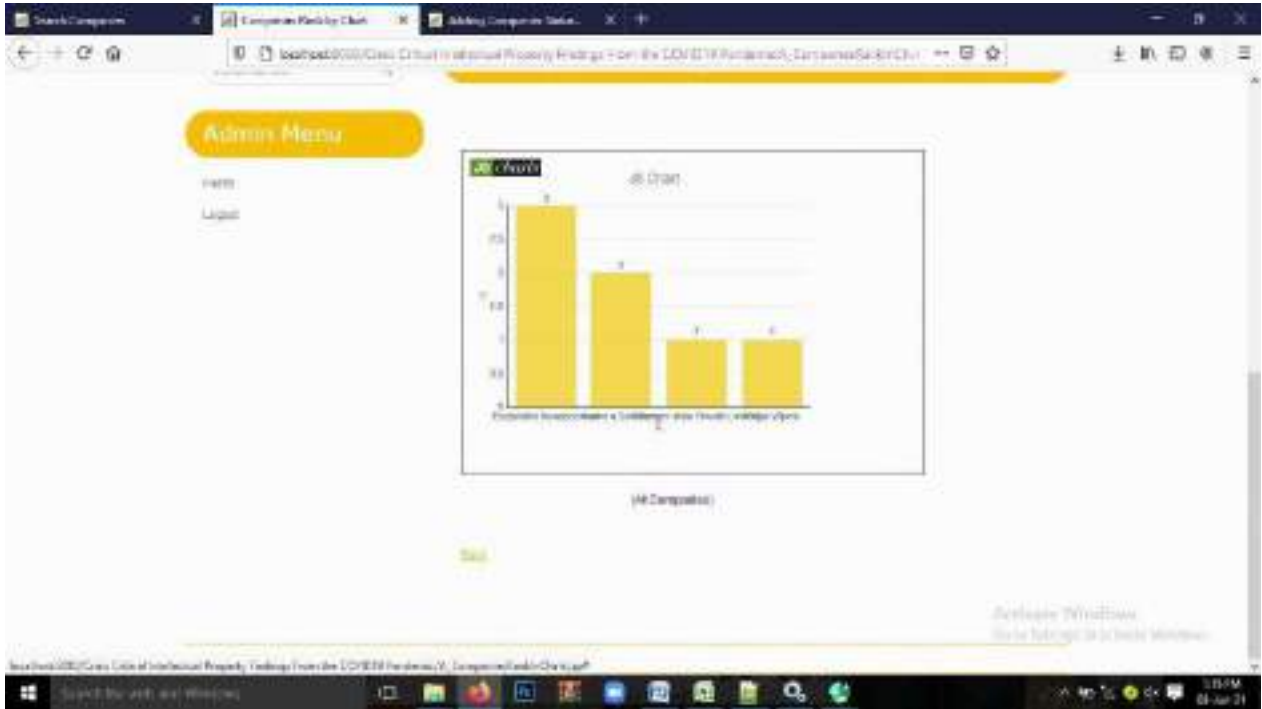
SCREEN19: view all transactions

The below interface represents view all transactions



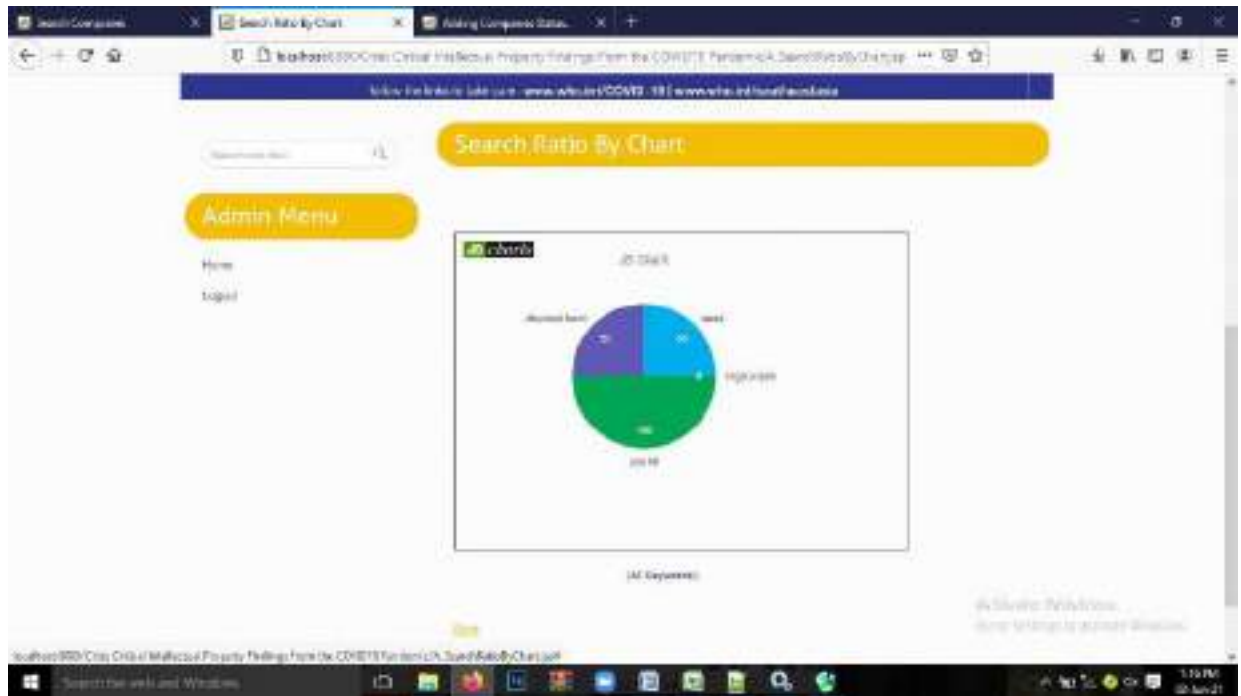
SCREEN20: view all companies in chart

The below interface represents view all companies in chart.



SCREEN21: view ratio by chart

The below interface represents view ratio by chart



CONCLUSION

From an IP and innovation perspective, this article contributed to the scarce literature about the role of and challenges associated with IP during pandemics. Our findings were derived from analyzing, synthesizing, and interpreting secondary data from the COVID-19 pandemic from two major sources: 1) publicly available documents, such as newspaper articles, industry specific outlets, government reports, and announcements and 2) patent data. Obviously, our findings result only from observations of one ongoing pandemic and thus need to be verified further and interpreted with care. We find that what makes it difficult for IP to be given its required considerations during the early stage of a pandemic is the enormous sense of urgency, which draws decision makers' attention to huge and undoubtedly urgent operational challenges.

With this article, we hopefully contribute a set of arguments to raise awareness why IP needs to be dealt with earlier rather than later during a pandemic in order to avoid that IP- associated risks delay the mobilization of the resources so urgently needed for the research, development, and mass manufacturing of CC-P. This is particularly important as various responses to the pandemic are somehow technology related, which typically involves IP rights in some form. This article offered a set of contributions.

FUTURE ENHANCEMENT

In Future, this article provided a terminology that helped to conceptualize IP considerations in times of pandemics or global health crises that call for urgent and large-scale actions from various innovation stakeholders that suddenly find themselves engaged in new relationships that are associated with various IP associated uncertainties, not the least related to the use and sharing of IP with the particular problem that negotiating licensing agreements is typically time consuming. We also provided a language for policy makers and other decision makers to articulate and discuss IP challenges during pandemics, which might evolve further with specific terms being added gradually or notions being revised as we go along. We proposed a framework that visualizes how industrial organization could change throughout pandemics. That can serve as an analytical framework for other and particularly follow up studies.

REFERENCES

- [1] C. Ștefănescu, I. Petrescu, and A. Munteanu, "Intellectual property in critical conditions," in Proc. WSEAS 3rd World Multiconf. Appl. Econ., Bus. Develop, WSEAS Press, 2011.
- [2] S. Chopra and A. Negi, "Role of intellectual property during recession," J. Intell. Property Rights, vol. 15, pp. 122–129, 2010.
- [3] B. W. Jacobs, "Using intellectual property to secure financing after the worst financial crisis since the great depression," Marquette Intellectual Property Law Rev., vol. 15, pp. 450–464, 2011.
- [4] J.M. Champagne, "Access to essential medicines in developing countries: the role of international intellectual property law & policy in the access crisis," Albany Law J. Sci. Technol., vol. 22, pp. 75–101, 2011.
- [5] D. Halbert, "Moralized discourses: South Africa's intellectual property fight for access to AIDS drugs," Seattle J. Social Justice, vol. 1, no. 2, 2002, Art. no. 2.
- [6] J. A. Harrelson, "TRIPS, pharmaceutical patents, and the HIV/Aids crisis: Finding the proper balance between intellectual property rights and compassion," in Proc. Widener Law Symp. J., 2001, vol. 7, pp. 175–201.
- [7] M. Childs, "Towards a patent pool for HIV medicines: The background," Open AIDS J., vol.4, pp. 33–36, 2010.

A

Project Report

on

**A PARALLEL AND FORWARD PRIVATE SEARCHABLE PUBLIC-KEY
ENCRYPTION FOR CLOUD BASED DATA SHARING**

Submitted in partial fulfillment for the award of the degree

of

Master of Computer Applications

Submitted by

J SANKAR KUMAR

(Reg.No.18F61F0012)

Under the esteemed guidance of

Mr. P KARTHIKEYAN, MCA.,M.E.

Associate Professor, Department of MCA.



Department of Master of Computer Applications

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTU, Ananthapuramu)

(NAAC Accredited with 'A' Grade, NBA Accredited Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, Andhra Pradesh.

2020 - 2021

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, Andhara Pradesh

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

This is to certify that this project report titled "A PARALLEL AND FORWARD PRIVATE SERACHABLE PUBLIC-KEY ENCRYPTION FOR CLOUD-BASED DATA SHARING" that is being submitted by J SANKAR KUMAR (Reg.No.18F61F0012) in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is abonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, JAKKALA SANKAR KUMAR hereby declare that the project report entitled “**A PARALLEL AND FORWARD PRIVATE SEARCHABLE PUBLIC-KEY ENCRYPTION FOR CLOUD-BASED DATA SHARING**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of Mr. P. KARTHIKEYAN, MCA., M.E. Associate Professor in MCA Department, SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS), Puttur, for the award of the degree of MASTER OF COMPUTER APPLICATIONS. The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

JAKKALA SANKAR KUMAR

Date:

Reg. No: 18F62F0012

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mr. P. KARTHIKEYAN**, MCA., M.E. Associate Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN**, MCA., M.E. HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for her valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr.K.Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to Project Coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(JAKKALA SANKAR KUMAR)

CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	i
	LIST OF FIGURES	ii
	LIST OF ABBREVIATIONS	iii
1	INTRODUCTION	1
2	SYSTEM STUDY	4
3	SYSTEM ANALYSIS	6
	3.1 EXISTING SYSTEM	6
	3.2 DISADVANTAGES	6
	3.3 PROPOSED SYSTEM	6
	3.4 ADVANTAGES	6
4	SOFTWARE MODULES	7
5	SYSTEM ARCHITECTURE	8
6	SOFTWARE ENVIRONMENT	17
7	SYSTEM REQUIREMENTS	32
8	SYSTEM DESIGN	33
9	IMPLEMENTATION	40
10	SYSTEM TESTING	75
11	SCREEN SHOTS	78
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERNCE	

ABSTRACT

Data sharing through the cloud is evolving with the development of cloud computing technology. New technology leads to new security challenges, especially data privacy in cloud-based sharing applications. Searchable encryption is considered one of the best solutions to balance data privacy and usability. However, most existing searchable encryption schemes do not meet the requirements for both high search capability and robust security simultaneously due to the lack of some must-have features such as parallel search and forward security. To solve this problem, we propose variant searchable encryption with parallel and forward privacy, namely parallel and forward private searchable public-key encryption (PFP-SPE). The PFP-SPE scheme achieves both parallelism and forward privacy at the expense of slightly higher storage costs. PFP-SPE has similar search capability with some searchable symmetric encryption schemes, but no key distribution issue. Security analysis and performance evaluation in the real-world dataset proves that the proposed scheme is suitable for practical application.

Keywords: Cloud Computing, Data Owner Module, Data User Module, Cloud Server provider And Encryption modules

LIST OF FIGURES

S. No	NAME	PAGE No.
1	1.1. Structure of Cloud Computing	1
2	5.1. System Architecture	8
3	6.1. Program Compilation and Interpretation	17
4	6.2. Execution for different platforms	18
5	6.3. Java Platform	19
6	6.4. Java IDE	21
7	6.5. JDBC Goals	26
8	6.6. TCP Connection	27
9	6.7. The 32 bit address	29
10	8.2. Use Case Diagram	34
11	8.3. Class Diagram	35
12	8.4. Sequence Diagram	36
13	8.5. Collaboration Diagram	37
14	8.6. Activity Diagram	38
15	8.7. Component Diagram	39
16	8.8. Deployment Diagram	39

LIST OF ABBREVIATIONS

S. No	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JDK	Java Development Kit
4	CSP	Cloud Server Provider
5	TCP	Transmission Control Protocol
6	ODBC	Open Database Connectivity
7	JAVA	Java Database Connectivity
8	UDP	User Datagram Protocol
9	JVM	Java Virtual Machine
10	TCP	Transmission Control Protocol
11	DO	Data Owner
12	DR	Data Receiver
13	LGPL	Lesser General Public License

1. INTRODUCTION

1.1 What is cloud computing?

Cloud-based data sharing has emerged as a promising solution for convenient and on-demand access to large amounts of data shared. Its numerous benefits, including lower cost, better resource utilization, and greater agility, have attracted extensive attention in industry or academia. The cloud-based data sharing systems are already widely applied in a lot of different industries such as education, logistics, healthcare, finance. The classical application scenarios of cloud-based data sharing are shown in Diagram 1. However, with the continuous occurrence of security issues (e.g., celebrity photos being leaked in iCloud), users are increasingly concerned about privacy protection while enjoying the convenience of cloud storage. Therefore, secure mechanisms balancing privacy and utilization of data are urgently needed to facilitate the widespread application of cloud-based data sharing.

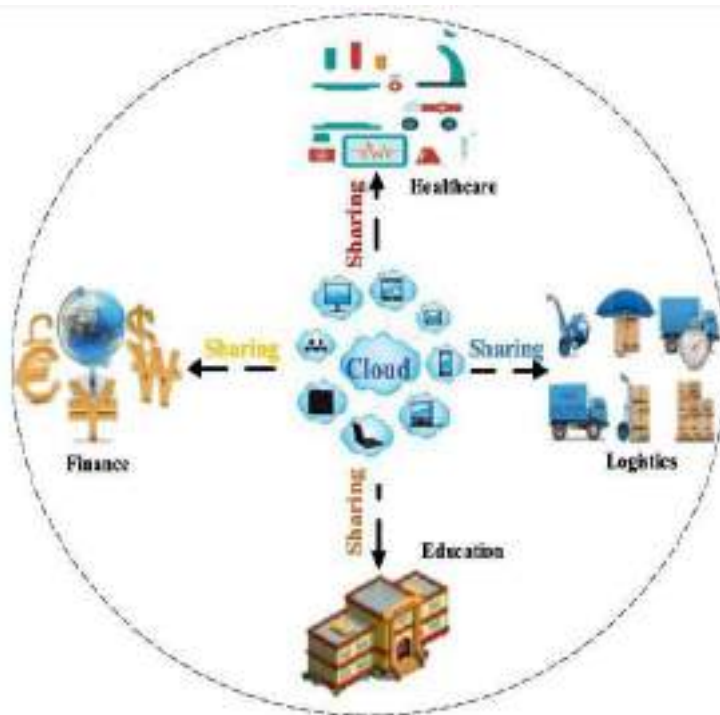


Figure 1.1: STRUCTURE OF CLOUD COMPUTING

1.2 LITERATURE REVIEW

Literature survey is the most important step in software development process. Before developing the tool it is necessary to determine the time factor, economy and company strength. Once these things are satisfied, ten next steps are to determine which operating system and language can be used for developing the tool. Once the programmers start building the tool the programmers need lot of external support. This support can be obtained from senior programmers, from book or from websites. Before building the system the above consideration are taken into account for developing the proposed system.

An Efficient Public-Key Searchable Encryption Scheme Secure against Inside Keyword Guessing Attacks

In this paper we propose introduce the notion of Public-key Authenticated Encryption with Keyword Search (PAEKS) to solve the problem, in which the data sender not only encrypts a keyword, but also authenticates it, so that a verifier would be convinced that the encrypted keyword can only be generated by the sender. We propose a concrete and efficient construction of PAEKS, and prove its security based on simple and static assumptions in the random oracle model under the given security models. Experimental results show that our scheme enjoys a comparable efficiency with Boneh et al.'s schemes

All Your Queries Are Belong to Us: The Power of File-Injection Attacks on Searchable Encryption

The goal of searchable encryption (SE) is to enable a client to execute searches over encrypted files stored on an untrusted server while ensuring some measure of privacy for both the encrypted files and the search queries. Most recent research has focused on developing efficient SE schemes at the expense of allowing some small, wellcharacterized “(information) leakage” to the server about the files and/or the queries. The practical impact of this leakage, however, remains unclear. We thoroughly study file-injection attacks in which the server sends files to the client that

circumvented. Our attacks outperform prior work significantly in terms of their effectiveness as well as in terms of their assumptions about the attacker's prior knowledge.

Lightweight Searchable Public-Key Encryption for Cloud-Assisted Wireless Sensor Networks

The industrial Internet of Things is flourishing, which is unprecedentedly driven by the rapid development of wireless sensor networks (WSNs) with the assistance of cloud computing. The new wave of technology will give rise to new risks to cyber security, particularly the data confidentiality in cloud-assisted WSNs (CWSNs). Searchable public-key encryption (SPE) is a promising method to address this problem. In theory, it allows sensors to upload public-key ciphertexts to the cloud, and the owner of these sensors can securely delegate a keyword search to the cloud and retrieve the intended data while maintaining data confidentiality. However, all existing and semantically secure SPE schemes have expensive costs in terms of generating ciphertexts and searching keywords. Hence, this paper proposes a lightweight SPE (LSPE) scheme with semantic security for CWSNs. LSPE reduces a large number of the computation-intensive operations that are adopted in previous works; thus, LSPE has search performance close to that of some practical searchable symmetric encryption schemes. In addition, LSPE saves considerable time and energy costs of sensors for generating ciphertexts. Finally, we experimentally test LSPE and compare the results with some previous works to quantitatively demonstrate the above advantages.

Designated Server Certificate less Deniably Authenticated Encryption With Keyword Search

In email system, the cryptography technology has been used to defend email secrets, so it is important to search specific encrypted emails on cloud sever without local decryption. The Public key encryption with keyword search (PEKS) might is a suitable way to perform the email ciphertext search. However, most existing PEKS schemes cannot protect the identity privacy of data sender. Deniably

scheme called designated server certificateless deniably authenticated encryption with keyword search (dCLDAEKS), where leverages the techniques of DAE and designated server. In dCLDAEKS, data sender authenticates the messages and simultaneously encrypt them. Meanwhile, only designated server has ability to execute search ciphertext operation for receivers. So there is no adversary including the server can launch inside or outside offline KGA. Therefore dCLDAEKS scheme can better protect the identity privacy of data sender. In addition, compared the related schemes in the literature, dCLDAEKS scheme perform less efficient in some procedure, but it can against inside KGA and better protect the sender's identity privacy.

Certificateless Searchable Public Key Encryption Scheme for Industrial Internet of Things

With the widespread adoption of Internet of Things and cloud computing in different industry sectors, an increasing number of individuals or organizations are outsourcing their Industrial Internet of Things (IIoT) data in the cloud server to achieve cost saving and collaboration (e.g. data sharing). However, in this environment, preserving the privacy of data remains a key challenge and inhibiting factor to an even wider adoption of IIoT in the cloud environment. To mitigate these issues, in this paper, we design a new secure channel free certificateless searchable public key encryption with multiple keywords (SCF-MCLPEKS) scheme for IIoT deployment. We then demonstrate the security of the scheme in the random oracle model against two types of adversaries, where one adversary is given the power to choose a random public key instead of the user's public key and another adversary is allowed to learn the system master key. In presence of these types of adversaries, we evaluated the performance of the proposed scheme and demonstrate that it achieves (computational) efficiency with low communication cost.

2. SYSTEM STUDY

2.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

2.2 ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

2.3 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

2.4 SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3. SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

In existing system we have, new technology leads to new security challenges, especially data privacy in cloud-based sharing applications. Searchable encryption is considered one of the best solutions to balance data privacy and usability. This existing searchable encryption schemes do not meet the requirements for both high search capability and robust security simultaneously due to the lack of some must-have features such as parallel search and forward security.

3.2 DISADVANTAGES

- These policies do not include parallel search and forward security.
- Simultaneously high search capability and robust security did not meet the requirements.

3.3 PROPOSED SYSTEM

In proposed system we propose variant searchable encryption with parallel and forward privacy, namely parallel and forward private searchable public-key encryption (PFP- SPE). The PFP-SPE scheme achieves both parallelism and forward privacy at the expense of slightly higher storage costs.

3.4 ADVANTAGES

- In this we will implement parallel search and forward security.
- At the same time it meets high search capability and strong security requirements

4. SOFTWARE MODULES

4.1 MODULES

- **Owner Model**
- **Data Receiver**
- **Cloud Server Provider**

4.2. MODULES DESCRIPTION

Data Owner

After extracting keyword-index pairs from the outsourced dataset, DO encrypts them and builds the encrypted outsource dataset. Then, (s) he uploads the encrypted dataset to CS, along with the encrypted keyword-index pairs. Meanwhile, (s) he must also send the authentication cipher to the data receiver.

Data receiver

An authorized DR first submits a trapdoor to obtain the matching ciphertexts, and then enjoys the relevant data services.

Cloud service provider

When receiving a search query, the CS finds all matching ciphertexts and returns them to the DR.

5. SYSTEM ARCHITECTURE

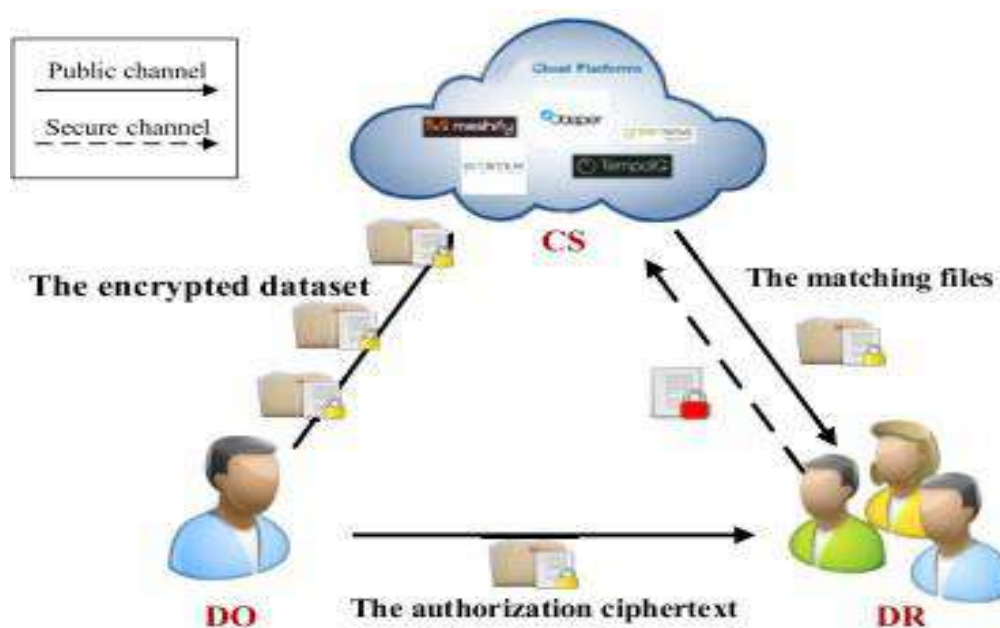


Fig 5.1: System Architecture

5.2 Software Installation For Java Projects

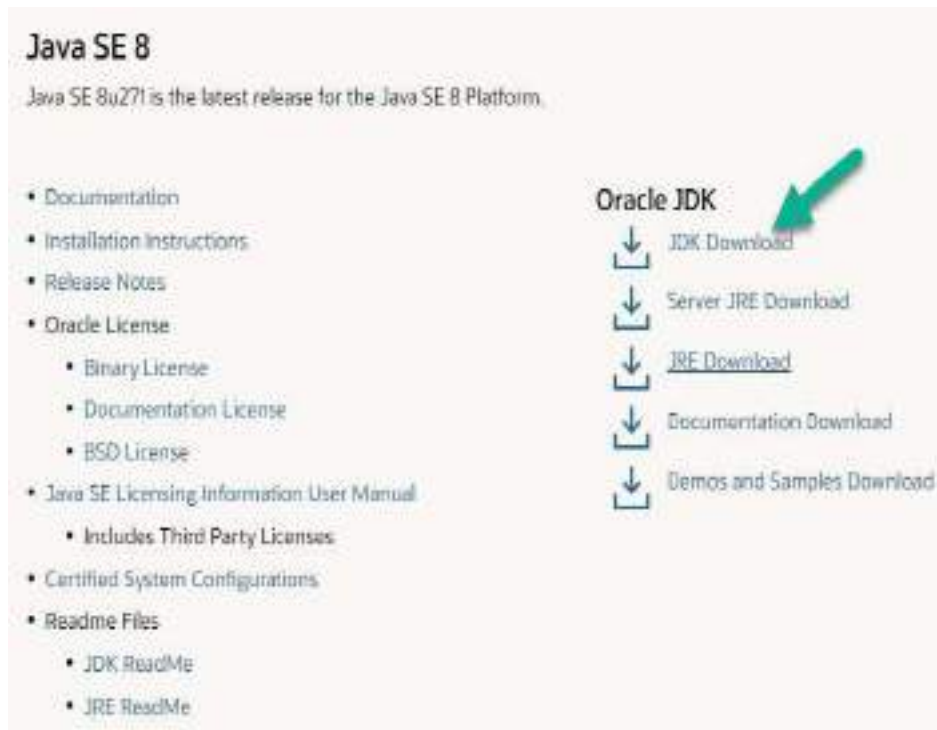
This Java Development Kit(JDK) allows you to code and run Java programs. It's possible that you install multiple JDK versions on the same PC. But Its recommended that you install only latest version.

5.3How to install Java for Windows

Following are the steps for JDK 8 free download for 32 bit or JDK 8 download 64 bit and installation

Step 1) Go to [link](#). Click on JDK Download for Java

A Parallel and Forward Private Searchable Public-Key Encryption for Cloud-Based Data Sharing



Step 2) Next,

5.4 1. Accept License Agreement

Download Java 8 JDK for your version 32 bit or JDK 8 download for windows 10 64 bit. when you click on the Installation link the popup will be open. Click on I reviewed and accept the Oracle Technology Network License Agreement for Oracle Java SE and you will be redirected to the login page. If you don't have an oracle account you can easily sign up by adding basics details of yours.



5.5 How to set Environment Variables in Java: Path and Class path

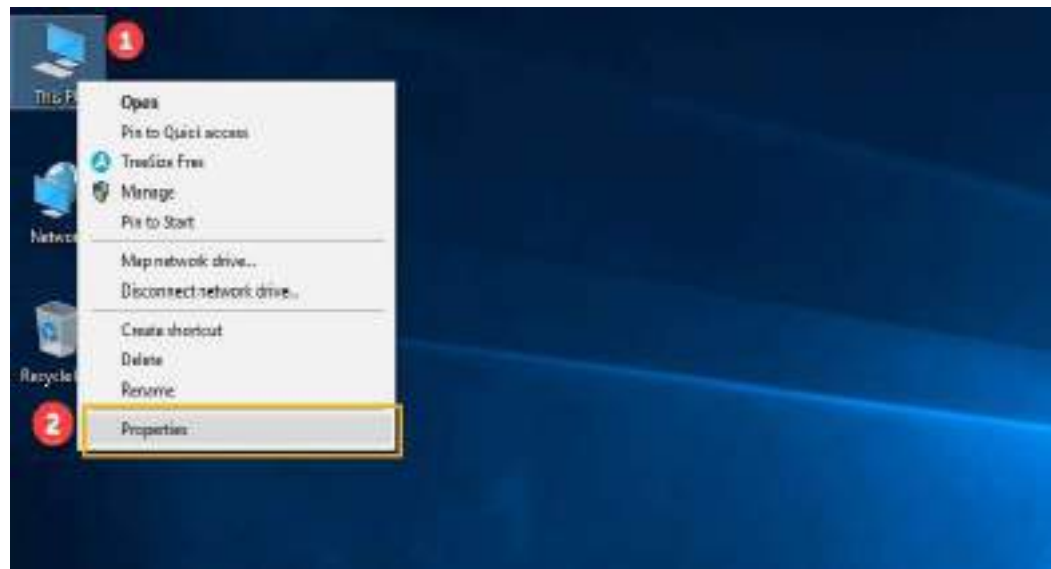
The PATH variable gives the location of executable like javac, java etc. It is possible to run a program without specifying the PATH but you will need to give full path of executable like `C:\Program Files\Java\jdk-13.0.1\bin\javac A.java` instead of simple `javac A.java`

The CLASSPATH variable gives location of the

Library Files. Let's look into the steps to set the PATH

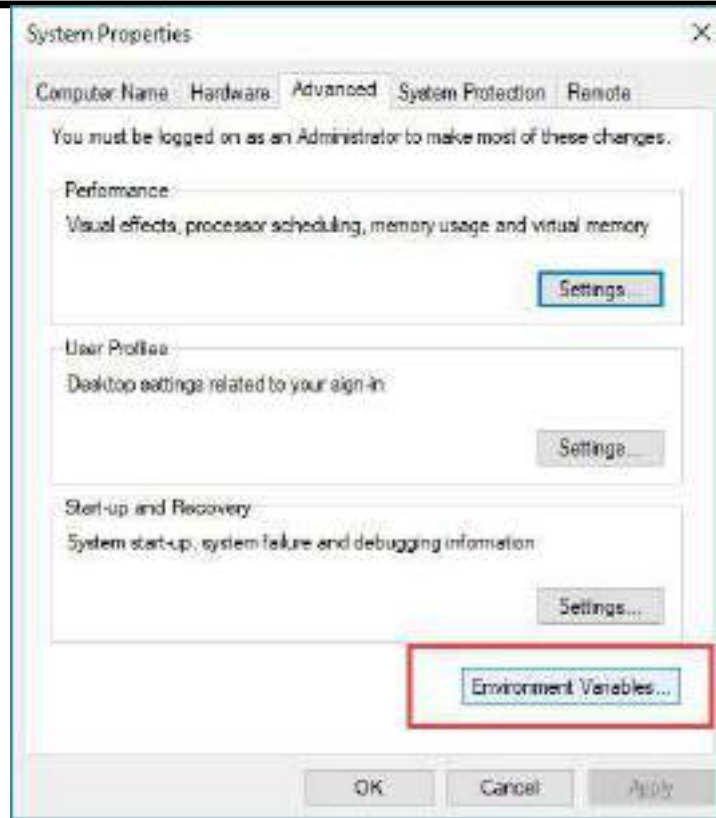
and CLASSPATH

Step 1) Right Click on the My Computer and Select the properties

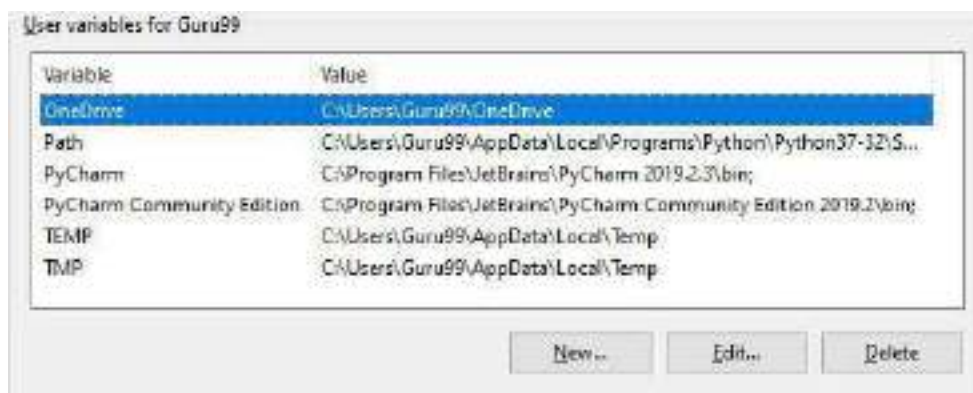


Step 2) Click on advanced system settings

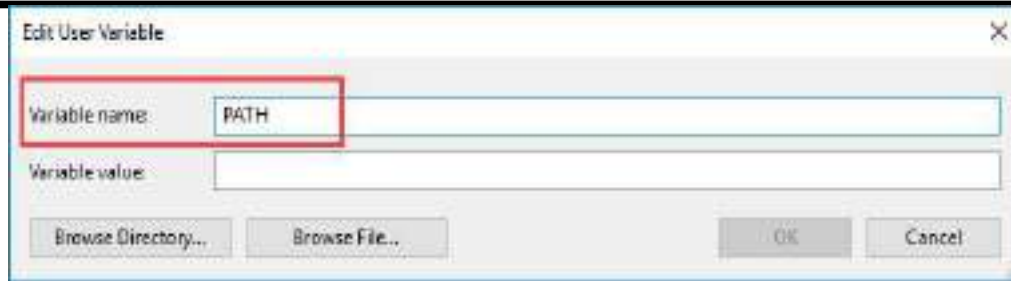
Step 3) Click on Environment Variables



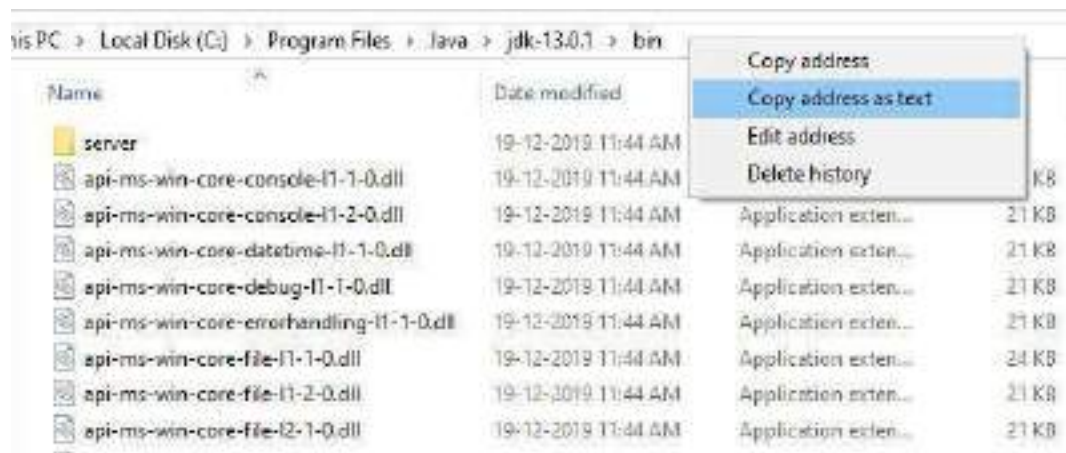
Step 4) Click on new Button of User variables



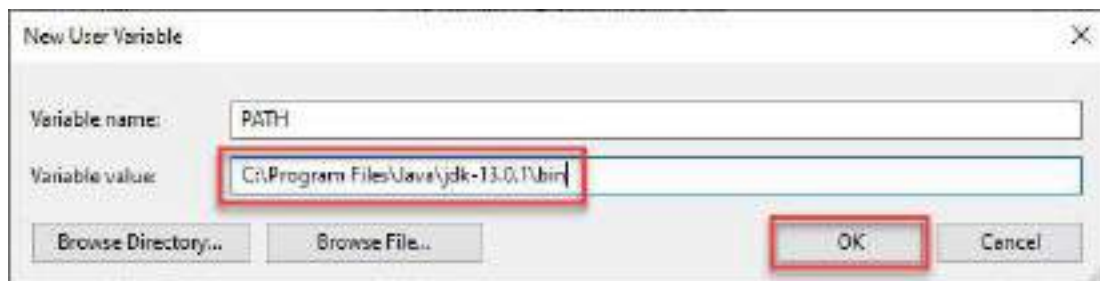
Step 5) Type PATH in the Variable name.



Step 6) Copy the path of bin folder which is installed in JDK folder.

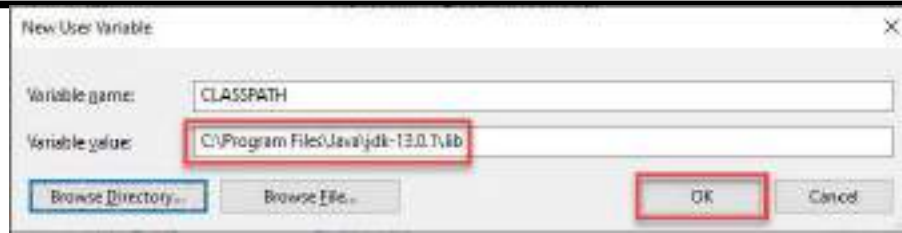


Step 7) Paste Path of bin folder in Variable value and click on OK Button.



Step 8) You can follow a similar process to set CLASSPATH.

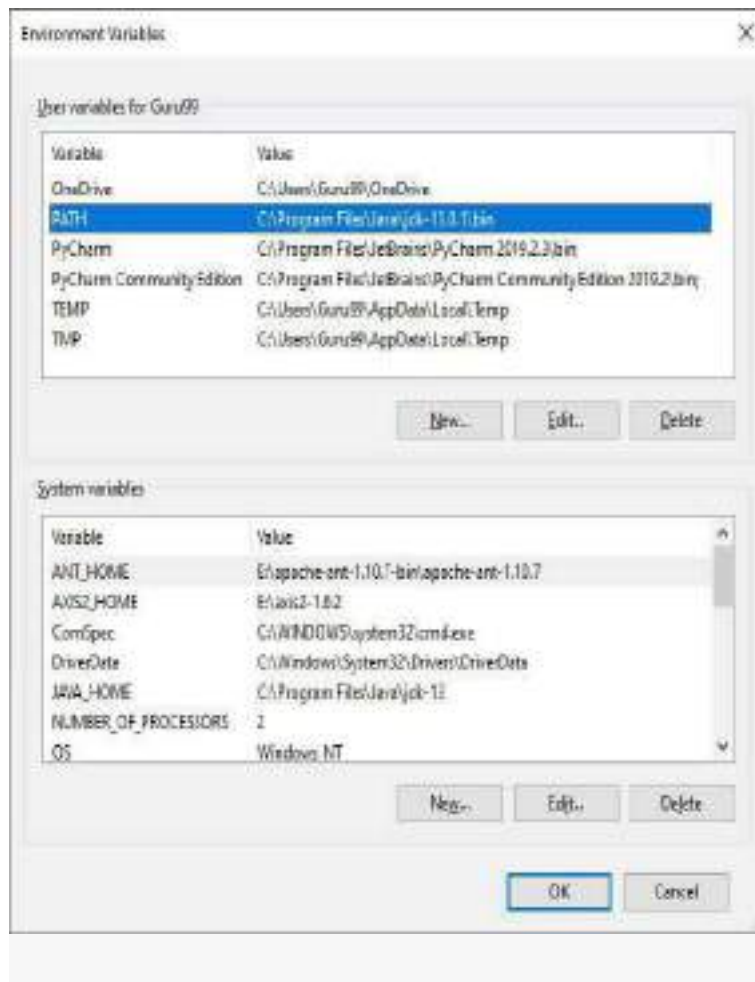
A Parallel and Forward Private Searchable Public-Key Encryption for Cloud-Based Data Sharing



Note: In case you java installation does not work after installation, change classpath to

CLASSPATH = <JDK installation directory>\lib\tools.jar;

Step 9) Click on OK button



Step 10) Go to command prompt and type javac commands. If you see a screen like

below, Java is installed.

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.18362.535]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Guru99>javac
Usage: javac <options> <source files>
where possible options include:
  @<filename>                Read options and filenames from file
  -key[<value>]              Options to pass to annotation processors
  --add-modules <module>(<module>)*
                             Root modules to resolve in addition to the initial modules, or all modules
                             on the module path if <module> is ALL-MODULE-PATH.
  --boot-class-path <path>, -bootclasspath <path>
                             Override location of bootstrap class files
  -class-path <path>, -classpath <path>, -cp <path>
                             Specify where to find user class files and annotation processors
  -d <directory>             Specify where to place generated class files
  -deprecation
                             Output source locations where deprecated APIs are used
  --enable-preview
                             Enable preview language features. To be used in conjunction with either -source or --release.
  -encoding <encoding>       Specify character encoding used by source files
  -endorseddirs <dirs>       Override location of endorsed standards path
  -extdirs <dirs>            Override location of installed extensions
```


6. SOFTWARE ENVIRONMENT

6.1 Java Technology

Java technology is both a programming language and a platform.

6.2 The Java Programming Language

The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes —the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

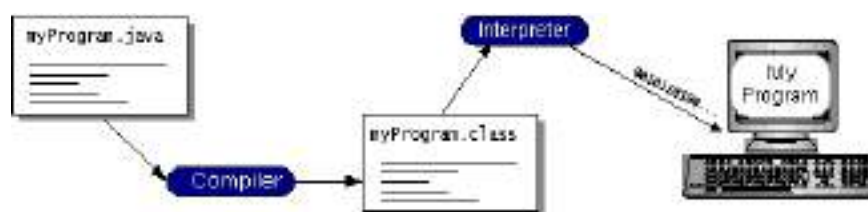


Fig 6.1: Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.



Fig 6.2: Execution For Different Platforms

6.3 The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms.

The Java platform has two components:

- *The Java Virtual Machine (Java VM)*
- *The Java Application Programming Interface (Java API)*

The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, *What Can Java Technology Do?* Highlights what functionality some of the packages in the Java API provide.

The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

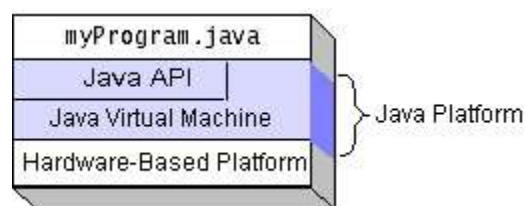


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring performance close to that of native code without threatening portability.

6.4 What Can Java Technology Do?

The most common types of programs written in the Java programming language are *applets* and *applications*. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser.

However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a *server* serves and supports clients on a network. Examples of servers are Web servers, proxy servers.

Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

The essentials: Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.

Applets: The set of conventions used by applets.

Networking: URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.

Internationalization: Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.

Security: Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.

Software components: Known as JavaBeans™, can plug into existing component architectures.

Object serialization: Allows lightweight persistence and communication via Remote Method Invocation (RMI).

Java Database Connectivity (JDBC™): Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

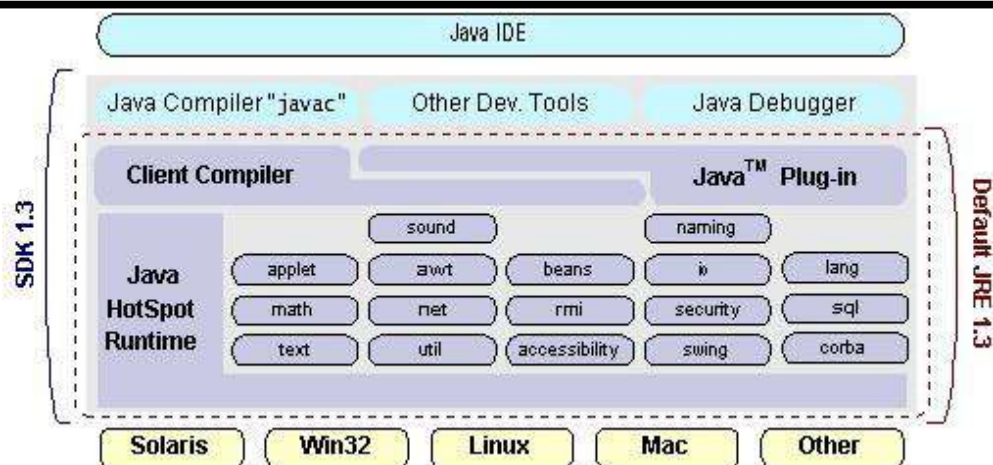


Fig 6.4: Java IDE

6.5 How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

Get started quickly: Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.

Write less code: Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.

Write better code: The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs. **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.

Avoid platform dependencies with 100% Pure Java: You can keep your program portable by avoiding the use of libraries written in other languages. The 100%

Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

Write once, run anywhere: Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.

Distribute software more easily: You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

6.6 ODBC

interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change.

Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or VisualBasic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand- alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each

SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

6.7 JDBC

In an effort to set an independent database standard API for Java; Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have

JDBC support, he or she must provide the driver for each platform that the database and Java run on.

To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution.

JDBC was announced in March of 1996. It was released for a 90 day public review

The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

6.8 JDBC Goals

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java.

The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

6.9 SQL Level API

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.

SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

JDBC

1. **must be implemental on top of common database interfaces**

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface.

Because of Java's acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

2. **Keep it simple**

This goal probably appears in all software design goal listings. JDBC is no exception. Sun felt that the design of JDBC should be very simple, allowing for only one method of completing a task per mechanism. Allowing duplicate functionality only serves to confuse the users of the API.

3. **Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

4. **Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT's, INSERT's, DELETE's and UPDATE's, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java

[Networking](#). And for dynamically updating the cache table we

go for MS [Access](#) database.

Java has two things: a programming language and a platform.

Java is a high-level programming language that is all of the following

- Simple
- Architecture-neutral
- Object-oriented
- Portable

- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure
- Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer.
- Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer.

Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

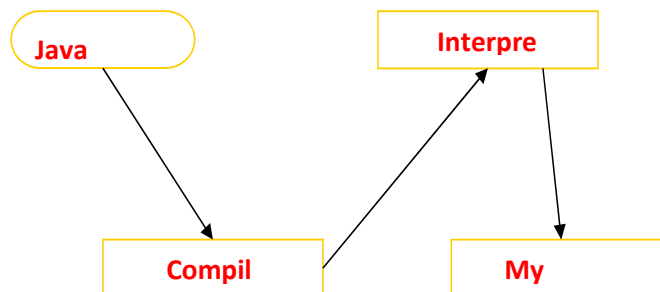


Fig 6.5 JDBC GOALS

- You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware.

Java byte codes help make “write once, run anywhere” possible. You can compile your Java program into byte codes on my platform that has a Java compiler. The byte codes can then be run any implementation of the Java VM. For example, the same Java program can run Windows NT, Solaris, and Macintosh.

Networking

TCP/IP stack

The TCP/IP stack is shorter than the OSI one:

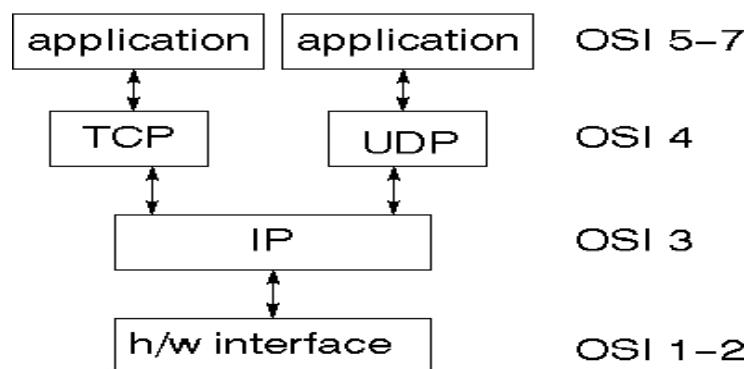


Fig 6.6: TCP is a connection-oriented protocol, UDP (User Datagram Protocol) is a connectionless protocol.

TCP is a connection-oriented protocol; UDP (User Datagram Protocol) is a connectionless protocol.

IP datagram's

The IP layer provides a connectionless and unreliable delivery system. It considers each datagram independently of the others. Any association between datagram must be supplied by the higher layers. The IP layer supplies a checksum that includes its own header. The header includes the source and destination addresses. The IP layer handles routing through an Internet. It is also responsible for breaking up large datagram into smaller ones for transmission and reassembling them at the other end.

UDP

UDP is also connectionless and unreliable. What it adds to IP is a checksum for the contents of the datagram and port numbers. These are used to give a client/server model - see later.

TCP

TCP supplies logic to give a reliable connection-oriented protocol above IP. It provides a virtual circuit that two processes can use to communicate.

Internet addresses

In order to use a service, you must be able to find it. The Internet uses an address scheme for machines so that they can be located. The address is a 32 bit integer which gives the IP address. This encodes a network ID and more addressing. The network ID falls into various classes according to the size of the network address.

Network address

Class A uses 8 bits for the network address with 24 bits left over for other addressing. Class B uses 16 bit network addressing. Class C uses 24 bit network addressing and class D uses all 32.

Subnet address

Internally, the UNIX network is divided into sub networks. Building 11 is currently on one sub network and uses 10-bit addressing, allowing 1024 different hosts.

Host address

8 bits are finally used for host addresses within our subnet. This places a limit of 256 machines that can be on the subnet.

Total address

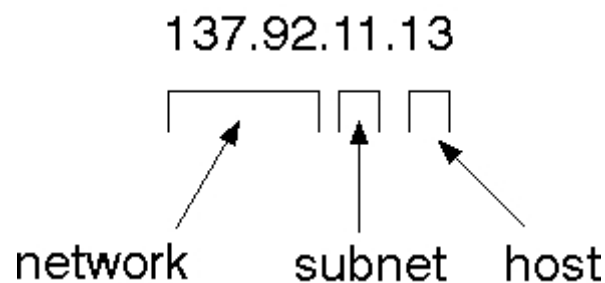


Fig 6.7: The 32 bit address is usually written as 4 integers separated by dots.

Port addresses

A service exists on a host, and is identified by its port. This is a 16 bit number. To send a message to a server, you send it to the port for that service of the host that it is running on. This is not location transparency! Certain of these ports are "well known".

Sockets

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with `Read File` and `Write File` functions.

```
#include
<sys/types.h>
#include
<sys/socket.h>

int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, `protocol` will be zero, and `type` will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

JFree Chart

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes:

JFreeChart is "open source" or, more specifically, [free software](#). It is distributed under the terms of the [GNU Lesser General Public Licence](#) (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include:

(a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include:

Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas);

Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart;

Testing, documenting, testing some more, documenting some more.

Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts --- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or reimplement) this mechanism.

7. SYSTEM REQUIREMENTS

7.1 H/W System Configuration:-

- Processor - I3/Intel Processor
- RAM - 4GB (min)
- Hard Disk - 160GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

7.2 S/W System Configuration:-

- Operating System : Windows 7/8/10
- Application Server : Tomcat 7.0
- Front End : HTML, JSP
- Scripts : JavaScript.
- Server side Script : Java Server Pages.
- Database : My SQL 6.0
- Database Connectivity : JDBC

8. SYSTEM DESIGN

8.1 UML DIAGRAMS

UML stands for Unified Modeling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group.

The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artifacts of software system, as well as for business modeling and other non-software systems.

The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems.

The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

GOALS:

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.

Encourage the growth of OO tools market.

Support higher level development concepts such as collaborations, frameworks, patterns and components.

8.2 USE CASE DIAGRAM:

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

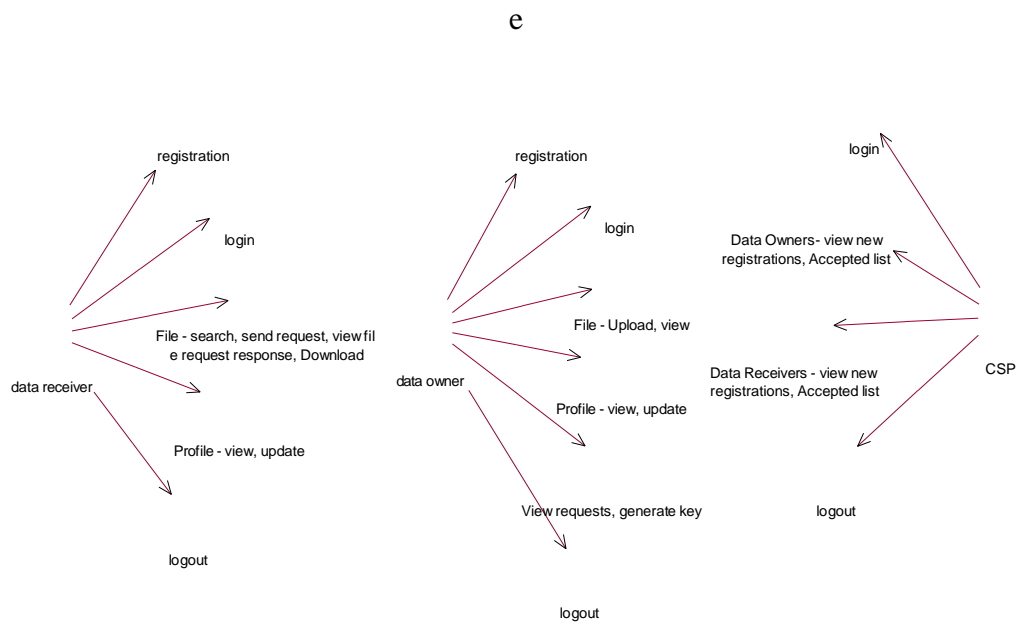


Fig 8.2: USE CASE DIAGRAM

8.3 CLASS DIAGRAM:

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.



Fig 8.3: CLASS DIAGRAM

8.4 SEQUENCE DIAGRAM:

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

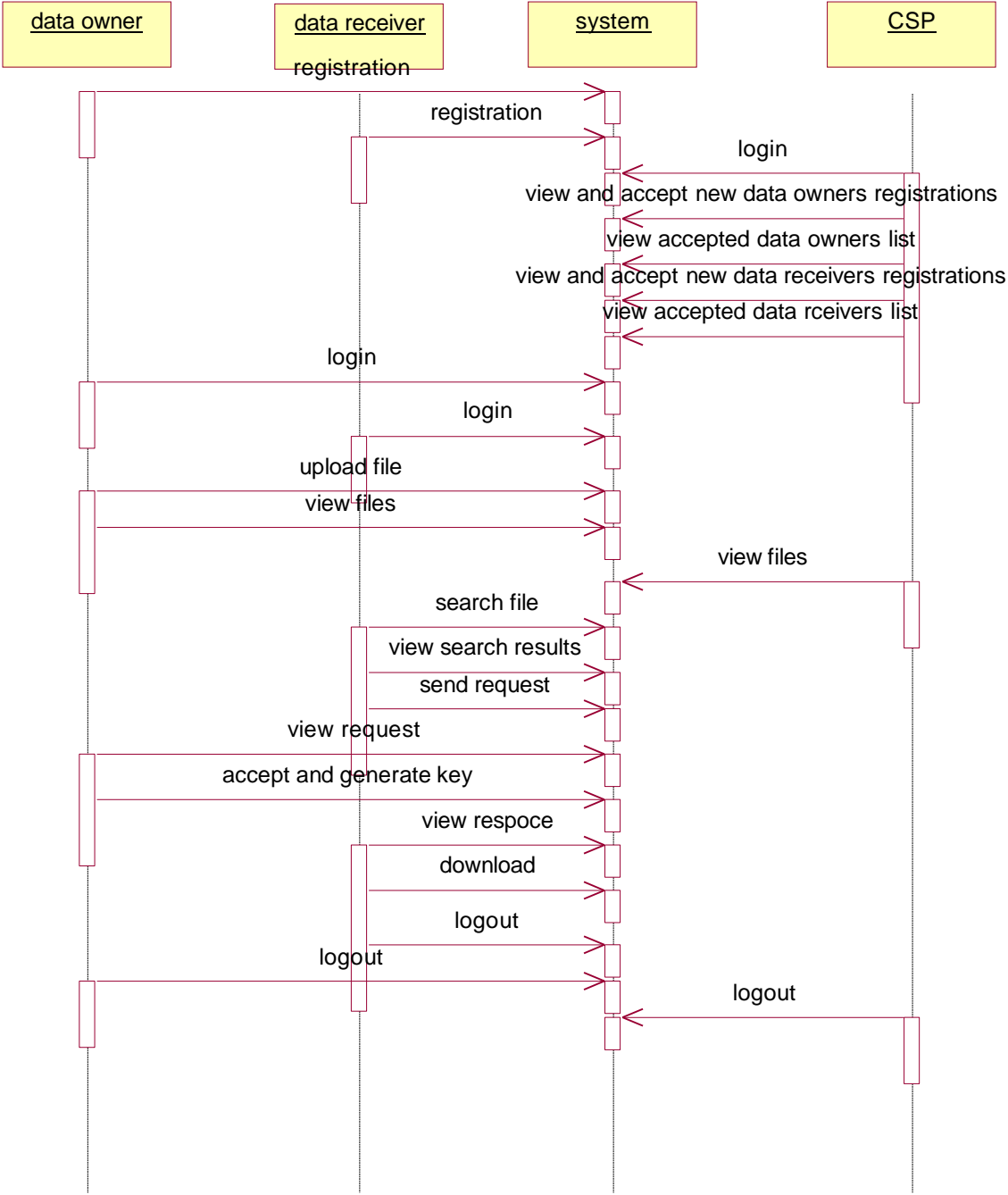


Fig 8.4: SEQUENCE DIAGRAM

8.5 COLLABORATION DIAGRAM:

In collaboration diagram the method call sequence is indicated by some numbering technique as shown below. The number indicates how the methods are called one after another. We have taken the same order management system to describe the collaboration diagram. The method calls are similar to that of a sequence diagram. But the difference is that the sequence diagram does not describe the object organization whereas the collaboration diagram shows the object organization.

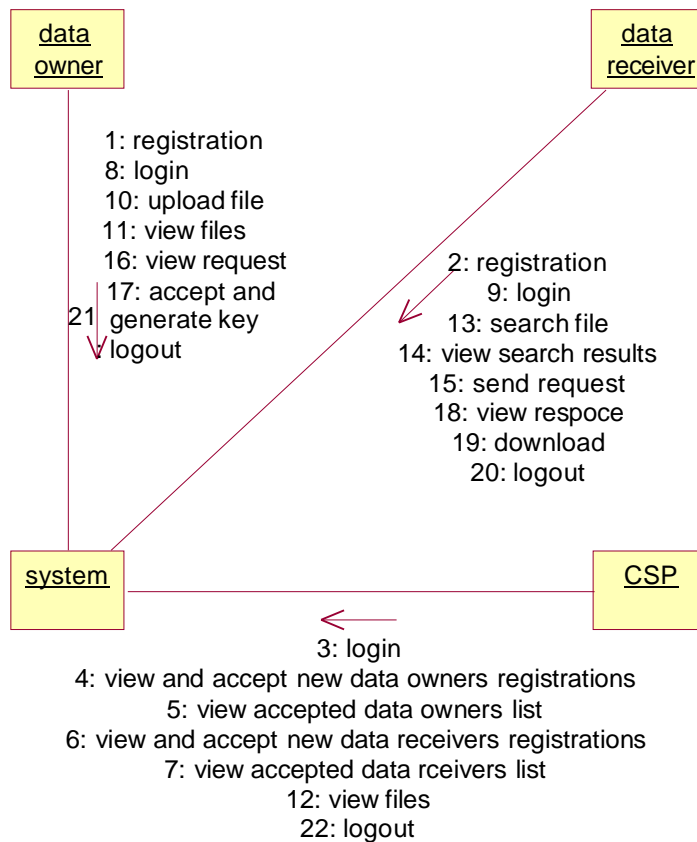


Fig 8.5: COLLABORATION DIAGRAM

8.6 ACTIVITY DIAGRAM:

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

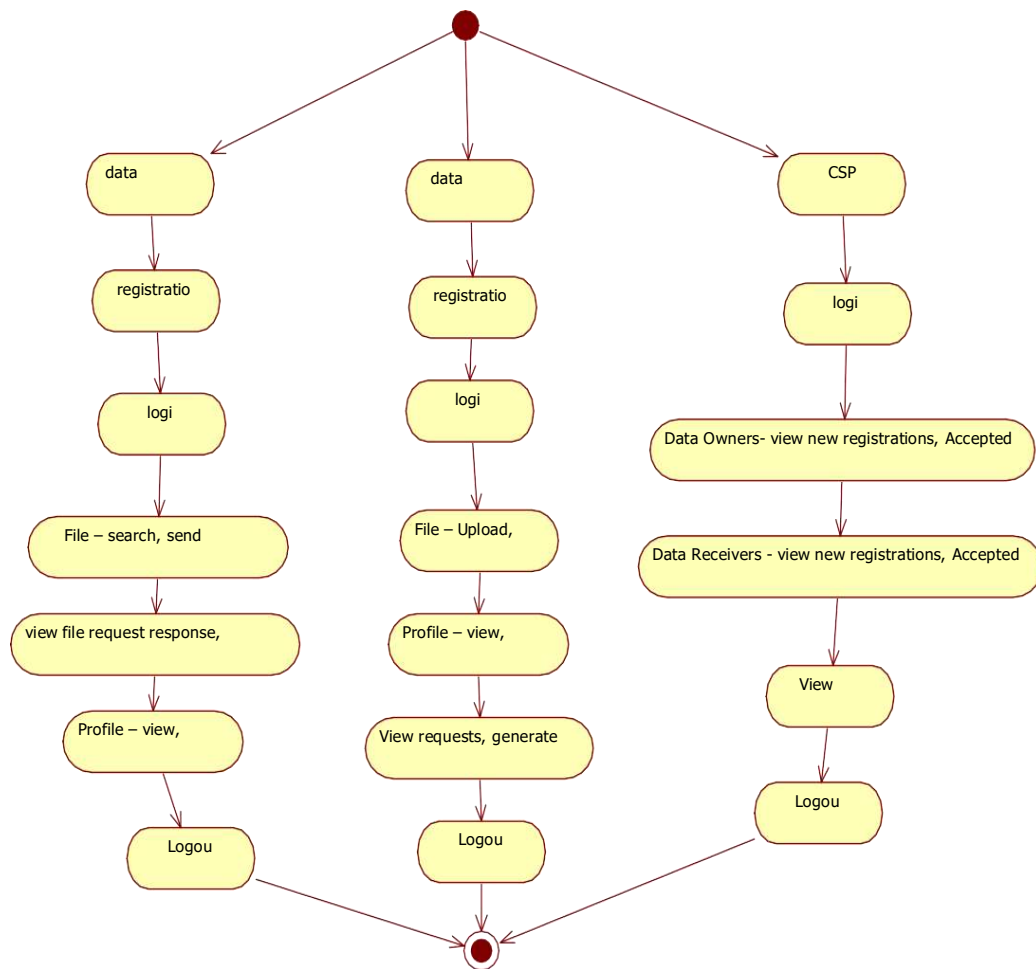


Fig 8.6: ACTIVITY DIAGRAM

8.7 COMPONENT DIAGRAM

Component diagrams are used to describe the physical artifacts of a system.

advance to visualize the implementation details. Initially the system is designed using different UML diagrams and then when the artifacts are ready component diagrams are used to get an idea of the implementation.

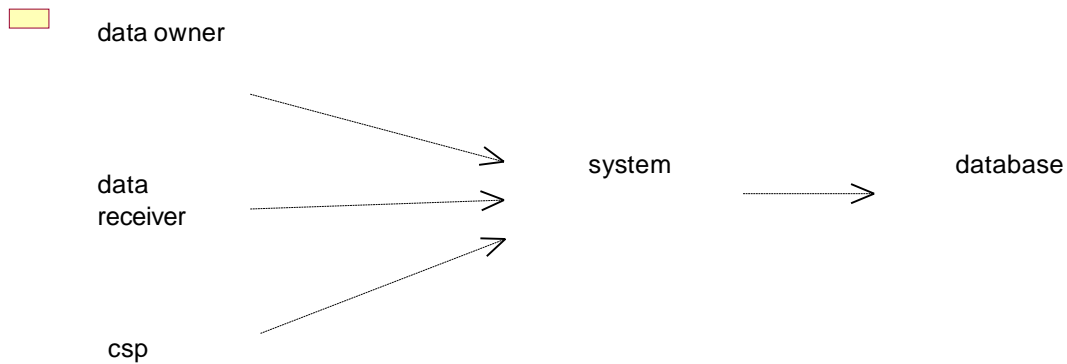


Fig 8.7: COMPONENT DIAGRAM

8.8 DEPLOYMENT DIAGRAM

Deployment diagram represents the deployment view of a system. It is related to the component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical hardware's used to deploy the application.

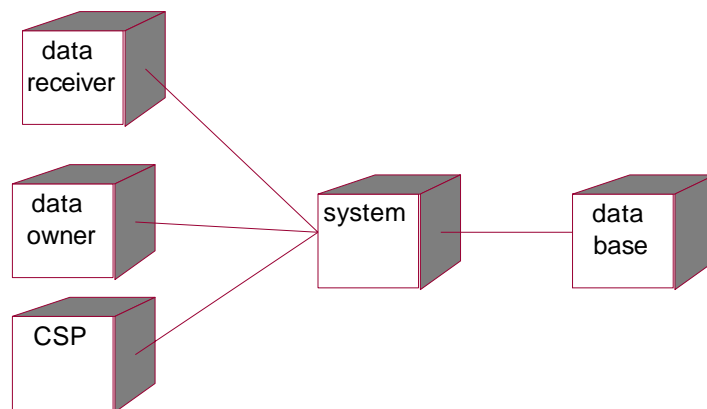


Fig 8.8: DEPLOYMENT DIAGRAM

9. IMPLEMENTATION

9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extrasteps and keeping the process simple. The input is designed in such a way so that it provides

security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error.

9.2 OBJECTIVES

Design is the process of converting a user-oriented description of the input into a computer-based system.

This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the Input computerized system. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities. When the data is entered it will check for its validity. Data can be entered.

CODING

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1" pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<%
Stringname=request.getParameter("email");String
pwd=request.getParameter("pwd");
session.setAttribute("name", name);
if(name.equals("csp@gmail.com")&&pwd.equals("csp")){
    response.sendRedirect("csphome.jsp");
}
else {
    response.sendRedirect("csp.jsp?m=fail");
```

```
}
```

```
%>
```

```
</body>
```

```
</html>
```

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"  
    pageEncoding="ISO-8859-1"%>
```

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<meta charset="ISO-8859-1">
```

```
<title>Insert title here</title>
```

```
</head>
```

```
<body>
```

```
<%
```

```
String name=request.getParameter("email");
```

```
String pwd=request.getParameter("pwd");
```

```
session.setAttribute("name", name);
```

```
if(name.equals("csp@gmail.com")&&pwd.equals("csp")){
```

```
        response.sendRedirect("csphome.jsp");
    }
    else {
        response.sendRedirect("csp.jsp?m=fail");
    }

%>

</body>
</html>
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<%
```

```
String name=request.getParameter("email");
String pwd=request.getParameter("pwd");
session.setAttribute("name", name);
if(name.equals("csp@gmail.com")&&pwd.equals("csp")){
    response.sendRedirect("csphome.jsp");
}
else {
    response.sendRedirect("csp.jsp?m=fail");
}

%>

</body>
</html>
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
```

```
</head>

<body>

<%

String name=request.getParameter("email");

String pwd=request.getParameter("pwd");

session.setAttribute("name", name);

if(name.equals("csp@gmail.com")&&pwd.equals("csp")){

    response.sendRedirect("csphome.jsp");

}

else {

    response.sendRedirect("csp.jsp?m=fail");

}

%>

</body>

</html>

<% @ page language="java" contentType="text/html; charset=ISO-8859-1"

    pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>
```

```
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<%

String name=request.getParameter("email");
String pwd=request.getParameter("pwd");
session.setAttribute("name", name);
if(name.equals("csp@gmail.com")&&pwd.equals("csp")){
    response.sendRedirect("csphome.jsp");
}
else {
    response.sendRedirect("csp.jsp?m=fail");

}

%>

</body>
```

```
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Insert title here</title>

</head>

<body>

<%

String name=request.getParameter("email");

String pwd=request.getParameter("pwd");

session.setAttribute("name", name);

if(name.equals("csp@gmail.com")&&pwd.equals("csp")){

    response.sendRedirect("csphome.jsp");

}

else {

    response.sendRedirect("csp.jsp?m=fail");

}


```

```
%>

</body>

</html>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>A Parallel and Forward Private Searchable Public Key
Encryption</title>

<link rel="stylesheet" type="text/css" href="style.css">

<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/font-awesome.min.css">

</head>

<body>

<div align="center">

<%@include file="title.jsp" %>
```


Home

<li class="active">

<div class="navbar">

<div class="dropdown" >

<button class="dropbtn">Data Owner

<i class="fa fa-caret-down"></i>

</button>

<div class="dropdown-content">

Registration

Login

</div>

</div>

</div>

<div class="navbar">

<div class="dropdown" >

<button class="dropbtn">Data Receiver

```
<i class="fa fa-caret-down"></i>
</button>
<div class="dropdown-content">
  <a href="dureg.jsp">Registration </a>
  <a href="dulogin.jsp">Login</a>
</div>
</div>
</div></li>
  <li ><a href="csp.jsp">CSP</a></li>

</ul>
</div>

<div align="center" class="input-icons">
<br>
<%String haha=null;
           String          ab=null;
           String r="0";
           String r1="2";
           String r2="nr";
           haha=request.getParameter("r");
```

```
System.out.println("hahahahahah====="+haha);

if(haha==null){

System.out.println("=====");

}

else if(haha.equals(r)){

%>

<p>Your registration not accepted </p>

<%}

else if(haha.equals(r1)){

%>

<p>Your registration was rejected

</p>

<%}

else if(haha.equals(r2)){

%>

<p>Your are not registered

user</p>
```


<%} %>

<h2>data owner Login</h2>

<form action="dologback.jsp" method="post">

 <table>

<tr>

<td><i class="fa fa-envelope icon"></i>

<input class="input-field" type="email" name="email" required="required" placeholder="Email"></td></tr>

<tr>

<td><i class="fa fa-key icon"></i>

<input class="input-field" type="password" name="pwd" required="required" placeholder="password"></td></tr>

<!-- <tr align="center"><td width="100px"><input type="submit" value="ADD" style="color: red;font-weight: bold; "></td></tr>

-->

</table>

```
<button class="button" type="submit" style="vertical-align:middle"><span>Login </span></button>
```

```
</b>
```

```
</form>
```

```
</div>
```

```
</html>
```

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
```

```
pageEncoding="ISO-8859-1"%>
```

```
<%@page import=" java.sql.*" %>
```

```
<%@ page import="java.io.*"%>
```

```
<%@ page import="java.util.zip.*"%>
```

```
<%@ page import="java.io.*"%>
```

```
<%@ page import="java.sql.*"%>
```

```
<%@ page import="java.util.zip.*"%>
```

```
<%
```

```
String uname=request.getParameter("uname");
```

```
String pwd=request.getParameter("password");
```

```
String dob=request.getParameter("dob");
```

```
String add=request.getParameter("add");  
String pno=request.getParameter("pno");  
String email=request.getParameter("email");  
String file=request.getParameter("file");
```

```
System.out.println(uname);  
System.out.println(pwd);  
System.out.println(dob);  
System.out.println(add);  
System.out.println(pno);  
System.out.println(email);  
int count=0;  
try
```

```
{
```

```
Class.forName("com.mysql.jdbc.Driver");  
Connection conn =  
DriverManager.getConnection("jdbc:mysql://localhost:3306/AParallelandFor  
wardPrivateSearchable", "root", "root");
```

```
Statement st=conn.createStatement();

String sql1="select count(*) from dataowners where email='"+email+"' ";
PreparedStatement ps1 = conn.prepareStatement(sql1);
ResultSet rs1 =ps1.executeQuery();

System.out.println("rs1"+rs1);
System.out.println("count"+count);
while(rs1.next())
{
    count=rs1.getInt(1);
}

if(count>0)
{
    String msg="failed";
    //session.setAttribute("msg", msg);

    response.sendRedirect("doreg.jsp?msg=failed");
    out.println("<br><center>Email Id already Exists!</center>");
}


```

```
else{

    File f = new File("C:/Users/prathap/Desktop/" + file);

    FileInputStream fis = new FileInputStream(f);

    //String sql="insert into student(uname,pwd,email,clg,add,dob,pno)
    values(""+uname+"','"+pwd+"','"+email+"','"+clg+"','"+add+"','"+dob+"','
    "+pno+"')";

    //    PreparedStatement ps = conn.prepareStatement(sql);

    PreparedStatement ps=conn.prepareStatement("insert into
    dataowners(uname,pwd,email,addr,dob,pno,file)
    values('"+uname+"','"+pwd+"','"+email+"','"+add+"','"+dob+"','"+pno+"',?
    )");

    ps.setBinaryStream(1, (InputStream) fis, (int) (f.length()));

    ps.executeUpdate();

    String msg="Your Registration Successfully Completed";

    //session.setAttribute("msg", msg);

    response.sendRedirect("doreg.jsp?msg=Your Registration Successfully
    Completed");

}

}

catch(Exception e)
```

```
{
System.out.print(e);
e.printStackTrace();
}
%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>A Parallel and Forward Private Searchable Public Key
Encryption</title>

<link rel="stylesheet" type="text/css" href="style.css">

<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/font-awesome.min.css">

</head>

<body>

<div align="center">

<%@include file="title.jsp" %>

<ul>
```

```
<li ><a href="csphome.jsp">Home</a></li>
<li class="active" >
<div class="navbar">

<div class="dropdown" >
  <button class="dropbtn">Data Owner
    <i class="fa fa-caret-down"></i>
  </button>
  <div class="dropdown-content">
    <a href="dore.jsp">New Registrations </a>
    <a href="dol.jsp">List</a>
  </div>
</div>
</div>
</div></li>
```

```
<li >
<div class="navbar">

<div class="dropdown" >
  <button class="dropbtn">Data Receiver
    <i class="fa fa-caret-down"></i>
```

```
</button>
<div class="dropdown-content">
  <a href="dure.jsp">New Registrations </a>
  <a href="dul.jsp">List</a>
</div>
</div>
</div></li>

<li><a href="files.jsp">Flies</a></li>

<li><a href="csp.jsp">Logout</a></li>

</ul>
</div>

<div align="center">
<%@page import="java.sql.*" %>

<%
int cnt=0;
```

```
try
{
    Class.forName("com.mysql.jdbc.Driver");

    Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/AParallelandFor
wardPrivateSearchable", "root", "root");

    PreparedStatement ps1=con.prepareStatement("select * from
dataowners where active ='0'");

    ResultSet rs=ps1.executeQuery();

    PreparedStatement ps=con.prepareStatement("select * from
dataowners where active ='0'");

    ResultSet rs1=ps.executeQuery();

    while(rs.next())
    {
        cnt++;

    }

    System.out.println(cnt+"====count");

    if(cnt==0){
```

```
%>
```

```
<h2>New Data Owners Registrations</h2>
```

```
<p style="color: red;"><b>New Registrations are not available</b></p>
```

```
<%
```

```
  }else if(cnt>=1){
```

```
  %>
```

```
    <h2 >New Data Owners Registrations</h2>
```

```
    <b> <table border="1">
```

```
  <tr style="color: red;">
```

```
    <td> Name</td>
```

```
    <td>email</td>
```

```
    <td>Phone Number</td>
```

```
    <td>DOB</td>
```

```
    <td>Address</td>
```

```
    <td>Accept/Reject</td>
```

```
  </tr>
```

```
  <%while(rs1.next())
```

```
    {%>
```

```
  <tr>  <td><%=rs1.getString(2) %></td>
```

```
  <td><%=rs1.getString(4) %></td>
```

```
<td><%=rs1.getString(6) %></td>
<td><%=rs1.getString(7) %></td>
<td><%=rs1.getString(5) %></td>
<td><a
href="response.jsp?id=<%=rs1.getString(1) %>&&r=1">Accept</a><a
href="response.jsp?id=<%=rs1.getString(1) %>&&r=2">Reject</a></td>
</tr>
```

```
<%
}}
%></table>
</b><br>
<%
```

```
}
catch(Exception e)
{
System.out.print(e);
e.printStackTrace();
```

```
}  
%>
```

```
</div>
```

```
</body>
```

```
</html>
```

```
<%@ page import="java.sql.*"%>
```

```
<%@ page import="java.io.*"%>
```

```
<%
```

```
    Blob image = null;
```

```
    System.out.println("in v");
```

```
    byte[] imgData = null;
```

```
    Statement stmt = null;
```

```
    ResultSet rs = null;
```

```
    String id = request.getParameter("id");
```

```
    System.out.println("id: "+id);
```

```
    System.out.println("*****");
```

```
    Connection con = null;
```

```
    try {
```

```
        Class.forName("com.mysql.jdbc.Driver");
```

```
        con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/AParallelandFor
wardPrivateSearchable", "root", "root");

        stmt = con.createStatement();

        rs = stmt.executeQuery("select file from datausers where id='"
+ id+ "'");

        if (rs.next())
        {
                System.out.println("in if");

                image = rs.getBlob(1);

                imgData = image.getBytes(1, (int) image.length());
        }
        else
        {

                out.println("Display Blob Example");

                out.println("image not found for given image>");

                return;

        }

        // display the image

        response.setContentType("image/jpg/png");

        OutputStream o = response.getOutputStream();

        o.write(imgData);

        o.flush();

        o.close();
```

```
    }  
    catch (Exception e)  
    {  
        out.println("Unable To Display image");  
        out.println("Image Display Error=" + e.getMessage());  
        return;  
    }  
    /* finally  
    {  
        try  
        {  
            rs.close();  
            stmt.close();  
            con.close();  
        }  
        catch (SQLException e)  
        {  
            e.printStackTrace();  
        }  
    } */  
%>  
<%@ page import="java.sql.*"%>
```

```
<%@ page import="java.io.*"%>
```

```
<%
```

```
    Blob image = null;

    System.out.println("in v");

    byte[] imgData = null;

    Statement stmt = null;

    ResultSet rs = null;

    String id = request.getParameter("id");

    System.out.println("id: "+id);

    System.out.println("*****");

    Connection con = null;

    try {

        Class.forName("com.mysql.jdbc.Driver");

        con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/AParallelandFor
wardPrivateSearchable", "root", "root");

        stmt = con.createStatement();

        rs = stmt.executeQuery("select file from dataowners where
id='"+ id+ "'");

        if (rs.next())

        {

            System.out.println("in if");

            image = rs.getBlob(1);

            imgData = image.getBytes(1, (int) image.length());
```

```
    }  
    else  
    {  
        out.println("Display Blob Example");  
        out.println("image not found for given image>");  
        return;  
    }  
    // display the image  
    response.setContentType("image/jpg/png");  
    OutputStream o = response.getOutputStream();  
    o.write(imgData);  
    o.flush();  
    o.close();  
}  
catch (Exception e)  
{  
    out.println("Unable To Display image");  
    out.println("Image Display Error=" + e.getMessage());  
    return;  
}  
/* finally  
{  
    try
```

```
        {  
            rs.close();  
            stmt.close();  
            con.close();  
        }  
        catch (SQLException e)  
        {  
            e.printStackTrace();  
        }  
    } */  
  
<%>  
<%@ page import="java.sql.*"%>  
<%@ page import="java.io.*"%>  
<%  
    Blob image = null;  
    System.out.println("in v");  
    byte[] imgData = null;  
    Statement stmt = null;  
    ResultSet rs = null;  
    String id = request.getParameter("id");  
    System.out.println("id: "+id);  
    System.out.println("*****");
```

```
Connection con = null;

try {

    Class.forName("com.mysql.jdbc.Driver");

    con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/AParallelandFor
wardPrivateSearchable", "root", "root");

    stmt = con.createStatement();

    rs = stmt.executeQuery("select file from dataowners where
id='" + id + "'");

    if (rs.next())

    {

        System.out.println("in if");

        image = rs.getBlob(1);

        imgData = image.getBytes(1, (int) image.length());

    }

    else

    {

        out.println("Display Blob Example");

        out.println("image not found for given image>");

        return;

    }

    // display the image

    response.setContentType("image/jpg/png");

    OutputStream o = response.getOutputStream();
```

```
        o.write(imgData);
        o.flush();
        o.close();
    }
    catch (Exception e)
    {
        out.println("Unable To Display image");
        out.println("Image Display Error=" + e.getMessage());
        return;
    }
    /* finally
    {
        try
        {
            rs.close();
            stmt.close();
            con.close();
        }
        catch (SQLException e)
        {
            e.printStackTrace();
        }
    }
}
```

```
    } */  
  
%>  
  
<!DOCTYPE html>  
  
<html>  
  
<head>  
  
<meta charset="ISO-8859-1">  
  
<title>A Parallel and Forward Private Searchable Public Key  
Encryption</title>  
  
  
<link rel="stylesheet" type="text/css" href="style.css">  
  
<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-  
awesome/4.7.0/css/font-awesome.min.css">  
  
  
  
</head>  
  
<body>  
  
<div align="center">  
  
<%@include file="title.jsp" %>  
  
<ul>  
  
    <li ><a href="csphome.jsp">Home</a></li>  
  
<li >  
  
<div class="navbar">
```

```
<div class="dropdown" >
  <button class="dropbtn">Data Owner
    <i class="fa fa-caret-down"></i>
  </button>
  <div class="dropdown-content">
    <a href="dore.jsp">New Registrations </a>
    <a href="dol.jsp">List</a>
  </div>
</div>
</div>
</div></li>
```

```
<li >
  <div class="navbar">
    <div class="dropdown" >
      <button class="dropbtn">Data Receiver
        <i class="fa fa-caret-down"></i>
      </button>
      <div class="dropdown-content">
        <a href="dure.jsp">New Registrations </a>
        <a href="dul.jsp">List</a>
```

</div>

</div>

</div>

<li class="active" >Flies

Logout

</div>

<%@page import="java.sql.*" %>

<%

String id=request.getParameter("id");//session.getAttribute("id9").toString();

//Blob blob ="";

String s = "";

Class.forName("com.mysql.jdbc.Driver");

```
Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/AParallelandFor
wardPrivateSearchable", "root", "root");

PreparedStatement ps1=con.prepareStatement('select file,filename from files
where id="'+id+"'");

ResultSet rs=ps1.executeQuery();

while(rs.next()){

    Blob blob =rs.getBlob(1);

    byte[] bdata = blob.getBytes(1, (int) blob.length());

    String text = new String(bdata);

    System.out.println(text);

}

%>

<div align="center">

<h3 style="color: white;"> your file <span>(<%=rs.getString(2) %>)
</span>data</h3>

<textarea rows="18" cols="63" readonly="readonly"><%=text %>

<%= %>

</textarea>

<br>

<a href="files.jsp"><button>Back</button></a>

</div></html>
```

10. SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

10.1 TYPES OF TESTS

10.2 UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

10.3 INTEGRATION TESTING

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked. Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

10.4 SYSTEM TEST

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

10.5 WHITE BOX TESTING

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is used to test areas that cannot be reached from a

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

10.6 UNIT TESTING:

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

10.6.1 Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

10.6.2 Test Objectives

- 10.6.2.1 All field entries must work properly.
- 10.6.2.2 Pages must be activated from the identified link.
- 10.6.2.3 The entry screen, messages and responses must not be delayed.

10.6.3 Features to be tested

- 10.6.3.1 Verify that the entries are of the correct format
- 10.6.3.2 No duplicate entries should be allowed
- 10.6.3.3 All links should take the user to the correct page.

10.7 INTEGRATION TESTING

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

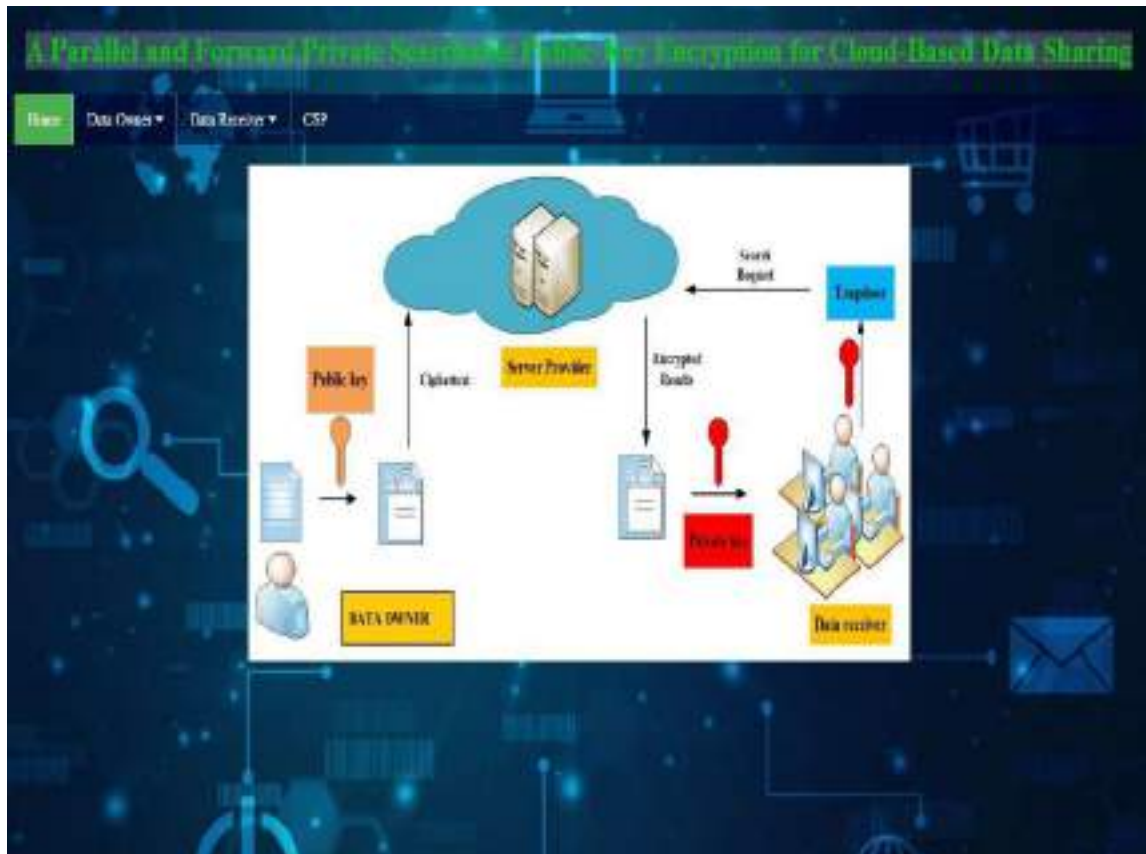
10.8 ACCEPTANCE TESTING

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

11. SCREEN SHOTS

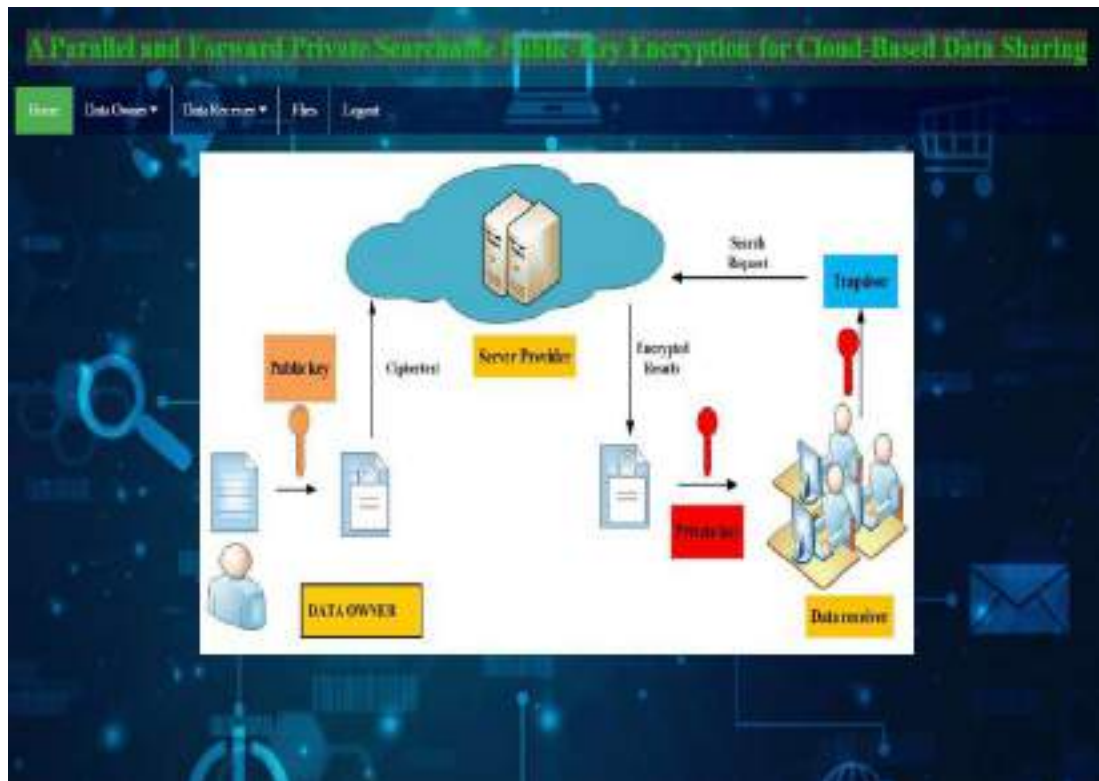
HOME SCREEN



CSP LOGIN



CSP HOME



New Data Owner Registration



Data Owners



New Data Receivers Registration



Data Receivers



Files



File View



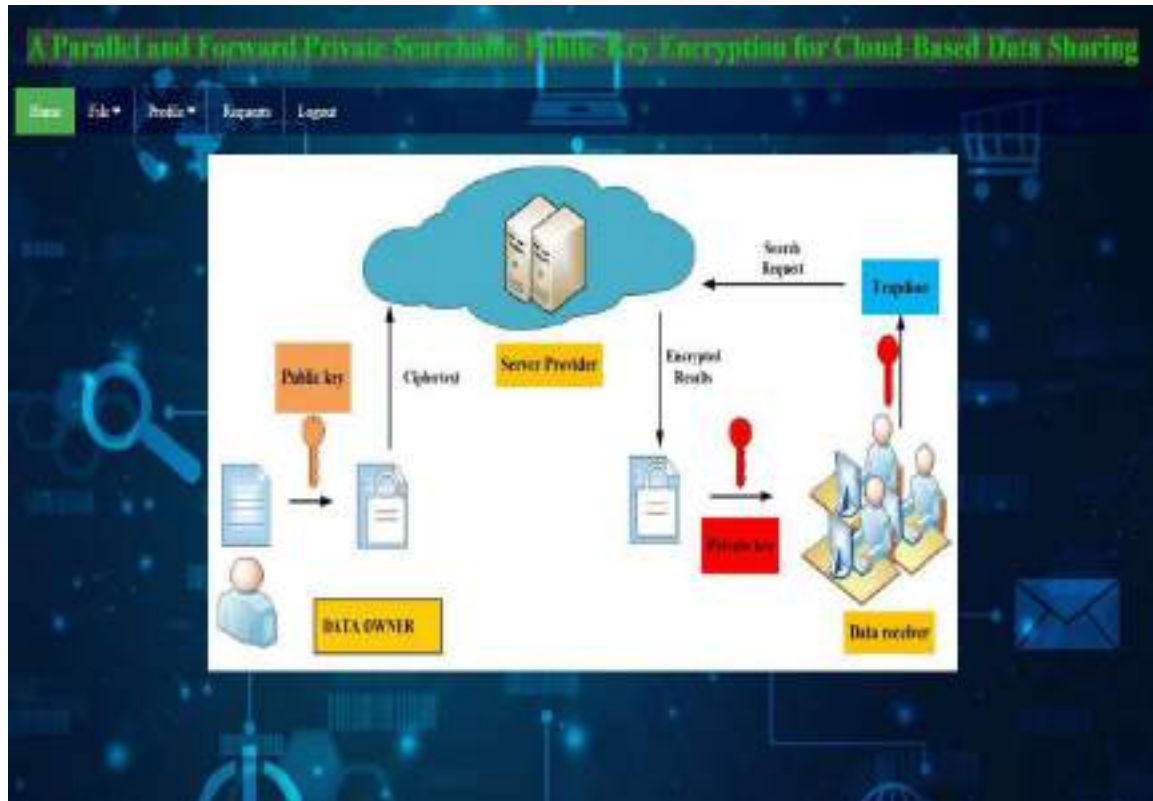
Data Owner Registration



Data Owner Login



Data Owner Home



Upload File



View File



File Data



Profile View



Profile Update



File Requests



Data Receiver Registration



Data Receiver Login (login with email and password)



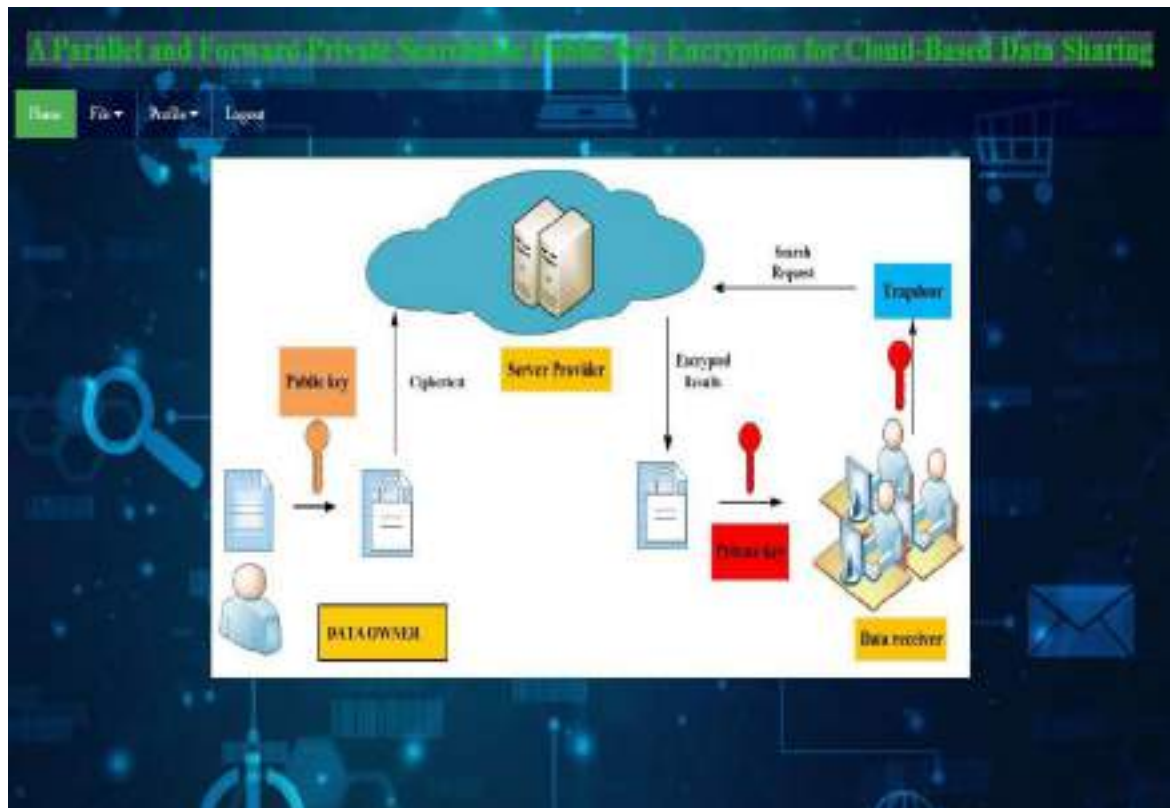
Data Receiver Login (login with email and password)



Data Receiver Login (login with email and password)



Data Receiver Home



Search1



Search2 (Search results)



Search3 (view data)



Check Response



View Profile



Update Profile



CONCLUSION

In this paper, we investigate the new architecture of a practical dynamic searchable encryption scheme with efficiency and strong security. Fortunately, we also present a new cryptographic primitive, namely parallel and forward private searchable public-key encryption, and give a concrete construction. In our scheme, the star-chain data structure makes it more search effective and supports forward privacy.

FUTURE SCOPE

In future we can implement to add security authentication schemes for data sharing and also implement to data auditing schemes.

REFERENCES

Q. Huang and H. Li, “An efficient public-key searchable encryption scheme secure against inside keyword guessing attacks,” *Inf. Sci.*, vols. 403–404, pp. 1–14, Sep. 2017.

[1] Y. Zhang, J. Katz, and C. Papamanthou, “All your queries are belong to us: The power of file-injection attacks on searchable encryption,” in *Proc. USENIX Secur. Symp.*, 2016, pp. 707–720.

[2] P. Xu, S. He, W. Wang, W. Susilo, and H. Jin, “Lightweight searchable public-key encryption for cloud-assisted wireless sensor networks,” *IEEE Trans. Ind. Informat.*, vol. 14, no. 8, pp. 3712–3723, Aug. 2018.

[3] H. Li, Q. Huang, J. Shen, G. Yang, and W. Susilo, “Designated-server identity-based authenticated encryption with keyword search for encrypted emails,” *Inf. Sci.*, vol. 481, pp. 330–343, May 2019.

[4] R. Bost, “ δ forward secure searchable encryption,” in *Proc. ACM SIGSAC Conf. Comput. Commun. Secur.*, 2016, pp. 1143–1154.

[5] K. S. Kim, M. Kim, D. Lee, J. H. Park, and W.-H. Kim, “Forward secure dynamic searchable symmetric encryption with efficient updates,” in *Proc. ACM SIGSAC Conf. Comput. Commun. Secur. (CCS)*, 2017, pp. 1449–1463.

[6] X. Song, C. Dong, D. Yuan, Q. Xu, and M. Zhao, “Forward private searchable symmetric encryption with optimized i/o efficiency,” *IEEE Trans. Dependable Secure Comput.*, to be published.

[7] M. Ma, D. He, N. Kumar, K.-K.-R. Choo, and J. Chen, “Certificateless searchable public key encryption scheme for industrial Internet of Things,” *IEEE Trans. Ind. Inf.*, vol. 14, no. 2, pp. 759–767, Feb. 2018.

- [8] L. Wu, B. Chen, K.-K.-R. Choo, and D. He, “Efficient and secure searchable encryption protocol for cloud-based Internet of Things,” *J. Parallel Distrib. Comput.*, vol. 111, pp. 152–161, Jan. 2018.
- [9] M. Ma, D. He, H. Wang, N. Kumar, and K.-K.-R. Choo, “An efficient and provably secure authenticated key agreement protocol for fogbased vehicular ad-hoc networks,” *IEEE Internet Things J.*, vol. 6, no. 5, pp. 8065–8075, Oct. 2019.
- [11] R. Bost and P.-A. Fouque, “Security- efficiency tradeoffs in searchable encryption,” *on Privacy Enhancing technol.*, vol. 2019, no. 4, pp. 132–151, Oct. 2019.
- [12] L. Liu, J. Su, X. Liu, R. Chen, K. Huang, R. H. Deng, and X. Wang, “Toward highly secure yet efficient KNN classification scheme on outsourced cloud data,” *IEEE Internet Things J.*, vol. 6, no. 6, pp. 9841–9852, Dec. 2019.
- [13] P. Vijayakumar, V. Chang, L. Jegatha Deborah, B. Balusamy, and P. Shynu, “Computationally efficient privacy preserving anonymous mutual and batch authentication schemes for vehicular ad hoc networks,” *Future Gener. Comput. Syst.*, vol. 78, pp. 943–955, Jan. 2018.
- [14] W. Kong, J. Shen, P. Vijayakumar, Y. Cho, and V. Chang, “A practical group blind signature scheme for privacy protection in smart grid,” *J. Parallel Distrib. Comput.*, vol. 136, pp. 29–39, Feb. 2020.
- [15] Y. Yang, X. Zheng, W. Guo, X. Liu, and V. Chang, “Privacy-preserving smart IoT-based healthcare big data storage and self-adaptive access control system,” *Inf. Sci.*, vol. 479, pp. 567– 592, Apr. 2019. [16] M. S. Islam, M. Kuzu, and M. Kantarcioglu, “Access pattern disclosure on searchable encryption: Ramification, attack and mitigation,” in *Proc. Ndss*, vol. 20, Feb. 2012, p.12

pp. 1–14, Sep. 2017.

[2] Y. Zhang, J. Katz, and C. Papamanthou, “All your queries are belong to us: The power of file-injection attacks on searchable encryption,” in Proc. USENIX Secur. Symp., 2016, pp. 707–720.

[3] P. Xu, S. He, W. Wang, W. Susilo, and H. Jin, “Lightweight searchable public-key encryption for cloud-assisted wireless sensor networks,” IEEE Trans. Ind. Informat., vol. 14, no. 8, pp. 3712–3723, Aug. 2018.

[4] H. Li, Q. Huang, J. Shen, G. Yang, and W. Susilo, “Designated-server identity-based authenticated encryption with keyword search for encrypted emails,” Inf. Sci., vol. 481, pp. 330–343, May 2019.

[5] R. Bost, “ ϵ forward secure searchable encryption,” in Proc. ACM SIGSAC Conf. Comput. Commun. Secur., 2016, pp. 1143–1154.

[6] K. S. Kim, M. Kim, D. Lee, J. H. Park, and W.-H. Kim, “Forward secure dynamic searchable symmetric encryption with efficient updates,” in Proc. ACM SIGSAC Conf. Comput. Commun. Secur. (CCS), 2017, pp. 1449–1463.

[7] X. Song, C. Dong, D. Yuan, Q. Xu, and M. Zhao, “Forward private searchable symmetric encryption with optimized i/o efficiency,” IEEE Trans. Dependable Secure Comput., to be published.

[8] M. Ma, D. He, N. Kumar, K.-K.-R. Choo, and J. Chen, “Certificateless searchable public key encryption scheme for industrial Internet of Things,” IEEE Trans. Ind. Inf., vol. 14, no. 2, pp. 759–767, Feb. 2018.

[9] L. Wu, B. Chen, K.-K.-R. Choo, and D. He, “Efficient and secure searchable encryption protocol for cloud-based Internet of Things,” J. Parallel Distrib. Comput., vol. 111, pp. 152–161, Jan. 2018.

[10] M. Ma, D. He, H. Wang, N. Kumar, and K.-K.-R. Choo, “An efficient and provably secure authenticated key agreement protocol for fogbased vehicular ad-

**A Parallel and Forward Private Searchable Public-Key Encryption for Cloud-Based Data Sharing
hoc networks,” IEEE Internet**

Things J., vol. 6, no. 5, pp. 8065–8075, Oct. 2019. [11] R. Bost and P.-A. Fouque, “Security- efficiency tradeoffs in searchable encryption,” on Privacy Enhancing technol., vol. 2019, no. 4, pp. 132–151, Oct. 2019.

[12] L. Liu, J. Su, X. Liu, R. Chen, K. Huang, R. H. Deng, and X. Wang, “Toward highly secure yet efficient KNN classification scheme on outsourced cloud data,” IEEE Internet Things J., vol. 6, no. 6, pp. 9841–9852, Dec. 2019.

[13] P. Vijayakumar, V. Chang, L. Jegatha Deborah, B. Balusamy, and P. Shynu, “Computationally efficient privacy preserving anonymous mutual and batch authentication schemes for vehicular ad hoc networks,” Future Gener. Comput. Syst., vol. 78, pp. 943–955, Jan. 2018.

[14] W. Kong, J. Shen, P. Vijayakumar, Y. Cho, and V. Chang, “A practical group blind signature scheme for privacy protection in smart grid,” J. Parallel Distrib. Comput., vol. 136, pp. 29–39, Feb. 2020.

[15] Y. Yang, X. Zheng, W. Guo, X. Liu, and V. Chang, “Privacy-preserving smart IoT-based healthcare big data storage and self-adaptive access control system,” Inf. Sci., vol. 479, pp. 567– 592, Apr. 2019. [16] M. S. Islam, M. Kuzu, and M. Kantarcioglu, “Access pattern disclosure on searchable encryption: Ramification, attack and mitigation,” in Proc. Ndss, vol. 20, Feb. 2012, p.12

A

Project Report

On

**LEVER: SECURE DEDUPLICATED CLOUD STORAGE WITH ENCRYPTED
TWO-PARTY INTERACTIONS IN CYBER-PHYSICAL SYSTEMS**

Submitted in partial fulfilment for the award of the degree

of

Master of Computer Applications

Submitted by

K SESHADRI

(Reg. No. 18F61F0013)

Under the esteemed guidance of

Mr. P. BALAJI, MCA., M.Tech
Associate Professor, Department of MCA.



Department of Master of Computer Applications

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with „A“ Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

2021

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)
(NAAC Accredited with „A“ Grade, NBA Accredited Institution)
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



CERTIFICATE

*This is to certify that this project report titled “LEVER: SECURE DEDUPLICATED CLOUD STORAGE WITH ENCRYPTED TWO-PARTY INTERACTIONS IN CYBER-PHYSICAL SYSTEMS” that is being submitted by **K SESHADRI (Reg. No. 18F61F0013)** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

Internal Guide

Head of the Department

Submitted for the main project viva-voce examination held on _____

Internal Examiner

External Examiner

DECLARATION

I, **K SESHADRI** hereby declare that the project report entitled “**LEVER:SECURE DEDUPLICATED CLOUD STORAGE WITH ENCRYPTED TWO-PARTY INTERACTIONS IN CYBER-PHYSICAL SYSTEMS**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. BALAJI, MCA., M.Tech**, Associate Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APPLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

Place: Puttur

Date:

K SESHADRI

Reg. No.: 18F61F0013

ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mr. P. BALAJI, MCA., M.Tech**, Associate Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.**, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I extend my thanks to **Dr. P.K. Ghosh, Ph.D.** Vice President who gave me the moral support for the completion of the project.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(K SESHADRI)

CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF ABBREVIATIONS	Ii
1	INTRODUCTION	1
2	SYSTEM STUDY	6
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	8
	3.2 DISADVANTAGES	8
	3.3 PROPOSED SYSTEM	9
	3.4 ADVANTAGES	9
4	SOFTWARE MODULES	10
5	SYSTEM ARCHITECTURE	11
6	SOFTWARE ENVIRONMENT	20
7	SYSTEM REQUIREMENTS	35
8	SYSTEM DESIGN	36
9	IMPLEMENTATION	55
10	SYSTEM TESTING	106
11	SCREEN SHOTS	110
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

ABSTRACT

Cloud envisioned cyber-physical systems (CCPS) is a practical technology that relies on the interaction among cyber elements like mobile users to transfer data in cloud computing. In CCPS, cloud storage applies data deduplication techniques aiming to save data storage and bandwidth for real-time services. In this infrastructure, data deduplication eliminates duplicate data to increase the performance of the CCPS application. However, it incurs security threats and privacy risks. For example, the encryption from independent users with different keys is not compatible with data deduplication. In this area, several types of research have been done. Nevertheless, they are suffering from a lack of security, high performance, and applicability. Motivated by this, in this article, we propose a message lock encryption with neVer-decrypt homomorphic encRyption (LEVER) protocol between the uploading CCPS user and cloud storage to reconcile the encryption and data deduplication. Interestingly, LEVER is the first brute-force resilient encrypted deduplication with only cryptographic two-party interactions.

LIST OF FIGURES

S. No.	Name	Page No.
1	1.3. Structure of Service models	3
2	5.1. System Architecture	12
3	5.2. Data Flow Diagram	
	a.Cloud Server	15
	b.Data Owner	17
	c.User Registration	19
4.	6.1. Compilation & Interpretation	21
5	6.2. Execution for different platforms	21
6.	6.3. Java Platform	22
7.	6.4. Java IDE	24
8.	6.7. General J2ME Architecture	32
9	8.1. Data Flow Diagram	
	a.Cloud Server	37
	b.Data Owner	38
	c.User Registration	40
10.	8.2. UML Diagram	
	8.2.1Activity diagrams	41
11.	8.2.2.Use Case Diagrams	45
12.	8.2.3. Sequence Diagrams	50
13.	8.2.4. Collaboration Diagram	51
14.	8.2.5. Deployment Diagram	52
15.	8.2.6. Class Diagram	53
16.	8.3.1.E-R Notations	54
17.	Screen Shots	110

LIST OF ABBREVIATIONS

S. No.	Acronyms	Abbreviations
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	DDS	Data Deduplication Scheme
11	DBMS	Database Management System
12	CPS	Cyber Physical Systems
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

1. INTRODUCTION

1.1 What is cloud computing?

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services.

1.2 How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.

The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

1.3 Characteristics and Services Models:

The salient characteristics of cloud computing based on the definition provided by the National Institute of Standards and Terminology (NIST) are outlined below

- **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.
- **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).
- **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.
- **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.
- **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

1.4 Services Models:

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-

Lever Secure Deduplicated Cloud Storage With Encrypted Two-Party Interactions

that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.

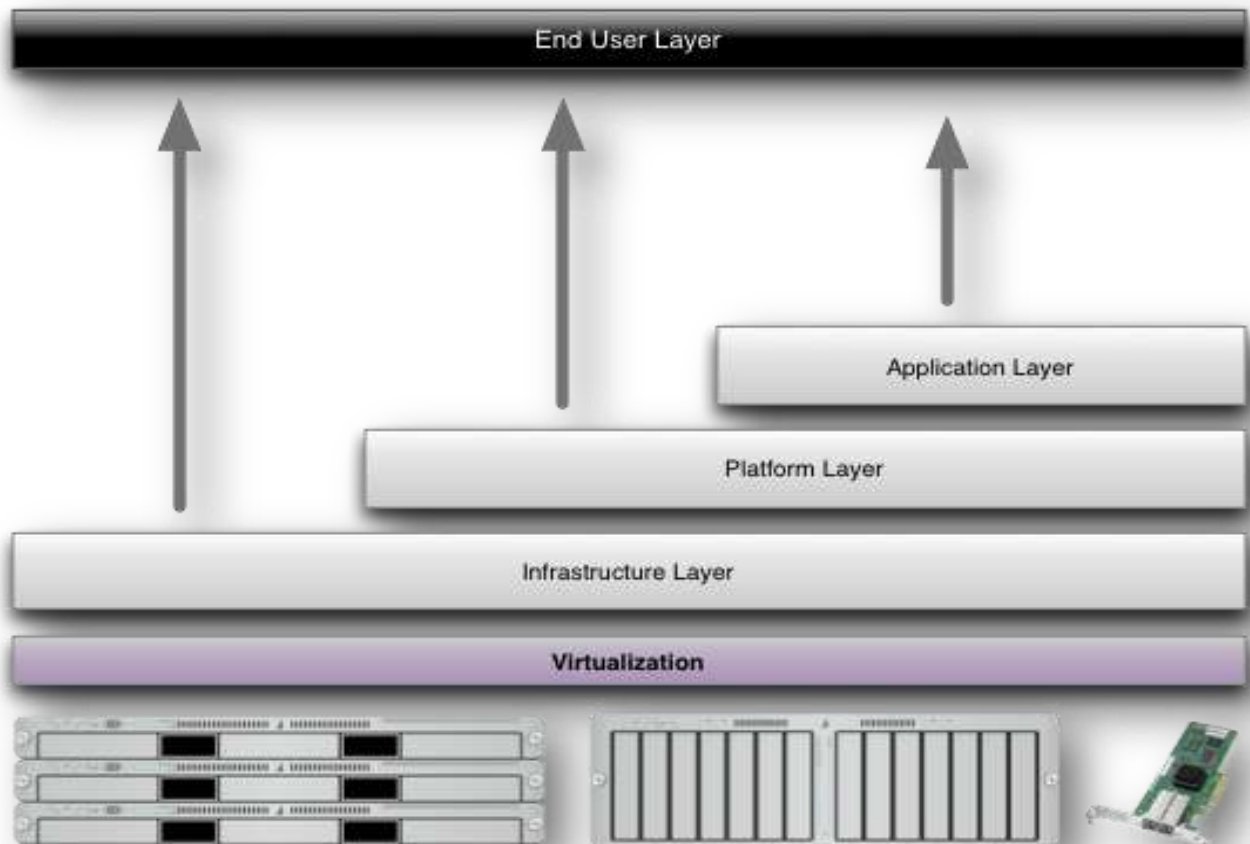


Fig 1.3: Structure of service models

1.5 Benefits of cloud computing:

- 1. Achieve economies of scale** – increase volume output or productivity

with fewer people. Your cost per unit, project or product plummets.

2. **Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
3. **Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
4. **Streamline processes.** Get more work done in less time with less people.
5. **Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
6. **Improve accessibility.** You have access anytime, anywhere, making your life so much easier!
7. **Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
8. **Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
9. **Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
10. **Improve flexibility.** You can change direction without serious "people" or "financial" issues at stake.

1.6 Advantages:

- **Price:** Pay for only the resources used.
- **Security:** Cloud instances are isolated in the network from other instances for improved security.
- **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud's core hardware.
- **Scalability:** Auto-deploy cloud instances when needed.

- **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
- **Control:** able to login from any location. Server snapshot and a software library lets you deploy custom instances.
- **Traffic:** Deals with spike in traffic with quick deployment of additional

2. SYSTEM STUDY

2.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

2.1.1. ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased

2.1.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high

demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must

have a modest requirement, as only minimal or null changes are required for implementing this system.

2.1.3. SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3.SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

Convergent Encryption (CE) and its generalization, MLE are the easiest methods to address the privacy issues without compromising the deduplication effectiveness. Specifically, the user calculates and uploads where $E_k(_)$ stands for the symmetric encryption with key k . Since the users with f are all can derive the same and the deduplication still takes place on E_h The follow-up studies further validate the MLE protocol to preserve message correlation and parameter dependency. This method is weak against the bruteforce attack, particularly in the case of predictable data. The brute-force mainly incurs when we face low min-entropy characteristics, and the key space in CE is identical to the plaintext space.

DupLESS [is a suitable solution to defend against the brute-force attack in cloud storage. In the DupLESS, they introduce an additional key server (KS) to generate the key. In particular, the user u with the aid of KS calculate a content-dependent key k_f for the file f such that no one can drive the key except the user. Later on, deduplication $E_{k_f}(f)$ can be done using k_f . Based on the trusted server, many other approaches are also proposed. Encrypt-with-Signature (EwS) is another solution using KS for calculating $E_{k_f}(f)$. Both of are requiring to communicate with the trusted server to calculate deduplication E_{k_f} It increases the privacy issue in the network.

Liu propose a client-as-a-key-server (CaS) framework, where users are potential key servers, to deduplicate encrypted data. The solutions mentioned above suffer from performance degradation, because of heavyweight cryptographic primitives (e.g., oblivious pseudorandom function, homomorphic encryption, and PAKE), are used. Also, they are not practically useful because the trusted server does not have a reasonable business justification.

3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, scheme is less effective due to absence of data de duplication techniques.
- The existing system, current encrypted data deduplication either suffer

- from a brute-force attack or rely on computation-intensive operations and independent key servers

3.3 PROPOSED SYSTEM

An obstacle in designing encrypted data deduplication is how the cloud can find that two distinct encrypted chunks are from the same content. Thus, our first contribution is developing a message Lock Encryption with never-decrypt homomorphic EncRyption (LEVER) by taking advantage of the property of homomorphism encryption without further decryption and resiliency against brute-force by external attackers.

In LEVER, only the up loader and cloud participate in the uploading process, in contrast to most current solutions in need of the third party's participation in CPS. _ LEVER can work transparently with any current cloud storage linked with the CPS users without the need for cloud storage provider's engineering work at the backend.

We validate LEVER in terms of communication and deduplication costs using two datasets, namely Enron and Oxford. Lastly, in addition to the analysis and numerical simulations, we have a LEVER prototype to demonstrate the practicality.

3.4 ADVANTAGES OF PROPOSED SYSTEM

- The system is more effective since message Lock Encryption with neVer-decrypt homomorphic EncRyption (LEVER) protocol between the uploading CCPS user and cloud storage to reconcile the encryption and data deduplication.
- The system is more secured data deduplication benefits come with the security and privacy threats from an insider (e.g., cloud storage provider) and even the external attacker

4 SOFTWARE MODULES

4.1 MODULES

- **Data Owner**
- **Cloud Server**
- **End User**

4.2 MODULES DESCRIPTION

Data Owner

In this module, the data owner maintained their data in server. Data Owner register and login with valid details. Browse the file. Upload with Mac verify file The Data owner can have capable of manipulating the encrypted data file. And the data owner can set the access privilege to the encrypted data file

.

Cloud Server

In this module, the Cloud Server maintained their data in server. cloud server view all data users and authorize ,view all files, request key ,view all search request, view all transactions view all attackers ,view all duplicate records, view file rank in chart, view time delay, View throughput

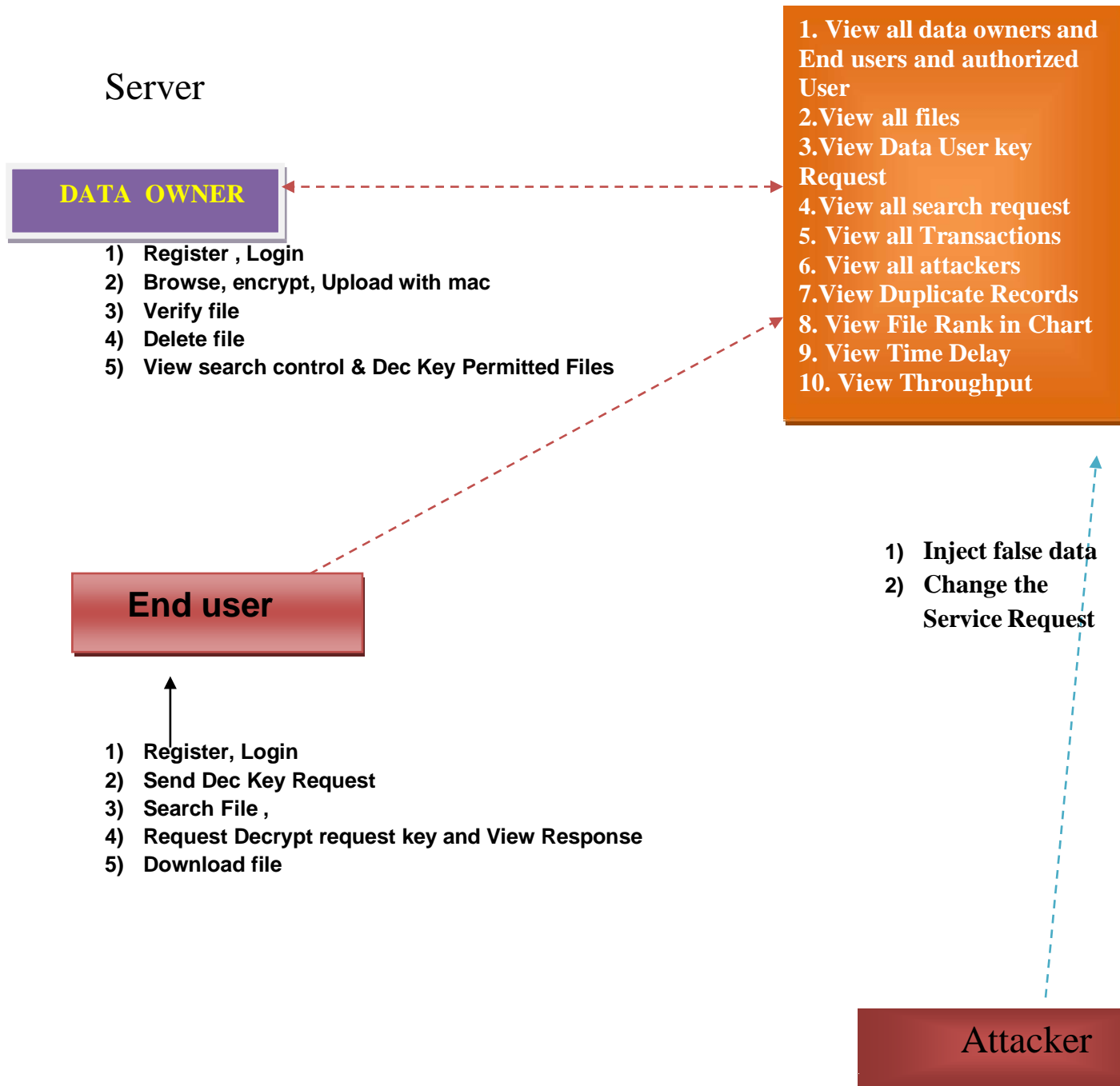
End User

In this module, the Cloud Server maintained their data in server The end user Register and login with valid details. It can send the search request and search for file , the Request Decrypt request key and View Response and downloaded

5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

5.1 SYSTEM ARCHITECTURE



SYSTEM ARCHITECTURE TO SYSTEM

SERVER

- 1) REGISTER LOGIN
- 2) BROWSER
- 3) VERIFY FILE
- 4) DELETE FILE

Each Cloud server

1. View all users (data owners & End Users)
2. View all files (fname,owner name,RSA secret key,MAC,UploadDateTime,FileContents)
3. View all attackers
4. View end user service request (ie file request)
5. Process all file requests
6. Recover attacked service and then process.

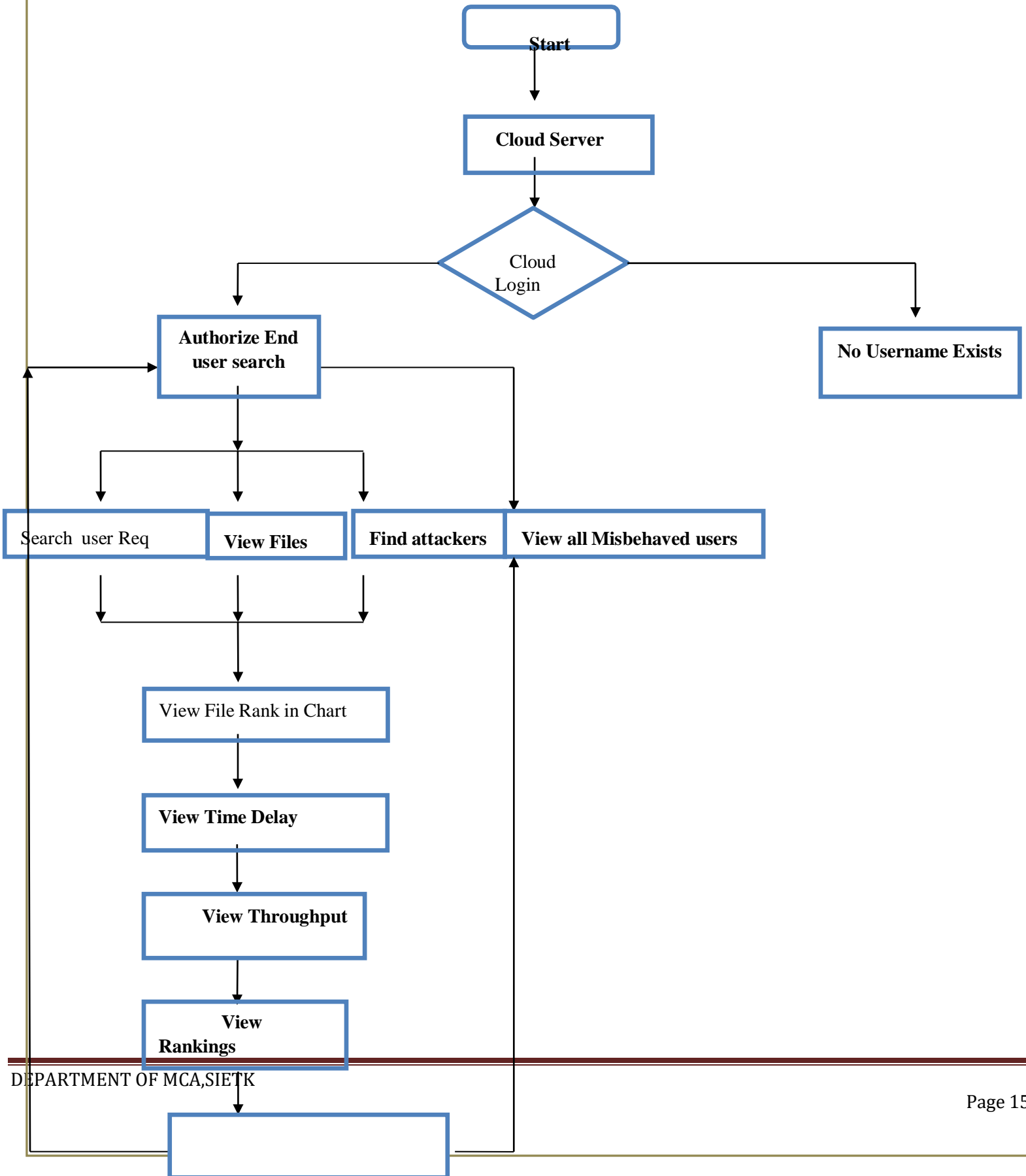
Table for Service Queue

<u>End username</u>	<u>File Request</u>	<u>Queue Priority</u>	<u>Req Date Time</u>	<u>Processed Status</u>	<u>Attacked Status</u>	<u>Recover</u>	<u>Process</u>
Manju	<u>Test.java</u>	<u>1</u>	<u>17/10/2015:5:27</u>	<u>Waiting</u>	<u>No</u>	<u>Yes</u>	<u>Response Service</u>
Harish	<u>Test1.java</u>	<u>2</u>	<u>17/10/2015:8:27</u>	<u>Processed</u>	<u>No</u>	<u>Yes</u>	<u>Service Processed</u>

Fig 5.1 System Architecture

Lever Secure Deduplicated Cloud Storage With Encrypted Two-Party Interactions

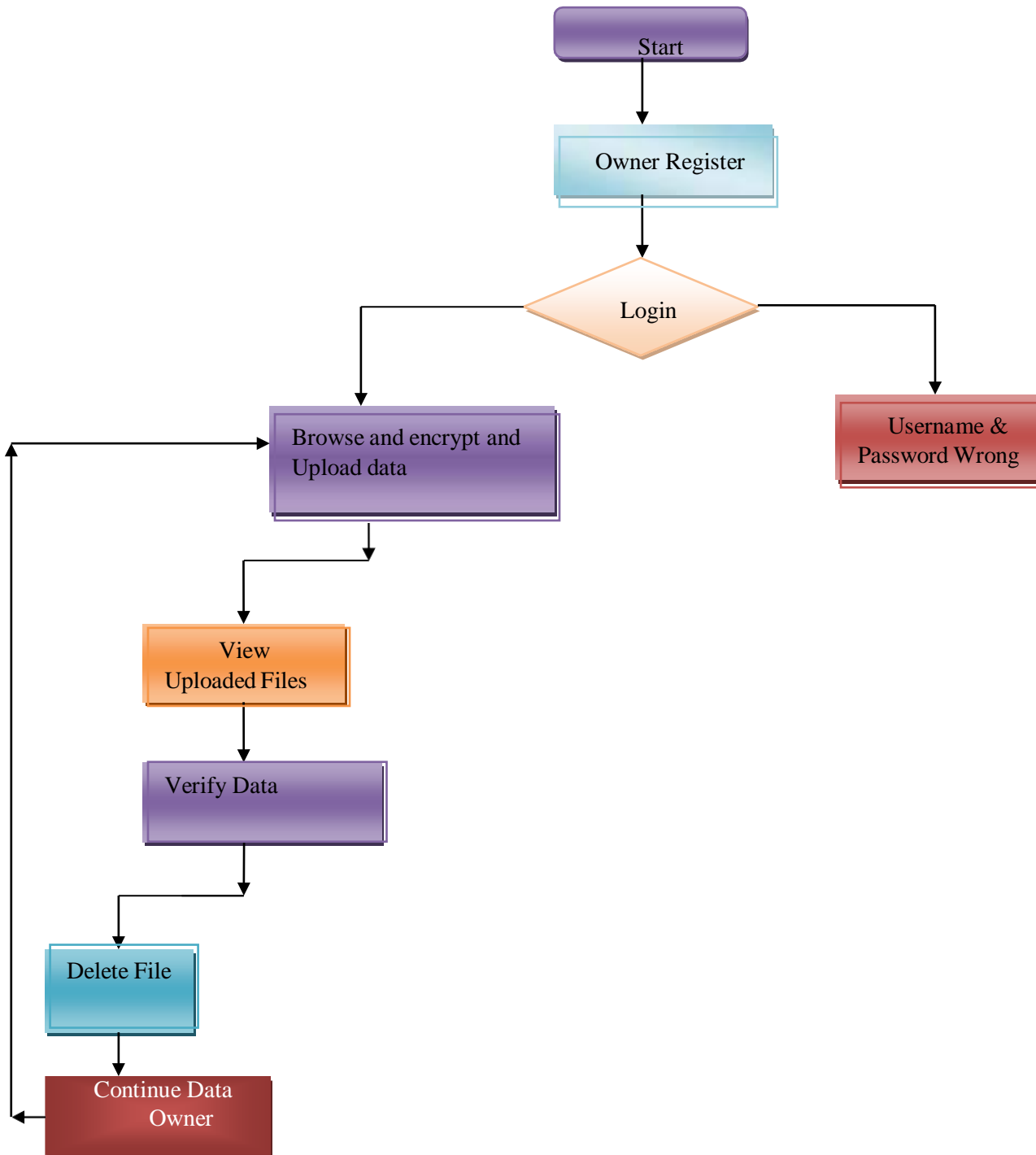
5.2 DATAFLOW DIAGRAM Cloud Server



ACTIVITY DIAGRAM FOR DATA OWNER

- 1) START
- 2) OWNER REGISTRATION
- 3) VIEW UPLOADING FILE
- 4) VERIFY FILE
- 5) DELETE FILE

Dataowner



USER REGISTRATION

START

USER REGISTRATION

LOGIN

SEARCHING

USER NAME PASSWORD

User Registration

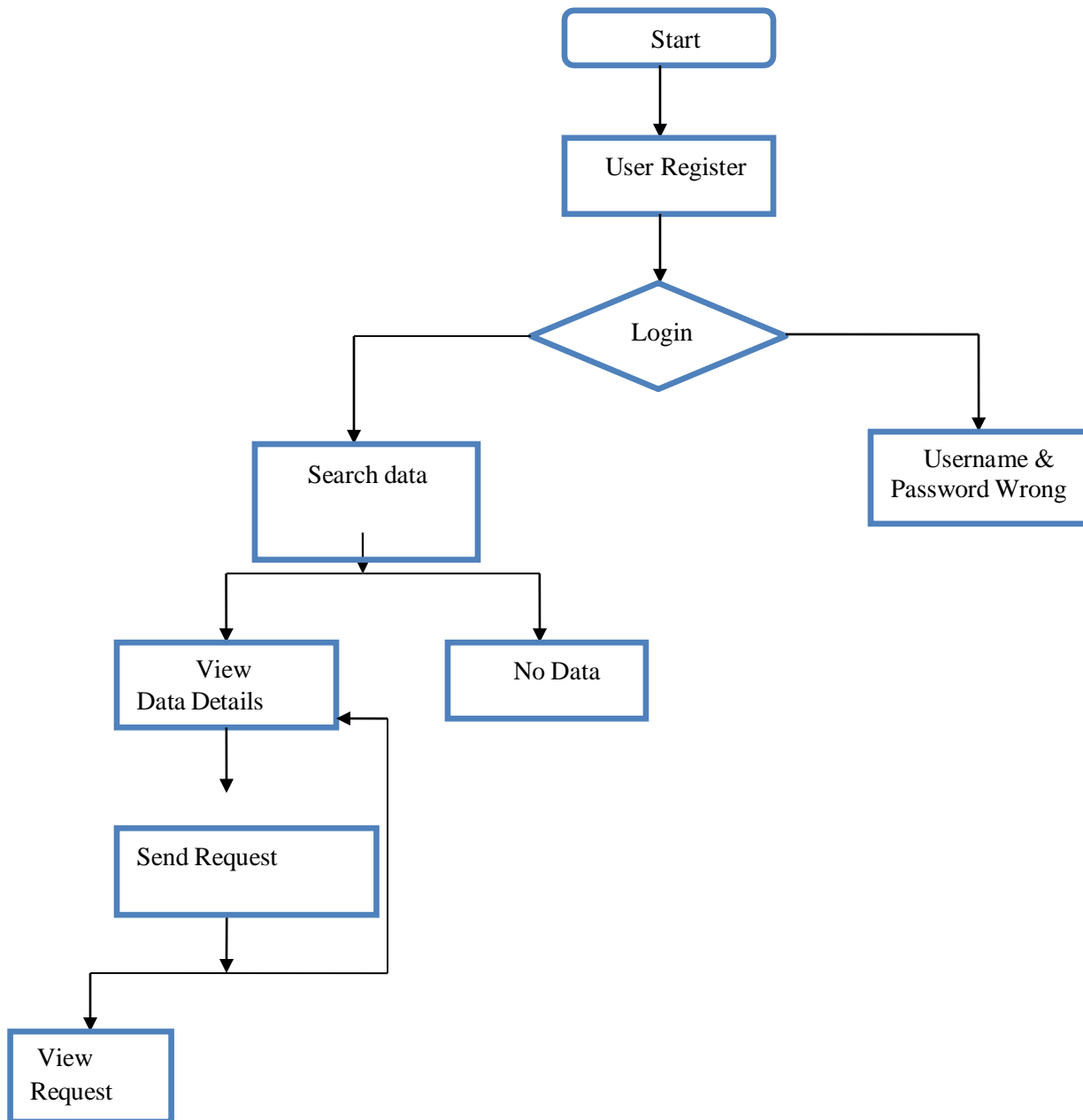


FIG5.2 DATAFLOW DIGRAMS

6.SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

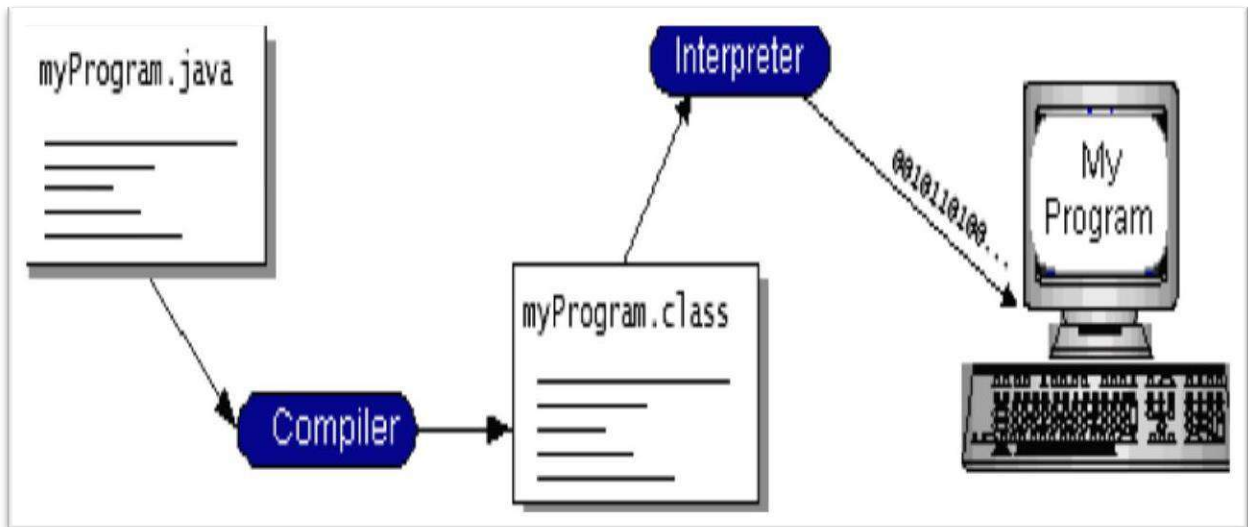
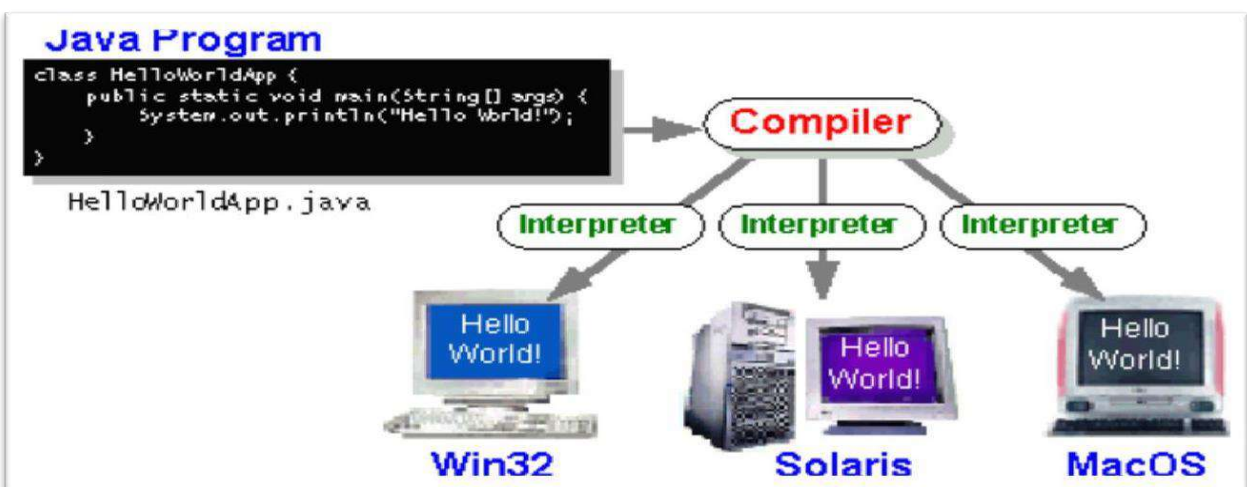


Fig 6.1: Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming



language can run on Windows 2000, a Solaris workstation, or on an iMac.

Fig 6.2: Execution for different platforms

6.2 The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

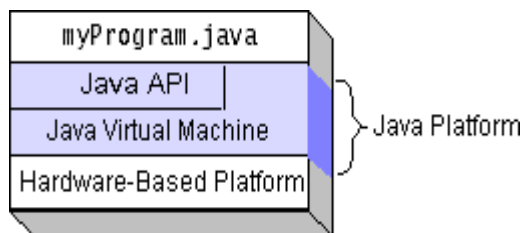


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned

of native code without threatening portability.

6.3 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- The essentials: Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on
- Applets: The set of conventions used by applets.
- Networking: URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- Internationalization: Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed

Lever Secure Deduplicated Cloud Storage With Encrypted Two-Party Interactions

- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
- **Software components:** Known as JavaBeans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

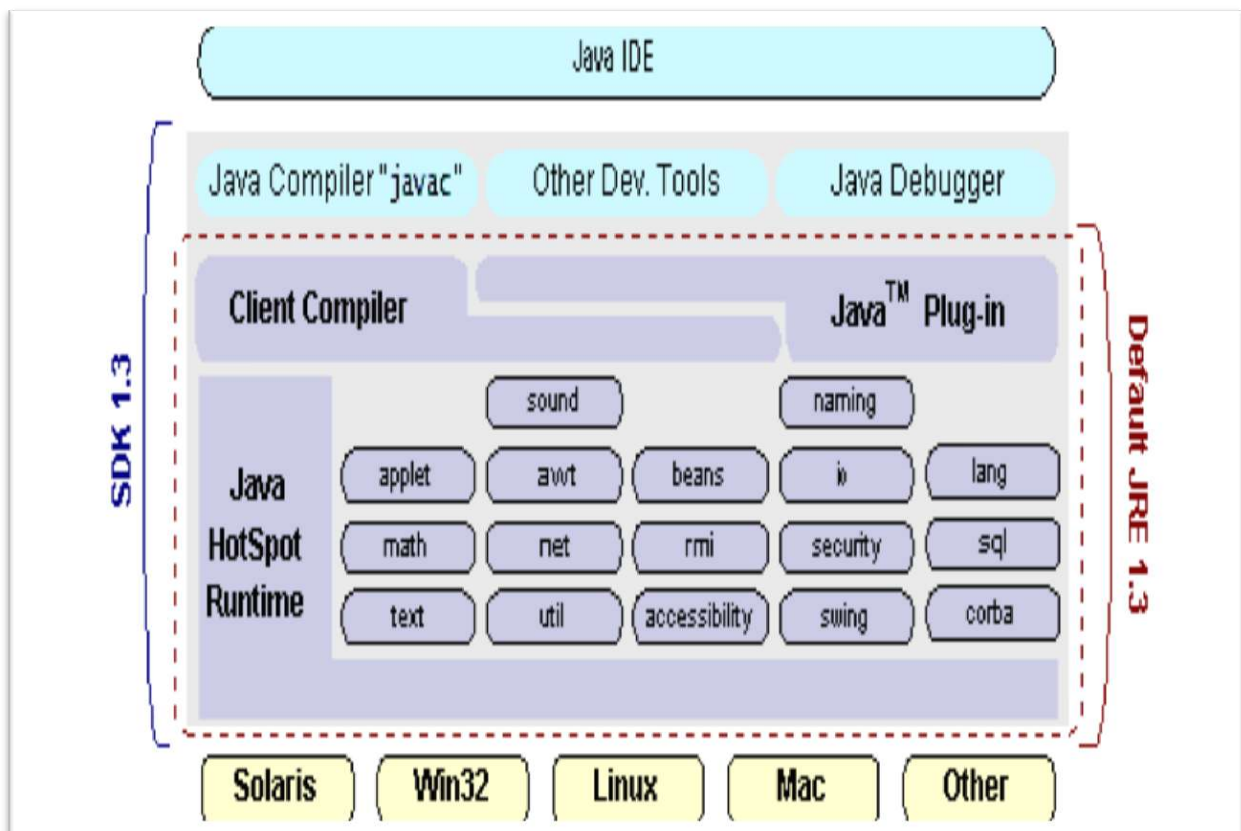


Fig 6.4: Java IDE

6.3. How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

6.4. ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your

ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

6.5. JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in"

database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

6.6. JDB

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC's complexities from the end user.

SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In

an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through to the underlying database driver. This allows the

connectivity module to handle non-standard functionality in a manner that is suitable for its users.

JDBC must be implemental on top of common database interfaces

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

Provide a Java interface that is consistent with the rest of the Java system

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

Use strong, static typing wherever possible

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

Keep the common cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compiler you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is

executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

6.7. SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
> #include
<sys/socket.
h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

6.8. JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swi

formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting somemore.

Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts --
- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

Property Editors

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

6.9.J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the JavaOne Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

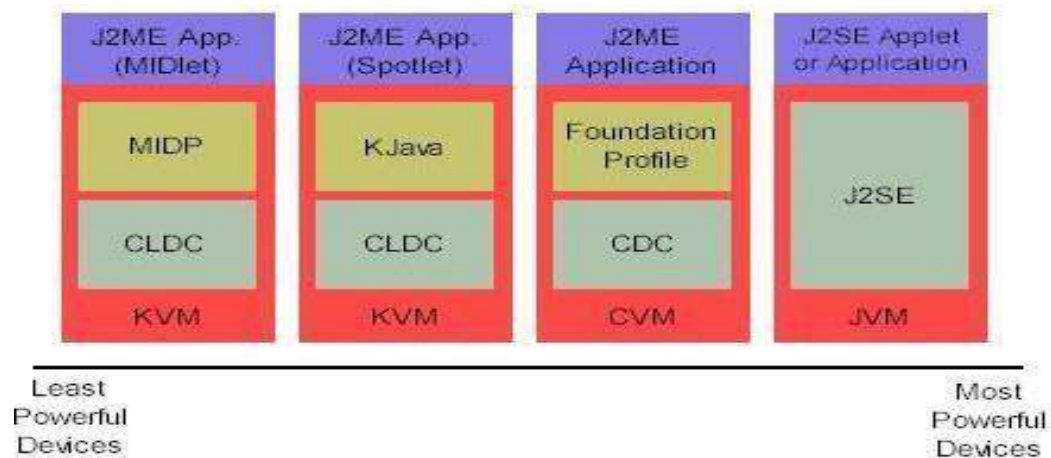


Fig 6.7: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It

also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

Developing J2ME applications

Introduction In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use

lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

Configurations overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

7 SYSTEM REQUIREMENTS

7.1 HARDWARE REQUIREMENTS

- Processor- Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM:4 GB
- Hard Disk: 40 GB.

7.2 SOFTWARE REQUIREMENTS

- Operating System- windows 7 / 8.1 / 10/
- Server: Apache Tomcat
- Database: MYSQL Server 5.0
- Frontend: HTML, CSS, JS
- Backend: JSP

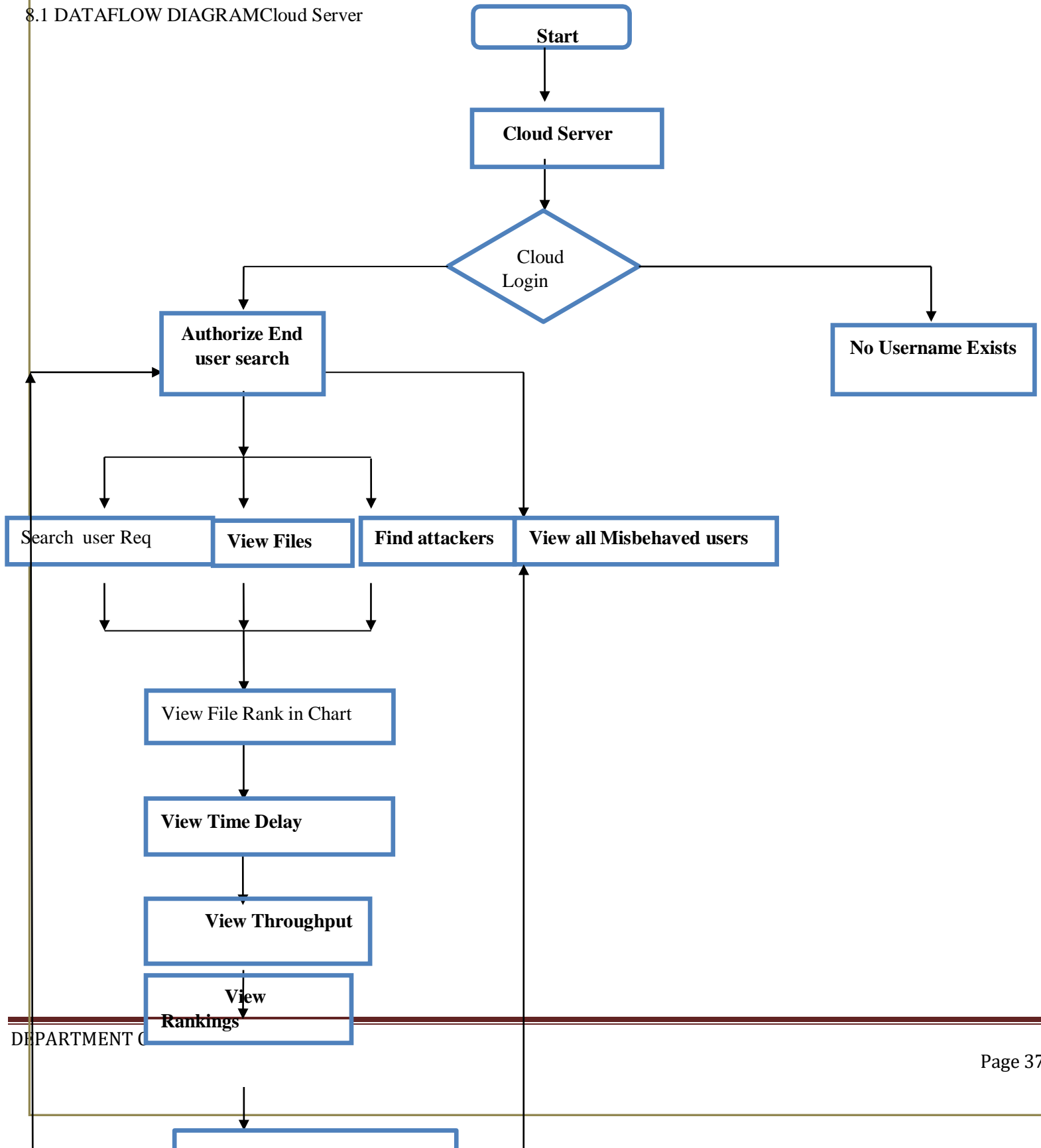
8.SYSTEM DESIGN

8.1 DATAFLOWDIAGRAM:

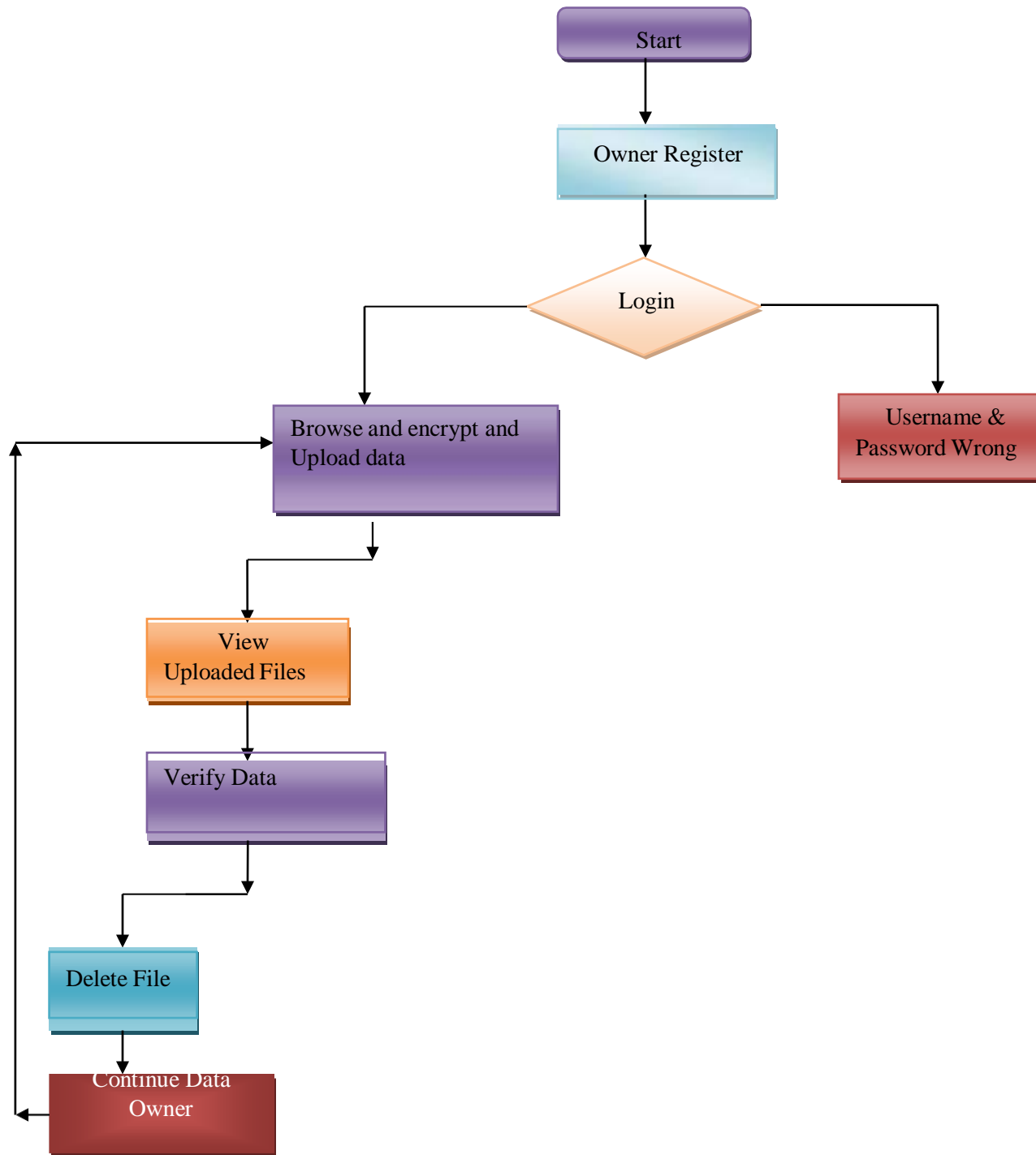
- The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
- The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
- DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
- DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

Lever Secure Deduplicated Cloud Storage With Encrypted Two-Party Interactions

8.1 DATAFLOW DIAGRAM Cloud Server



Dataowner



It shows the USER REGISTRATION FORM

In a flow chart way like this

By using the flow chart

login

searching data

by user name and password

User Registration

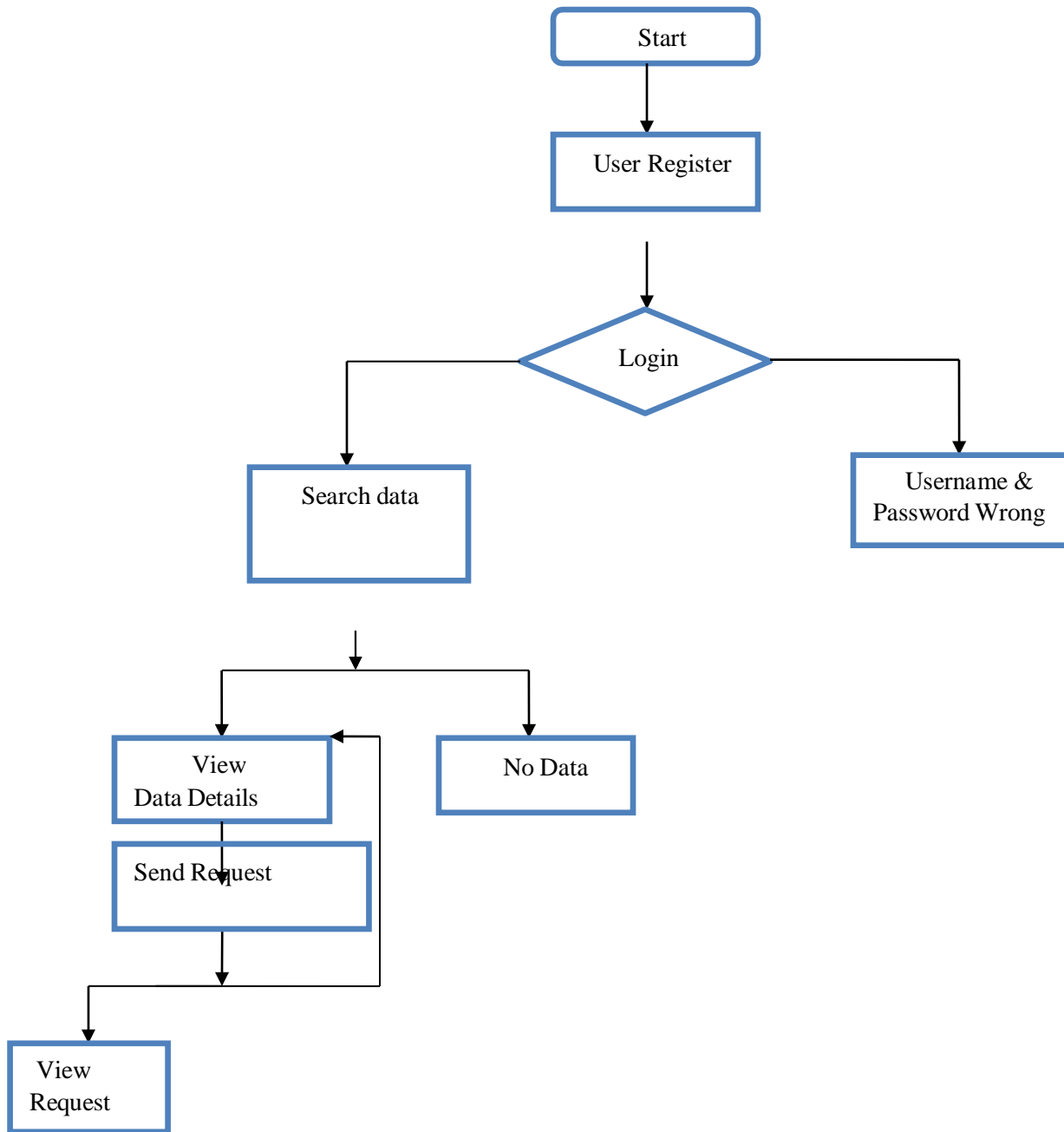


Fig . DATA FLOW CHART

8.2 UML DIAGRAMS

8.2.1. Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

8.2.1.1 Activity Diagram for Data Owner

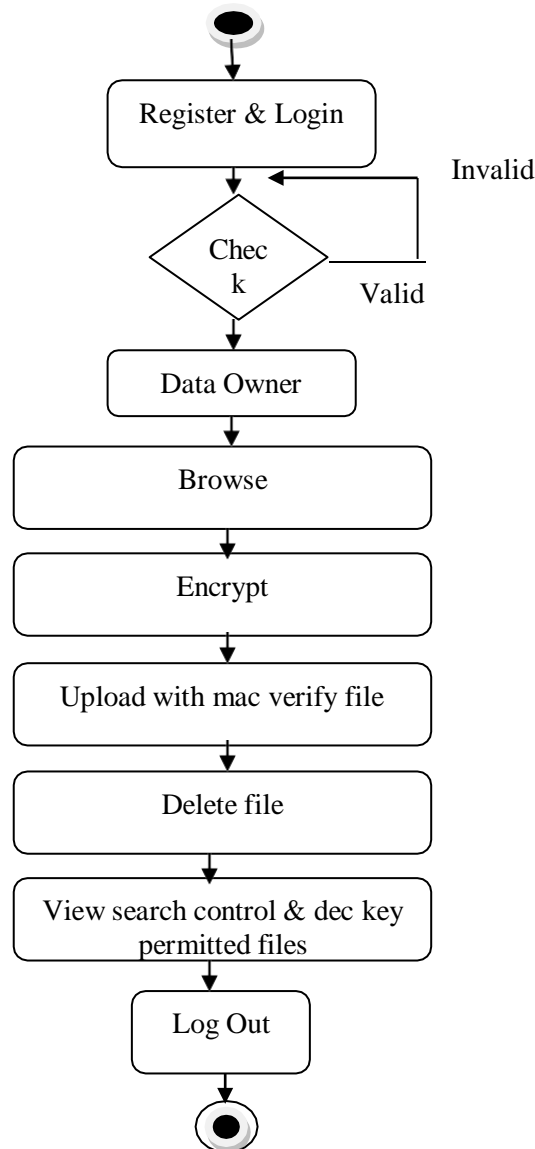


Fig 8.2.1.1 Activity Diagram for Data Owner

8.2.1.2 Activity Diagram for Cloud Server

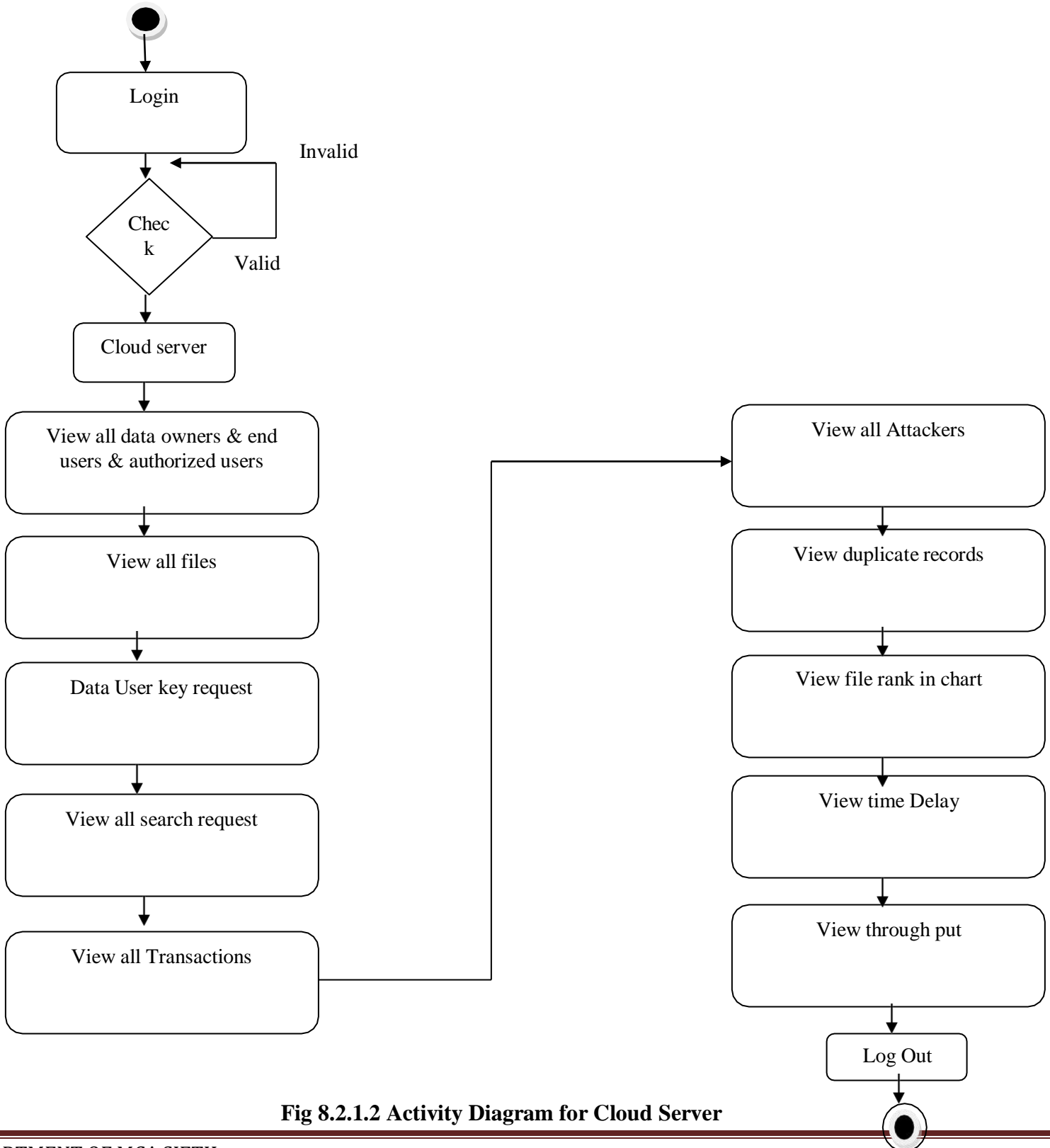


Fig 8.2.1.2 Activity Diagram for Cloud Server

IT SHOWS THR PROCESS OF ACTIVITY WHICH IS DONE IN PROJECT

IN DIFFERENT WAYS

Register and loo[ing

Finally logout like this process

8.2.1.3 Activity Diagram for End User

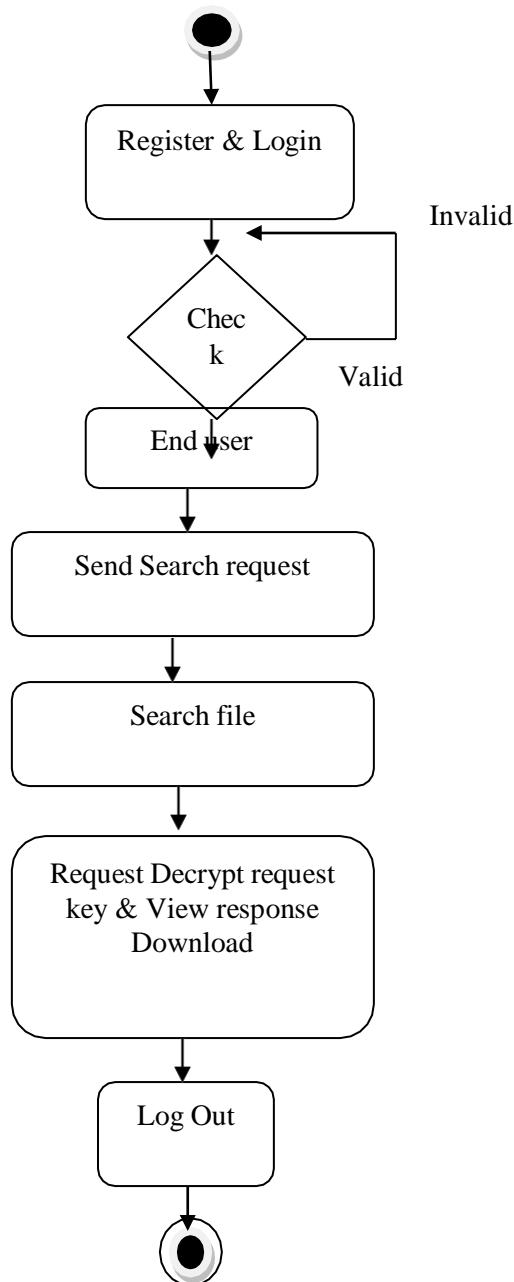


Fig 8.2.1.3 Activity Diagram for End User

8.2.2. Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

8.2.2.1. Use case Diagram for Data Owner

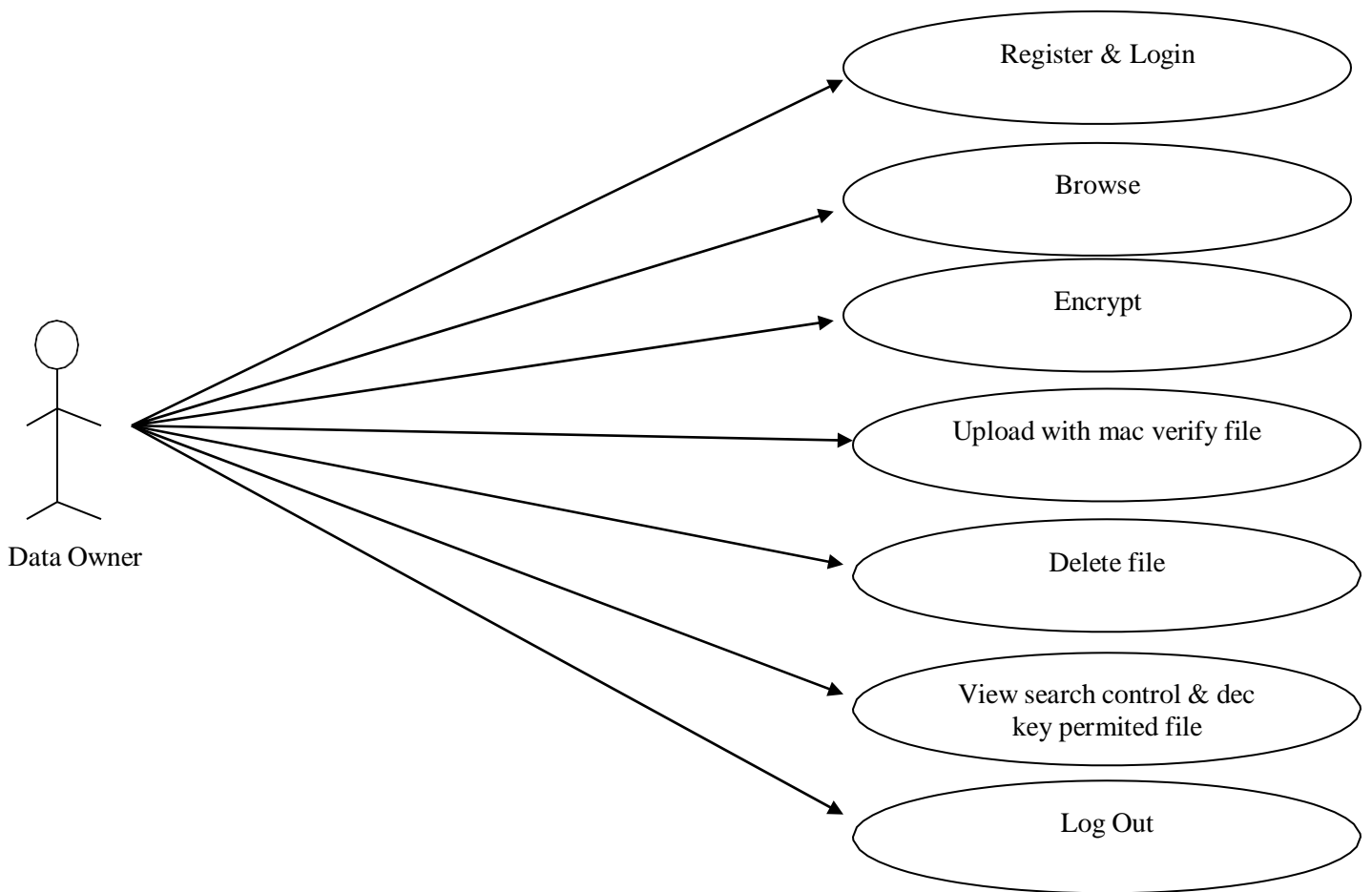


Fig 8.2.2.1 Use case Diagram for Data Owner

8.2.2.2. Use case Diagram for Cloud Server

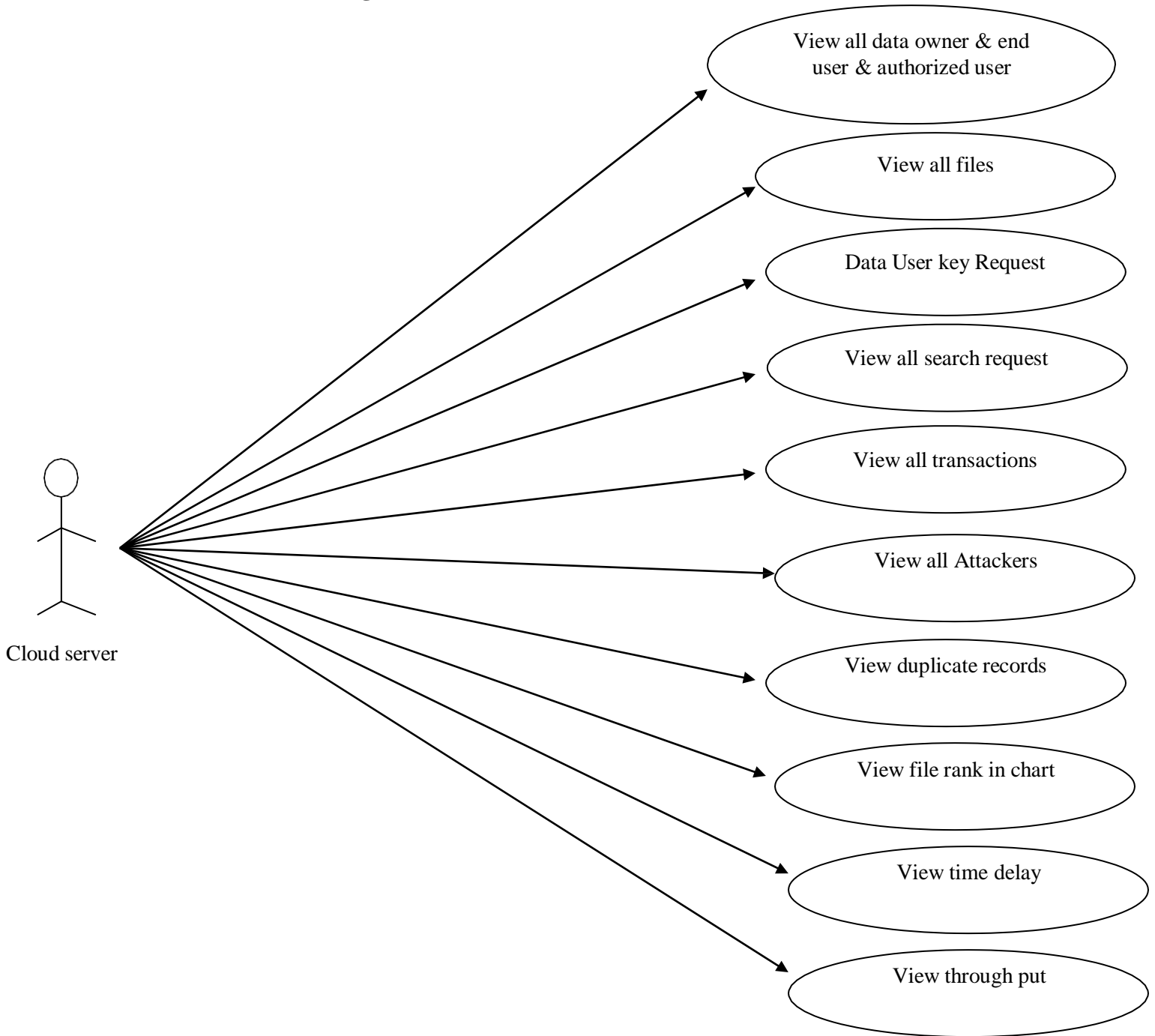


Fig 8.2.2.2 Use case Diagram for Cloud Server

8.2.2.1 USE CASE FOR DATA OWNER

8.2.2.2 USE CASE DIAGRAM FOR CLOUD SERVER

8.2.2.3 USE CASE DIAGRAM FOR END USER

8.2.2.3 Use case Diagram for End User

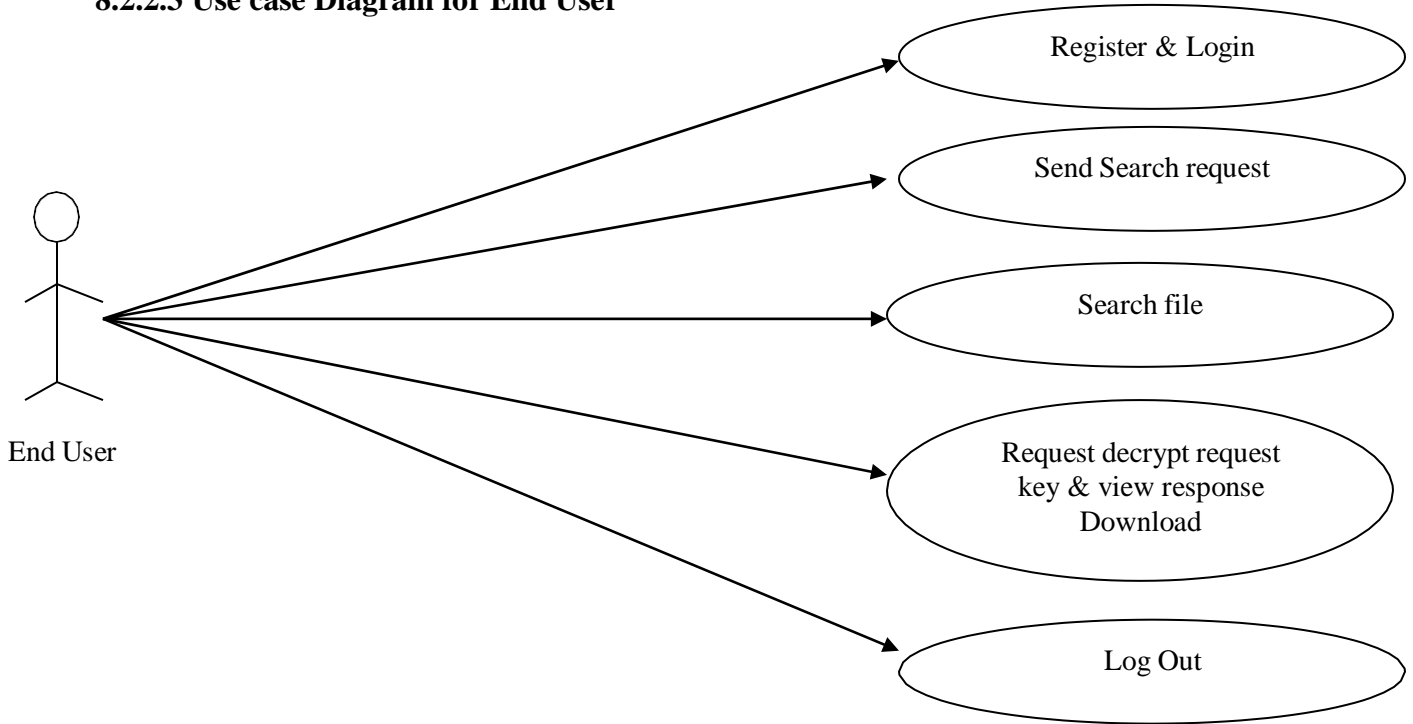


Fig 8.2.2.2 Use case Diagram for End user

8.2.3. Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

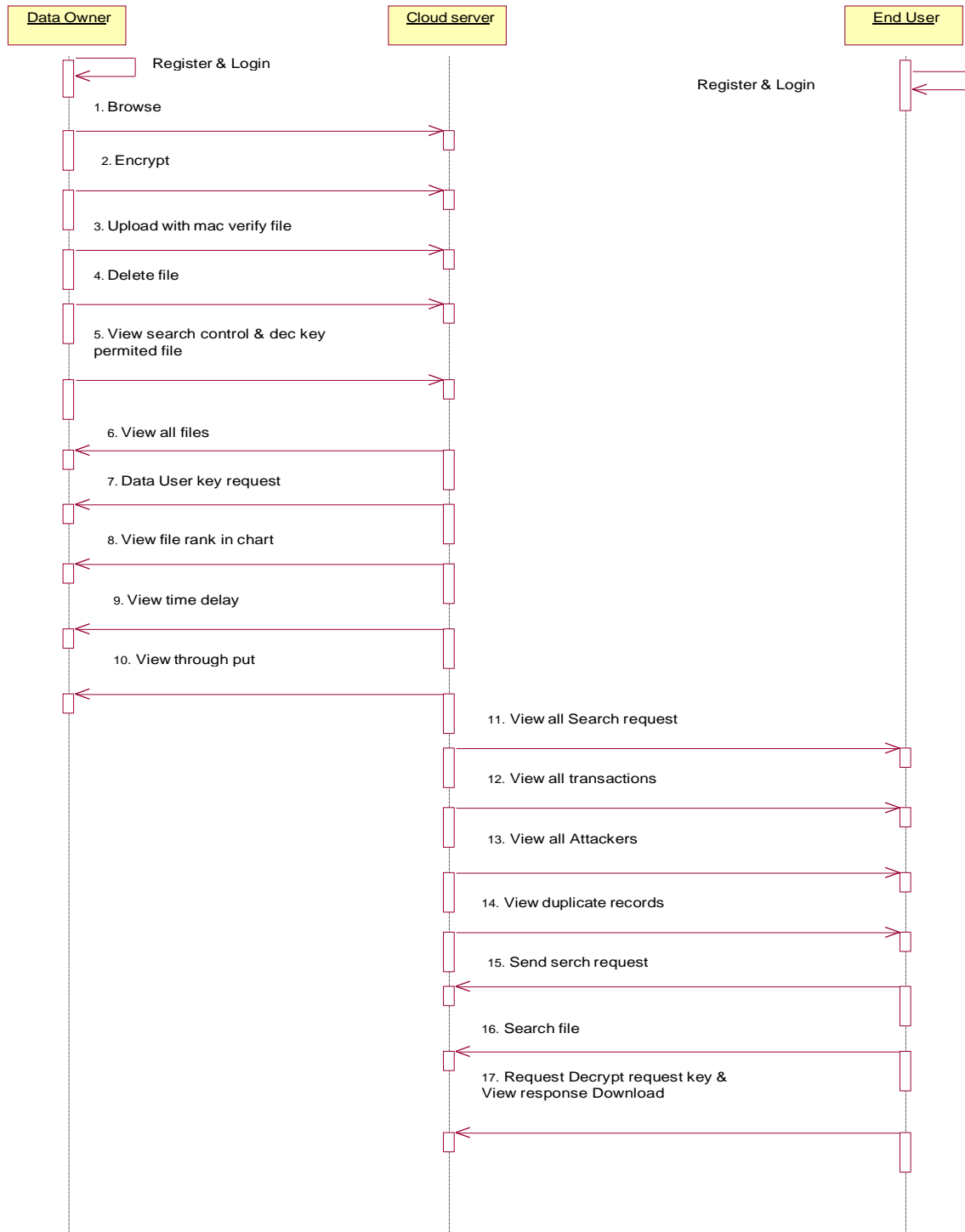


Fig 8.2.3 Sequence Diagram

8.2.4. Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

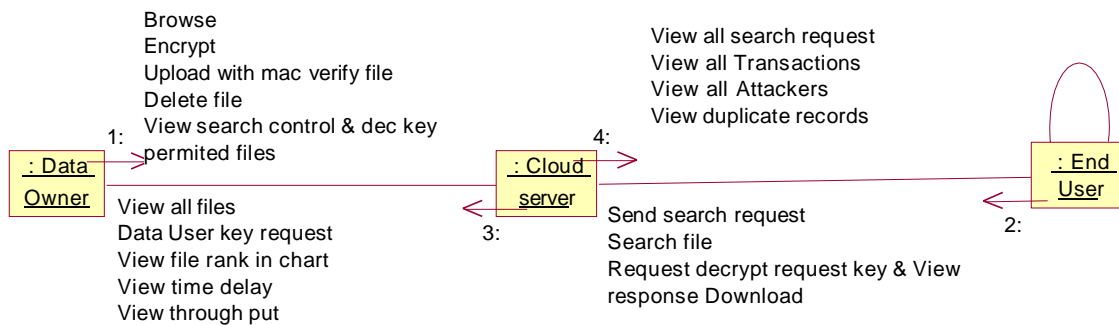


Fig 8.2.4 Collaboration Diagram

8.2.5. Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

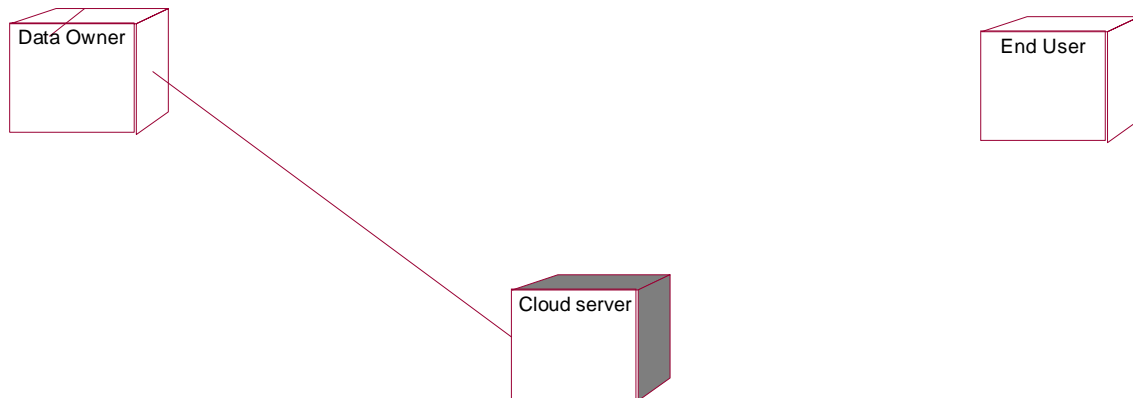


Fig8.2.5 Deployment diagram

8.2.6. Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.

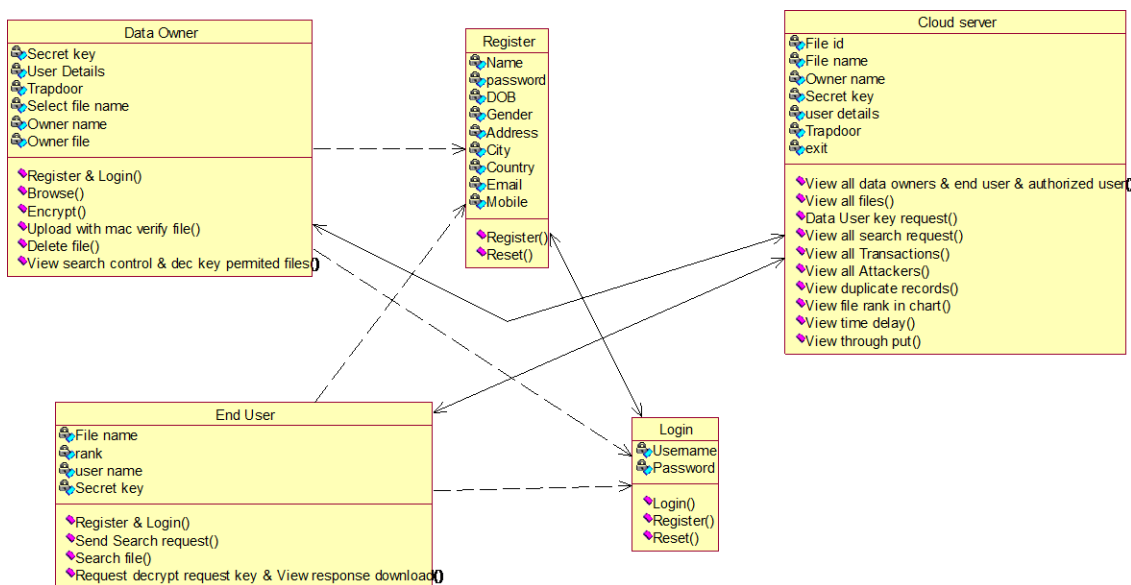


Fig 8.2.6 Class Diagram

8.3. E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.

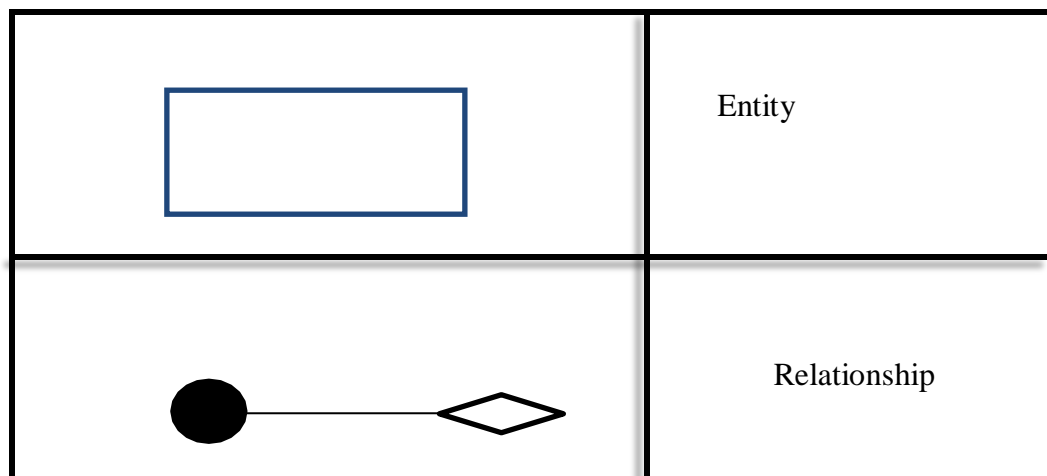


Fig 8.3.1: E-R Notations

9. IMPLEMENTATION

9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed

in such a way that all the data manipulates can be performed.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

9.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

Designing computer output should proceed in an organized, well thoughtout manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.

1. Select methods for presenting information.
2. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
 - Convey information about past activities, current status or projections of the
 - Future.
 - Signal important events, opportunities, problems, or warnings.

- Trigger an action.

9.4 CODING ➤ Confirm an action.

Index.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>HOME PAGE</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style3 {      color: #FF0000;
              font-weight: bold;
              font-style: italic;
}
-->
</style>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="menu_nav">
        <ul>
          <li class="active"><a href="index.html"><span>Home Page</span></a></li>
            <li><a href="CloudDataServer.jsp"><span>Cloud Server </span></a></li>
            <li><a href="DataOwner.jsp"><span>Data Owner </span></a></li>
            <li><a href="EndUser.jsp"><span>Data User </span></a></li>
        </ul>
      </div>
    </div>
  <div class="logo">
    <h1><a href="index.html"></a></h1>
  </div>
  <div class="clr"></div>
  <div class="slider">
    <div id="coin-slider"><a href="#"><div
```

```
class="post_content">
  <p align="justify"><span class="style3">Cloud envisioned Cyber-Physical Systems (CCPS) is a practical technology that relies on the interaction among cyber elements like mobile users to transfer data in cloud computing. In CCPS, cloud storage applies data deduplication techniques aiming to save data storage and bandwidth for real-time services. In this infrastructure, data deduplication eliminates duplicate data to increase the performance of the CCPS application. However, it incurs security threats and privacy risks. For example, the encryption from independent users with different keys is not compatible with data deduplication. In this area, several types of research have been done. Nevertheless, they are suffering from a lack of security, high performance, and applicability. Motivated by this, we propose a message Lock Encryption with neVer-decrypt homomorphic EncRyption (LEVER) protocol between the uploading CCPS user and cloud storage to reconcile the encryption and data deduplication. Interestingly, LEVER is the first brute-force resilient encrypted deduplication with only cryptographic two-party interactions. We perform several numerical analysis of LEVER and confirm that it provides high performance and practicality compared to the literature..</span></p>
```

```
</div>
</div>
</div>
<div class="sidebar">
  <div class="searchform">
    height="271" alt="" /></a> <a href="#"></a> <a href="#"></a></div>

</div>

<div class="clr"></div>

</div>

</div>

<div class="content">

<div class="content\_resize">

<div class="mainbar">

<div class="article">

<h2 align="justify">LEVER Secure Deduplicated Cloud Storage with Encrypted Two party Interactions in Cyber Physical Systems</h2>

<p class="infopost">&nbsp;</p>

<div class="clr"></div>

<div class="img"></div>

<div class="post\_content">

<p align="justify"><span class="style3">Cloud envisioned Cyber-Physical Systems (CCPS) is a practical technology that relies on the interaction among cyber elements like mobile users to transfer data in cloud computing. In CCPS, cloud storage applies data deduplication techniques aiming to save data storage and bandwidth for real-time services. In this infrastructure, data deduplication eliminates duplicate data to increase the performance of the CCPS application. However, it incurs security threats and privacy risks. For example, the encryption from independent users with different keys is not compatible with data deduplication. In this area, several types of research have been done. Nevertheless, they are suffering from a lack of security, high performance, and applicability. Motivated by this, we propose a message Lock Encryption with neVer-decrypt homomorphic EncRyption (LEVER) protocol between the uploading CCPS user and cloud storage to reconcile the encryption and data deduplication. Interestingly, LEVER is the first brute-force resilient encrypted deduplication with only cryptographic two-party interactions. We perform several numerical analysis of LEVER and confirm that it provides high performance and practicality compared to the literature.</span></p>

</div>

</div>

</div>

<div class="sidebar">

<div class="searchform">

<form id="formsearch" name="formsearch" method="post" action="#">

<span>

<input name="editbox\_search" class="editbox\_search" id="editbox\_search" maxlength="80" value="Search our ste:" type="text" />

</span>

<input name="button\_search" src="images/search.gif" class="button\_search" type="image" />

```
<div class="clr"></div>
<div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home

 Cloud Data Server
 Data Owner
 End User

</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **UserMain.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Main</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
```

```
.style2 {color: #0066FF}
.style7 {
 color: #997A68;
 font-family: "Curlz MT";
}
.style11 {color: #FFFF00}
.style3 {color: #FF0000;
 font-weight: bold;
 font-style: italic;
}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">

Upload

Cloud Server

Data Owner
<li class="active">Data User

</div>
<div class="clr"></div>
<div class="slider">
<div id="coin-slider"> </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="content">
<div class="content_resize">
<div class="mainbar">
<div class="article">
<h2>Welcome <%=application.getAttribute("ename") %>
Data User Main </h2>
<p class="infopost"> </p>
<div class="clr"></div>
```

```
<div class="img">
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 Upload

 Cloud Server

 Data Owner
 <li class="active">Data User

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Welcome <%=application.getAttribute("ename") %>
Data User Main </h2>
 <p class="infopost"> </p>
 a
 </div>
 </div>
 </div>
 </div>

```

```
class="fl" /></div>
 <div class="post_content">
 <p align="justify">Cloud envisioned Cyber-Physical Systems (CCPS) is a practical technology that relies on the interaction among cyber elements like mobile users to transfer data in cloud computing. In CCPS, cloud storage applies data deduplication techniques aiming to save data storage and bandwidth for real-time services. In this infrastructure, data deduplication eliminates duplicate data to increase the performance of the CCPS application. However, it incurs security threats and privacy risks. For example, the encryption from independent users with different keys is not compatible with data deduplication. In this area, several types of research have been done. Nevertheless, they are suffering from a lack of security, high performance, and applicability. Motivated by this, we propose a message Lock Encryption with neVer-decrypt homomorphic EncRyption (LEVER) protocol between the uploading CCPS user and cloud storage to reconcile the encryption and data deduplication. Interestingly, LEVER is the first brute-force resilient encrypted deduplication with only cryptographic two-party interactions. We perform several numerical analysis of LEVER and confirm that it provides high performance and practicality compared to the literature.</p>
 </div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star style2">Data User Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 View My Profile
 Send Search
Request
 Search File
 View Cloud Files
 Request Decryption Key
 View Responses

 </div>
</div>
```

```
class="fl" /></div>
 <div class="post_content">
 <p align="justify">Cloud envisioned Cyber-Physical Systems (CCPS) is a practical technology that relies on the interaction among cyber elements like mobile users to transfer data in cloud computing. In CCPS, cloud storage applies data deduplication techniques aiming to save data storage and bandwidth for real-time services. In this infrastructure, data deduplication eliminates duplicate data to increase the performance of the CCPS application. However, it incurs security threats and privacy risks. For example, the encryption from independent users with different keys is not compatible with data deduplication. In this area, several types of research have been done. Nevertheless, they are suffering from a lack of security, high performance, and applicability. Motivated by this, we propose a message Lock Encryption with neVer-decrypt homomorphic EncRyption (LEVER) protocol between the uploading CCPS user and cloud storage to reconcile the encryption and data deduplication. Interestingly, LEVER is the first brute-force resilient encrypted deduplication with only cryptographic two-party interactions. We perform several numerical analysis of LEVER and confirm that it provides high performance and practicality compared to the literature.</p>
 </div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star style2">Data User Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 View My Profile
 Send Search
Request
 Search File
 View Cloud Files
 Request Decryption Key

 </div>
</div>
```



```
 Download
 Log Out

</div>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **UserAuthInt.jsp**

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
 pageEncoding="ISO-8859-1"% >
 <% @ page isThreadSafe="false" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Refresh" content="5; URL=RemoteUserMain.jsp">
<title>Authenticating</title>
</head>
<body>
<p>Loading Please Wait...</p>
```

```
</body>
</html>
```

## **Userauth.jsp**

```
<title>Authentication Page</title>
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
```

```
 pageEncoding="ISO-8859-1"%>
<% @page import="java.util.*"%>
<% @ include file="connect.jsp"%>

<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star style2">Data User Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 View My Profile
 Send Search
Request

 </div>
</div>
```

```
<% @page
 import="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.
spec.SecretKeySpec,org.bouncycastle.util.encoders.Base64"%>
<% @ page
 import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io
.InputStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDi
gest,java.io.BufferedInputStream"%>

<%
 String name = request.getParameter("userid");
 String pass = request.getParameter("pass");
 String stat="Accepted";
 String status="Authorized";

 try {
 application.setAttribute("ename", name);
 String sql = "SELECT * FROM user where name='" + name
 + "' and pass='" + pass + "' and status='"+status+"' ";
 Statement stmt = connection.createStatement();
 ResultSet rs = stmt.executeQuery(sql);
 if (rs.next()) {
 int i = rs.getInt(1);

 response.sendRedirect("UserMain.jsp");

 } else {
 response.sendRedirect("U_Wrong_Login.jsp");
 }
 }
}
```

```
 } catch (Exception e) {
 out.print(e);
 e.printStackTrace();
 }
 }
%>
Register.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Register</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 {color: #FFFF00}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">

Home Page
Cloud Data Server

<li class="active">Data Owner
Data User

</div>
<div class="clr"></div>
<div class="slider">
<div id="coin-slider"> </div>
</div>
<div class="clr"></div>
```

```
</div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Data Owner Register</h2>
 <p class="infopost"></p>
 <div class="clr"></div>
 <form action="insertdata.jsp" method="post" id="" enctype="multipart/form-data">
 <table border="0" width="600">
 <tr>
 <td bgcolor="#FF0000">
 <label for="name">Name (required)</label>
 </td>
 </tr>
 </table>
 </form>
 </div>
 </div>
 </div>
</div>
```

```
<tr>
<td bgcolor="#FF0000">
 <label for="Pincode">Pincode</label>
</td>
<td><input id="pin" name="pin" class="text"/></td>
</tr>

<tr>
<td bgcolor="#FF0000">
 <label for="location">Location</label>
</td>
<td><input id="loc" name="loc" class="text"/></td>
</tr>

<tr>
<td bgcolor="#FF0000">
 <label for="Pic">Select Profile Pic(required) </label>
</td>
<td><input type="file" id="pic" name="pic" class="text"/></td>
</tr>

<tr>
<td></td>
<td><input type="submit" name="imageField" id="imageField" class="LOGIN"
/></td>
</tr>
</table>
</form></p>
<div class="clr"></div>
</div>

<div class="sidebar">
<div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
</div>
```

```
<tr>
<td bgcolor="#FF0000">
 <label for="Pincode">Pincode</label>
</td>
<td><input id="pin" name="pin" class="text"/></td>
</tr>

<tr>
<td bgcolor="#FF0000">
 <label for="location">Location</label>
</td>
<td><input id="loc" name="loc" class="text"/></td>
</tr>

<tr>
<td bgcolor="#FF0000">
 <label for="Pic">Select Profile Pic(required) </label>
</td>
<td><input type="file" id="pic" name="pic" class="text"/></td>
</tr>

<tr>
<td></td>
<td><input type="submit" name="imageField" id="imageField" class="LOGIN"
/></td>
</tr>
</table>
</form></p>
<div class="clr"></div>
</div>

<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">

<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

</div>
```

# Lever Secure Deduplicated Cloud Storage With Encrypted Two-Party Interactions

---

```
<input name="button_search" src="images/search.gif" class="button_search" type="image" />
```

```
</form>
```

```
<tr>
<td bgcolor="#FF0000">
 <label for="Pincode">Pincode</label>
</td>
<td><input id="pin" name="pin" class="text"/></td>
</tr>
```

```
<tr>
<td bgcolor="#FF0000">
 <label for="location">Location</label>
</td>
<td><input id="loc" name="loc" class="text"/></td>
</tr>
```

```
<tr>
<td bgcolor="#FF0000">
 <label for="Pic">Select Profile Pic(required) </label>
</td>
<td><input type="file" id="pic" name="pic" class="text"/></td>
</tr>
```

```
<tr>
<td></td>
<td><input type="submit" name="imageField" id="imageField" class="LOGIN" /></td>
</tr>
```

```
</tr>
</table>
</form></p>
<div class="clr"></div>
</div>
```



```
<style type="text/css">
<!--
.style2 {color: #0066FF}
.style4 {color: #91C0D0}
.style5 {color: #CCFF99}
.style6 {color: #FF0000}
.style3 { color: #FF0000;
 font-weight: bold;
 font-style: italic;
 }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 Home Page
 Cloud Server
 <li class="active">Data Owner
 Data User

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Welcome <%=application.getAttribute("onname")
%> Data Owner Main </h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 </div>
 </div>
 </div>
 </div>
</div>
</body>
</html>
```

# Lever Secure Deduplicated Cloud Storage With Encrypted Two-Party Interactions

---

```
<div class="img"></div>
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 Home Page
 Cloud Server
 <li class="active">Data Owner
 Data User

 </div>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>

```

```
<div class="post_content">
 <p align="justify">Cloud envisioned Cyber-Physical Systems (CCPS) is a practical technology that relies on the interaction among cyber elements like mobile users to transfer data in cloud computing. In CCPS, cloud storage applies data deduplication techniques aiming to save data storage and bandwidth for real-time services. In this infrastructure, data deduplication eliminates duplicate data to increase the performance of the CCPS application. However, it incurs security threats and privacy risks. For example, the encryption from independent users with different keys is not compatible with data deduplication. In this area, several types of research have been done. Nevertheless, they are suffering from a lack of security, high performance, and applicability. Motivated by this, we propose a message Lock Encryption with neVer-decrypt homomorphic EncRyption (LEVER) protocol between the uploading CCPS user and cloud storage to reconcile the encryption and data deduplication. Interestingly, LEVER is the first brute-force resilient encrypted deduplication with only cryptographic two-party interactions. We perform several numerical analysis of LEVER and confirm that it provides high performance and practicality compared to the literature.</p>
</div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star style2">Data Owner Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu style6">
 View My Profile

 Upload
 View My Files
 View Search Control & Dec Key Permitted
Files
 Verify
 Delete File
 Log Out

 </div>
</div>
```

```

 </div></div>
 <div class="clr"></div>
</div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **DataOwner.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Data Owner</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<scr
```

```
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
<div class="fbg_resize">
<div class="clr"></div>
</div>
</div>
<div class="footer">
<div class="footer_resize">
<div style="clear:both;"></div>
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **DataOwner.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Data Owner</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { color: #FF0000}
.style3 { color: #FF0000; font-weight: bold; }
.style5 { color: #FF0000; font-weight: bold; font-style: italic; }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
```

```
<div class="menu_nav">

 Home Page

 Cloud Server

 <li class="active">Data Owner
 Data User

</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Data Owner Login</h2>
 <p class="infopost"></p>
 <div class="clr"></div>
 <form action="ownerauth.jsp" method="post" id="leavereply">

 <label for="name">Name (required)</label>

 <input id="name" name="userid" class="text" />

 <label for="email">Password (required)</label>

 <label for="email"></label>
 <input type="password" id="pass" name="pass" class="text" />

 </form>
 </div>
 </div>
 </div>
</div>
```

```


Register
 <input type="submit" name="imageField" id="imageField" class="LOGIN" />

<li class="active">Data Owner
Data User

</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
</div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Data Owner Login</h2>
 <p class="infopost"></p>
 <div class="clr"></div>
 <form action="ownerauth.jsp" method="post" id="leavereply">
```

```

</form>
<div class="clr"></div>
</div>

</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home

 Cloud Data Server

 Data Owner
 End User

 </div>
 </div>
 <div class="clr"></div>
</div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
```



```
</div>
</div>
<div align=center></div>

 </form>
 <div class="clr"></div>
</div>

</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home

 Cloud Data Server

 Data Owner
 End User
```

<

```
</body>
</html>
EndUser.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Data User</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { color: #FF0000 }
.style3 { color: #FF0000; font-weight: bold; }
.style5 { color: #FF0000; font-weight: bold; font-style: italic; }
.style6 { font-weight: bold }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">

Home Page
Cloud Server
Data Owner
<li class="active">Data User

</div>
<div class="clr"></div>
<div class="slider">
<div id="coin-slider"> </div>
</div>
<div class="clr"></div>.style1 {color: #FF0000}
.style3 {color: #FF0000; font-weight: bold; }
.style5 {color: #FF0000; font-weight: bold; font-style: italic; }
.style6 {font-weight: bold}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">

Home Page

Cloud Server
Data Owner
<li class="active">Data User

</div>
</div>
>
```

```
</div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>End User Login</h2>
 <p class="infopost"></p>
 <div class="clr"></div>
 <form action="userauth.jsp" method="post" id="leavereply">

 <label for="name">Name (required)</label>

 <input id="userid" name="userid" class="text" />

 <label for="email">Password (required)</label>

 <label for="email"></label>
 <input type="password" id="pass" name="pass" class="text" />

 Register
 <input type="submit" name="imageField" id="imageField" class="LOGIN" />

 </form>
 <div class="clr"></div>
 </div>

 </div>
 <div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
 maxlength="80" value="Search our ste:" type="text" />

 </form>
 </div>
 </div>
 </div>
</div>
```

```
<input name="button_search" src="images/search.gif" class="button_search"
type="image" />
```

```
</div>
<div class="clr"></div>
<div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu style6">
 Home

 Cloud Data Server

 Data Owner
 End User

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **Images.jsp**

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"% >
<% @ page import="java.sql.*,java.io.*,java.util.*" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
```

```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<%
int id = Integer.parseInt(request.getParameter("imgid"));

 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu style6">
 Home

 Cloud Data Server

 Data Owner
 End User

 </div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
```

<d

```
try{
 Class.forName("com.mysql.jdbc.Driver").newInstance();
 Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/LEVER","root","root");
 Statement st=con.createStatement();
 String strQuery = "select imagess from owner where id="+id ;
 // String strQuery = "select imagew from image where id="+id ORDER BY ";
 ResultSet rs = st.executeQuery(strQuery);

 String imgLen="";
 if(rs.next()){
 imgLen = rs.getString(1);
 }
 rs = st.executeQuery(strQuery);
 if(rs.next()){
 int len = imgLen.length();
 byte [] rb = new byte[len];
 InputStream readImg = rs.getBinaryStream(1);
 int index=readImg.read(rb, 0, len);
 st.close();
 response.reset();
 response.getOutputStream().write(rb,0,len);
 response.getOutputStream().flush();
 }
}
catch (Exception e){
 e.printStackTrace();
}
%>
```

</body>

</html>

## **CloudDataServerMain.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
```

```
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```

```
<title>Cloud Server Main</title>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
<link href="css/style.css" rel="stylesheet" type="text/css" />
```

```
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
```

```
<script type="text/javascript" src="js/cufon-yui.js"></script>
```

```
<script type="text/javascript" src="js/cufon-aller.js"></script>
```

```
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 {color: #DEFC60}
.style2 {color: #0066FF}
.style3 {
 color: #FF0000;
 font-weight: bold;
 font-style: italic;
}
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 Home Page
 <li class="active">Cloud Data Server

 Data Owner
 End User

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Welcome Cloud Data Server Main </h2>
 <p class="infopost"> </p>
 </div>
 </div>
 </div>
 </div>
</div>
</body>
</html>
```



```
<div class="clr"></div>
<div class="img"></div></style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 Home Page
 <li class="active">Cloud Data Server

 Data Owner
 End User

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
</div>
```

```
<div class="post_content">
 <p align="justify" class="style3">Cloud envisioned Cyber-Physical Systems (CCPS) is a practical technology that relies on the interaction among cyber elements like mobile users to transfer data in cloud computing. In CCPS, cloud storage applies data deduplication techniques aiming to save data storage and bandwidth for real-time services. In this infrastructure, data deduplication eliminates duplicate data to increase the performance of the CCPS application. However, it incurs security threats and privacy risks. For example, the encryption from independent users with different keys is not compatible with data deduplication. In this area, several types of research have been done. Nevertheless, they are suffering from a lack of security, high performance, and applicability. Motivated by this, we propose a message Lock Encryption with neVer-decrypt homomorphic EncRyption (LEVER) protocol between the uploading CCPS user and cloud storage to reconcile the encryption and data deduplication. Interestingly, LEVER is the first brute-force resilient encrypted deduplication with only cryptographic two-party interactions. We perform several numerical analysis of LEVER and confirm that it provides high performance and practicality compared to the literature..</p>
</div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star style2">Data Server Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
```

```
 View Owners &
Authorize
 View Users &
Authorize
 View Cloud Server Files
 View Data User Key
Request
 View Search
```

```
Request
 View Transactions
<<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star style2">Data Server Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 View Owners &
Authorize
 View Users &
Authorize
 View Cloud Server Files
 View Data User Key
Request
 <div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star style2">Data Server Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 View Owners &
Authorize
 View Users &
```

```
 Log Out

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **CloudDataServer.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Cloud Server</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
```

```
.style1 {color: #FF0000}
.style3 {color: #FF0000; font-weight: bold; }
.style5 {color: #FF0000; font-weight: bold; font-style: italic; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
```

```
<div class="header_resize">
 <div class="menu_nav">

 Home Page
 <li class="active">Cloud Server

 Data Owner
 End User

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Cloud Server Login</h2>
 <p class="infopost"></p>
 <div class="clr"></div>
 <form action="cdataauth.jsp" method="post" id="leavereply">

 <li class="style5">
 <label for="name">Name (required)</label>
 <input id="name" name="userid" class="text" />

<label for="email">Password (required)</label>.style1 {color: #FF0000}
.style3 {color: #FF0000; font-weight: bold; }
.style5 {color: #FF0000; font-weight: bold; font-style: italic; }
-->


```

```
<div class="menu_nav">

 Home Page

 <li class="active">Cloud Server

 Data Owner
 End User

</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
```

```

<label for="email"></label>
<input type="password" id="pass" name="pass" class="text" />

 <input type="submit" name="imageField" id="imageField" class="LOGIN" />

</form>
<div class="clr"></div>
</div>

</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home

 Cloud Data Server
 Data Owner
 End User

 </div>
</div>
<div class="clr"></div>
</div>
</div>
```

```
<div class="fbg">
 <div class="fbg_resize">
 <label for="email"></label>
 <input type="password" id="pass" name="pass" class="text" />

 <input type="submit" name="imageField" id="imageField" class="LOGIN" />

</form>
<div class="clr"></div>
</div>

<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 </div>
</div>
```



```
<div class="clr"></div>
</div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **Authorityauth.jsp**

```
<title>Authentication Page</title>
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
 pageEncoding="ISO-8859-1"% >
<% @page import="java.util.*"% >
<% @ include file="connect.jsp"% >
<% @page
 import="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.
spec.SecretKeySpec,org.bouncycastle.util.encoders.Base64"% >
<% @ page
 import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io
.InputStream,java.io.FileInputStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDi
gest,java.io.BufferedInputStream"% >
<% @ page
 import="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.cr
ypto.Cipher"% >
<% @page
 import="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,jav
a.io.FileOutputStream,java.io.PrintStream"% >

<%
 String name = request.getParameter("userid");
 String pass = request.getParameter("pass");

 try {
 %>
 <h2>On sec</h2>
 <%
```

```
String sql = "SELECT * FROM onsec_authority where username=" + name
```

```
<h2>On sectttt <%=sql %></h2>
<%

ResultSet rs = stmt.executeQuery(sql);
String utype = "";
out.print("aaa");
SimpleDateFormat sdf=new SimpleDateFormat("dd/MM/yyyy");
SimpleDateFormat sdf1=new SimpleDateFormat("HH:mm:ss");
Date d=new Date();
Date d1=new Date();

String dt1=sdf.format(d);
String dt2=sdf1.format(d1);

String dt=dt1+" "+dt2;
application.setAttribute("LinA",dt);
if (rs.next()) {

 stmt.executeUpdate("INSERT INTO onsec_aalog (name,login)
value(""+name+", ""+dt+"");

 response.sendRedirect("AttributeAMain.jsp");

 } else {
 response.sendRedirect("wronglogin.html");
 }
} catch(Exception e){
 e.printStackTrace();
}

%>
```

## **Attack.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Attack</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
```

```
ResultSet rs = stmt.executeQuery(sql);
String utype = "";
out.print("aaa");
SimpleDateFormat sdf=new SimpleDateFormat("dd/MM/yyyy");
SimpleDateFormat sdf1=new SimpleDateFormat("HH:mm:ss");
Date d=new Date();
Date d1=new Date();

String dt1=sdf.format(d);
String dt2=sdf1.format(d1);

String dt=dt1+" "+dt2;
application.setAttribute("LinA",dt);
if (rs.next()) {

 stmt.executeUpdate("INSERT INTO onsec_aalog (name,login)
value(""+name+"", ""+dt+"")");

 response.sendRedirect("AttributeAMain.jsp");

ResultSet rs = stmt.executeQuery(sql);
String utype = "";
out.print("aaa");
SimpleDateFormat sdf=new SimpleDateFormat("dd/MM/yyyy");
SimpleDateFormat sdf1=new SimpleDateFormat("HH:mm:ss");
Date d=new Date();
Date d1=new Date();

String dt1=sdf.format(d);
String dt2=sdf1.format(d1);

String dt=dt1+" "+dt2;
application.setAttribute("LinA",dt);
if (rs.next()) {

 stmt.executeUpdate("INSERT INTO onsec_aalog (name,login)
value(""+name+"", ""+dt+"")");

 response.sendRedirect("AttributeAMain.jsp");

<script type="text/javascript" src="js/script.js"></script
```

```
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style7 {color: #997A68}
.style8 {color: #FF0000}
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 Cloud Server
 Data Owner
 <li class="active">Data User

 </div>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Attack Files</h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 </div>
 </div>
 </div>
</div>
String a=(String)application.getAttribute("a");
String fn=(String)application.getAttribute("fname");
String fname = request.getParameter("fname");
```

```
<script type="text/javascript" src="js/coin-slider.min.js"></script>
```

```
<style type="text/css">
```

```
<!--
```

```
.style7 { color: #997A68 }
```

```
.style8 { color: #FF0000 }
```

```
-->
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div class="main">
```

```
<div class="header">
```

```
<div class="header_resize">
```

```
<div class="menu_nav">
```

```

```

```
Cloud Server
```

```
Data Owner
```

```
<li class="active">Data User
```

```

```

```
</div>
```

```
<div class="clr"></div>
```

```
<div class="slider">
```

```
<div id="coin-slider">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **CDS\_ViewFiles.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @page import="org.bouncycastle.util.encoders.Base64" %>
<% @page import="java.sql.Statement"%>
<% @page import="java.sql.ResultSet"%>
<% @include file="connect.jsp" %>
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
</div>
 <div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
 </div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **CDS\_ViewFiles.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @page import="org.bouncycastle.util.encoders.Base64" %>
<% @page import="java.sql.Statement"%>
<% @page import="java.sql.ResultSet"%>
<% @include file="connect.jsp" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>View Files</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style5 { color: #DEFC60; font-size: 14px; font-weight: bold; font-family: "Times New Roman",
Times, serif; }
.style6 { font-family: "Courier New", Courier, monospace }
.style7 { color: #009900 }
.style8 { color: #DEFC60; font-size: 14px; font-weight: bold; font-family: "Times New Roman",
Times, serif; font-style: italic; }
.style9 {
 color: #FF0000;
 font-weight: bold;
}
.style11 { font-family: "Courier New", Courier, monospace; color: #FF0000; font-weight: bold; }
```

```
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
<div align=center></div>
</body>
</html>
```

## **CDS ViewFiles.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @page import="org.bouncycastle.util.encoders.Base64" %>
<% @page import="java.sql.Statement"%>
<% @page import="java.sql.ResultSet"%>
<% @include file="connect.jsp" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>View Files</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
```

```
<td width="115" bgcolor="#FF0000"><div align="center" class="style8">Secret
Key</div></td>
 <td width="115" bgcolor="#FF0000"><div align="center"
class="style8">Date</div></td>
</tr>

<%
String s1="",s2="",s3="",s4="",s5="",s6="",s7="",s8,s9="",s10,s11,s12,s13;
int i=0,j=0,k=0;

try
{

 String query="select * from cloudserver ";
Statement st=connection.createStatement();
ResultSet rs=st.executeQuery(query);
while (rs.next())
{
 i=rs.getInt(1);
 s2=rs.getString(2);
 s3=rs.getString(3);
 s4=rs.getString(4);
 s5=rs.getString(5);
 s6=rs.getString(6);
 s7=rs.getString(7);
 s8=rs.getString(8);

 String decryptedValue = new String(Base64.decode(s4.getBytes()));
 %>

<tr>
 <td height="29"><div align="center" class="style6 style9"><%=s2%></div></td>
 <td><div align="center" class="style11"><textarea cols="50" rows="10"
><%=s4%></textarea></div></td>

 <td><div align="center" class="style11"><%=s3%></div></td>
 <td><div align="center" class="style11"><%=s5%></div></td>
 <td><div align="center" class="style11"><%=s6%></div></td>
 <td><div align="center" class="style11"><%=s8%></div></td>
</tr>
```



```
<%
 }

 connection.close();
}

catch(Exception e)
{
 out.println(e.getMessage());
}
%>
</table>
</p>

Go Back
<div class="clr"></div>
</div>

<div class="clr"></div>
</div>
<div class="fbg">
<div class="fbg_resize">
<div class="clr"></div>
</div>
</div>
<div class="footer">
<div class="footer_resize">
<div style="clear:both;"></div>
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## 10. SYSTEM TESTING

### 10.1 SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### 10.2 TYPES OF TESTING

#### **Unit testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### **Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

#### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

## **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

## **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

## **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

## **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and

responds to outputs without considering how the software works.

## 10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

### Test objectives

- 10.3.1 All field entries must work properly.
- 10.3.2 Pages must be activated from the identified link.
- 10.3.3 The entry screen, messages and responses must not be delayed.

### Features to be tested

- 10.3.4 Verify that the entries are of the correct format
- 10.3.5 No duplicate entries should be allowed
- 10.3.6 All links should take the user to the correct page.

### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

### Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## 11 SCREENSHOTS

### 11.1 Home page

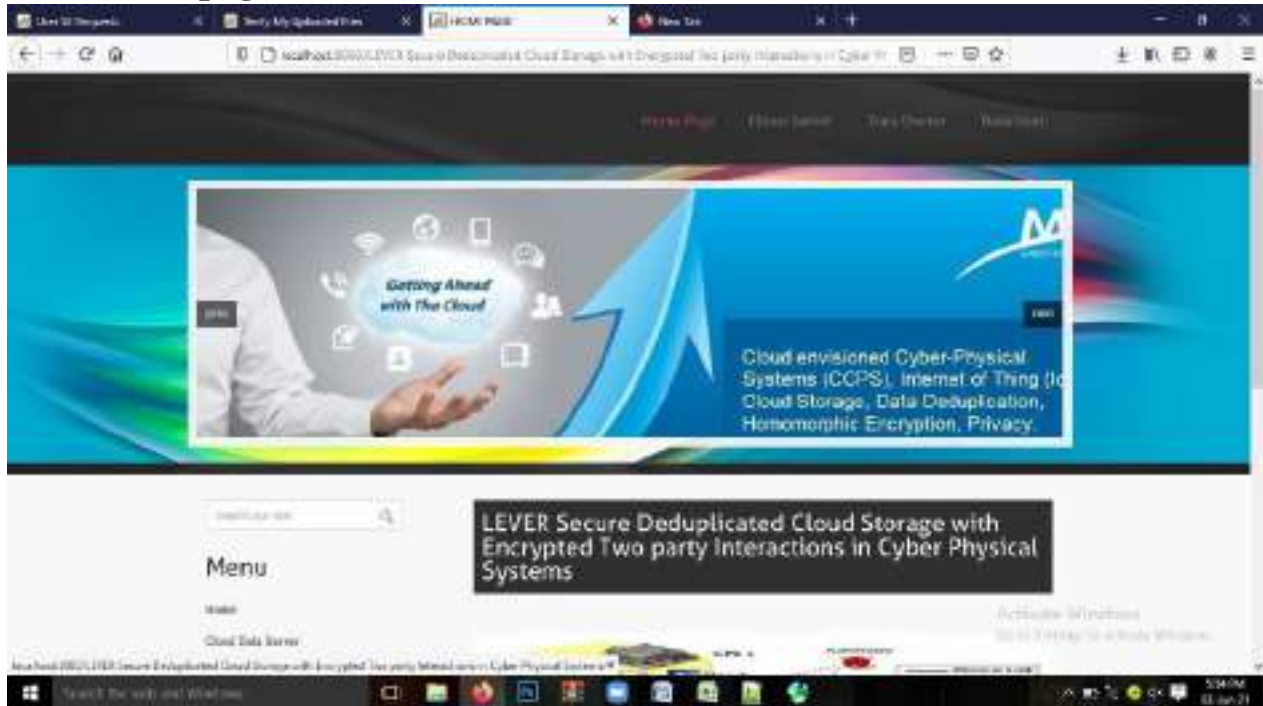


Fig. 11.1 Home page

**DESCRIPTION:** Here we will see the Home page our project

## 11.2 Data owner registration

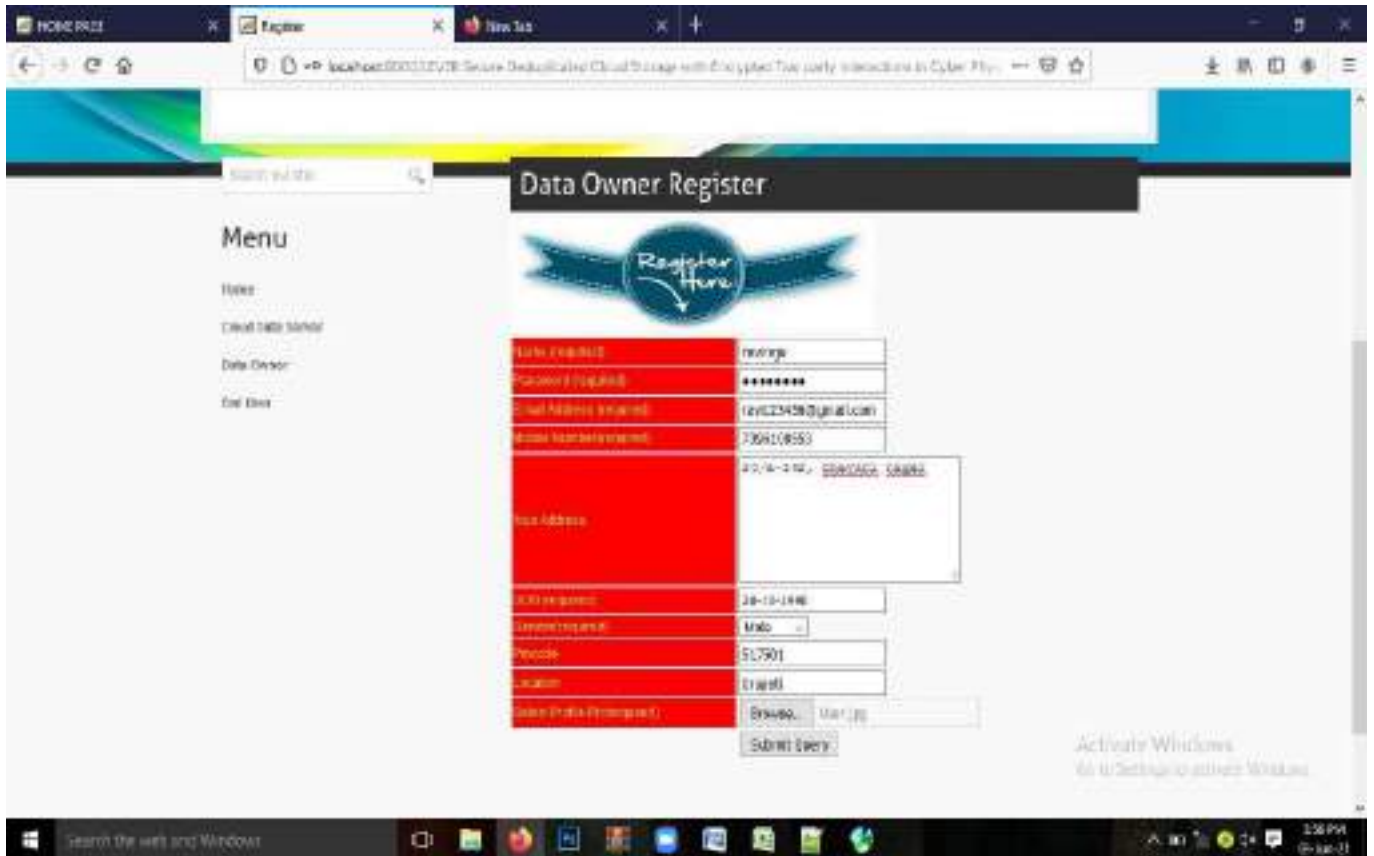
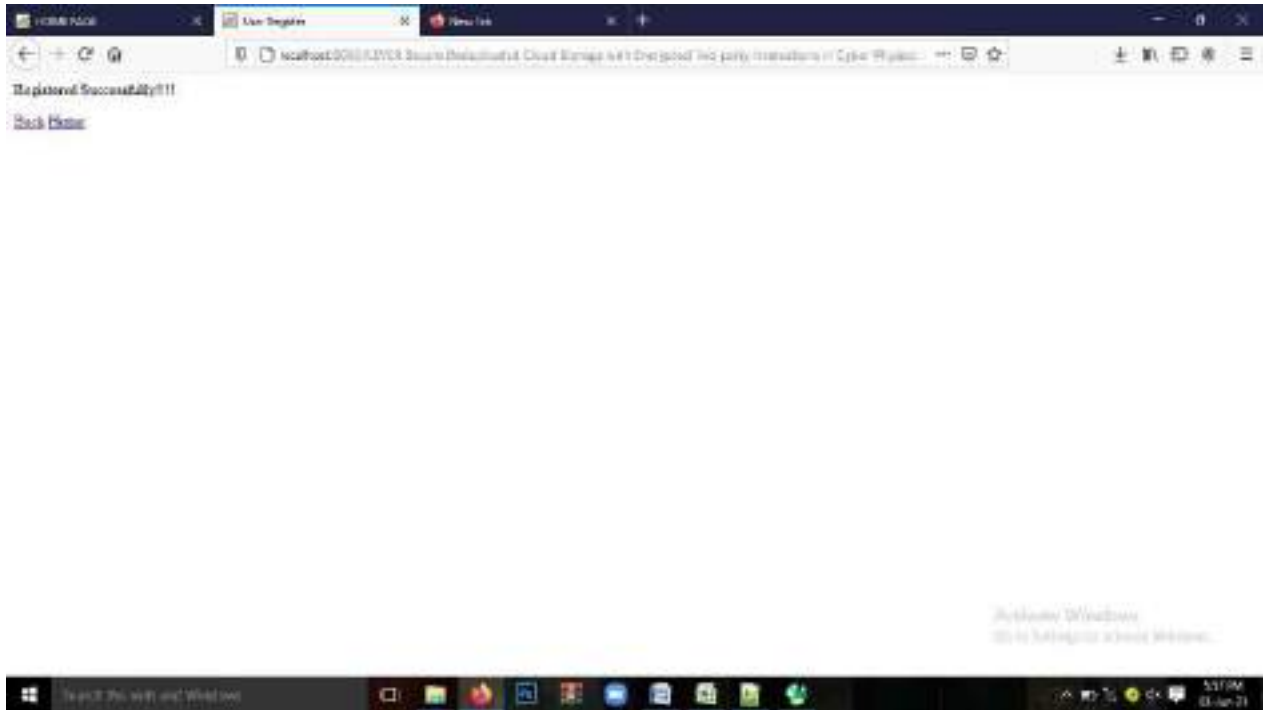


Fig.11.2 Data owner registration

**DESCRIPTION :** Here we will see the Data owner registration form when we use

**Data owner module**

## 11.3 Registration status

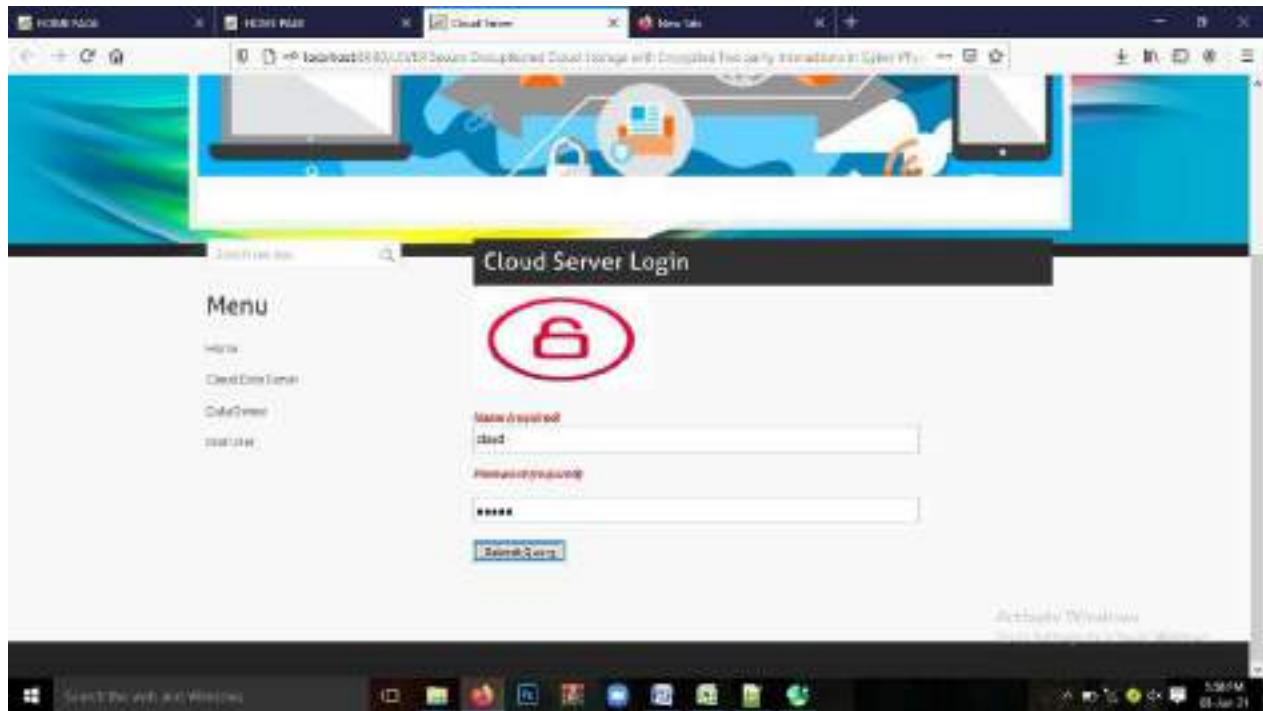


**Fig.11.3 Registration status**

**DESCRIPTION :** Here we will get the status page when we submitted our details Registration status



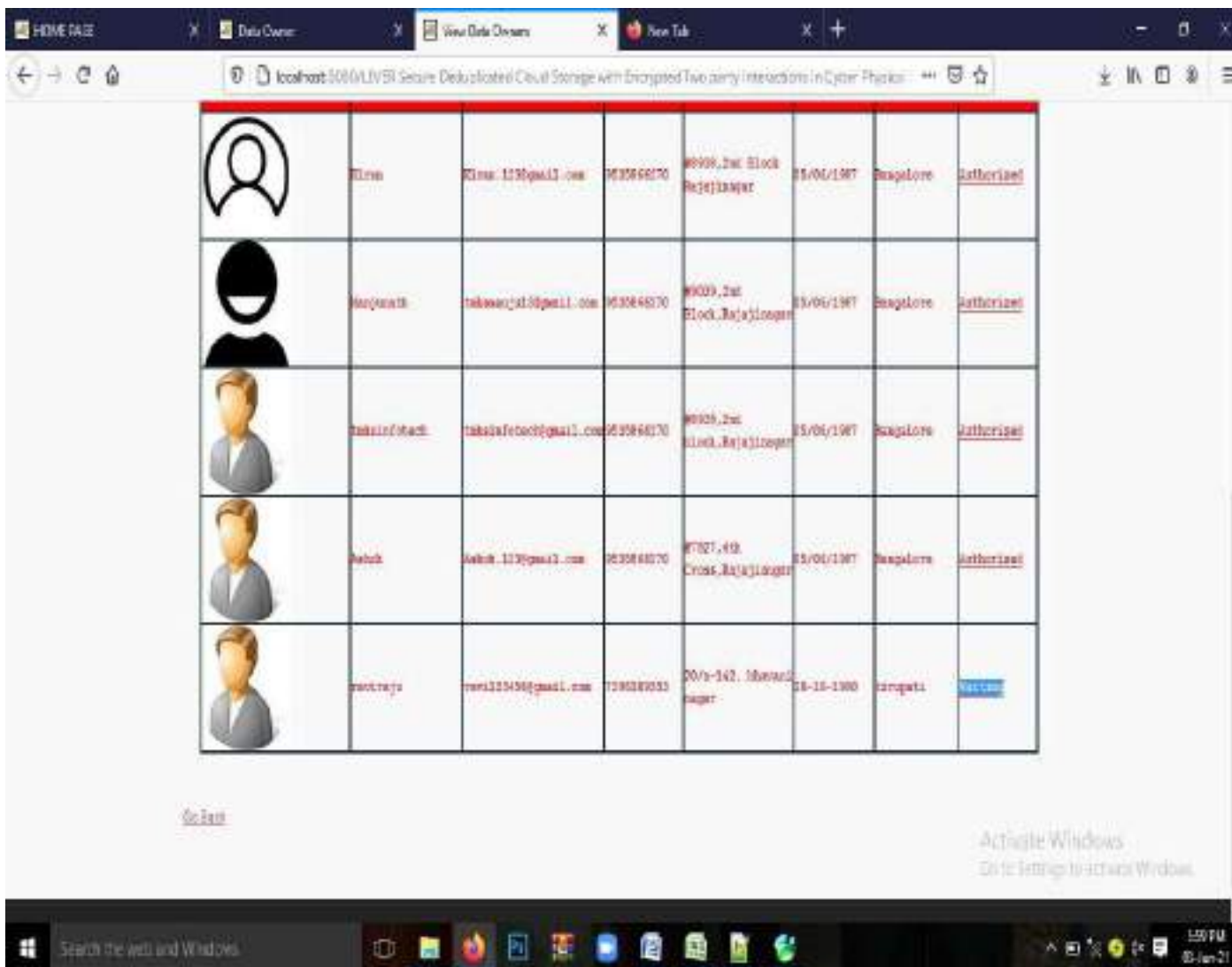
## 11.4 Cloud server login



**Fig.11.4 Cloud server login**

**DESCRIPTION :** Here it will show the Cloud server page to do contact with server cloud server login

## 11.5 View all data owner list



The screenshot shows a web browser window with the address bar displaying 'localhost:5080/LEVER Secure Deduplicated Cloud Storage With Encrypted Two-party interactions in Cyber Phisic...'. The main content area displays a table with five rows, each representing a data owner. Each row includes a profile picture, a name, an email address, a phone number, a location, a date, and a status.




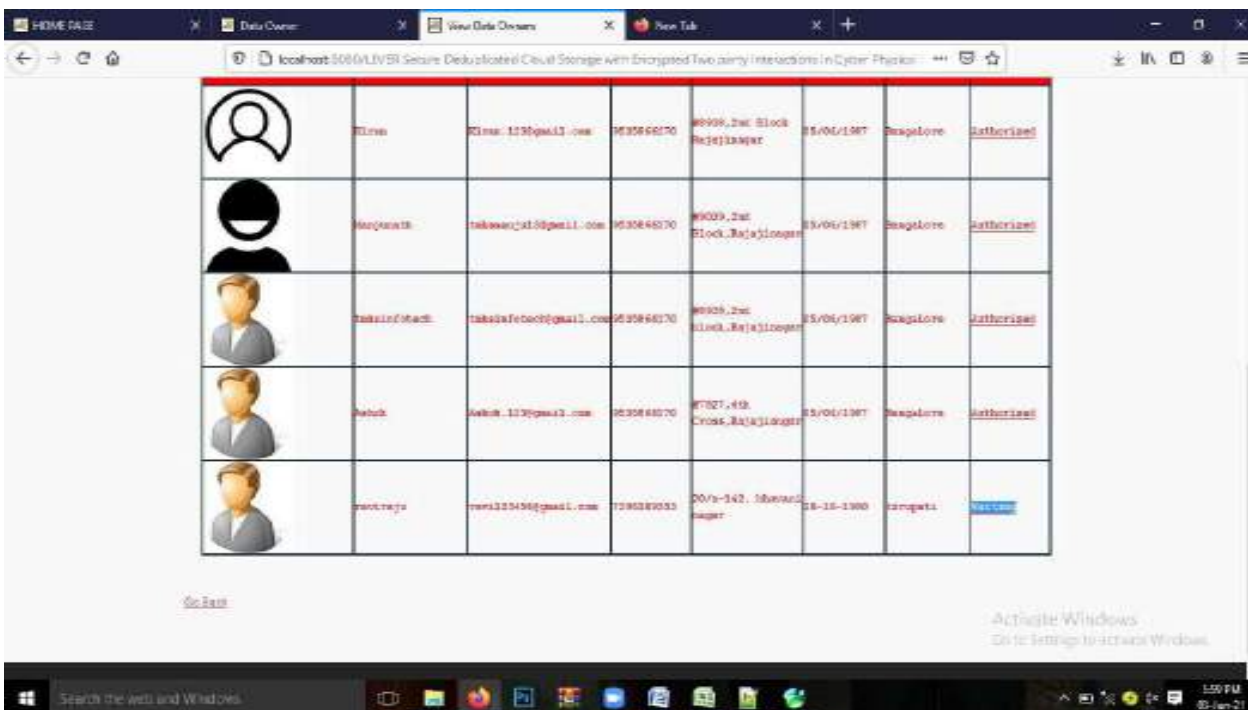
	Elina	Elina.123@gmail.com	9835848270	9999,2nd Block Rajajinagar	15/06/1987	Bangalore	Authorized
	Harjath	harjath123@gmail.com	9835848270	9909,2nd Block,Rajajinagar	15/06/1987	Bangalore	Authorized
	takafatech	takafatech@gmail.com	9835848270	9909,2nd Block,Rajajinagar	15/06/1987	Bangalore	Authorized
	Ashok	Ashok.123@gmail.com	9835848270	9707,4th Cross,Rajajinagar	15/06/1987	Bangalore	Authorized
	prathya	prathya12345@gmail.com	7395289033	00/a-142, Mharsu2 nagar-	08-10-1990	Chennai	Authorized

Fig . 11.5 View all data owner list

**DESCRIPTION :** Here it will show the all entered data owner list in a separate page

## 11.6 View data owner and authorize

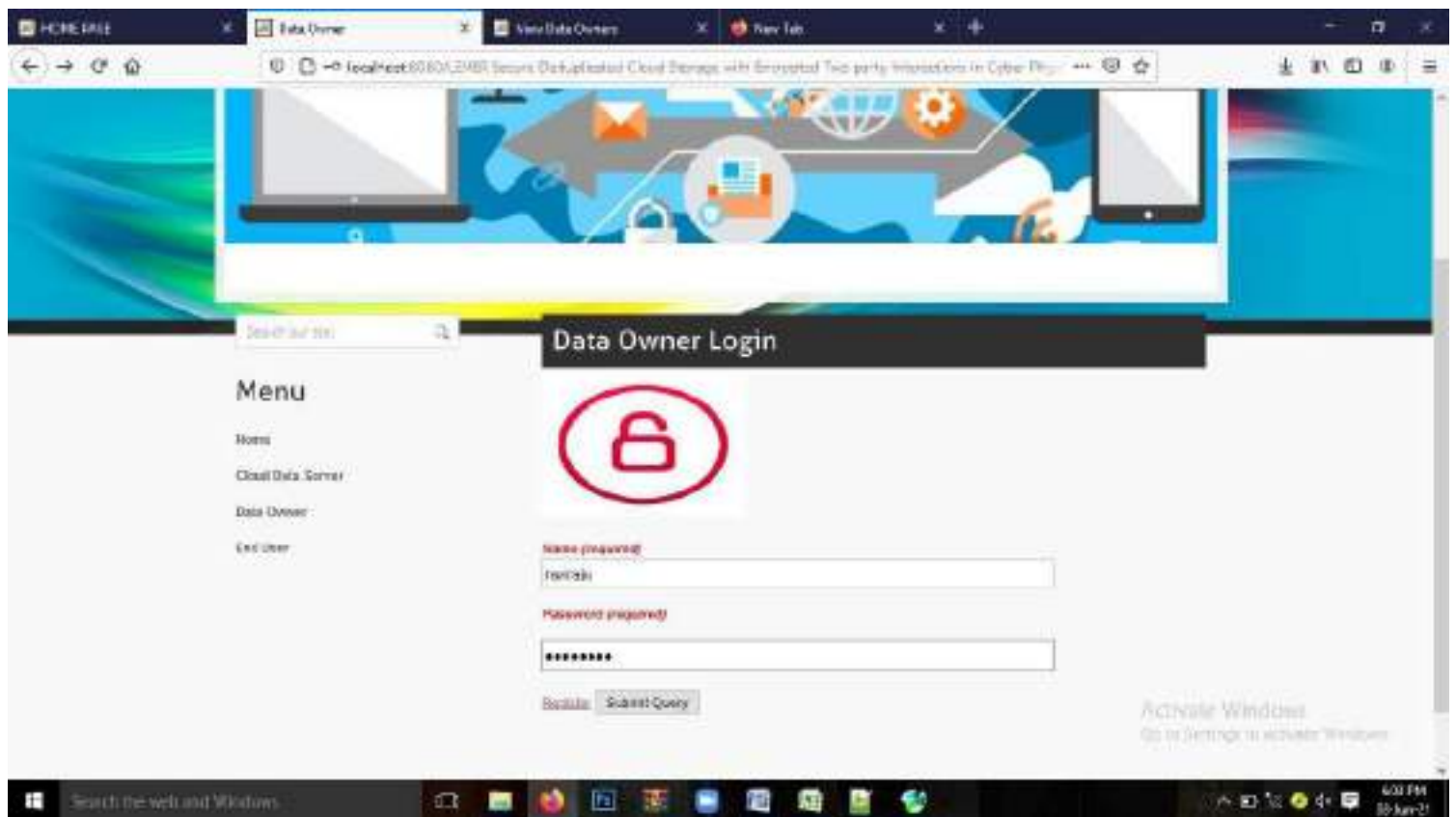


The screenshot shows a web browser window with a table of data owners. The table has 8 columns: a profile icon, a name, an email address, a phone number, a location, a date, a city, and an authorization status. The first four rows show 'Authorized' status, while the last row shows 'Not Authorized'.

Profile Icon	Name	Email	Phone	Location	Date	City	Authorization
	Elina	Elina.123@gmail.com	9535848270	#999,2nd Block Rajajinagar	05/06/1987	Bangalore	<a href="#">Authorized</a>
	Mangalika	mangalika123@gmail.com	9535848270	#999,2nd Block Rajajinagar	05/06/1987	Bangalore	<a href="#">Authorized</a>
	Manish	manish123@gmail.com	9535848270	#999,2nd Block Rajajinagar	05/06/1987	Bangalore	<a href="#">Authorized</a>
	Ashish	Ashish.123@gmail.com	9535848270	#787,4th Cross,Rajajinagar	05/06/1987	Bangalore	<a href="#">Authorized</a>
	Pratik	pratik12345@gmail.com	7185289033	207-142, 5th Cross Rajajinagar	08-15-1980	Bangalore	<a href="#">Not Authorized</a>

Fig . 11.6 View data owner and authorize

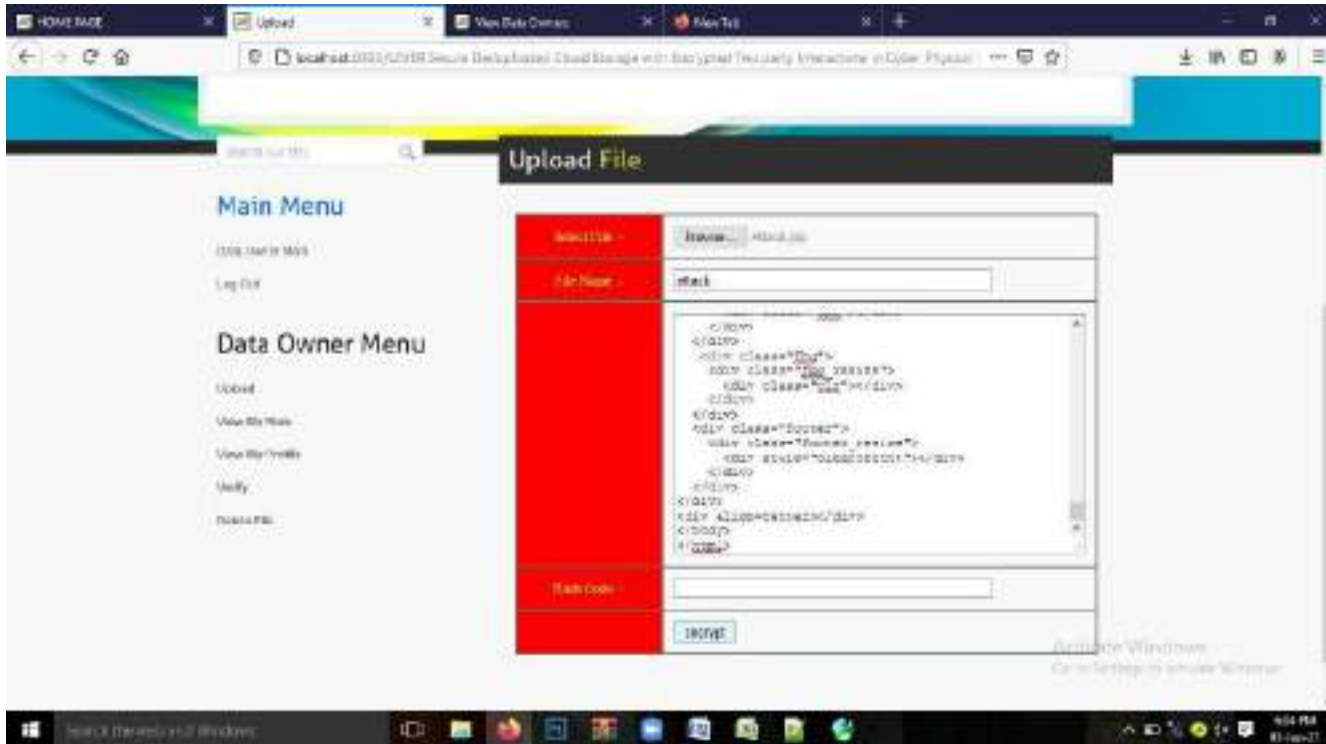
DESCRIPTION : Here we will show the View data owner and authorize



**Fig.11.7 Data owner login page**

**DESCRIPTION :** HERE WE WILL see data owner login page

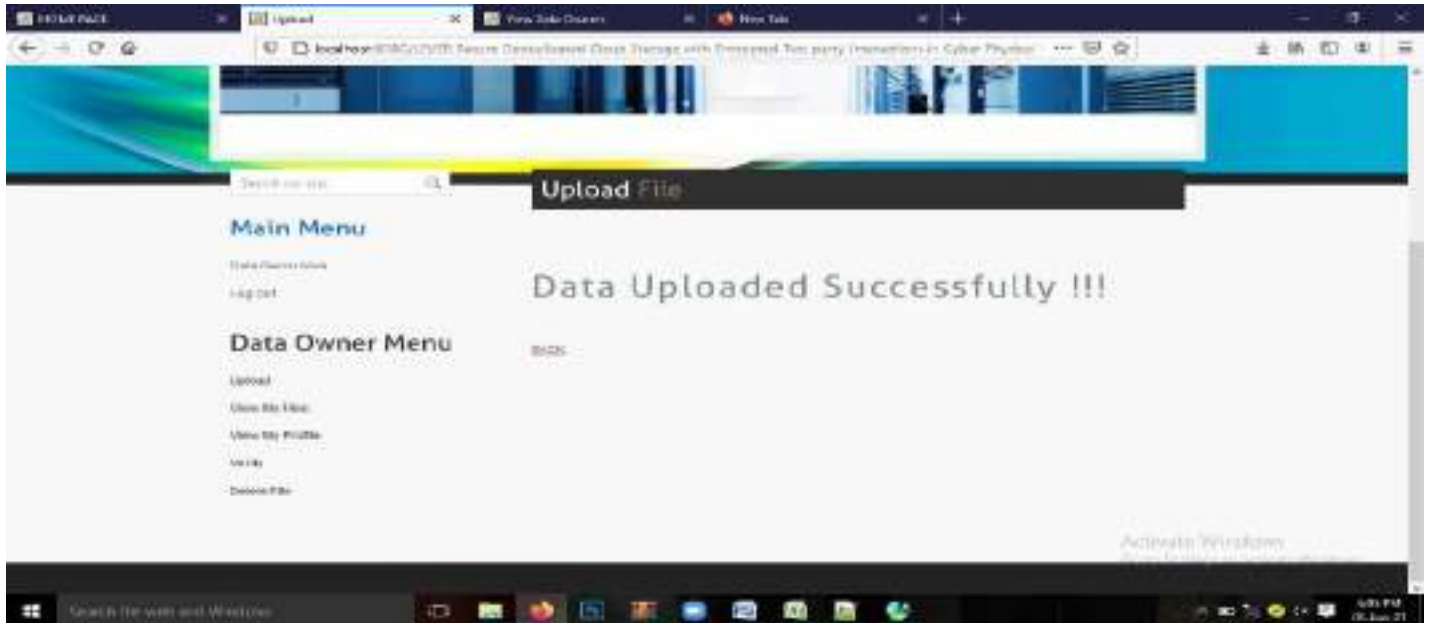
## 11.8 Upload file



**Fig . 11.8 Upload file**

**DESCRIPTION : HERE WE WILL SEE thje file which is ready to upload**

## 11.9 Data upload Status



**Fig . 11.9 Data upload Status**

**DESCRIPTION :** Here we will show the page of Data upload status

## 12.View my file



Fig . 12. View my file

**DESCRIPTION :** HERE we will see the viewing our file which we selected



## 12.1 Verify file status

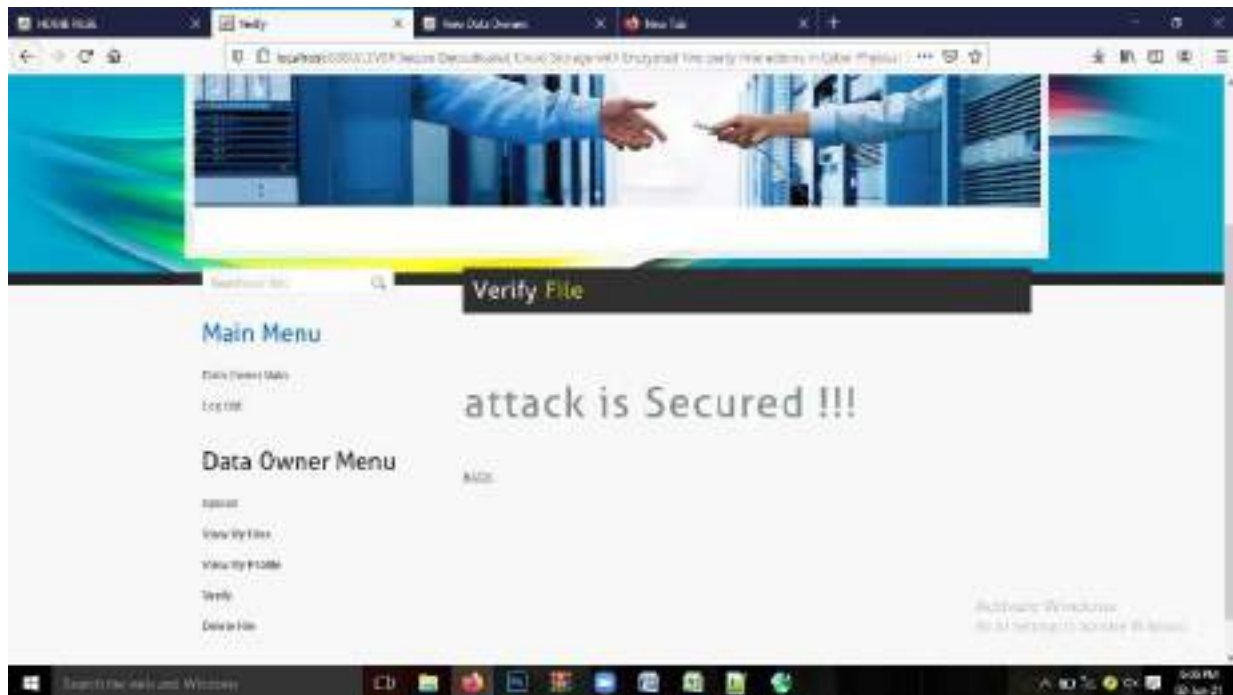


Fig . 12.1 Verify file status

DESCRIPTION :Her we will see the Verify file status



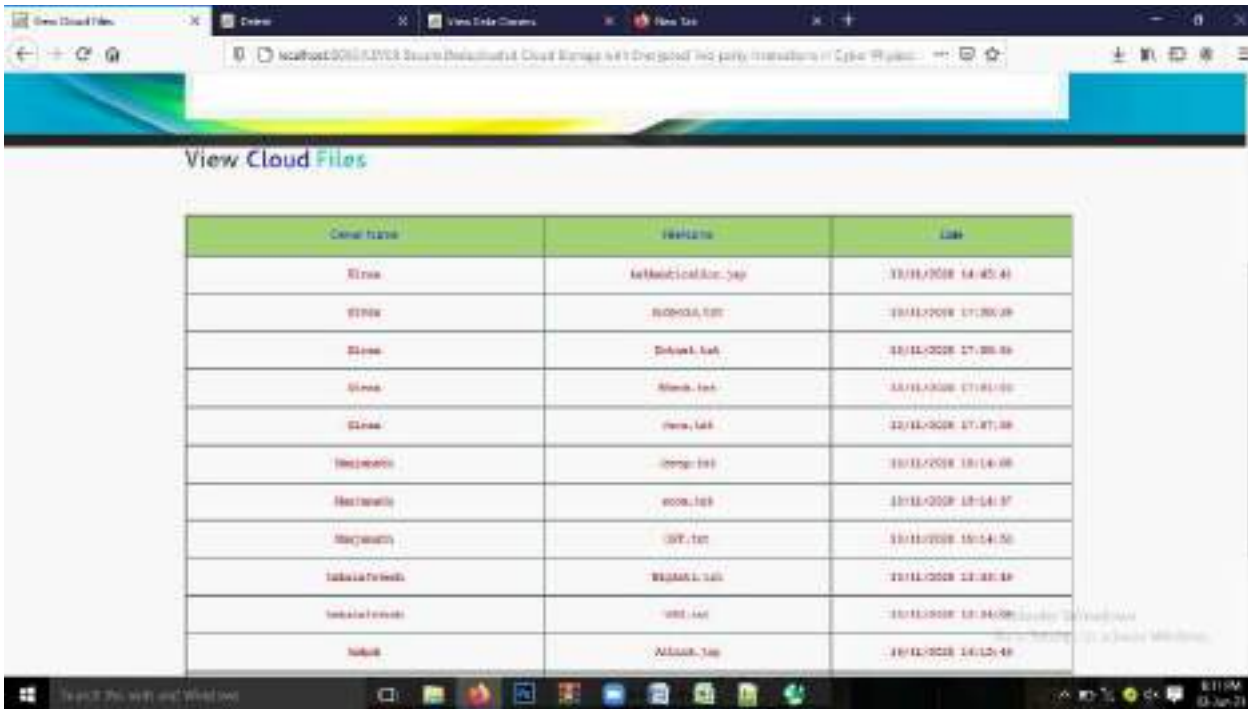
## 12.2 Search data by keyword



**Fig . 12.2** Search data by keyword

**DESCRIPTION:** Here we will see the page by using searching a page by its key

## 12.3 View Cloud files



The screenshot shows a web browser window with the address bar displaying a URL. The page title is "View Cloud Files". The main content is a table with three columns: "Cloud Name", "File Name", and "Last". The table lists several files with their respective cloud names, file names, and last modification dates.

Cloud Name	File Name	Last
Eliza	TechnicalDoc.jpg	10/11/2018 14:45:41
Eliza	BOOKS.txt	10/11/2018 17:30:28
Eliza	Book1.txt	10/11/2018 17:30:38
Eliza	Book2.txt	10/11/2018 17:31:00
Eliza	Book3.txt	10/11/2018 17:31:38
Maximilian	img1.jpg	10/11/2018 18:14:08
Maximilian	img2.jpg	10/11/2018 18:14:37
Maximilian	img3.jpg	10/11/2018 18:14:50
IsabellaTobias	BOOKS.txt	10/11/2018 22:33:44
IsabellaTobias	img1.jpg	10/11/2018 22:34:08
Isabella	BOOKS.txt	10/11/2018 24:15:49

Fig . 12.3 View Cloud files

DESCRIPTION : Here we will see the page of the viewing the cloud files by server

## 12.4. Request search control

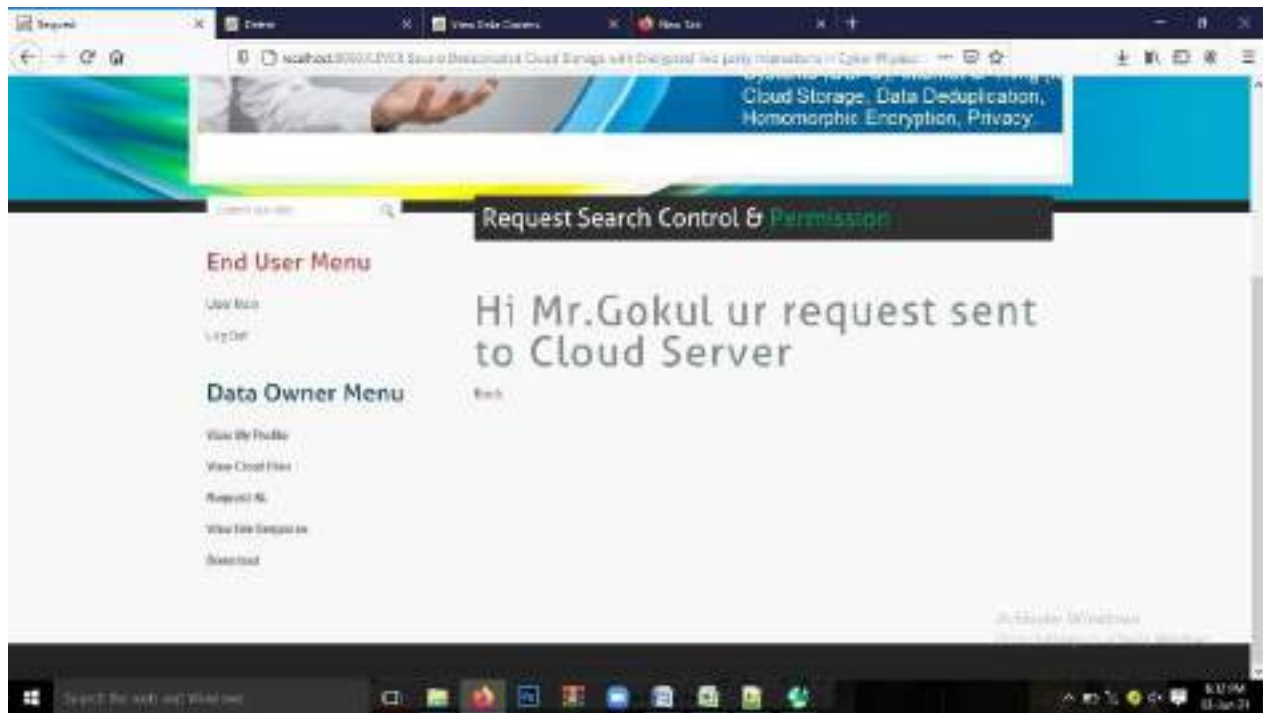


Fig . 12.4 Request search control

**DESCRIPTION :** HERE WE will see the page if requesting of end user

## 12.5 Download status



**Fig.12.5 Download status**

**DESCRIPTION :** Here it shows the page of downloading status

## 12.6 View user request and permit



The screenshot displays a web browser window with a URL that includes 'Lever Secure Deduplicated Cloud Storage With Encrypted Two-Party Interactions'. The page title is 'View User Request & Permit'. Below the title is a table with the following data:

User Name	User Name	User Name	User Name	User Name	Request	ID	User
Admin	Admin	Admin	Admin	Admin	Admin	Admin	Admin
Admin	Admin	Admin	Admin	Admin	Admin	Admin	Admin
Admin	Admin	Admin	Admin	Admin	Admin	Admin	Admin
Admin	Admin	Admin	Admin	Admin	Admin	Admin	Admin
Admin	Admin	Admin	Admin	Admin	Admin	Admin	Admin
Admin	Admin	Admin	Admin	Admin	Admin	Admin	Admin
Admin	Admin	Admin	Admin	Admin	Admin	Admin	Admin

Fig 12.6 View user request and permit

**DESCRIPTION :** Here it shows the of viewing of requesting and permitting

## 12.7 View all transaction details



The screenshot displays a web browser window with the title 'View All Transaction Details'. The browser's address bar shows a local IP address. The page content features a table with five columns: 'Transaction ID', 'Completed Date', 'File Name', 'Size', and 'Type'. The table lists ten transactions, each with a unique ID, a date, a file name, a size, and a type. The 'Completed Date' column contains dates from 10/11/2020 to 10/12/2020. The 'File Name' column lists files such as 'authentication.jpg', 'index.html', 'index.txt', 'index.jpg', 'index.css', 'index.js', 'index.html', 'index.txt', 'index.jpg', and 'index.css'. The 'Size' column shows values like '102400', '102400', '102400', '102400', '102400', '102400', '102400', '102400', '102400', and '102400'. The 'Type' column lists 'Image', 'Image', 'Image', 'Image', 'Image', 'Image', 'Image', 'Image', 'Image', and 'Image'. The browser's taskbar at the bottom shows the Windows logo, search bar, and various application icons.

Transaction ID	Completed Date	File Name	Size	Type
1	10/11/2020 10:08:14	authentication.jpg	102400	Image
2	10/11/2020 10:07:10	authentication.jpg	102400	Image
3	10/11/2020 10:07:10	authentication.jpg	102400	Image
4	10/11/2020 10:08:14	index.html	102400	Image
5	10/11/2020 10:08:14	index.txt	102400	Image
6	10/11/2020 10:08:14	index.jpg	102400	Image
7	10/11/2020 10:08:14	index.txt	102400	Image
8	10/11/2020 10:08:14	index.html	102400	Image
9	10/11/2020 10:08:14	index.txt	102400	Image
10	10/11/2020 10:08:14	index.html	102400	Image

Fig . 12.7 View all transaction details

**DESCRIPTION :** HERE it shows the full details of transactions





## 12.9 View all files rank details





### 13.View throughput details

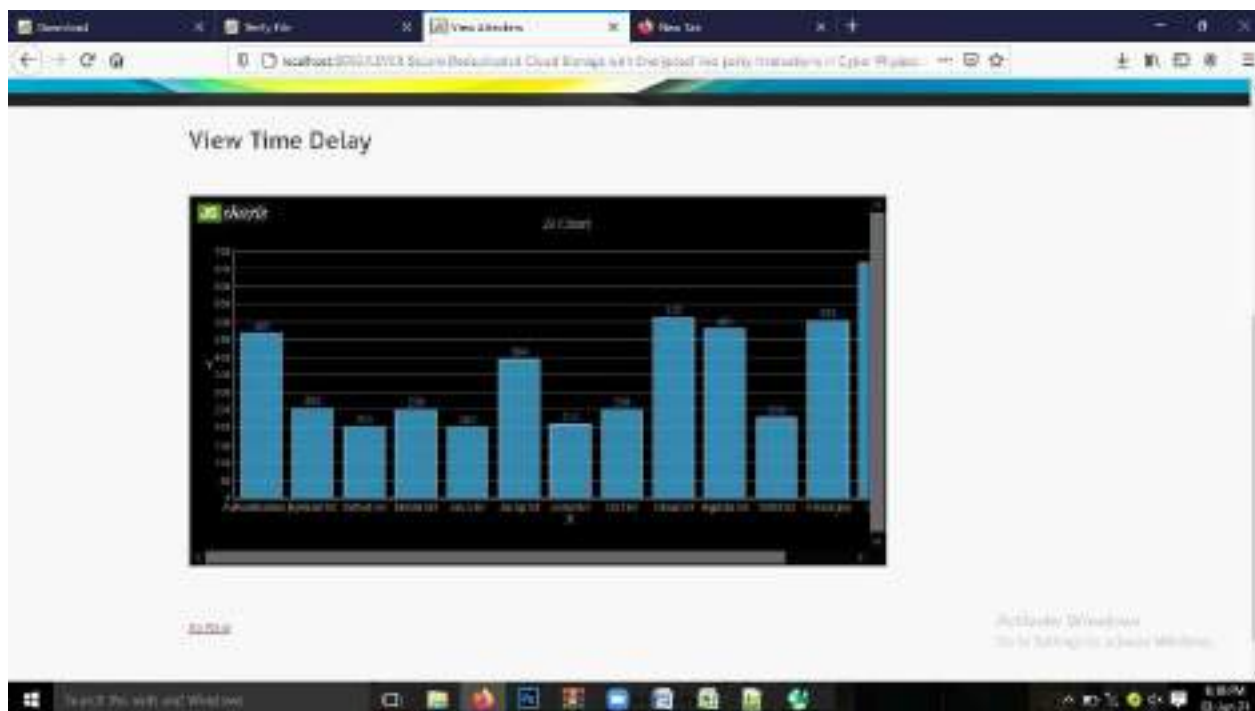


Fig 13 View throughput details

DESCRIPTION : IT shows finally the through put chart of the project

View throughput details

## CONCLUSION

This project proposed a message Lock Encryption with never decrypt homomorphic EncRyption (LEVER) protocol in a cloud envisioned cyber physical system. LEVER applied encrypted client-side data de duplication with only symmetrically cryptographic two-party interactions to cope with a brute-force attack in cloud storage. We proved the security of LEVER via ideal/real paradigms. We also demonstrate the significant performance of the LEVER via the analysis and numerical simulations. Although client-side data de duplication has been widely adopted by commercial cloud storage services to eliminate data redundancy, it breaches the user privacy. Exchanging messages between the user and cloud storage to verify whether a file is already stored creates a side-channel for the attacker to gain information about the file existence status.

## **FUTURE ENHANCEMENT**

In the future, we plan to enhance the LEVER's privacy to deal with side-channel attacks in the cloud storage by creating a probabilistic relation between the messages exchanged

## REFERENCES

- [1] Y. Li, J. Fan, Y. Wang, and K. L. Tan, "Influence maximization on social graphs: A survey", in *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, vol. 30, no. 10, pp. 1852-1872, 2018.
- [2] L. Sun, W. Huang, P. S. Yu, and W. Chen, "Multi-round influence maximization", in *Proc. ACM SIGKDD*, 2018.
- [3] Q. Shi, C. Wang, J. Chen, Y. Feng, and C. Chen, "Post and repost: A holistic view of budgeted influence maximization", in *Neurocomputing*, vol. 338, pp. 92-100, 2019.
- [4] X. Wu, L. Fu, Y. Yao, X. Fu, X. Wang, and G. Chen, "GLP: a novel framework for group-level location promotion in Geo-social networks", in *IEEE/ACM Transactions on Networking (TON)*, vol. 26, no. 6, pp. 1-14, 2018.
- [5] Y. Lin, W. Chen, and J. C. Lui, "Boosting information spread: An algorithmic approach", in *Proc. IEEE ICDE*, 2017.
- [6] Y. Zhang, and B. A. Prakash, "Data-aware vaccine allocation over large networks", in *ACM Transactions on Knowledge Discovery from Data (TKDD)*, vol. 10, no. 2, article 20, 2015



**A**  
**Project Report**  
**on**

**PRIVACY PROTECTION AND INTRUSION AVOIDANCE FOR CLOUDLET  
BASED MEDICAL DATA SHARING**

*Submitted in partial fulfillment for the award of the degree*

**of**  
**Master of Computer Applications**

*Submitted by*

**GIRISETTI VINOD KUMAR**

**(Reg.No.18F61F0015)**

*Under the esteemed guidance of*

**Mr. J.S. ANANDA KUMAR, MCA.,**  
**Assistant Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**  
**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**  
**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**2020 - 2021**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, Puttur-517583,A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled "PRIVACY PROTECTION AND INTRUSION AVOIDANCE FOR CLOUDLET BASED MEDICAL DATA SHARING" that is being submitted by GIRISETTI VINOD KUMAR (Reg. No. 18F61F0015) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **GIRISETTI VINOD KUMAR** here by declare that the project report entitled “**PRIVACY PROTECTION AND INTRUSION AVOIDANCE FOR CLOUDLET BASED MEDICAL DATA SHARING**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. J.S. ANANDA KUMAR, MCA.** Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**GIRISETTI VINOD KUMAR**

**Reg. No.: 18F61F0015**



## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. J. S. ANANDA KUMAR, MCA.** Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance and suggestions in analyzing and testing through out the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E. HOD**, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved Chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indravani, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to project coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(GIRISETTI VINOD KUMAR)

# CONTENTS

S. No.	CHAPTERS	Page. No.
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF ABBREVIATIONS	Ii
	LIST OF SCREENS	iii
1	INTRODUCTION	1 – 4
2	SYSTEM STUDY	5 – 6
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	7
	3.2 DIS ADVANTAGES	7
	3.3 PROPOSED SYSTEM	8
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9 - 10
5	SYSTEM ARCHITECTURE	11 - 13
6	SOFTWARE ENVIRONMENT	14 - 27
7	SYSTEM REQUIREMENTS	28
8	SYSTEM DESIGN	29 - 46
9	IMPLEMENTATION	47 – 76
10	SYSTEM TESTING	77 - 79
11	OUTPUT SCREENS	80 - 100
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

## **ABSTRACT**

With the popularity of wearable devices, along with the development of clouds and cloudlet technology, there has been increasing need to provide better medical care. The processing chain of medical data mainly includes data collection, data storage and data sharing, etc. Traditional healthcare system often requires the delivery of medical data to the cloud, which involves users' sensitive information and causes communication energy consumption. Practically, medical data sharing is a critical and challenging issue. Thus in this project, we build up a novel health care system by utilizing the flexibility of cloudlet. The functions of cloudlet include privacy protection, data sharing and intrusion detection. In the stage of data collection, we first utilize Number Theory Research Unit (NTRU) method to encrypt user's body data collected by wearable devices. Those data will be transmitted to nearby cloudlet in an energy efficient fashion. Second, we present a new trust model to help users to select trustable partners who want to share stored data in the cloudlet. The trust model also helps similar patients to communicate with each other about their diseases. Third, we divide users' medical data stored in remote cloud of hospital into three parts, and give them proper protection. Finally, in order to protect the health care system from malicious attacks, we develop a novel collaborative intrusion detection system (IDS) method based on cloudlet mesh, which can effectively prevent the remote health care big data cloud from attacks.

## LIST OF FIGURES

S. No.	Name	Page No.
1	1.1. Structure of Service Models	3
2	5.1. System Architecture	12
3	5.2. Dataflow Diagram	13
4	6.1. Compilation & Interpretation	15
5	6.2. Execution for different platforms	15
6	6.3. Java Platform	16
7	6.4. Java IDE	18
8	6.5. General J2ME Architecture	25
9	8.1. Data Flow Diagram	30
10	8.2 UML DIAGRAMS	31
	8.3 Activity Diagram for wearable device	31
	8.4 Activity Diagram for Cloud server	32
	8.5 Activity Diagram for Patient	33
	8.6 Activity Diagram for Doctor	34
	8.7 Activity Diagram for Intruder	35
	8.8 Use case Diagram for wearable device	36
	8.9 Use case Diagram for Cloud server	37
	8.10 Use case Diagram for Patient	38
	8.11 Use case Diagram for Doctor	39
	8.12 Use case Diagram for Intruder	40
	8.13 Sequence Diagram	41
	8.14 Component Diagram	42
	8.15 Deployment Diagram	43
	8.16 Class Diagram	44
11	8.17. E-R Diagrams	45

## LIST OF ABBREVIATIONS

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	Software Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	MDS	Medical Data Sharing
11	DBMS	Database Management System
12	IDS	Intrusion Detection System
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

## LIST OF SCREENS

<b>S. No.</b>	<b>Name</b>	<b>Page. No.</b>
1	Home page	80
2	Doctor Registration	82
3	Doctor Login	84
4	Patient Registration	87
5	Patient Login	89
6	Cloudlet Login	92

## 1. INTRODUCTION

### 1.1 What is Cloud Computing?

**Cloud Computing** is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services.

### 1.2 How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.

The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

### 1.3 Characteristics and Service Models

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below.

## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

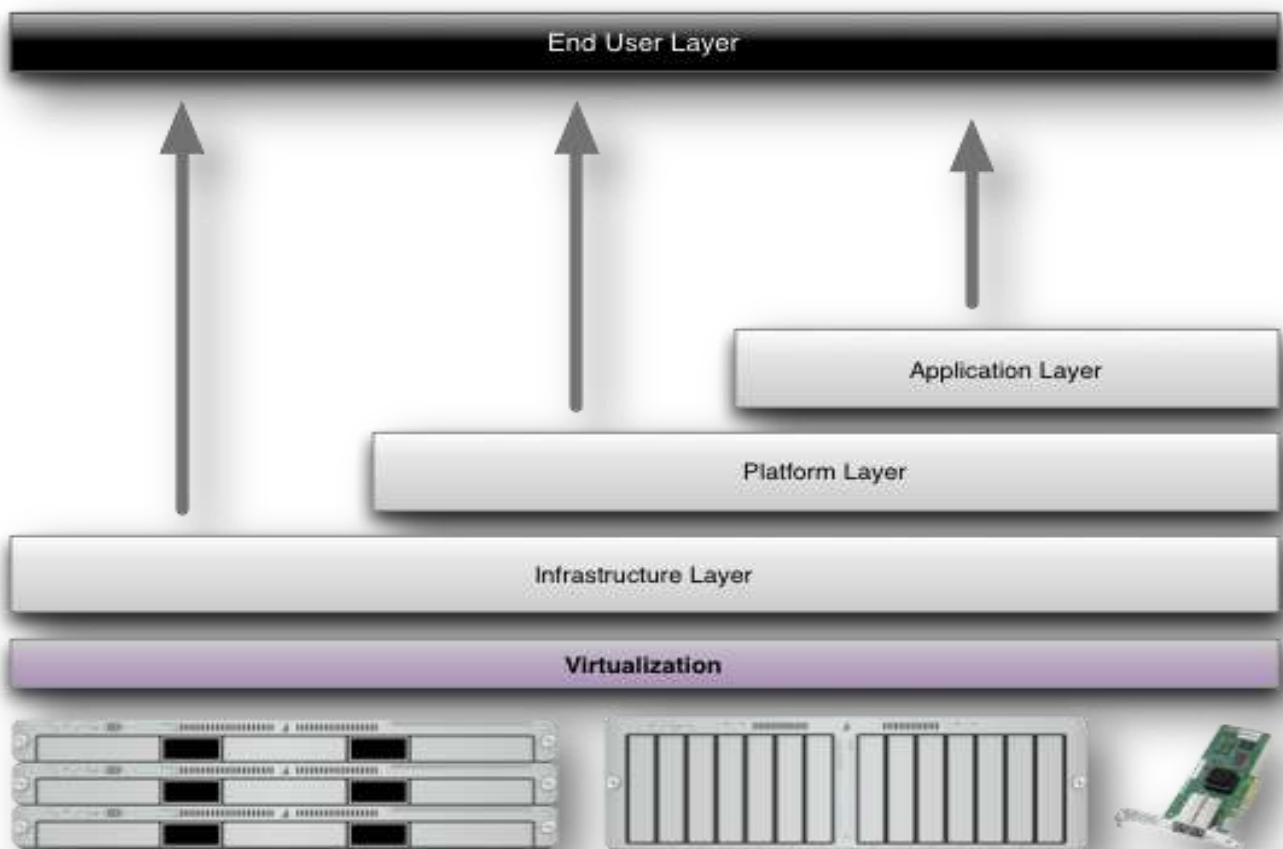
1. **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.
2. **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).
3. **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and re assigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network band width, and virtual machines.
- 4. **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.
5. **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.



## 1.4 Service Models

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layer are completed by an end user layer that encapsulates the end user perspective on cloud services.

If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.



**Fig1.1 Structure of service models**

## 1.5 Benefits of Cloud Computing:

1. **Achieve economies of scale.** Increase volume output or productivity with fewer people. Your cost per unit, project or product plummets.
2. **Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal up front spending. Pay as you go (weekly, quarterly or yearly), based on demand.
3. **Globalize your workforce on the cheap.** People world wide can access the cloud, provided they have an Internet connection.
4. **Stream line processes.** Get more work done in less time with less people.
5. **Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
6. **Improve accessibility.** You have access any time, any where.

## 1.6. Advantages:

1. **Price:** Pay for only the resources used.
2. **Security:** Cloud instances are isolated in the network.
3. **Performance:** Instances can be added for improved performance.
4. **Scalability:** Auto-deploy cloud instances when needed.
5. **Uptime:** Uses multiple servers for maximum redundancies.
6. **Control:** Able to login from any location. Server snapshot and a software.

## **2. SYSTEM STUDY**

### **2.1 FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

1. ECONOMICAL FEASIBILITY
2. TECHNICAL FEASIBILITY
3. SOCIAL FEASIBILITY

#### **2.1.1 ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into there search and development of the system is limited. The expenditures must be justified. Thus the developed system as well with in the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

## **2.1.2 TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

## **2.1.3 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed; a she is the final user of the system.

### 3. SYSTEM ANALYSIS

#### 3.1 EXISTING SYSTEM

1. In the existing system, MRSE (multi keyword ranked search over encrypted data in cloud computing) privacy protection system was presented, which aims to provide users with a multi-keyword method for the cloud's encrypted data. Although this method can provide result ranking, in which people are interested, the amount of calculation could be cumbersome.
2. A priority based health data aggregation (PHDA) scheme was presented to protect and aggregate different types of healthcare data in cloud assisted wireless body area network (WBANs). The article in the existing system investigates security and privacy issues in mobile healthcare networks, including the privacy-protection for health care data aggregation, the security for data processing and mis behavior.
3. The system describes a flexible security model especially for data centric applications in cloud computing based scenario to make sure data confidentiality, data integrity and fine grained access control to the application data. The system gives a systematic literature review of privacy-protection in cloud-assisted health care system.

#### 3.2 DISADVANTAGES OF EXISTING SYSTEM

1. There is less security on out sourced data due to lack of collaborative intrusion detection system (IDS).
2. There is no Remote cloud data privacy protection Scheme.

#### 3.3 PROPOSED SYSTEM

1. The proposed system, a cloudlet based healthcare system is presented, where the privacy of users' physiological data and the efficiency of data transmissions are our main concern. The system uses NTRU for data protection during data transmissions to the cloudlet.

## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

2. The proposed system divides data in remote cloud into different kinds and utilizes encryption mechanism to protect them respectively.
3. The Proposed system proposes collaborative IDS based on cloudlet mesh to protect the whole health care system against malicious attacks.

### **3.4 ADVANTAGES OF PROPOSED SYSTEM**

1. The security is more due to Collaboration Intrusion and Detection system.
2. Implemented Cloudlet based data sharing which will give more security to cloud data.

## 4. SOFTWARE MODULES

### 4.1 MODULES

These are the modules of Privacy Protection and Intrusion avoidance For Cloudlet Based Medical Data Sharing:

- WearableDevice
- CloudServer
- Patient
- Doctor
- Intruder

### 4.2 MODULES DESCRIPTION

#### **Wearable Device**

In this module, the wearable device Collect Patient data and Upload to Cloudlet and attach about symptoms with Digital sign, add pimage (Encryptall parameters exceptname) and View all patient collect data in enc format with digital sign.

#### **Cloud Server**

The **Cloud** server manages which is to provide data storage service for the wearable devices and also View all patients and authorize and View all doctors and authorize ,View all patient Cloudlet data with enc format ,View Patient data access request and authorize ,View all Cloudlet Intruders details and View patient details recovered details ,View No.of same symptoms in Chart (Symptomname vs No.Of Patients), View No.of Patients referred same doctor in Chart (DoctornamevsNo.ofPatients).

#### **Patient**

In this module, the patient Register and Login, View profile ,Request Data Access permission from cloudlet and view Response, Access Your data and select doctor from combo box and send to corresponding doctor and View doctor response with Medical prescription, Verify your data and recover and View and delete your details.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

## **Doctor**

The doctor is the one who will perform the following operations such as Register and Login, View Profile, View patient details and give solution like Medicine details, Medical prescription details View all patient Medical prescription Details.

## **Intruder**

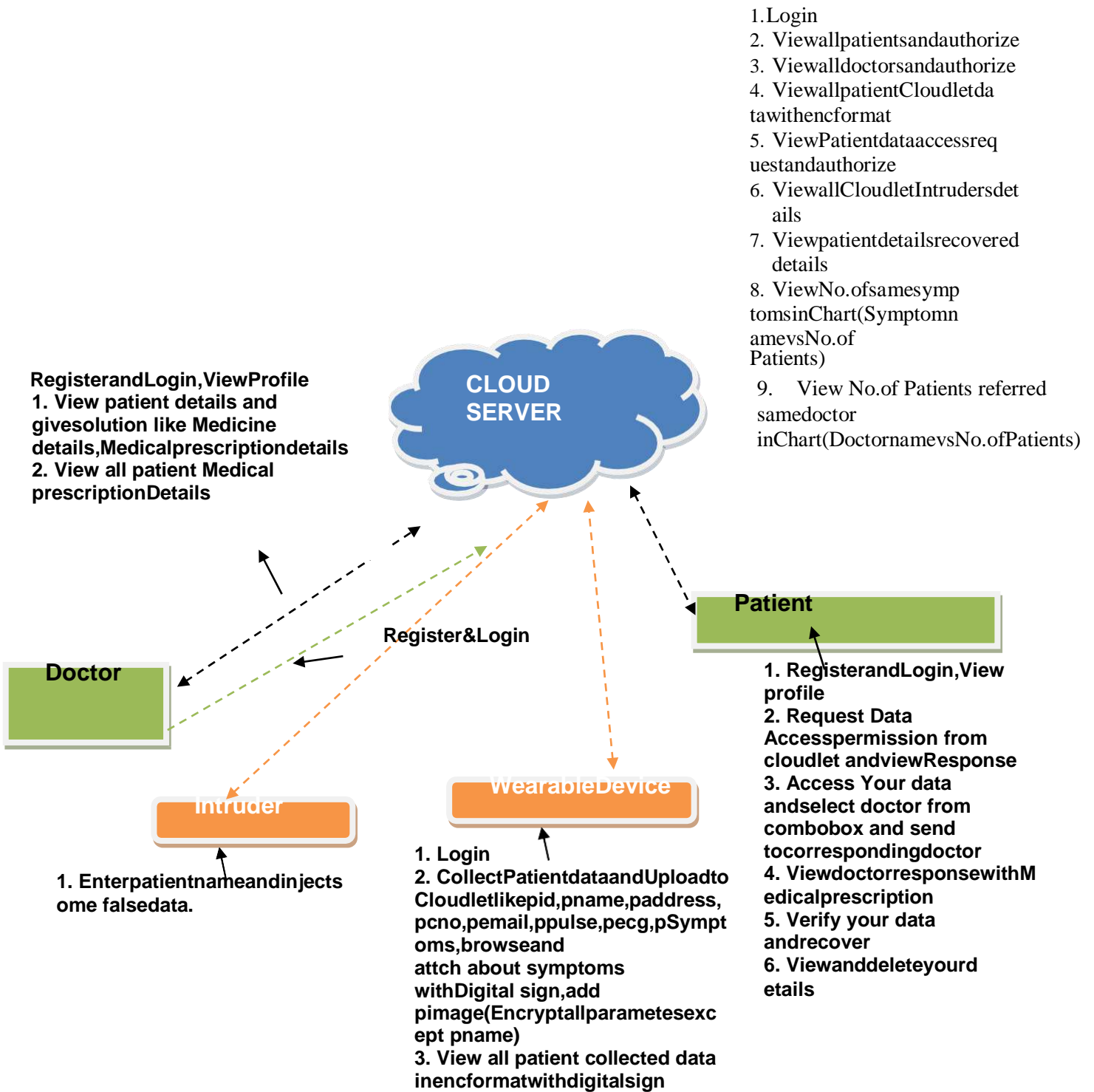
In this module, the Intruder will perform the following operations  
Enter patient name and inject some false data.



## 5. SYSTEM ARCHITECTURE

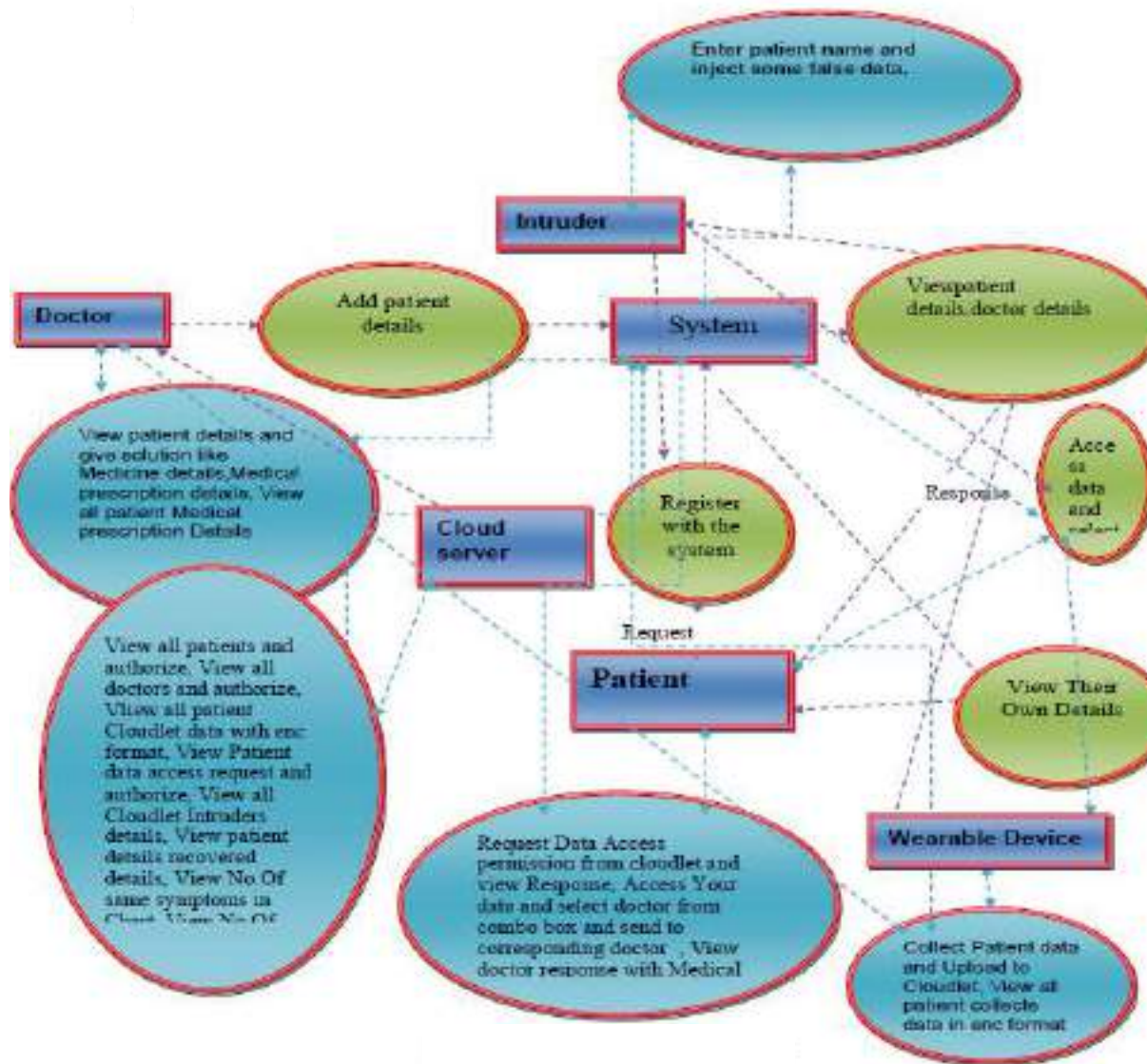
The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

**5.1 SYSTEM ARCHITECTURE**



5.1 System Architecture

## 5.2 DATAFLOW DIAGRAM



## 5.2 DATAFLOW DIAGRAM

## 6. SOFTWARE ENVIRONMENT

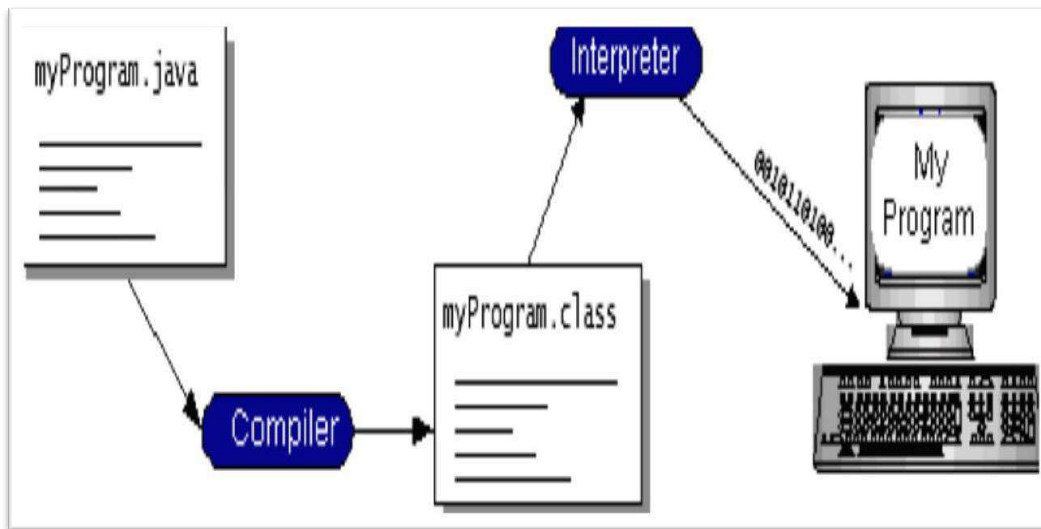
Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzz words:

- SimpleArchitecture
- neutral
- Object oriented
- Portable Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes – the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrate show this works.

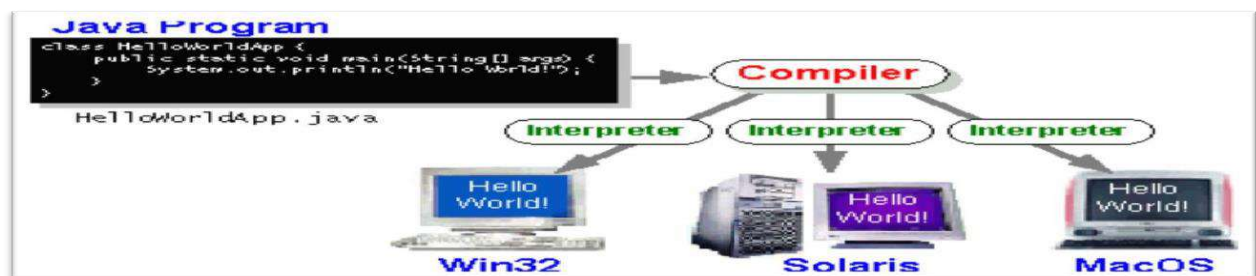
# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---



*Fig6.1: Program Compilation and Interpretation*

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (JVM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a JavaVM, the same program written in the Java programming language can run on Windows 2000, a Solaris work station, or on an iMac.



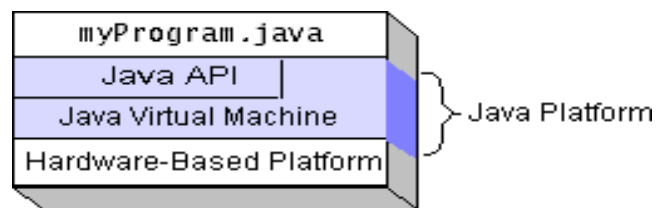
**Fig 6.2 Execution for different platforms**

## 6.3 The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most -platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The JavaVirtual Machine (Java VM)
- The Java Application Programming Interface (JavaAPI)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported on to various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.



**Fig6.3: Java Platform**

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring performance close to that of native code without threatening portability.

## 6.4 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a stand alone program that runs directly on the Java platform. A special kind of application known as a server and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Webservers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- 3.4.1 **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- 3.4.2 **Applets:** The set of conventions used by applets.
- 3.4.3 **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- 3.4.4 **Internationalization:** Help for writing programs that can be localized for users world wide.
- 3.4.5 **Security:** Both low level and high level, including electronic signatures, public

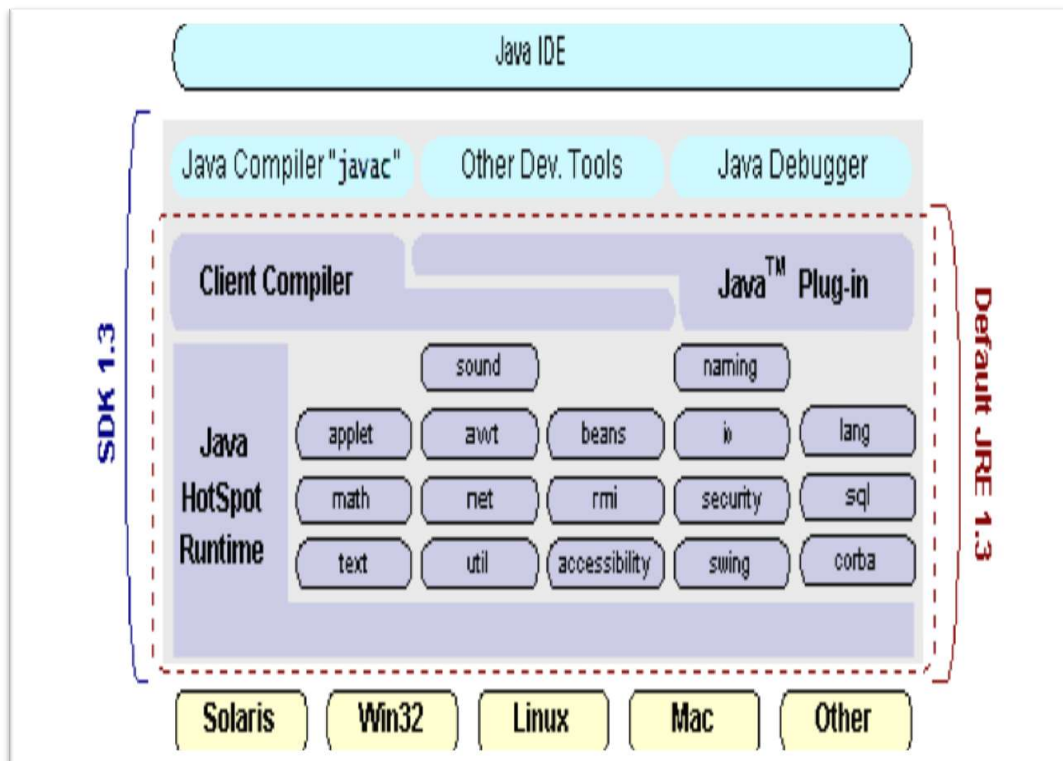


# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

and private key management, access control, and certificates.

- 3.4.6 **Software components:** Known as JavaBeans™, can plug in to existing component architectures.
- 3.4.7 **Objectserialization:** Allows light weight persistence and communication via Remote Method Invocation (RMI).
- 3.4.8 **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java2 SDK.



**Fig6.4: Java IDE**



## 6.5 How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

1. **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
2. **Writeless code:** Comparisons of program metrics (classcounts, methodcounts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
3. **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its Java Beans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
4. **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
5. **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
6. **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
7. **Distribute software more easily:** You can upgrade applets easily from a

## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” with out recompiling the entire program.

### 6.6 ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database system providers. Before ODBC became a *defacto* standard for Windows programs to interface with data base systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, where as the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside any where on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you set up a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST. DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBC ADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database

## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

systems. Even Excel spread sheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And any way, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. May be not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

### 6.7 JDBC

In an effort to set an independent data base standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMS

To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has wide spread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

## 6.8 JDBC

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designer's felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to "generate" JDBC code and to hide many of JDBC's complexities from the end user.

### SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

### JDBC must be implemental on top of common data base interfaces

The JDBC SQL API must "sit" on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

### Provide a Java interface that is consistent with the rest of the Java system

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

Because of Java's acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

## **Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

## **Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT's, INSERT's, DELETE's and UPDATE's, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works. You can think of Java byte codes as the machine code instructions for the Java

Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the JavaVM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

## **6.9 SOCKETS**

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call socket. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
```

```
<sys/types.h
>#include<sys/socket.h>
intsocket(intfamily, inttype,intprotocol);
```

Here "family" will be AF\_INET for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe-but the actual pipe does not yet exist.

## 6.10 JFREE CHART

JFree Chart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFree Chart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications specifically, free software. It is distributed under the terms of the GNU Lesser General Public License (LGPL), which permits use in proprietary applications.

### Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate data set interface (plus default implementation), a rendered, and integrating this with the existing XY Plot class in JFree Chart. Testing, documenting, testing some more, documenting some more.

### Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

## Dash boards

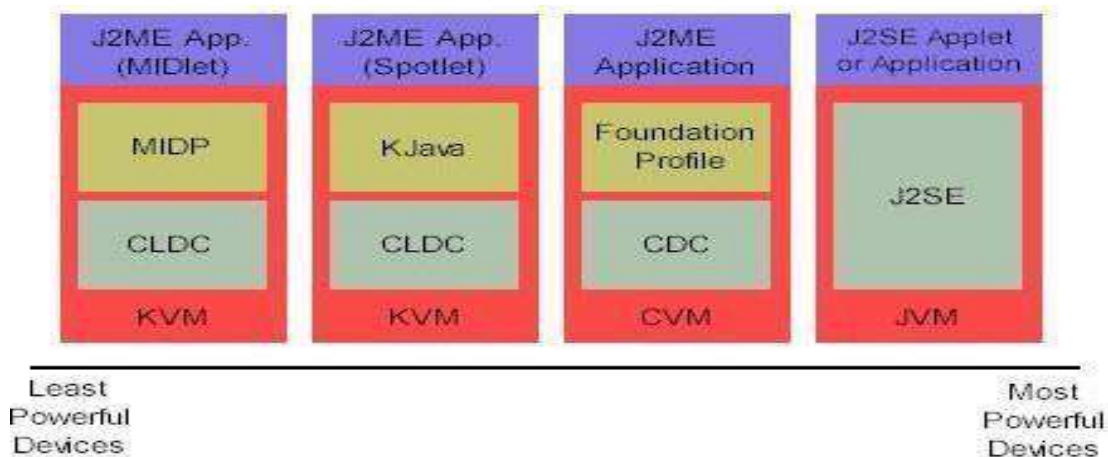
There is currently a lot of interest in dash board displays. Create a flexible dash board mechanism that supports a subset of JFreeChart chart types (dials, pies, thermo meters, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

## Property Editors

The property editor mechanism in JFree Chart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

## 6.11. J2ME (Java2Microedition)

Sun Micro systems defines J2ME as "a highly optimized java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems. "Announced in June 1999 at the JavaOne Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications.



**Fig 6.5: General J2ME Architecture**

J2ME uses configurations and profiles to customize the Java Run time Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environments as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine.

KVM and CVM, are sub sets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

## **Developing J2ME applications**

**Introduction** In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

1. Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
2. Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive files.



## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

3. Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices are to release resources quickly, re use objects, and avoid exceptions.

### **Configurations overview**

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

#### **Connected Limited Device Configuration (CLDC)**

It is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palmhand-held computer. architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

## **7. SYSTEM REQUIREMENTS**

### **7.1 HARDWARE REQUIREMENTS**

- Processor- Intel(R)Core(TM)i3-4200U
- CPU - 1.6GHz
- RAM: 4GB
- HardDisk: 40GB.

### **7.2 SOFTWARE REQUIREMENTS**

- Operating System: windows7 / 8.1 /10/
- Server: ApacheTomcat
- Database: MYSQLServer5.0
- Frontend: HTML, CSS,JS
- Backend: JSP

## 8. SYSTEM DESIGN

### 8.1 DATAFLOW DIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modeling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. ADFD may be used to represent a system at any level of abstraction.

8.1 DATAFLOWDIAGRAM

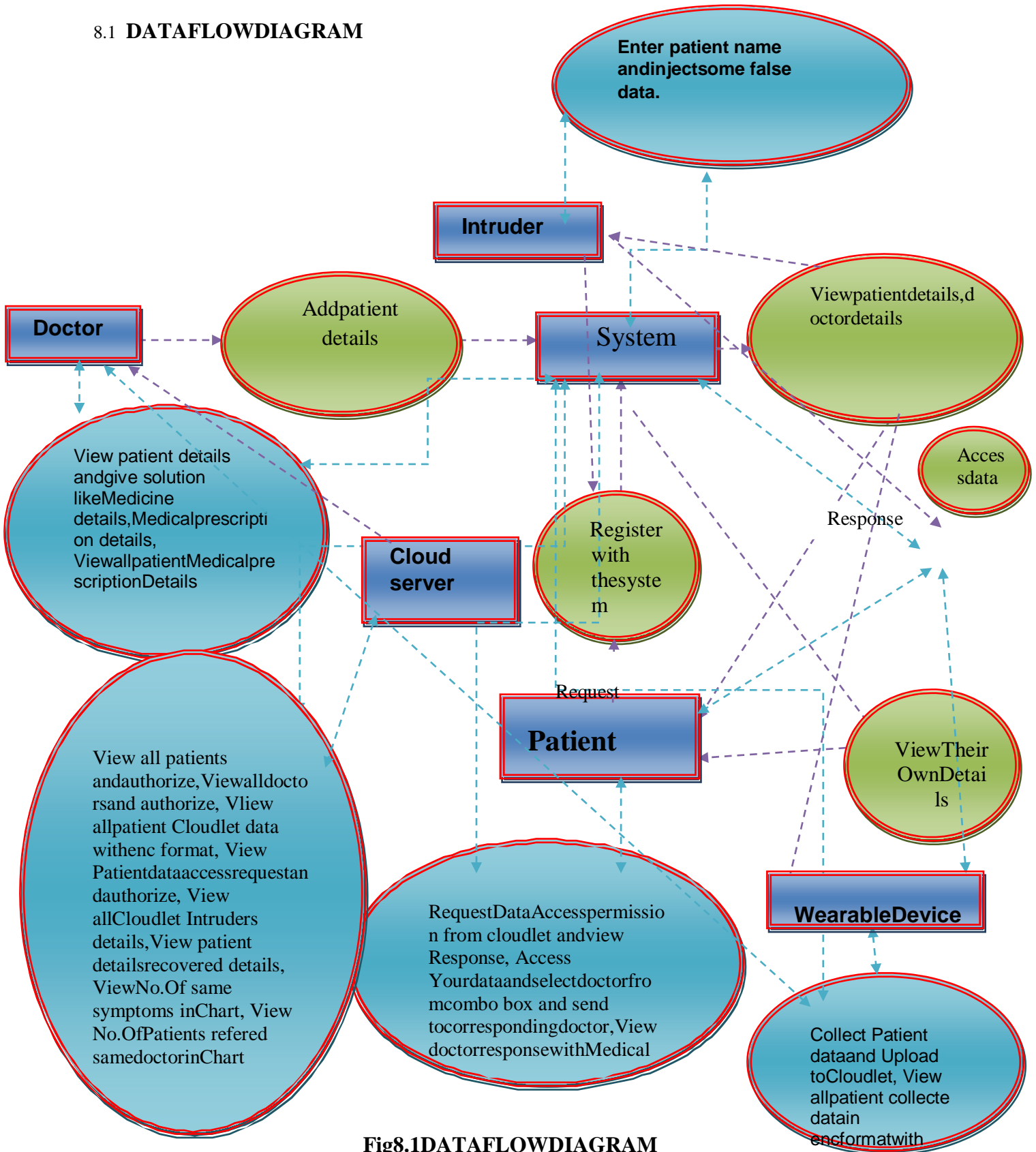


Fig8.1 DATAFLOWDIAGRAM

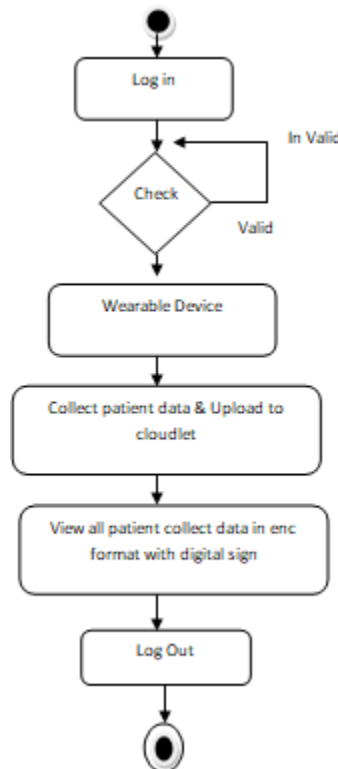
## 8.2 UML DIAGRAMS

### Activity Diagram

Activity diagrams are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system.

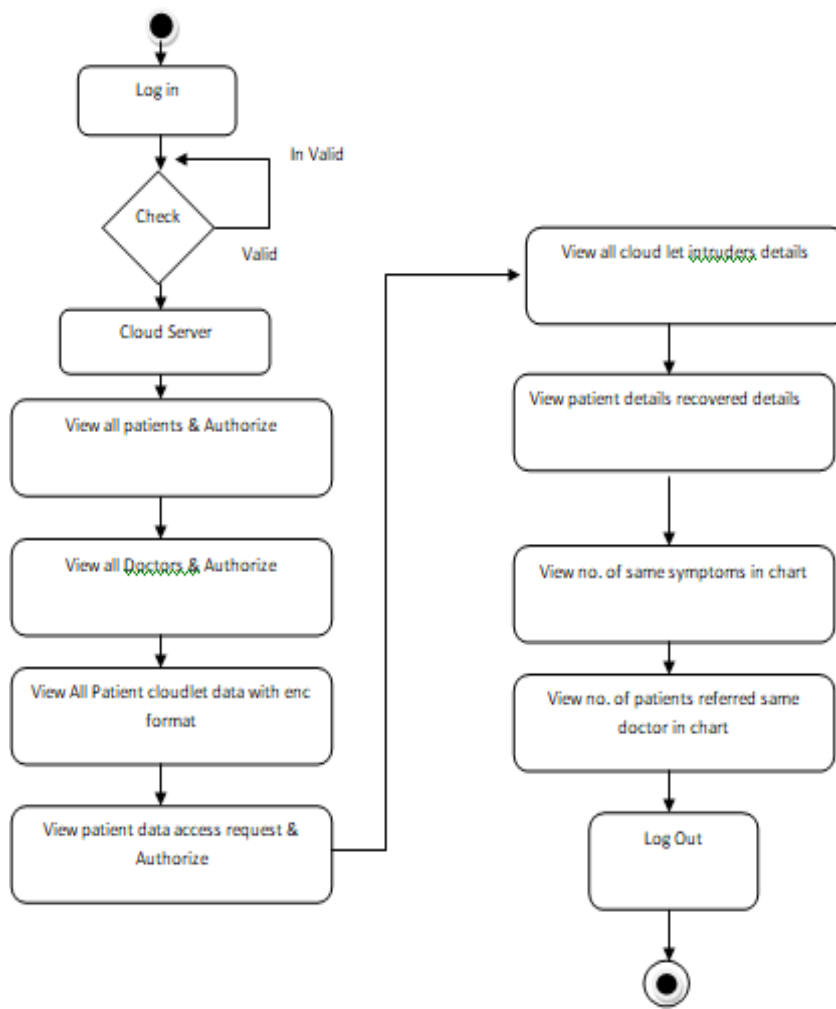
An activity diagram shows the overall flow of control.

### 8.3 Activity Diagram for wearable device



**Fig8.3 Activity Diagram for wearable device**

### 8.4 Activity Diagram for CloudServer



**Fig 8.4 Activity Diagram for Cloud Server**

8.5 Activity Diagram for Patient

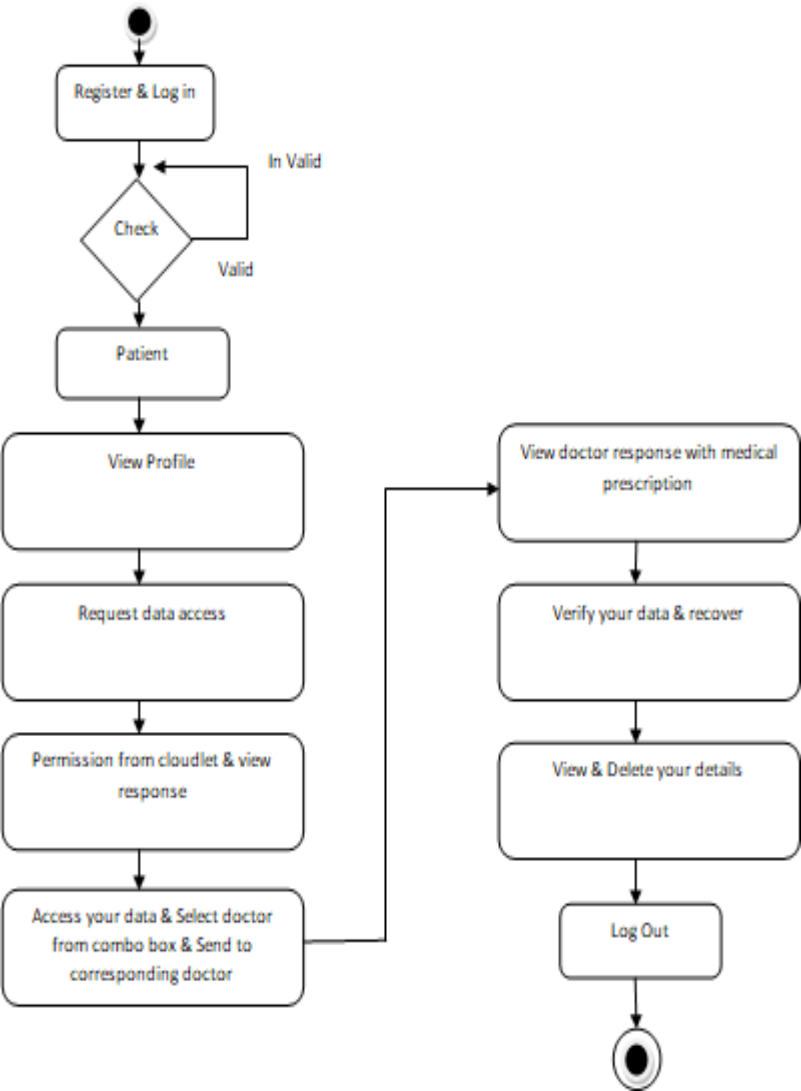
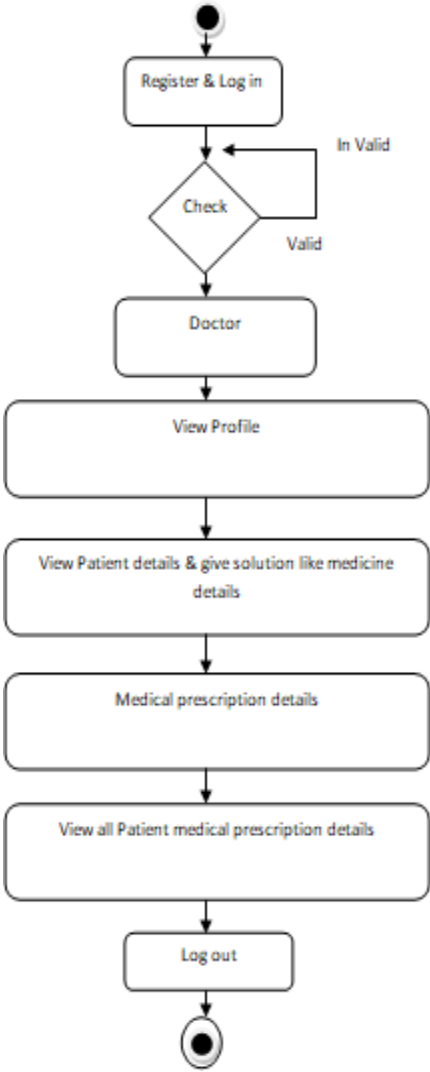


Fig8.5 Activity Diagram for Patient

8.6 Activity Diagram for Doctor



Ac

Fig 8.6 Activity Diagram for Doctor



8.7 Activity Diagram for Intruder

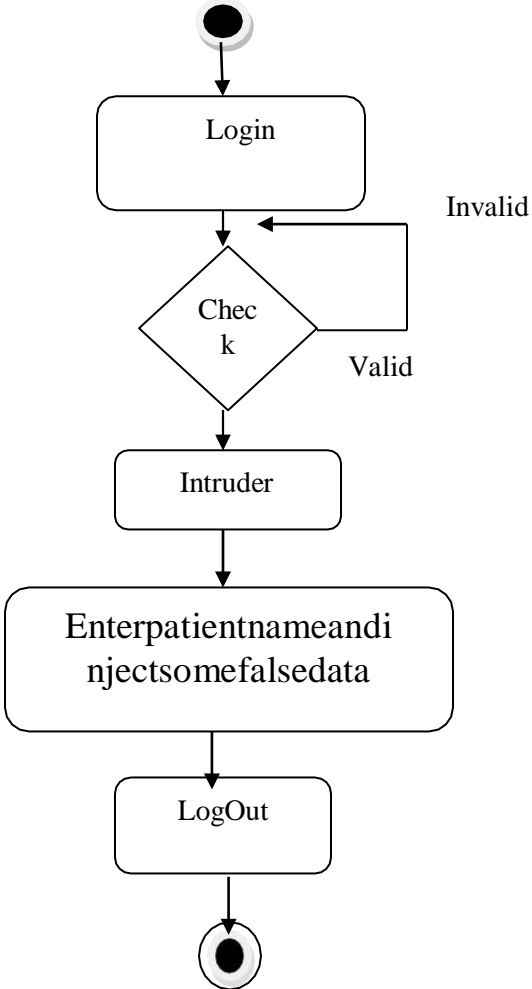
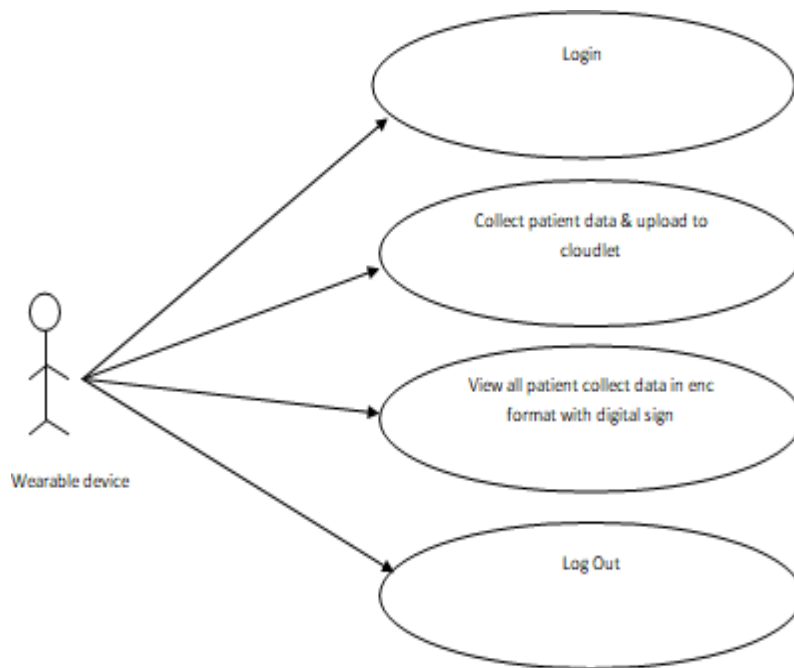


Fig 8.7 Activity Diagram for intruder

## Usecase Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical over view of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

### 8.8 Usecase Diagram for Wearable device



**Fig:8.8 Usecase Diagram for Wearable device**

8.9 Usecase Diagram for cloud server



Fig 8.9 Usecase Diagram for Cloud Server

**8.10 Usecase Diagram for Patient**



**Fig8.10 Usecase Diagram for Patient**

8.11 Usecase Diagram for Doctor



Fig8.11 Usecase Diagram for Doctor

8.12 Usecase Diagram for Intruder

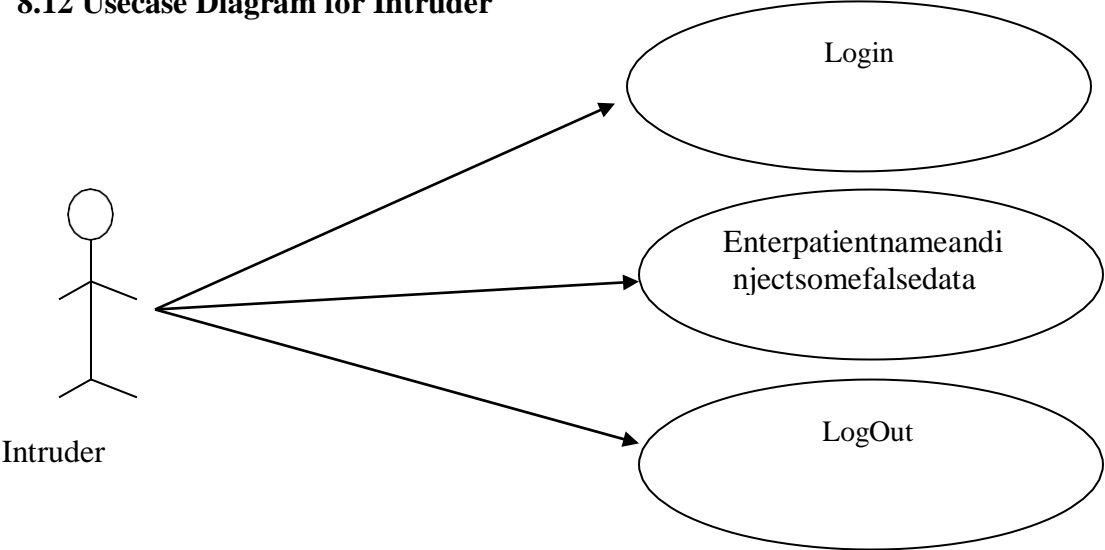


Fig8.12 Usecase Diagram for Intruder

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

## 8.13 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are sometimes called event diagram, event scenarios, and timing diagram.

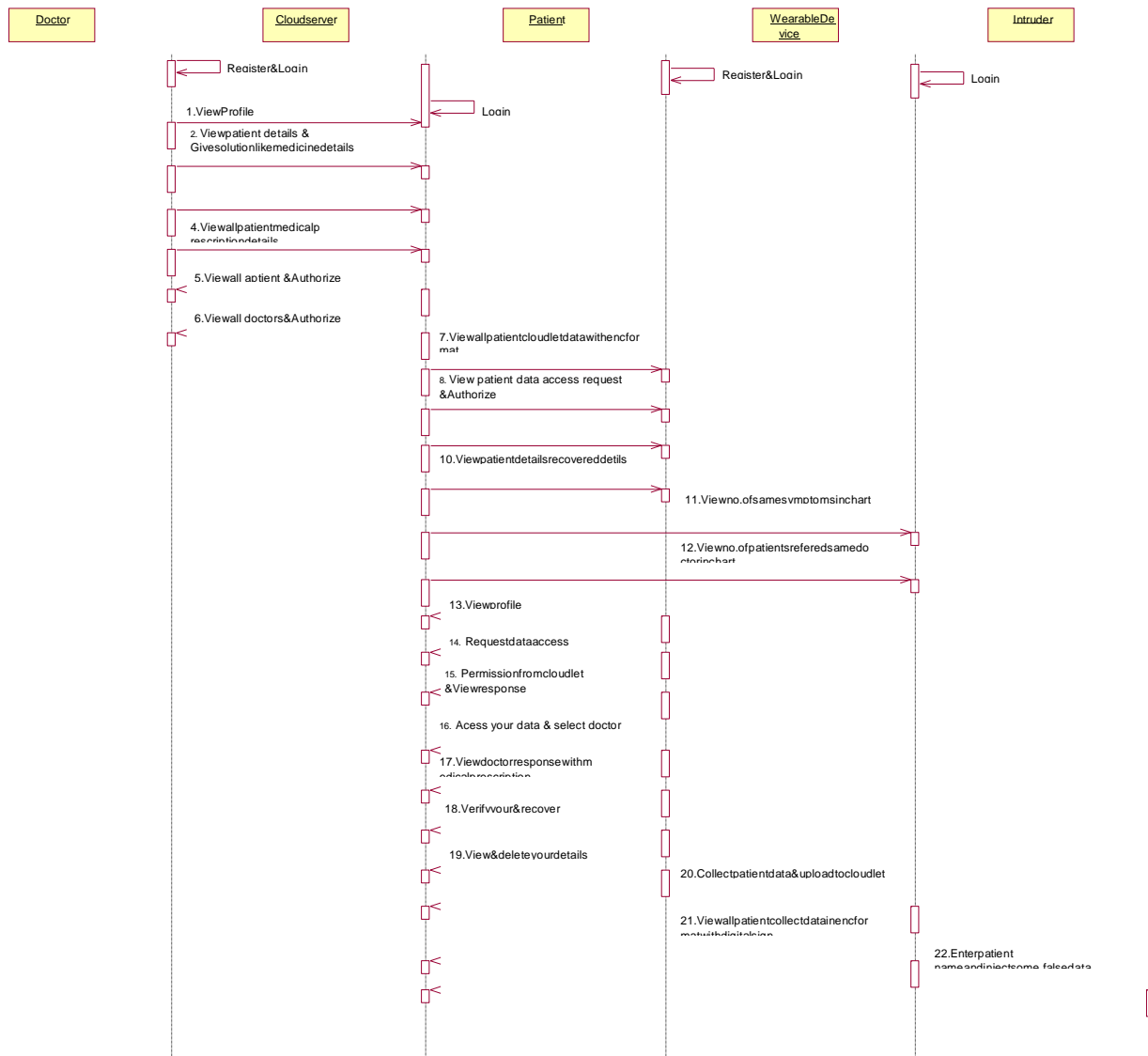


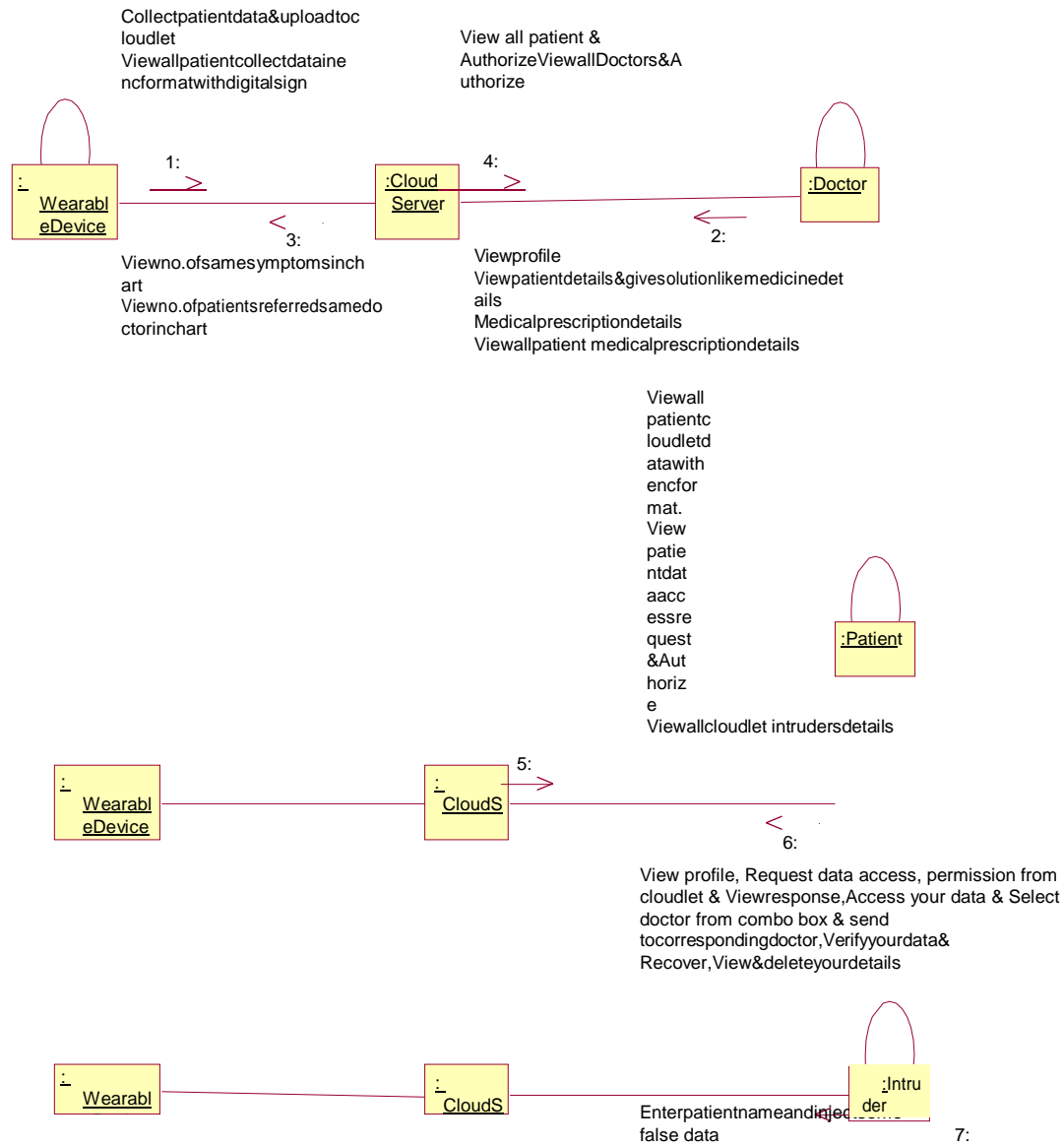
Fig 8.13 Sequence Diagram

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

## 8.14 Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

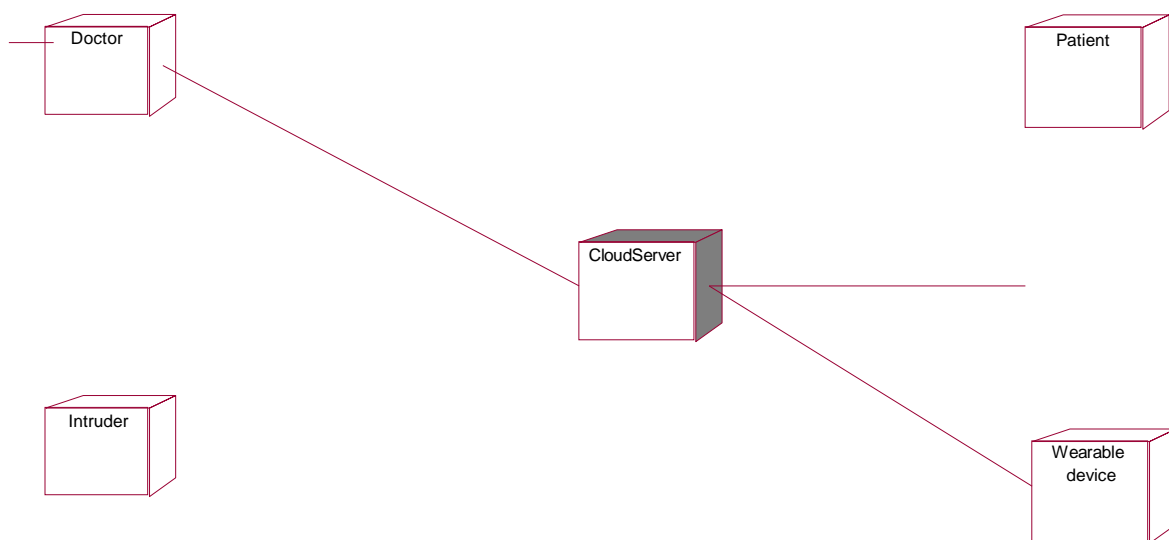


**Fig8.14 Collaboration Diagram**



## 8.15 Deployment diagram

Deployment diagram represents the deployment view of a system. It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.



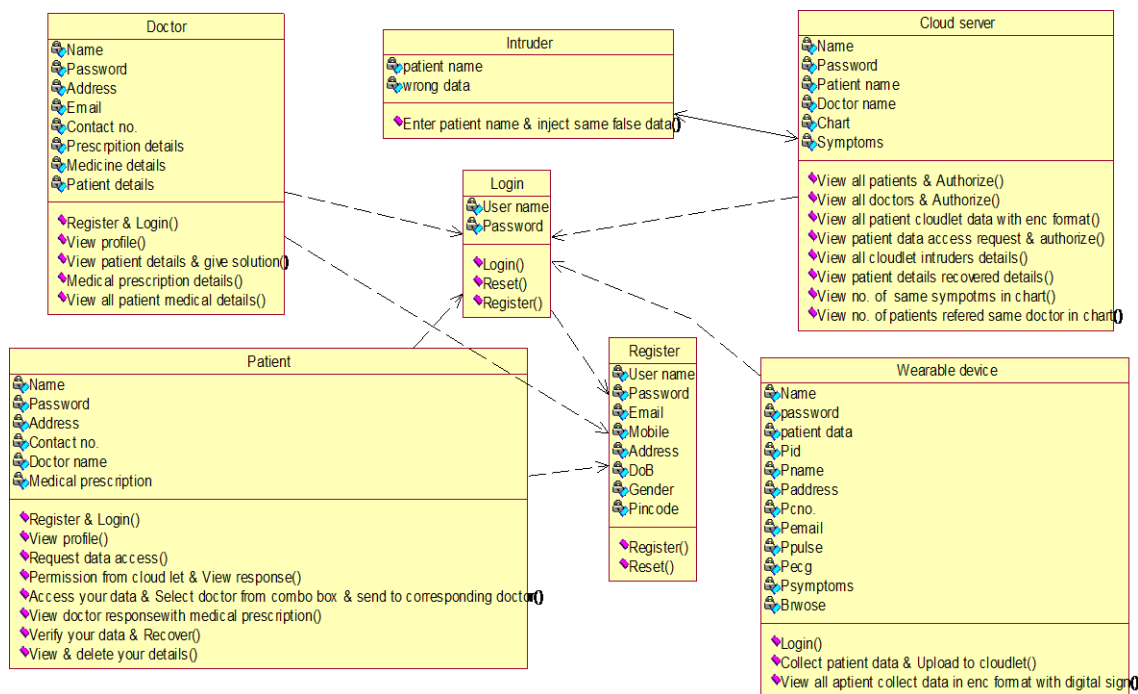
**Fig8.15 Deployment diagram**

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

## 8.16 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items. There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Usecase driven sequence or collaboration approach.
4. Classes, Responsibilities and Collaborators approach.



**Fig 8.16 Class Diagram**

### 8.17 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R Diagram.

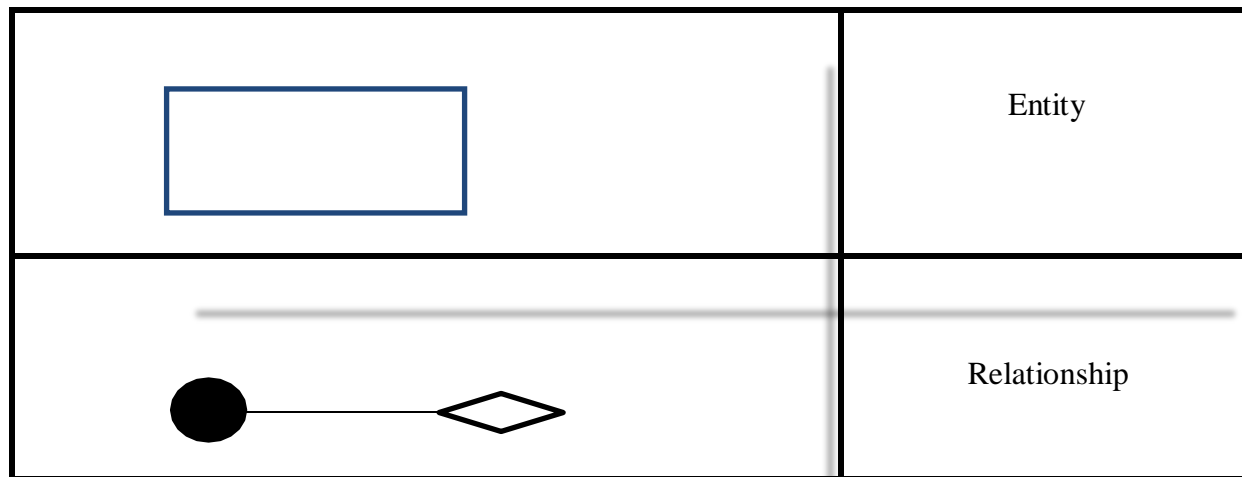


Fig 8.17 E-R Diagram

## 9. IMPLEMENTATION

### 9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

1. What data should be given as input?
2. How the data should be arranged or coded?
3. The dialog to guide the operating personnel in providing input.
4. Methods for preparing input validations and steps to follow when error occur.

### 9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input in to a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user.
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### 9.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
4. Convey information about past activities, current status or projections of the Future.
5. Signal important events, opportunities, problems, or warnings.

## 9.4 CODING

### Index.html

```
<!DOCTYPEhtmlPUBLIC"-
//W3C//DTD XHTML1.0 Transitional//EN""http://www.
w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>HomePage</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<styletype="text/css">
<!--
.style1{font-size:40px}
.style2{

}
.style3{color:#0000FF}
-->
</style>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">

<liclass="active">HomePage
Cloudlet
Doctor
Patient
WearableDevice
Intruder

</div>
<divclass="logo">
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
</div>
 <divclass="clr"></div>
 <divclass="slider">
 <div id="coin-slider"><ahref="#"><imgsrc="ima
ges/slide2.jpg"width="970"height="305"alt=""/><ahref="#">
<imgsrc="images/slide3.jpg"width="970"height="305"alt=""
/></div>
 </div>
 <divclass="clr"></div>
</div>
<divclass="content">
 <divclass="content_resize">
 <divclass="mainbar">
 <divclass="article">
 <h2>PrivacyProtectionandIntrusionAvoidanceforCloudlet-based Medical
Data Sharing </h2>
 <pclass="infopost style2">Privacy protection, data sharing,
collaborative intrusion detection system (IDS), health care.</p>
 <divclass="clr"></div>
 <divclass="img"><imgsrc="images/img1.jpg"width="156"heig
ht="221"alt=""class="fl"/></div>
 <divclass="post_content">
 <palign="justify"class="style2">With the popularity of wearable devices, along
with the development of clouds and cloudlet technology, there has been increasing
need to provide better medical care. The processing chain of medical data mainly
includes data collection, data storage and data sharing, etc.Traditional health care
system often requires the delivery of medical data to the cloud, which involves users'
sensitive information and causes communication energy consumption. Practically,
medical data sharing is a critical and challenging issue. Thus in this paper,we build up
an ovel health care system by utilizing the flexibility of cloudlet.The functions of
cloudlet include privacy protection, data sharing and intrusion detection. In the stageof
data collection, we first utilize Number Theory Research Unit (NTRU) method to
encryptuser's body data collected by wearable devices. Those data will be transmitted
to nearby cloudlet in an energy efficient fashion. Secondly, we present a new trust
model to help users to select trustable partners who want to share stored data in the
cloudlet. The trust model also helps similar patients to communicate with each other
about their diseases. Thirdly, we divide users' medical data stored in remote cloud of
hospital into three parts, and give them proper protection.Finally, in order to protect the
healthcare system from malicious attacks, we develop a novel collaborative intrusion
detection system (IDS) method based on cloudlet mesh, which caneffectively prevent
the remote healthcare big data cloud from attacks. Our experiments demonstrate the
effectiveness of the proposed scheme.</p>

```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
sharing </h2>
 <pclass="infopost"><spanclass="infopoststyle2style3">Privacyprotec
tion,data sharing, collaborative intrusion detection system (IDS),
healthcare.</p>
 <divclass="clr"></div>
 <divclass="img"><imgsrc="images/img2.jpg"width="156"heig
ht="221"alt=""class="fl"/></div>
 <divclass="post_content">
 <p align="justify" class="style2">With the development of healthcare big data
andwearable technology, as well as cloud computing and communication
technologies], cloud-
assistedhealthcarebigdatacomputingbecomescriticaltomeetusers'evergrowingdemandso
nhealth consultation. However, it is challenging issue to personalize specific healthcare
data forvarious users in a convenient fashion. Previous work suggested the
combination of socialnetworks and healthcare service to facilitate the trace of the
disease treatment process for theretrieval of realtime disease information [8].
Healthcare social platform, such as Patients-LikeMe [9], can obtain information from
other similar patients through data sharing in terms ofuser's own findings. Though
sharing medical data on the social network is beneficial to bothpatients and doctors, the
sensitive data might be leaked or stolen, which causes privacy andsecurity problems
without efficient protection for the shared data. Therefore, how to balanceprivacy
protection with the convenience of medical data sharing becomes a
challengingissue.</p>
 </div>
 <divclass="clr"></div>
</div>
<divclass="sidebar">
 <divclass="searchform">
 <formid="formsearch"name="formsearch"method="post"action="#">

 <inputname="editbox_search"class="editbox_search"id="edit
box_search"maxlength="80"value="Searchourste:"type="text" />

 <inputname="button_search"src="images/search.gif"class="b
utton_search"type="image"/>
 </form>
 </div>
 <divclass="clr"></div>
 <divclass="gadget">
 <h2class="star">SidebarMenu</h2>
 <divclass="clr"></div>
 <ulclass="sb_menu">
 HomePage
 Cloudlet
```



# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
Doctor
Patient
WearableDevice
Intruder

</div>
<div class="gadget">
<h2 class="star">Concepts</h2>
<div class="clr"></div>
<ul class="ex_menu">
Privacy protection,
Datasharing,
Collaborative intrusion detection system (IDS),

Healthcare.

</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
<div class="fbg_resize">
<div class="colc1">
<h2>Image Gallery</h2>

</div>
<div class="colc2">
<h2>Concepts</h2>
<p>Privacy protection,</p>
<p>Datasharing,</p>
<p>Collaborative intrusion detection system (IDS),
</p>
<p>Healthcare.</p>
</div>
<div class="colc3">
<h2>Introduction</h2>
```

## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<align="justify" class="style2">A cloudlet based healthcare system is presented, where the privacy of users' physiological data and the efficiency of data transmissions are our main concern. We use NTRU for data protection during data transmission to the cloudlet.</p>
```

```
</div>
<div class="clr"></div>
</div>
</div>
<div class="footer">
<div class="footer_resize">

<div style="clear: both;"></div>
</div>
</div>
</div>
<div align="center"></div>
</body>
</html>
```

### c\_main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>CloudletMain</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8"/>
<link href="css/style.css" rel="stylesheet" type="text/css"/>
<link rel="stylesheet" type="text/css" href="css/coin-slider.css"/>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>

<style type="text/css">
<!--
.style1 { font-size: 40px }
-->
</style>
</head>
<body>
<div class="main">
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<divclass="header">
 <divclass="header_resize">
 <divclass="menu_nav">

 <ahref="index.html">HomePage
 <liclass="active"><ahref="c_login.jsp">Cloudlet
 <ahref="d_login.jsp">Doctor
 <ahref="p_login.jsp">Patient
 <ahref="w_login.jsp">WearableDevice
 <ahref="i_login.jsp">Intruder

 </div>
 <divclass="logo">
 <h1><ahref="index.html" class="style1">PrivacyProtectionandIntrusionAvoidanceforCloudlet-basedMedicalDataSharing</h1>

 </div>
 <divclass="clr"></div>
 <divclass="slider">
 <div id="coin-slider"><ahref="#"><imgsrc="images/slide2.jpg"width="970"height="305"alt=""/><ahref="#"
><imgsrc="images/slide3.jpg"width="970"height="305"alt=""
/></div>
 </div>
 <divclass="clr"></div>
</div>
<divclass="content">
 <divclass="content_resize">
 <divclass="mainbar">
 <divclass="article">
 <h2align="center">WelcometoCloudletMain</h2>
 <p> </p>
 <p> </p>
 <divalign="center"><imgsrc="images/Cloudlet.jpg"width="433"height="206"
/></div>
 </div>
 </div>
 </div>
 <divclass="sidebar">
 <divclass="gadget">
 <h2class="star">CloudletMenu</h2>
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<divclass="clr"></div>
<ulclass="sb_menu">
 ViewAllPatientsandAuthorize

 ViewAllDoctorsandAuthorize

 VliewAllPatientCloudletData

 ViewPatient
DataAccessRequestandAuthorize
 ViewAllCloud
let IntrudersDetails
 ViewPatientRec
overedDetails
 ViewNo.OfSameSy
mptomsinChart
 ViewNo.OfPatients
ReferredSameDoctorinChart
 LogOut

</div>
```

```
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="fbg">
 <divclass="fbg_resize">
 <divclass="colc1">
 <h2>ImageGallery</h2>

 </div>
 </div>
</div>
<divclass="footer">
 <divclass="footer_resize">
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<divstyle="clear:both;"></div>
</div>
</div>
</div>
<divalign=center></div>
</body>
</html>
```

## **c\_login.jsp**

```
<!DOCTYPEhtmlPUBLIC"-
//W3C//DTD XHTML1.0 Transitional//EN""http://www.
w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>CloudletLogin</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<scriptlanguage="javascript"type=
"text/javascript">f
```

```
unctionvalid()
{
varna3=document.
ent.s.userid.val
ue;if(na3=="")
```

```
{
alert("Pl
easeEnte
rName")
;docume
nt.s.useri
d.focus()
;returnfa
lse;
}
else
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
{
}
varna4=document.s.pass.value;if(na4=="")

{
alert("Please EnterPassword");document.s.pass.focus();
returnfalse;
}

}
</script>

<styletype="text/css">
<!--
.style1{font-size:40px}
.style2{font-family:"TimesNewRoman",Times,serif}
.style4{font-size:20px}
.style5{color:#990000}
-->
</style>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">

HomePage
<liclass="active">Cloudlet
Doctor
Patient
WearableDevice
Intruder

</div>
</div>
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<divclass="logo">
 <h1><ahref="index.html" class="style1">PrivacyProtectionandIntrusionAvoidanceforCloudlet-basedMedicalDataSharing</h1>
</div>
<divclass="clr"></div>
<divclass="slider">
 <div id="coin-slider"><ahref="#"><imgsrc="images/slide2.jpg"width="970"height="305"alt=""/><ahref="#"
><imgsrc="images/slide3.jpg"width="970"height="305"alt=""
/></div>
</div>
<divclass="clr"></div>
</div>
<divclass="content">
 <divclass="content_resize">
 <divclass="mainbar">
 <divclass="article">
 <h2align="center">CloudletLogIn</h2>
 <p> </p>
<formname="s"action="c_authentication.jsp"
method="post"onSubmit="returnvalid()"onstarget="_top">

 <tablealign="center"border="1"width="51%"height="165">

 <tr>
 <tdwidth="48%"height="36"bgcolor="#FF9999"class="style5style2"><spanclass="style9style6style2style4style5">Name</td>
 <tdwidth="55%"height="36"bgcolor="#FF9999"><inputname="userid"type="text"size="15" /></td>
 </tr>
 <tr>
 <tdwidth="48%"height="36"bgcolor="#FF9999"class="style5style2"><spanclass="style9style6style2style4style5">Password</td>
 <tdwidth="55%"height="36"bgcolor="#FF9999"><inputname="password"type="password"size="15" /></td>
 </tr>

 </table>

</div>
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<tdheight="78"colspan="2"bgcolor="#999999"><align="center">
 <inputtype="submit"value="Login"name="B1"/>
 <inputtype="reset"value="Reset"name="B2"/>
</td>
</tr>
</table>
</form>
</div>
</div>
<divclass="sidebar">
 <divclass="gadget">
 <h2class="star">SidebarMenu</h2>
 <divclass="clr"></div>
 <ulclass="sb_menu">
 HomePage
 Cloudlet
 Doctor
 Patient
 WearableDevice
 Intruder

 </div>
</div>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="fbg">
 <divclass="fbg_resize">
 <divclass="colc1">
 <h2>ImageGallery</h2>
 <imgsrc="images/gal1.jpg"width="75"height="75"alt=""class="gal"/>

 <imgsrc="images/gal6.jpg"width="75"height="75"alt=""class="gal"/></div>
 <divclass="clr"></div>
 </div>
</div>
<divclass="footer">
 <divclass="footer_resize">
 <divstyle="clear:both;"></div>
 </div>
</div>
```



# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## **c\_authentication.jsp**

```
<% @pageimport="java.sql.*"%>
<% @include file="connect.jsp"%>
<% @pageimport="java.util.Date"%>
<% @pageimport="com.oreilly.servlet.*"%>
<% @pageimport="java.text.SimpleDateFormat"%>
<% @pageimport="javax.crypto.Cipher"%>
<% @pageimport="org.bouncycastle.util.encoders.Base64"%>
<%

 try
 {

 String
 username=request.getParameter("userid
 ");String
 Password=request.getParameter("pass")
 ;

 //application.setAttribute("csp",username);

 Stringsql="SELECT*FROMcloudlet
 wherename='"+username+"'andpass='"+Password+"'";
 Statementstmt=connection.c
 reateStatement();ResultSetrs
 =stmt.executeQuery(sql);

 if(rs.next()==true)
 {

 response.sendRedirect("c_main.jsp"){
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
 else
 {

 }
 }

 catch(Exceptione)
 {
 out.print(e);
 }

%>
```

## c\_d Status.jsp

```
<% @include file="connect.jsp"%>
<%

try{

 Stringid=request.g
 etParameter("id");
 Stringstr=
 "Authorized";
 Statementst1=connection.createStatement();
 Stringquery1="updatedoctorssetStatus="+str+"whe
 reid="+id+"";st1.executeUpdate(query1);
 connection.close();respons
 e.sendRedirect("c_all_doc.j
 sp");

 }
 catch(Exceptione)
 {

 out.println(e.getMessage());

 }

<!DOCTYPEhtmlPUBLIC"-
//W3C//DTD XHTML1.0 Transitional//EN""http://www.
w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<head>

<title>CloudletIntrudersDetails</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>

<styletype="text/css">
<!--
.style1 { font-size:40px }
.style6 { font-size:18px }
.style7 { font-family:"TimesNewRoman",Times,serif }
.style8 { font-size:20px }
.style9 { color:#0000FF }
.style10 { color:#000000 }
-->
</style>
</head>
<body>
<divclass="main">
 <divclass="header">
 <divclass="header_resize">
 <divclass="menu_nav">

 HomePage
 <li class="active">Cloudlet
 Doctor
 Patient
 WearableDevice
 Intruder

 </div>
 <divclass="logo">
 <h1>PrivacyProtectionandIntrusionAvoidanceforCloudlet-basedMedicalDataSharing</h1>
 </div>
 <divclass="clr"></div>
 <divclass="slider">
 <div id="coin-slider"><ahref="#"><imgsrc="ima
ges/slide2.jpg"width="970"height="305"alt=""/><ahref="#"
><imgsrc="images/slide3.jpg"width="970"height="305"alt=""
/></div>
</div>

<divclass="clr"></div>
</div>
</div>
<divclass="content">
<divclass="content_resize">
<divclass="mainbar">
<divclass="article">
<h2align="center">ViewAllCloudletIntrudersDetails</h2>
<p> </p>
<tablewidth="541"border="1.5"cellpadding="0"cellspacing="0"align="center">
<trbgcolor="#00FF33">
<tdwidth="57"height="54"bgcolor="#9eb8dd"><divalign="center"class
="style12style13style14style7style8style9">Si.No.</div></td>
<tdwidth="203"bgcolor="#9eb8dd"><divalign="center"class="style12s
tyle13style16style7style8style9">ReportId</div></td>
<tdwidth="203"bgcolor="#9eb8dd"><divalign="center"cla
ss="style12style13style16style7style8style9">PatientName</div></td>
<tdwidth="203"bgcolor="#9eb8dd"><divalign="cente
r"class="style12style13
style16style7style8style9">ReportCollectedDate</div></td>
<tdwidth="203"bgcolor="#9eb8dd"><divalign="center"class="style12s
tyle13style16style7style8style9">ViewDetails</div></td>
</tr>

<% @include file="connect.jsp"%>
<%
```

```
Strings1="",s2="",s3="",s4="",s5="",s6="",s7="",s8,s9="",s10,s11,s12,s13;
inti=0,j=1,k=0;
```

```
try
{
 Stringquery="select*fromcloudlet_fileswhereupload_by!='Device'";
 Statementst=connection.createStatement();
 ResultSets=st.executeQuery(query);while
(rs.next())
{
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<%
 j=j+1;}
 connection.close();
 }

 catch(Exceptione)
 {
 out.println(e.getMessage());
 }
%>
</table>
<p> </p>
 <align="right">Back</p>
</div>
</div>
<div class="sidebar">
 <div class="gadget">
 <h2 class="star">CloudletMenu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 CloudletMain
 LogOut

 </div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="colc1">
 <h2>ImageGallery</h2>

 </div>
 </div>
</div>
<div class="clr"></div>
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
</div>
</div>
<divclass="footer">
 <divclass="footer_resize">
 <divstyle="clear:both;"></div>
 </div>
</div>
<divalign=center></div>
</body>
</html>
```

## **c doc profile.jsp**

```
<!DOCTYPEhtmlPUBLIC"-
//W3C//DTD XHTML1.0 Transitional//EN""http://www.
w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>DoctorProfile</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>

<styletype="text/css">
<!--
.style1 { font-size:40px }
.style7 { font-size:18px }
.style8 { font-family:"TimesNewRoman",Times,serif }
.style9 { font-size:20px }
.style11 { color:#000000 }
.style12 { color:#0000FF }
-->
</style>
</head>
<body>
<divclass="main">
 <divclass="header">
 <divclass="header_resize">
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<divclass="menu_nav">

 HomePage
 <li class="active">Cloudlet
 Doctor
 Patient
 WearableDevice
 Intruder

</div>
<divclass="logo">
 <h1>PrivacyProtectionandIntrusionAvoidanceforCloudlet-basedMedicalDataSharing</h1>
</div>

<divclass="clr"></div>
<divclass="slider">
 <div id="coin-slider"></div>
</div>
</div>
<divclass="footer">
 <divclass="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## d\_main.jsp

```
<!DOCTYPEhtmlPUBLIC"-
//W3C//DTD XHTML1.0 Transitional//EN" "http://www.
w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>DoctorMain</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8"/>
<link href="css/style.css" rel="stylesheet" type="text/css"/>
<link rel="stylesheet" type="text/css" href="css/coin-slider.css"/>
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>

<styletype="text/css">
<!--
.style1 {font-size:40px}
.style6 {color:#0000FF}
.style7 {font-weight:bold}
-->
</style>
</head>
<body>
<divclass="main">
 <divclass="header">
 <divclass="header_resize">
 <divclass="menu_nav">

 HomePage

 Cloudlet
 <liclass="active">Doctor
 Patient
 WearableDevice
 Intruder

 </div>
 <divclass="logo">
 <h1>PrivacyProtectionandIntrusionAvoidanceforCloudlet-basedMedicalDataSharing</h1>
 </div>
 <divclass="clr"></div>
 <divclass="slider">
 <div id="coin-slider"><imgsrc="images/slide2.jpg"width="970"height="305"alt=""/><imgsrc="images/slide3.jpg"width="970"height="305"alt=""/></div>
 </div>
 <divclass="clr"></div>
 </div>
 </div>
</body>
</div>
```



# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
</div>
<divclass="content">
 <divclass="content_resize">
 <divclass="mainbar">
 <divclass="article">
 <h2align="center">WelcometoDoctorMain:<spanclass="style6">
<%=application.getAttribute("doc")%></h2>
 <p><imgsrc="images/Doctor.jpg"width="612"height="218"/></p>
 </div>
 </div>
 </div>
 <divclass="sidebar">
 <divclass="gadget">
 <h2class="star">DoctorMenu</h2>
 <divclass="clr"></div>
 <ulclass="sb_menustyle7">
 MyProfile
 ViewPatientDetailsandGiveSolution
 ViewAllP
atient MedicalPrescriptionDetails
 LogOut

 </div>
 </div>
 <divclass="clr"></div>
</div>
<divclass="fbg">
 <divclass="fbg_resize">
 <divclass="colc1">
 <h2>ImageGallery</h2>
 <imgsrc="images/gal1.jpg"width="75"height="75"alt=""class="gal"/
>

 <imgsrc="images/gal6.jpg"width="75"height="75"alt=""class="gal
"/></div>
 <divclass="clr"></div>
 </div>
</div>
<divclass="footer">
 <divclass="footer_resize">
 <divstyle="clear:both;"></div>
 </div>
</div>
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## d\_login.jsp

```
<!DOCTYPEhtmlPUBLIC"-
//W3C//DTD XHTML1.0 Transitional//EN" "http://www.
w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>DoctorLogin</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8"/>
<link href="css/style.css" rel="stylesheet" type="text/css"/>
<link rel="stylesheet" type="text/css" href="css/coin-slider.css"/>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<script language="javascript" type=
"text/javascript">function valid()
{
var na3=document.s.userid.value;if(na3=="")
{
alert("Please Enter Name")
;document.s.userid.focus()
;return false;
}
else
{
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
}
varna4=document.s.pass.
value;if(na4
=="")

{
alert("Please
EnterPassw
ord");docum
ent.s.pass.fo
cus();
returnfalse;
}

}
</script>

<styletype="text/css">
<!--
.style1 { font-size:40px}

.style2 { font-family:"TimesNewRoman",Times,serif}
.style4 { font-size:20px}
.style5 { color:#990000}
.style7 { font-family:"TimesNewRoman",Times,serif;font-size:20px;}
.style8 { font-family:"TimesNewRoman",Times,serif;font-size:25px;}
-->
</style>
</head>
<body>
<divclass="main">
<divclass="header">
<divclass="header_resize">
<divclass="menu_nav">

HomePage
<liclass="active">Cloudlet
Doctor
Patient
WearableDevice
Intruder

</div>
</div>
</div>
</div>
</body>
</html>
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
</div>
<divclass="logo">
 <h1>PrivacyProtectionandIntrusionAvoidanceforCloudlet-basedMedicalDataSharing</h1>
</div>
<divclass="clr"></div>
<divclass="slider">
 <div id="coin-slider"><imgsrc="images/slide2.jpg"width="970"height="305"alt=""/><imgsrc="images/slide3.jpg"width="970"height="305"alt=""/></div>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="content">
 <divclass="content_resize">
 <divclass="mainbar">
 <divclass="article">
 <h2align="center">Doctor LogIn</h2>
 <p>
</div>
</div>
<divclass="sidebar">
 <divclass="gadget">
 <h2class="star">SidebarMenu</h2>
 <divclass="clr"></div>
 <ulclass="sb_menu">
 HomePage
 Cloudlet
 Doctor
 Patient
 WearableDevice
 Intruder

 </div>
</div>
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="fbg">
 <divclass="fbg_resize">
 <divclass="colc1">
```

## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
<h2>ImageGallery</h2>

</div>
<div class="clr"></div>
</div>
</div>
<div class="footer">
<div class="footer_resize">
<div style="clear:both;"></div>
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

## i\_login.jsp

```
<!DOCTYPEhtmlPUBLIC"-
//W3C//DTD XHTML1.0 Transitional//EN""http://www.
w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<htmlxmlns="http://www.w3.org/1999/xhtml">
<head>
<title>UploadPatientDatatoCloudlet</title>
<metahttp-equiv="Content-Type"content="text/html;charset=utf-8"/>
<linkhref="css/style.css"rel="stylesheet"type="text/css"/>
<linkrel="stylesheet"type="text/css"href="css/coin-slider.css"/>
<scripttype="text/javascript"src="js/cufon-yui.js"></script>
<scripttype="text/javascript"src="js/cufon-aller.js"></script>
<scripttype="text/javascript"src="js/jquery-1.4.2.min.js"></script>
<scripttype="text/javascript"src="js/script.js"></script>
<scripttype="text/javascript"src="js/coin-slider.min.js"></script>
<scripttype="text/javascript"language="javascript">

functionvalid()
{

varna1=do
cument.s.p
1.value;if(
na1=="")
{
alert("PleaseEnte
rPatient
Name");docume
nt.s.p1.focus();
returnfalse;
}
}

</script>

<styletype="text/css">
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
</div>
<divclass="clr"></div>
</div>
</div>
<divclass="content">
 <divclass="content_resize">
 <divclass="mainbar">
 <divclass="article">
 <h2align="center">PatientLogIn</h2>
<formname="s"action="p_authentication.jsp"method="post"onSubmit="returnvalid()"
onstarget="_top">

 <tablealign="center"border="1"width="51%"height="165">
 <tr>
 <tdwidth="48%"height="36"bgcolor="#FF9999"class="style5style2"><spanclass="style9style6style2style4style5">Name</td>
 <tdwidth="55%"height="36"bgcolor="#FF9999"><inputname="userid"
type="text"size="15" /></td>
 </tr>
 <tr>
 <tdwidth="48%"height="36"bgcolor="#FF9999"class="style5style2"><spanclass="style9style6style2style4style5">Password</td>
 <tdwidth="55%"height="36"bgcolor="#FF9999"><inputname="password"
type="password"size="15" /></td>
 </tr>
 <tr>
 <tdheight="78"colspan="2"bgcolor="#999999"><palign="center">
 <inputtype="submit"value="Login"name="B1"/>
 <inputtype="reset"value="Reset"name="B2"/>
 </td>
 </tr>
 </table>
 <palign="center"><spanclass="style7">NewUser?RegisterHere</p>
</form>
</div>
</div>
<divclass="sidebar">
 <divclass="gadget">
 <h2class="star">SidebarMenu</h2>
 <divclass="clr"></div>
 <ulclass="sb_menu">
```

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
HomePage
Cloudlet
Doctor

Patient
WearableDevice
Intruder

</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
<div class="fbg_resize">
<div class="colc1">
<h2>ImageGallery</h2>

</div>
<div class="clr"></div>
</div>
</div>
<div class="footer">
<div class="footer_resize">
<div style="clear:both;"></div>
</div>
</div>
</div>
<div align=center></div>
</body>
</html>
```



# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

```
</div>
</div>
<divclass="sidebar">
 <divclass="gadget">
 <h2class="star">SidebarMenu</h2>
 <divclass="clr"></div>
 <ulclass="sb_menu">
 HomePage
 Cloudlet
 Doctor
 Patient
 WearableDevice
 Intruder

 </div>
</div>
<divclass="clr"></div>
</div>
<divclass="fbg">
 <divclass="fbg_resize">
 <divclass="colc1">
 <h2>ImageGallery</h2>

 </div>
 </div>
</div>
<divclass="footer">
 <divclass="footer_resize">
 <divstyle="clear:both;"></div>
 </div>
</div>
```

## 10. SYSTEM TESTING

### SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### 10.1 TYPES OF TESTING

#### Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, they are consistent.

## **Functional test**

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted. Invalid Input : identified classes of invalid input must be rejected. Functions : identified functions must be exercised.
- Output : identified classes of application outputs
- Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

## **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

## **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level

## **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test

provides inputs and responds to outputs without considering how the software works.

## 10.2 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

### Test objectives

The following points are based on the Test objectives:

1. All field entries must work properly.
2. Pages must be activated from the identified link.
3. The entry screen, messages and responses must not be delayed.

### Features to be tested

The following are the features of test:

1. Verify that the entries are of the correct format
2. No duplicate entries should be allowed
3. All links should take the user to the correct page.

### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

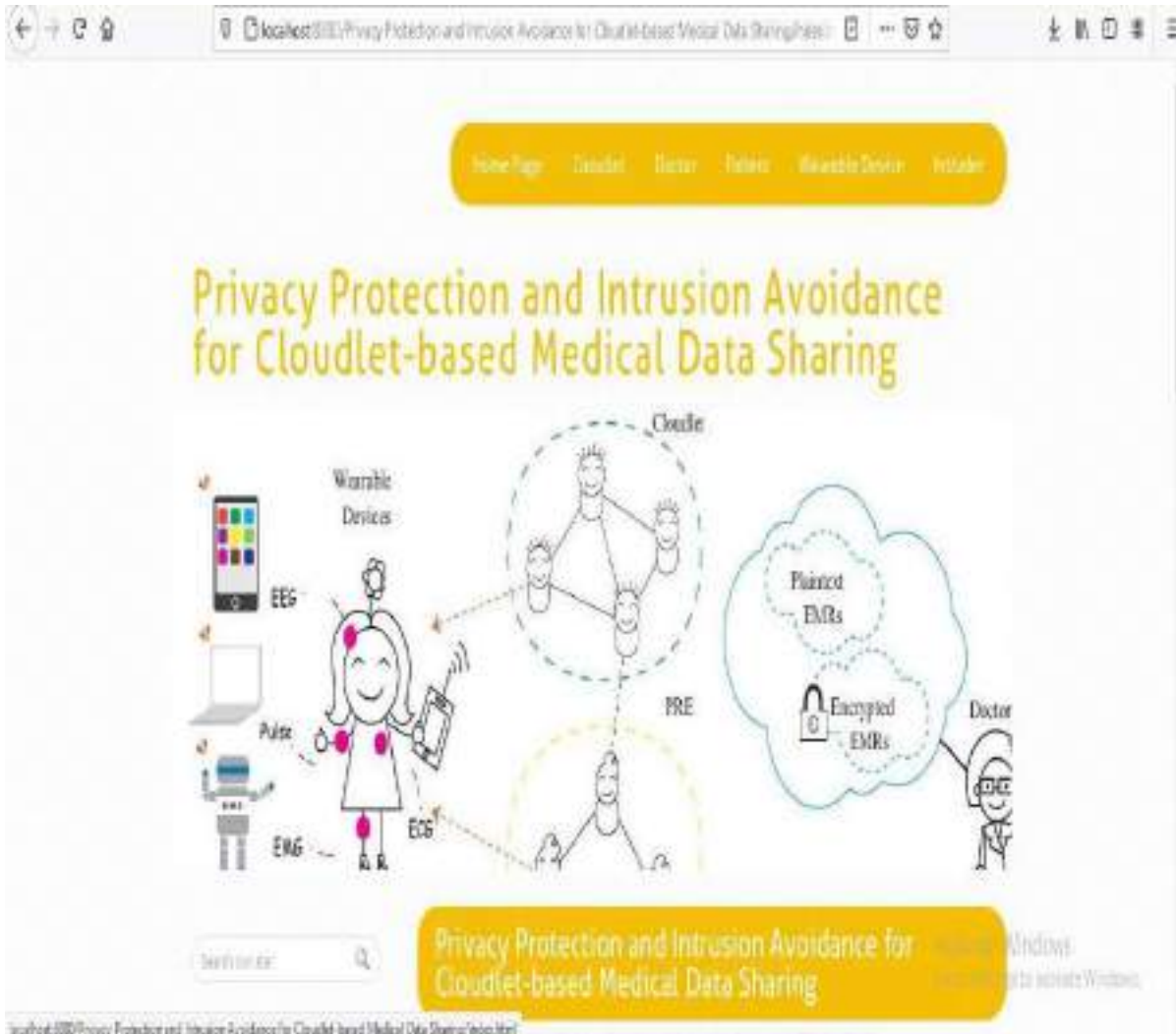
### Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

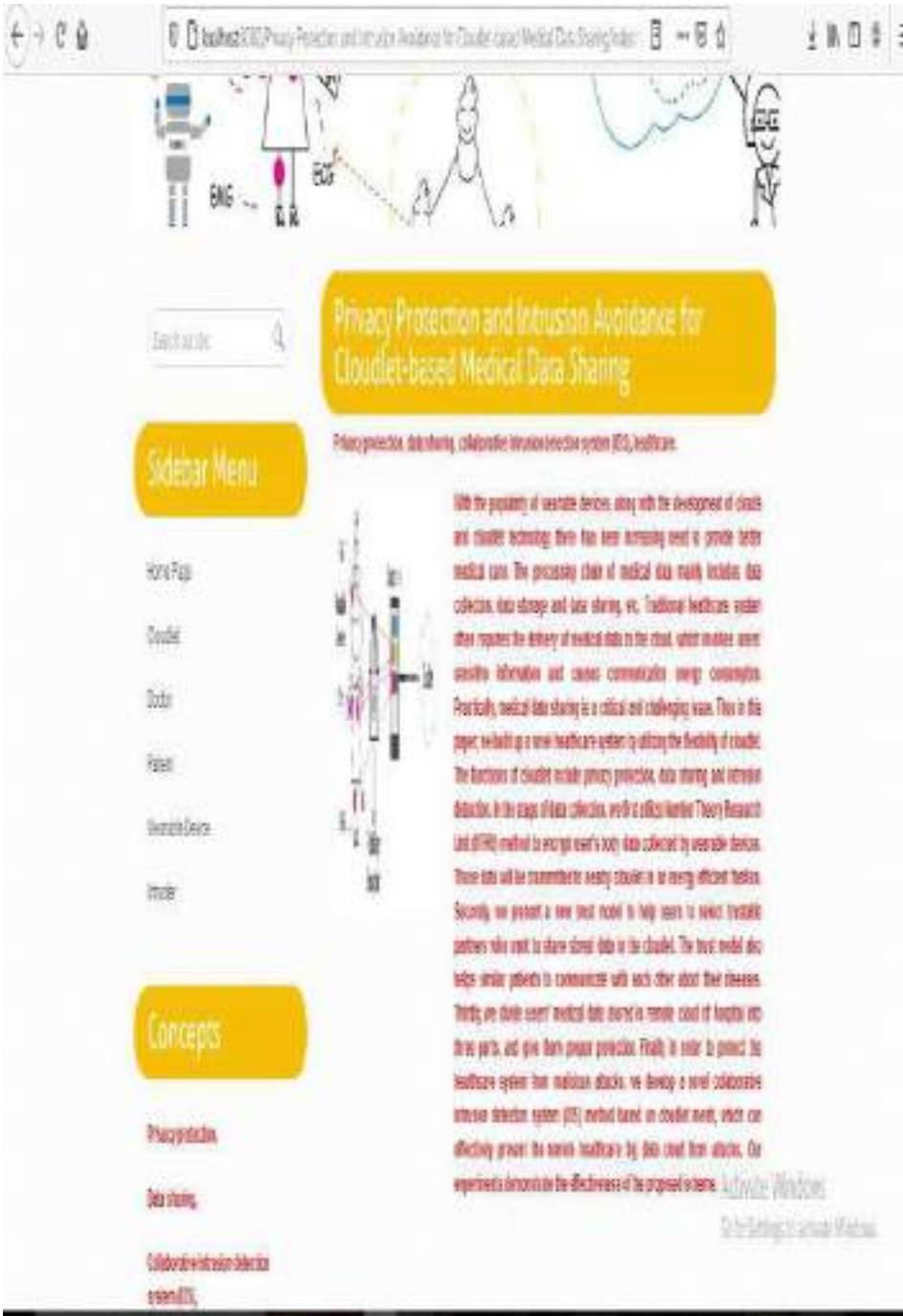
## 11. OUTPUT SCREENS

### Screen 1: Home page



Home screen will show all modules of the project named Privacy Protection and Intrusion Avoidance for Cloudlet-based Medical Data Sharing.

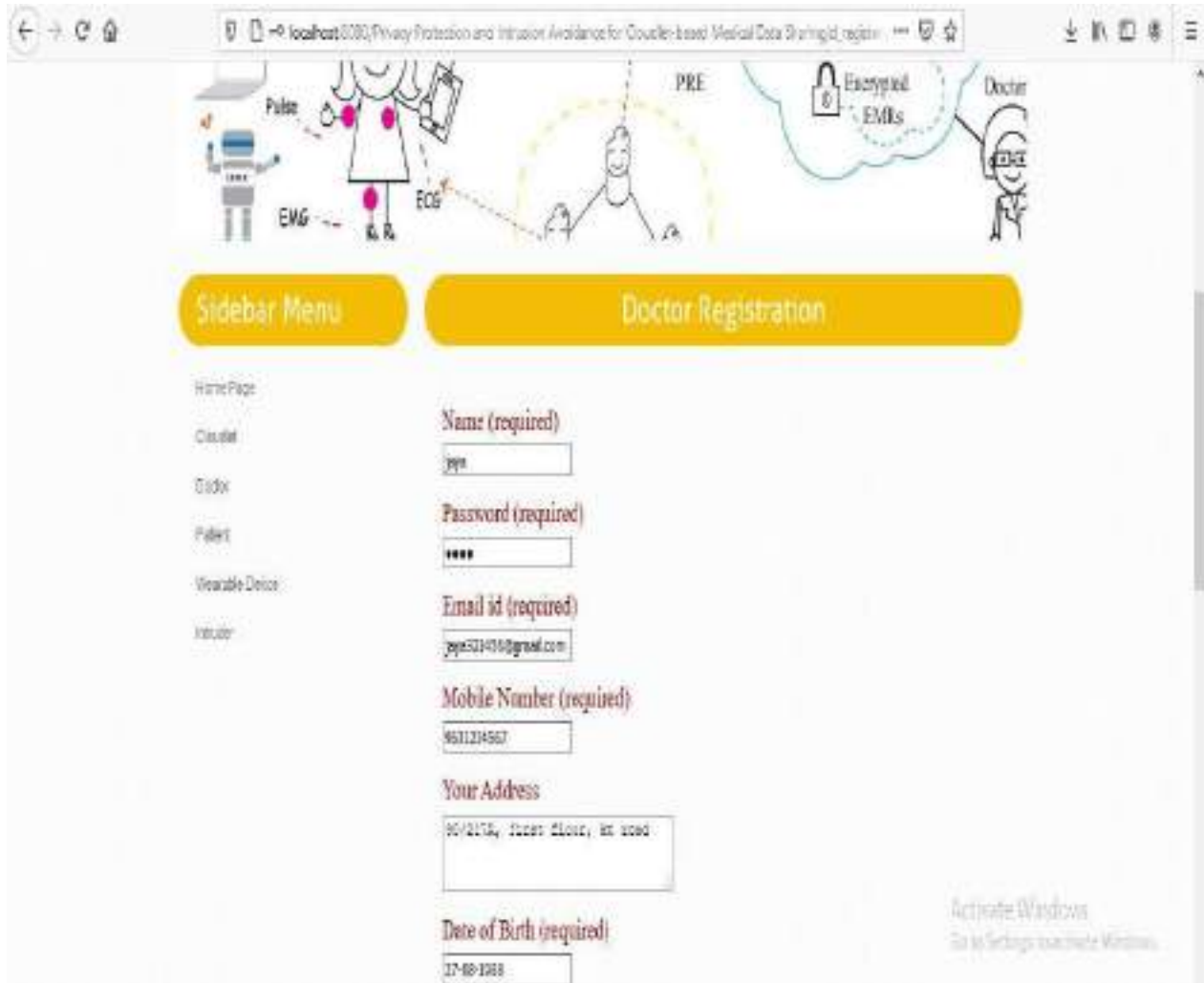
# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing



It will shows all the menus which are include in the home screen.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

## Screen: 2 Doctor Registration



Doctor Registration page will shows how to register the new doctor for login into the application

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

The image shows a web browser window displaying a registration form. The browser's address bar shows the URL: localhost:8080/Privacy-Protection-and-Intrusion-Avoidance-for-Cloudlet-based-Medical-Data-Sharing/register. The form contains the following fields and values:

- Email id (required):** jga121438@ymail.com
- Mobile Number (required):** 9871234567
- Your Address:** 80/217A, first floor, kr road
- Date of Birth (required):** 27-10-1988
- Select Gender (required):** Male
- Enter Pincode (required):** 517504
- Enter Location (required):** Inrapet
- Select Profile Picture (required):** Browse... image (111).jpg

At the bottom of the form, there is a **REGISTER** button. In the bottom right corner of the browser window, there is a watermark that says "Activate Windows" and "Go to Settings to activate Windows."

This can be shown how to register, after giving the all above information of the Doctor.



# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

## Screen:3 Doctor Login



Doctor login screen will shows how to login into the doctor’s module, after registering the doctor.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

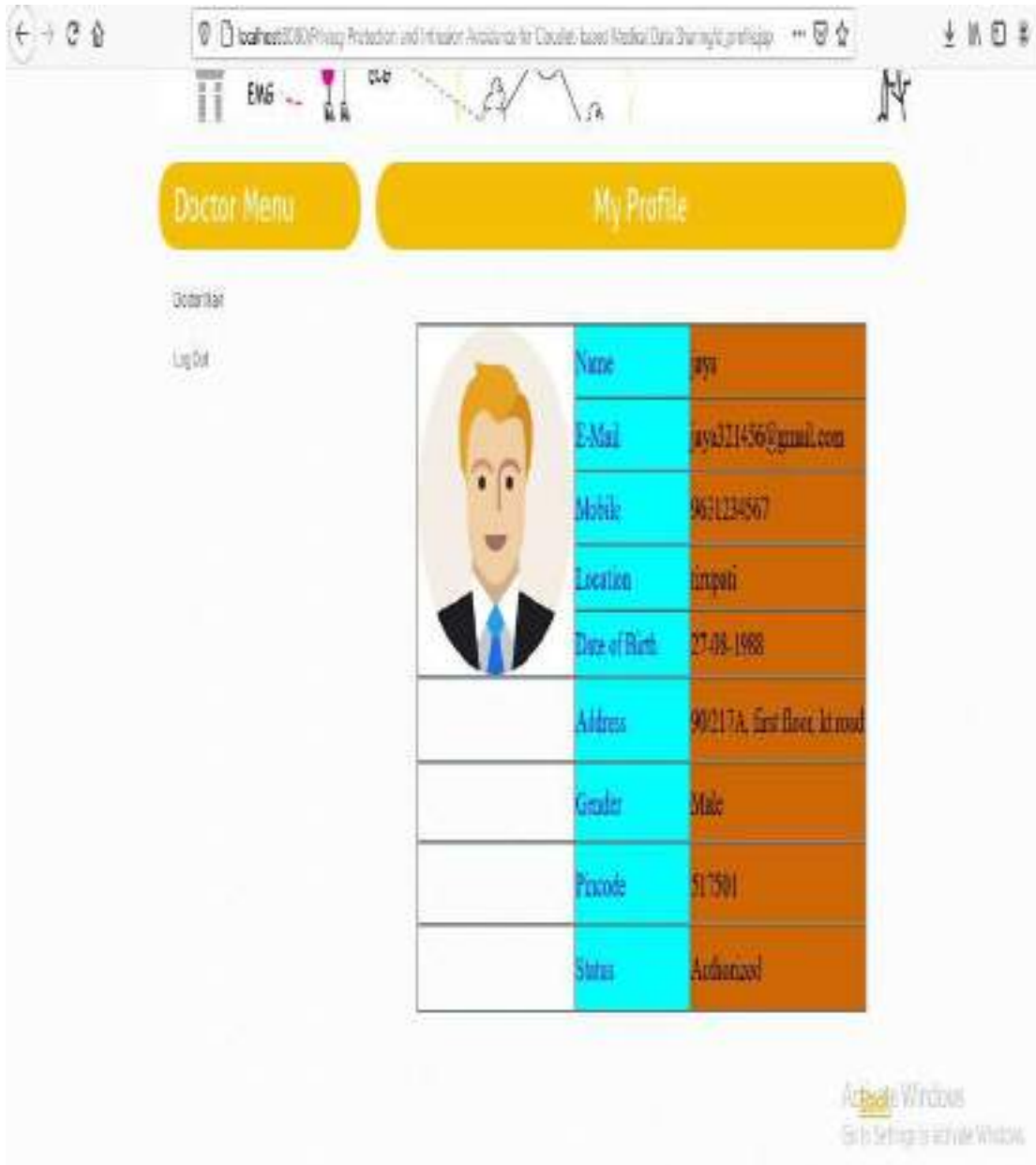
---



After logged into the Doctors login it will shows home page of the Doctor which can contains details of the Doctor.And also shows the prescriptions which are written and send to the patient.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---



Doctor Profile shows the all detailed details of the Doctor.

## Screen4: Patient Registration



This Patient Registration screen will show the details of the patient that will be entered and he can be registered into the application.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

The image shows a web browser window displaying a registration form. The browser's address bar shows the URL: localhost:5555/Privacy-Protection-and-Intrusion-Avoidance-for-Cloudlet-based-Medical-Data-Sharing/register. The form contains the following fields and elements:

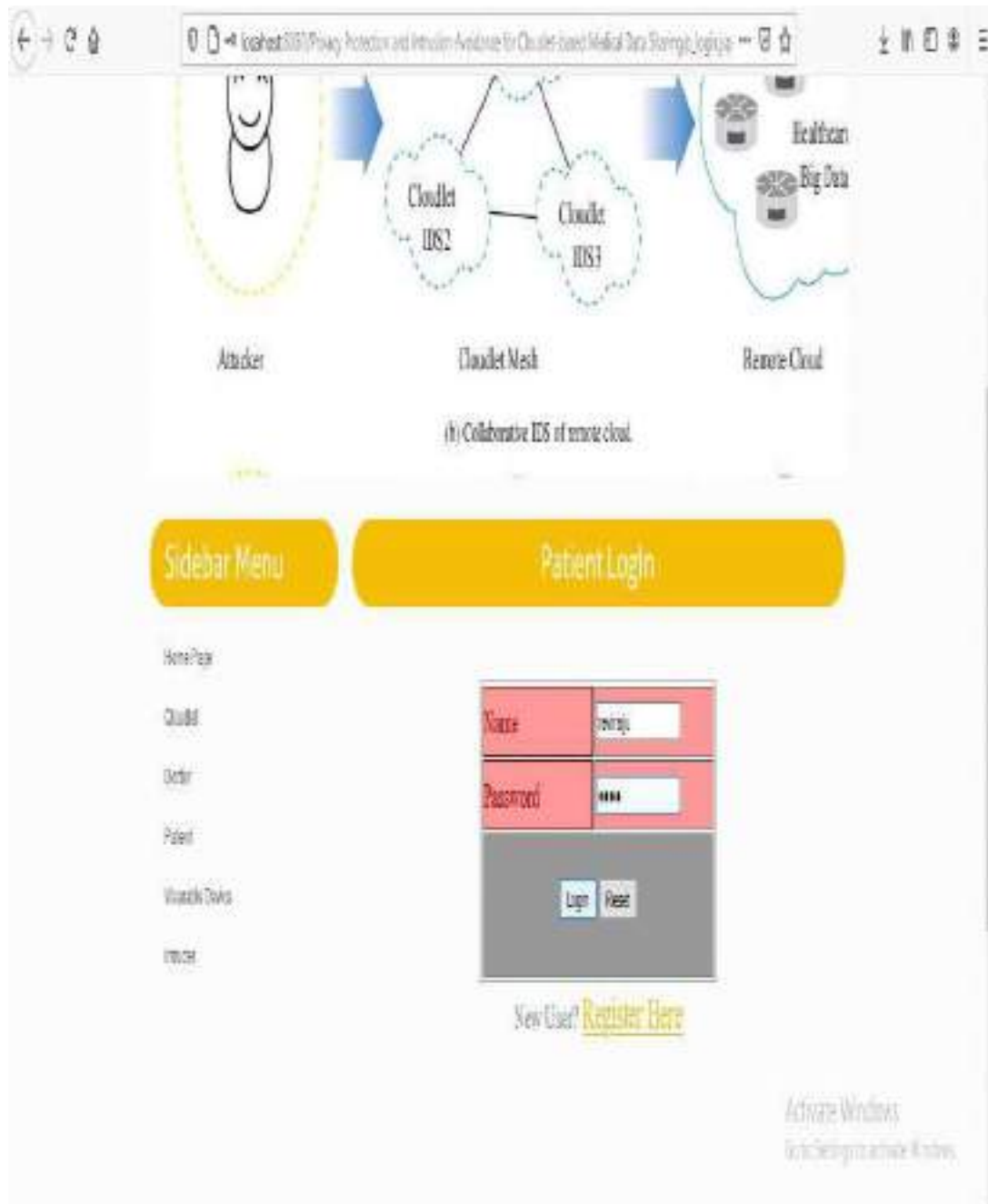
- Email:
- Mobile Number (required):
- Your Address:
- Date of Birth (required):
- Select Gender (required):
- Enter Pincode (required):
- Enter Location (required):
- Select Profile Picture (required):  images (50,000)
- 

At the bottom right of the page, there is a Windows watermark: "Activate Windows. Go to Settings to activate Windows." with a yellow "Go" button.

After giving all details of the patient in the above fields, they have to click on the register button to register their name in the application.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

## Screen:5 Patient Login



Patient Login Screen will show how to log on into the patient page. It can be opened by the authorized patients only. They can be set privacy passwords to their data which does not open by others.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

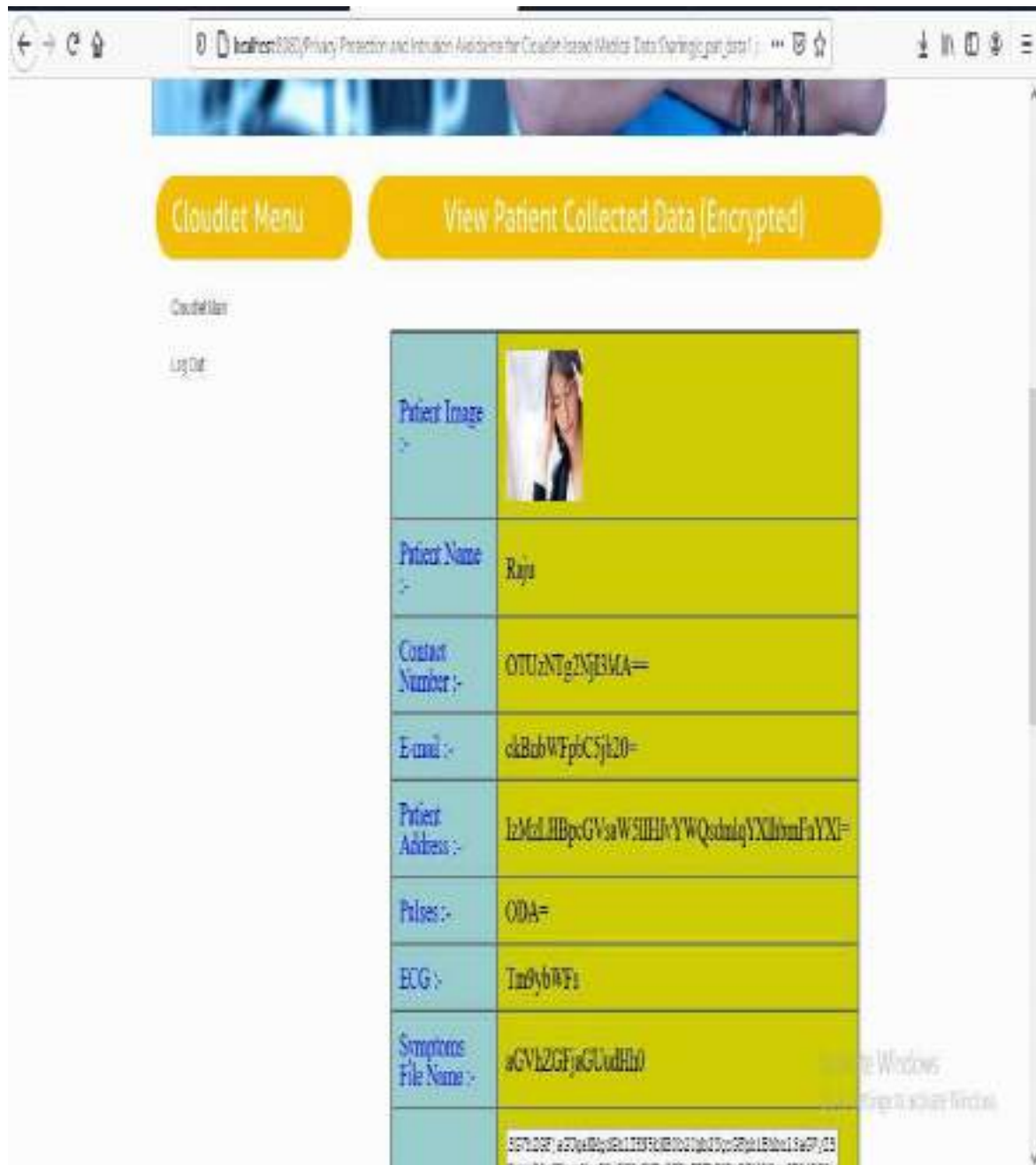


After logged on into the Patient it will shows the patient menu items which contains in the patient home page.



# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---



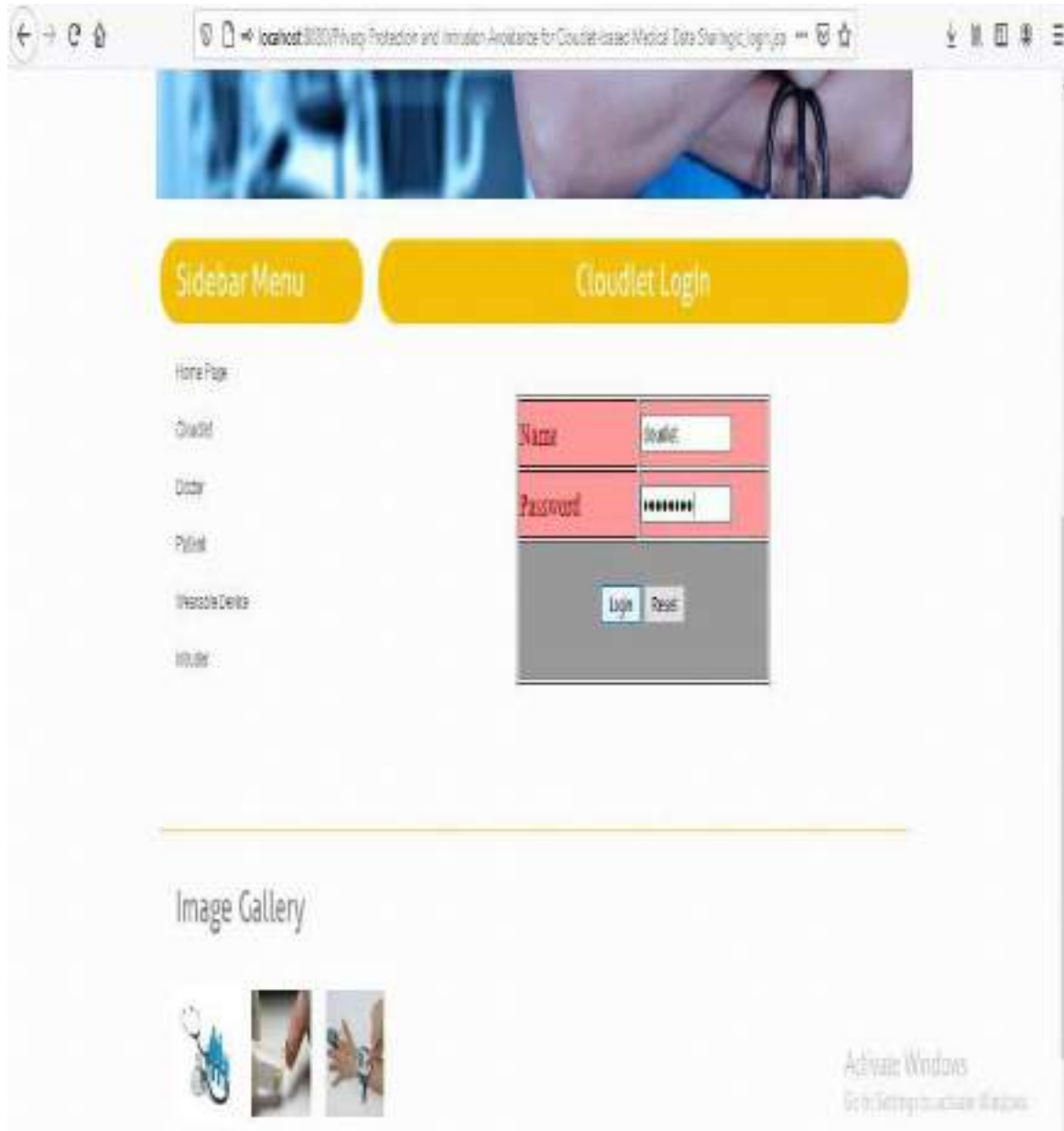
This screen will shows the patient collected data.



# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

## Screen:6 Cloudlet Login



Cloudlet Login screen will shows the how to log in into the cloudlet.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

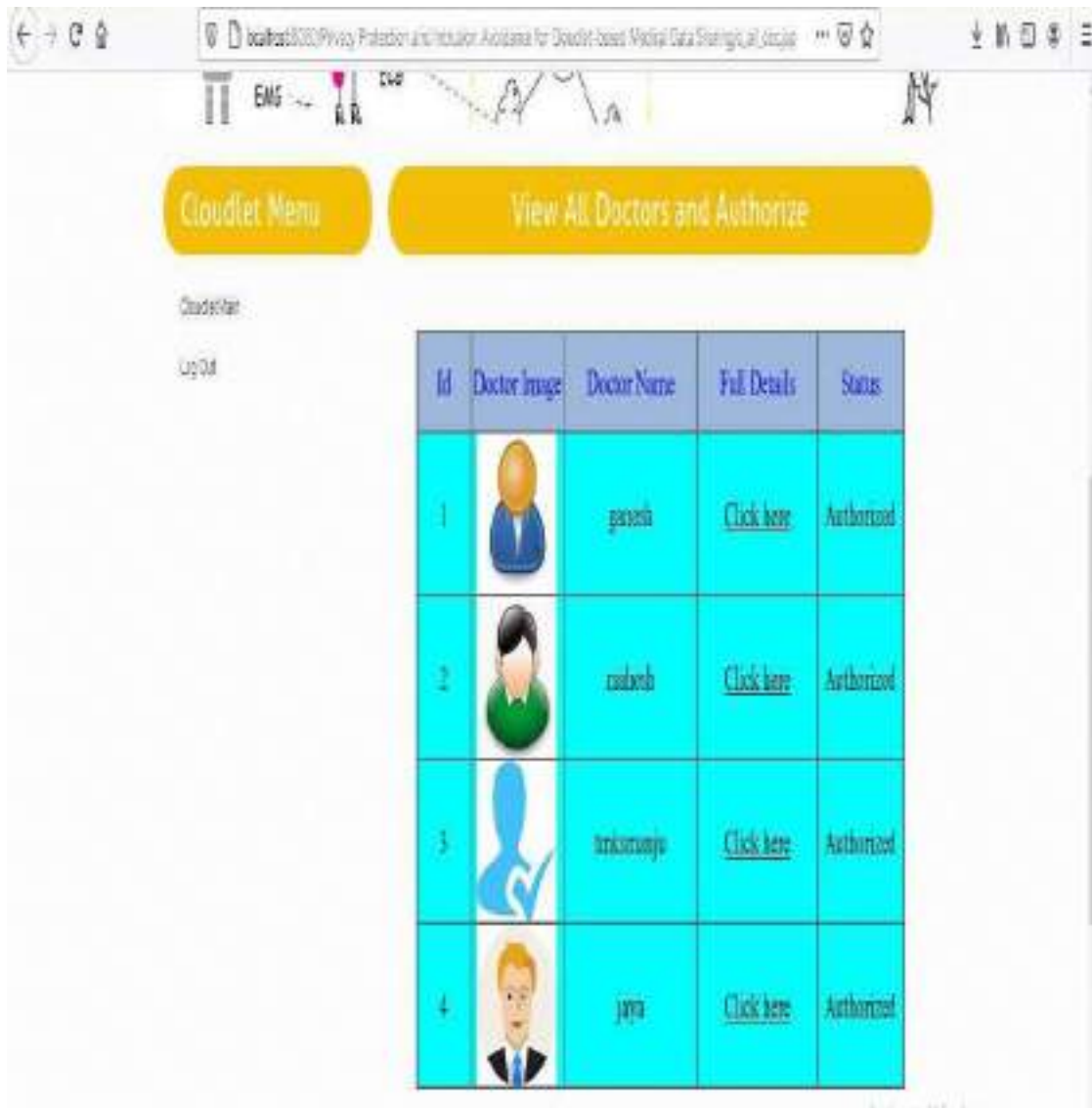
---



After entering into the Cloudlet home page it will shows the menus of the Doctor and patient.in that one of the page is View all Doctors and Authorize.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---



This screen will show all authorized doctors who are already registered in the registration page.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing



View all patients and authorize screen will shows the all patients and their details who are authorized only.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---



It will shows the all patients cloudlet data.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

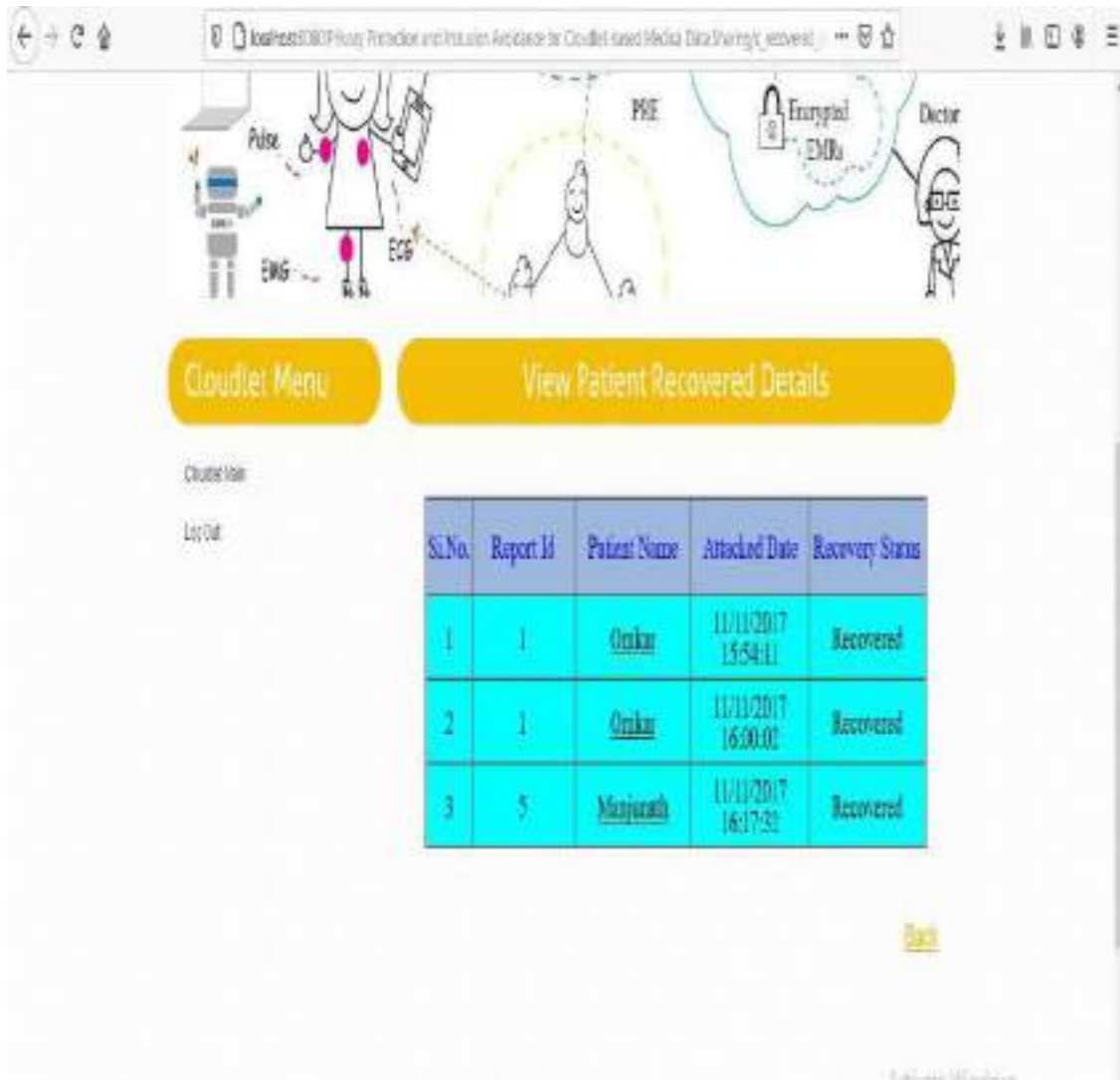
The screenshot shows a web browser window with the address bar displaying a local file path. The page has a yellow header with two buttons: 'Cloudlet Menu' and 'View Patient Data Access Request and Authorize'. Below the header, there is a table with the following data:

Id	Patient Name	Requested Date	Status
1	<a href="#">Omkar</a>	06/11/2017 13:57:58	Permitted
2	<a href="#">Rakesh</a>	06/11/2017 15:08:05	Permitted
3	<a href="#">Dare</a>	06/11/2017 15:17:52	Permitted
4	<a href="#">Rou</a>	11/11/2017 12:34:44	Permitted
5	<a href="#">Manjusha</a>	11/11/2017 16:11:37	Permitted

At the bottom right of the table, there are links for 'New Window' and 'Go to Settings to activate Windows', and a yellow 'Back' button.

This screen will shows patient data access request and authorize details. Once the patient gets permitted then only he will access the data.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing



This screen will shows the recovered details of the patient.

# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

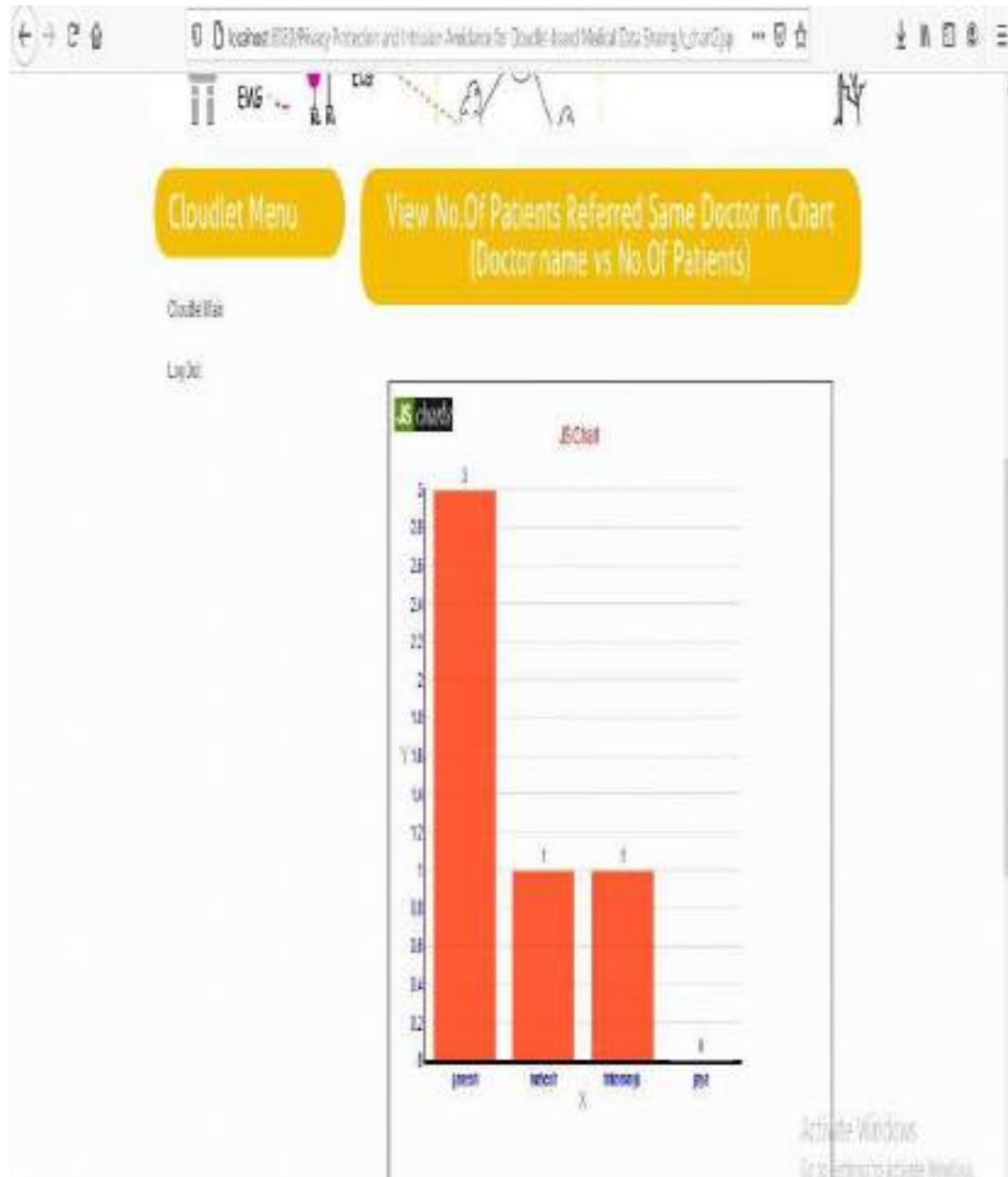


This screen will shows the number of same symptoms of patient.



# Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---



It will shows the patients who are referred to the same Doctor in the list of Doctors.

## **CONCLUSION**

In this paper, we investigated the problem of privacy protection and sharing large medical data in cloudlets and the remote cloud. We developed a system which does not allow users to transmit data to the remote cloud in consideration of secure collection of data, as well as low communication cost. However, it does allow users to transmit data to a cloudlet, which triggers the data sharing problem in the cloudlet

## **FUTURE ENHANCEMENT**

## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

In the future work, Finally, we propose collaborative IDS based on cloudlet mesh to protect the whole system. The project has a very vast scope on future. The project has implemented on intranet in future. It is very flexible in terms of expansion.

## REFERENCES

## Privacy Protection and Intrusion Avoidance For Cloudlet Based Medical Data Sharing

---

- [1] K. Hung, Y. Zhang, and B. Tai, "Wearable medical devices for telehome healthcare," in *Engineering in Medicine and Biology Society, 2004. IEMBS'04. 26th Annual International Conference of the IEEE*, vol. 2. IEEE, 2004, pp. 5384–5387.
- [2] M.S.Hossain, "Cloud-supported cyber-physical localization framework for patients monitoring," 2015.
- [3] J. Zhao, L. Wang, J. Tao, J. Chen, W. Sun, R. Ranjan, J. Kołodziej, A. Streit, and D. Georgakopoulos, "A security framework in g-hadoop for big data computing across distributed cloud data centres," *Journal of Computer and System Sciences*, vol. 80, no. 5, pp. 994–1007, 2014.
- [4] M. S. Hossain and G. Muhammad, "Cloud-assisted industrial internet of things (iiot)-enabled framework for health monitoring," *Computer Networks*, vol. 101, pp. 192–202, 2016.
- [5] R. Zhang and L. Liu, "Security models and requirements for healthcare application clouds," in *Cloud Computing (CLOUD), 2010 IEEE 3rd International Conference on*. IEEE, 2010, pp. 268–275.
- [6] K. He, J. Chen, R. Du, Q. Wu, G. Xue, and X. Zhang, "Deypos: Deduplicatable dynamic proof of storage for multi-user environments," 2016.
- [7] L. Griffin and E. De Leaster, "Social networking healthcare," in *Wearable Micro and Nano Technologies for Personalized Health*

A  
Project Report  
on

**PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND  
DEEP LEARNING ALGORITHMS**

*Submitted in partial fulfilment for the award of the degree*

of

**Master of Computer Applications**

*Submitted by*

**N.VISHNU VARDHAN**

(Reg. No. 18F61F0016)

*Under the esteemed guidance of*

**Mrs. P. SUKANYA, MCA.**

**Assistant Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**

**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**(2020-2021)**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**

**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled “**PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS**” that is being submitted by **N.VISHNU VARDHAN (Reg. No. 18F61F0016)** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **N.VISHNU VARDHAN** hereby declare that the project report entitled “**PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mrs. P. SUKANYA**, MCA, Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APPLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**N.VISHNU VARDHAN**

**Reg. No: 18F61F0016**

## **ACKNOWLEDGEMENT**

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mrs. P. SUKANYA, MCA**, Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for her valuable guidance and suggestions in analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.**, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

**(N.VISHNU VARDHAN)**



# CONTENTS

<b>S. No</b>	<b>CHAPTERS</b>	<b>PAGE No.</b>
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1 – 4
2	SYSTEM STUDY	5 - 6
3	SYSTEM ANALYSIS	7 - 8
	3.1 EXISTING SYSTEM	5
	3.2 DISADVANTAGES	5
	3.3 PROPOSED SYSTEM	5
	3.4 ADVANTAGES	6
4	SOFTWARE MODULES	9
5	SYSTEM ARCHITECTURE	10 - 12
6	SOFTWARE ENVIRONMENT	13 - 50
7	SYSTEM REQUIREMENTS	52
8	SYSTEM DESIGN	53 - 62
9	IMPLEMENTATION	63 - 85
10	SYSTEM TESTING	86 - 88
11	SCREEN SHOTS	89 - 108
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

## ABSTRACT

The nature of stock market movement has always been ambiguous for investors because of various influential factors. This study aims to significantly reduce the risk of trend prediction with machine learning and deep learning algorithms. Four stock market groups, namely diversified financials, petroleum, non-metallic minerals and basic metals from Tehran stock exchange, are chosen for experimental evaluations. This study compares nine machine learning models (Decision Tree, Random Forest, Adaptive Boosting (Adaboost), eXtreme Gradient Boosting (XGBoost), Support Vector Classifier (SVC), Naïve Bayes, K-Nearest Neighbors (KNN), Logistic Regression and Artificial Neural Network (ANN)) and two powerful deep learning methods (Recurrent Neural Network (RNN) and Long short-term memory (LSTM)). Ten technical indicators from ten years of historical data are our input values, and two ways are supposed for employing them. Firstly, calculating the indicators by stock trading values as continues data, and secondly converting indicators to binary data before using. Each prediction model is evaluated by three metrics based on the input ways. The evaluation results indicate that for the continues data, RNN and LSTM outperform other prediction models with a considerable difference. Also, results show that in the binary data evaluation, those deep learning methods are the best; however, the difference becomes less because of the noticeable improvement of models' performance in the second way.

**KEYWORDS** Stock market, Trends prediction, Classification, Machine learning,  
Deep learning

## LIST OF FIGURES

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1	5.1. System Architecture	11
2	5.2. Data Flow Diagram	11
3	6.3. Operations In Python	15
4	8.2.1.1 Activity Diagram	54
5	8.2.1.2 Activity Diagram Service Provider	55
6	8.2.2 Use Case Diagram Remote User	56
7	8.2.3 Use Case Diagram For Service Provider	57
8	8.2.4 Sequence Diagram	58
9	8.2.4 Collaboration Diagram	59
10	8.2.5 Deployment diagram	60
11	8.2.6 Class Diagram	61
12	8.3. E-R Notations	62
13	Screen Shots	89 - 108

## LIST OF ABBREVIATIONS

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	SMS	Smart Meter System
11	ABSI	Adaptive Binary Splitting Inspection
12	DBMS	Database Management System
13	RMI	Remote Method Invocation
14	JVM	Java Virtual Machine
15	SQL	Structure Query Language

## 1. INTRODUCTION

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called *Knowledge Discovery in Database (KDD)*. The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation.

Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

### 1.1 What is Data Mining?

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining.

In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information.

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Data Mining is similar to Data Science carried out by a person, in a specific situation, on a particular data set, with an objective. This process includes various types of services such as text mining, web mining, audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tonnes of information available on various platforms, but very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

## 1.2 Types of Data Mining

Data mining can be performed on the following types of data:

### **Relational Database:**

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data searchability, reporting, and organization.

### **Data Repositories:**

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

### **Object-Relational Database:**

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance, etc.

## 1.3 Advantages of Data Mining

- The Data Mining technique enables organizations to obtain knowledge-based data.

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

- Data mining enables organizations to make lucrative modifications in operation and production.
- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.
- It Facilitates the automated discovery of hidden patterns as well as the prediction of trends and behaviors.
- It can be induced in the new system as well as the existing platforms.
- It is a quick process that makes it easy for new users to analyze enormous amounts of data in a short time.

## 1.4 Applications of Data Mining

### **Data mining in Education:**

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

### **Data Mining in Manufacturing Engineering:**

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.

### **Data Mining Financial Banking:**

The Digitalization of the banking system is supposed to generate an enormous amount of data with every new transaction. The data mining technique can help bankers by solving business-related problems in banking and finance by identifying trends, casualties, and

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by experts. The manager may find these data for better targeting, acquiring, retaining, segmenting, and maintain a profitable customer.



## 2. SYSTEM STUDY

### 2.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

#### 2.1.1 ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

#### 2.1.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

### **2.1.3 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

### 3. SYSTEM ANALYSIS

#### 3.1 EXISTING SYSTEM

- Stock market trends can be affected by external factors such as public sentiment and political events. The goal of this research is to find whether or not public sentiment and political situation on a given day can affect stock market trends of individual companies or the overall market. For this purpose, the sentiment and situation features are used in a machine learning model to find the effect of public sentiment and political situation on the prediction accuracy of algorithms for 7 days in future. Besides, interdependencies among companies and stock markets are also studied. For the sake of experimentation, stock market historical data are downloaded from Yahoo! Finance and public sentiments are obtained from Twitter. Important political events data of Pakistan are crawled from Wikipedia.
- The raw text data are then pre-processed, and the sentiment and situation features are generated to create the final data sets. Ten machine learning algorithms are applied to the final data sets to predict the stock market future trend. The experimental results show that the sentiment feature improves the prediction accuracy of machine learning algorithms by 0–3%, and political situation feature improves the prediction accuracy of algorithms by about 20%. Furthermore, the sentiment attribute is most effective on day 7, while the political situation attribute is most effective on day 5. SMO algorithm is found to show the best performance, while ASC and Bagging show poor performance. The interdependency results indicate that stock markets in the same industry show a medium positive correlation with each other.

#### 3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, the system in which Stock market prediction is full of challenges, and data scientists usually confront some problems when they try to develop a predictive model.
- This system is less performance in which it is clear that there are always unpredictable factors such as the public image of companies or political situation of countries, which affect stock markets trend.

### **3.3 PROPOSED SYSTEM**

To the best of our knowledge, no study has investigated a heart disease prediction model (HDPM) by utilizing DBSCAN, SMOTE-ENN and XGBoost machine learning. Therefore, we propose an effective HDPM for a CDSS which consists of DBSCAN-based to detect and eliminate the outliers, SMOTE-ENN to balance the training data distribution and XGBoost to predict heart disease. Our challenge is to detect and remove the outlier data and to balance the distribution of the training dataset to improve the performance of the HDPM. Two publicly available datasets (Statlog and Cleveland) were used to build the model and to evaluate their performance compared with that of other models (NB, LR, MLP, SVM, decision tree (DT), and RF) and of previous study results. In addition, we ensured the applicability of the proposed model by designing and implementing the model into a Heart Disease CDSS (HDCDSS) to diagnose the subjects based on their current condition.

The developed HDCDSS is expected to help clinicians diagnose the patients effectively and efficiently and thereby improving heart disease clinical decision making. Therefore, early treatment could be conducted to prevent the deaths caused by late heart disease diagnosis.

### **3.3 ADVANTAGES OF PROPOSED SYSTEM**

- The system is fast and reliable due to presence of support vector machine (SVM).
- The system is more effective due to HDPM by integrating DBSCAN outlier detection, SMOTE- ENN, and XGBoost to improve prediction accuracy.

## 4. SOFTWARE MODULES

### 4.1 MODULES

- Service Provider
- Remote User

### 4.2 MODULES DESCRIPTION

#### Service Provider

In this module, the Service Provider has to login by using valid user name and password. After login successful he can do some operations such as View All Heart Disease Data Set Details, Search Heart Disease Data Set Details, Diagnose and Identify Heart Disease ,View All Remote Users, Diagnose and Identify Normal User , Diagnose and Identify Ab Normal User, View Cholesterol Results, View Heart Beat Results,.

#### Remote User

In this module, there are n numbers of users are present. User should register before doing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password. Once Login is successful user will do some operations like ADD HEART DISEASE DATA SETS, SEARCH ON HEART DISEASE DETAILS, and VIEW YOUR PROFILE.

## 5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## 5.1 SYSTEM ARCHITECTURE

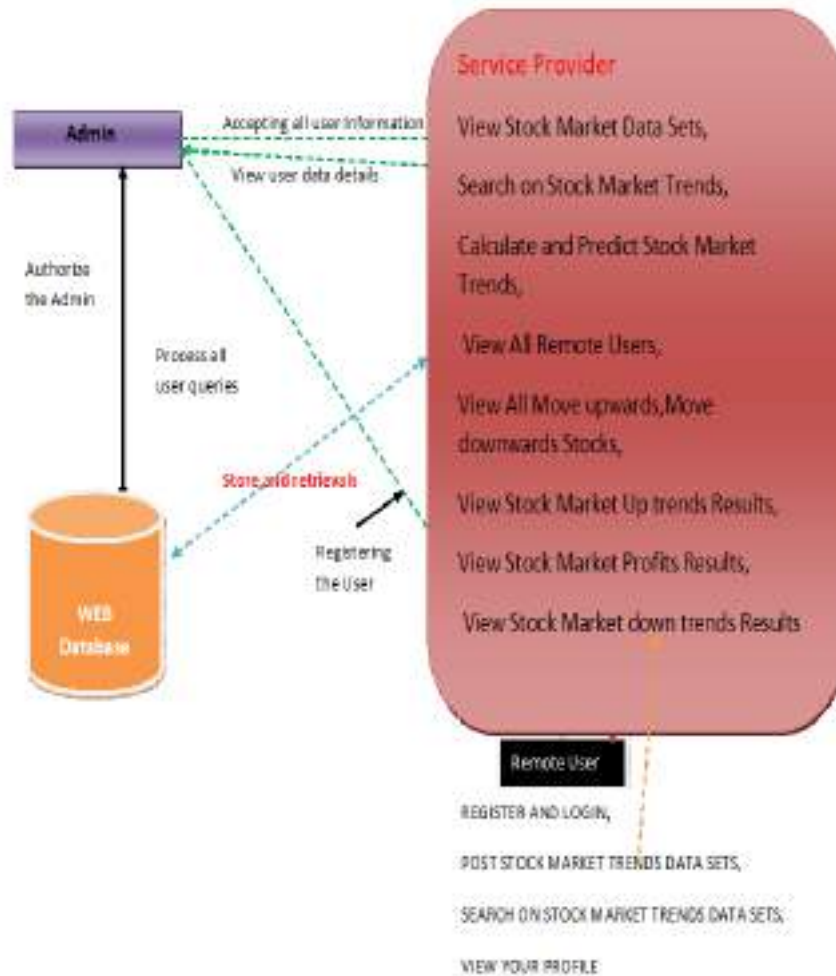


Fig 5.1 System Architecture

5.1 DATAFLOW DIAGRAM

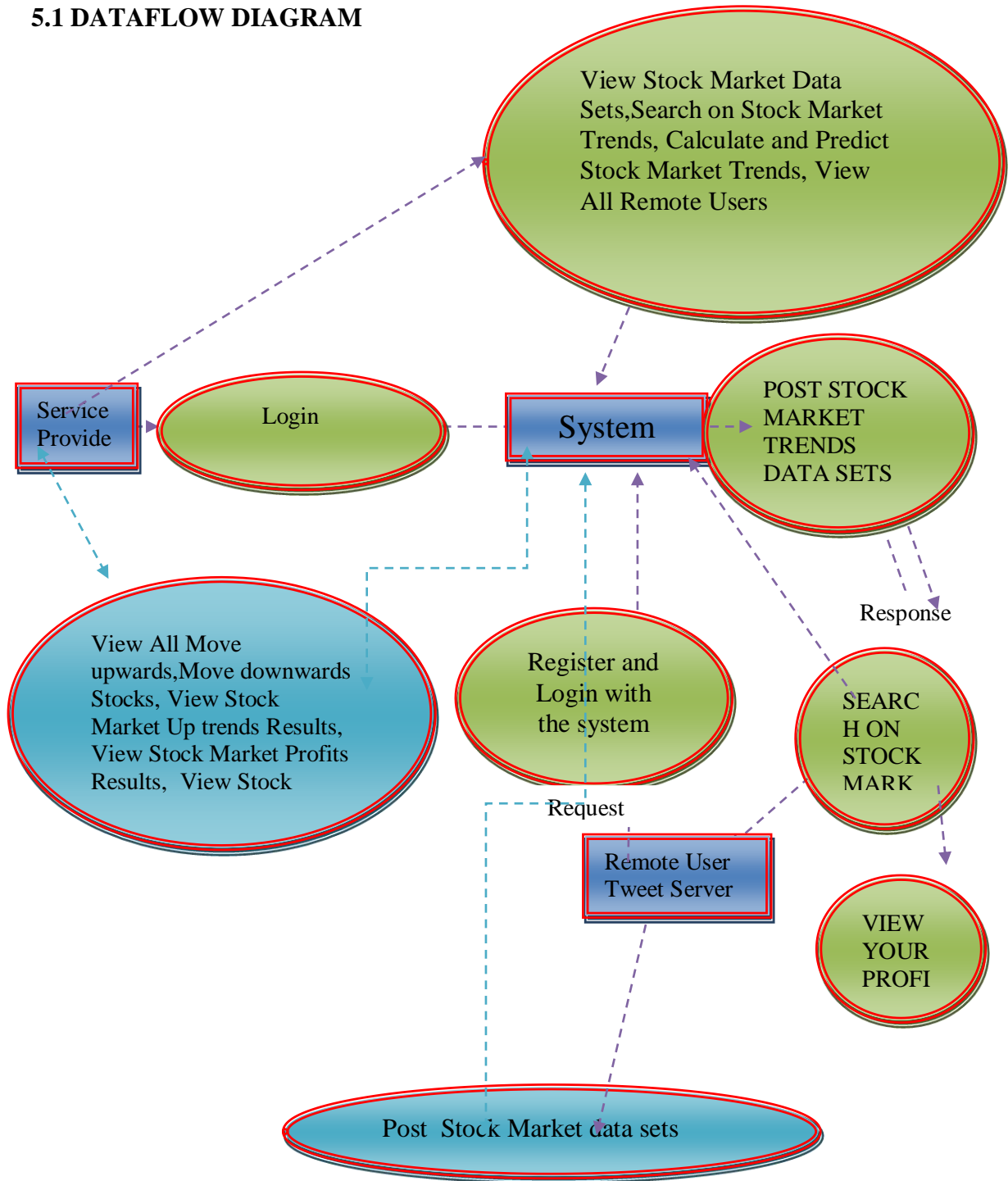


Fig 5.2 Dataflow Diagram



## 6. SOFTWARE ENVIRONMENT

### 6.1 PYTHON

Python is a **high-level, interpreted, interactive and object-oriented scripting language**. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

- **Python is Interpreted:** Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- **Python is Interactive:** You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- **Python is Object-Oriented:** Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- **Python is a Beginner's Language:** Python is a great language for the beginner-level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

### 6.2 History of Python

Python was developed by Guido van Rossum in the late eighties and early nineties at the National Research Institute for Mathematics and Computer Science in the Netherlands.

Python is derived from many other languages, including ABC, Modula-3, C, C++, Algol-68, Small Talk, and Unix shell and other scripting languages.

Python is copyrighted. Like Perl, Python source code is now available under the GNU General Public License (GPL).

Python is now maintained by a core development team at the institute, although Guido van Rossum still holds a vital role in directing its progress.

## 6.3 Python Features

Python's features include:

- **Easy-to-learn:** Python has few keywords, simple structure, and a clearly defined syntax. This allows the student to pick up the language quickly.
- **Easy-to-read:** Python code is more clearly defined and visible to the eyes.
- **Easy-to-maintain:** Python's source code is fairly easy-to-maintain.
- **A broad standard library:** Python's bulk of the library is very portable and cross-platform compatible on UNIX, Windows, and Macintosh.
- **Interactive Mode:** Python has support for an interactive mode which allows interactive testing and debugging of snippets of code.
- **Portable:** Python can run on a wide variety of hardware platforms and has the same interface on all platforms.
- **Extendable:** You can add low-level modules to the Python interpreter. These modules enable programmers to add to or customize their tools to be more efficient.
- **Databases:** Python provides interfaces to all major commercial databases.
- **GUI Programming:** Python supports GUI applications that can be created and ported to many system calls, libraries and windows systems, such as Windows MFC, Macintosh, and the X Window system of Unix.
- **Scalable:** Python provides a better structure and support for large programs than shell scripting.

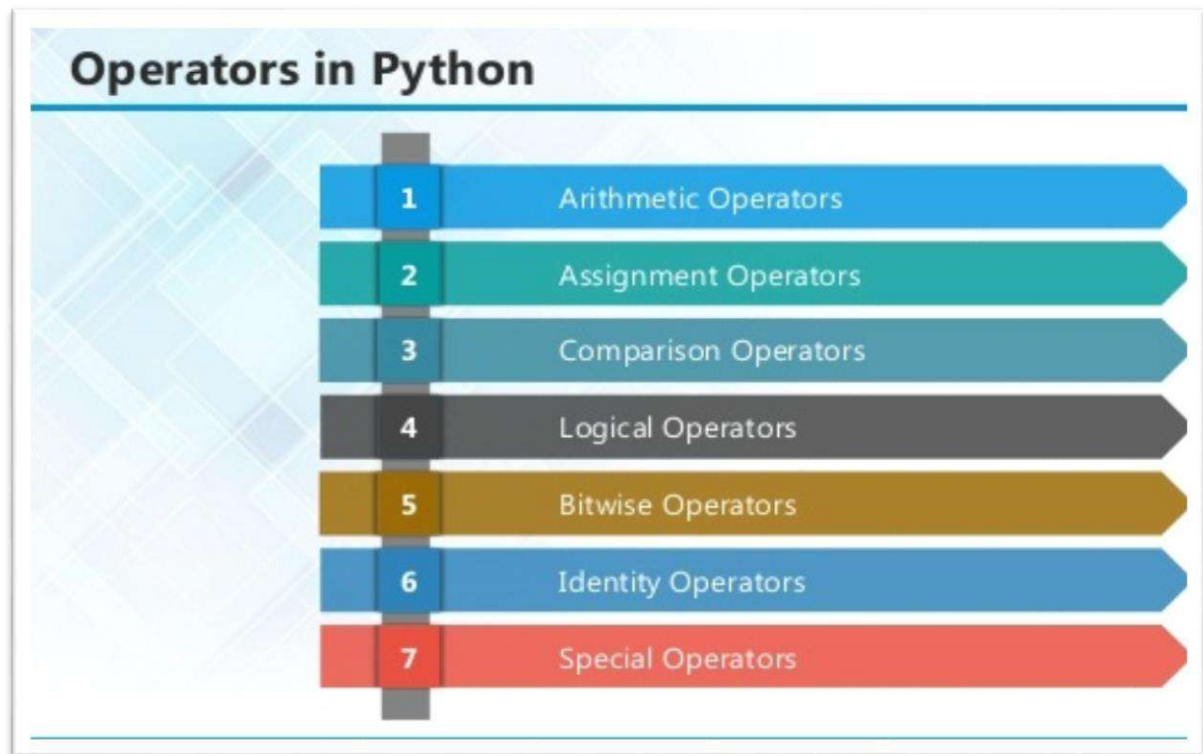
Python has a big list of good features:

- It supports functional and structured programming methods as well as OOP.
- It can be used as a scripting language or can be compiled to byte-code for building large applications.
- It provides very high-level dynamic data types and supports dynamic type checking.

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

- IT supports automatic garbage collection.
- It can be easily integrated with C, C++, COM, ActiveX, CORBA, and Java.



**Fig 6.3 : Operations in python**

## 6.4 ARITHMETIC OPERATORS

Operator	Description	Example
+ Addition	Adds values on either side of the operator.	$a + b = 30$
- Subtraction	Subtracts right hand operand from left hand operand.	$a - b = -10$

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

* Multiplication	Multiplies values on either side of the operator	$a * b = 200$
/ Division	Divides left hand operand by right hand operand	$b / a = 2$
% Modulus	Divides left hand operand by right hand operand and returns remainder	$b \% a = 0$
** Exponent	Performs exponential (power) calculation on operators	$a^{**}b = 10$ to the power 20

### 6.5 ASSIGNMENT OPERATOR

Operator	Description	Example
=	Assigns values from right side operands to left side operand	$c = a + b$ assigns value of $a + b$ into $c$
+= Add AND	It adds right operand to the left operand and assign the result to left operand	$c += a$ is equivalent to $c = c + a$
-= Subtract AND	It subtracts right operand from the left operand and assign the result to left operand	$c -= a$ is equivalent to $c = c - a$

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

*= Multiply AND	It multiplies right operand with the left operand and assign the result to left operand	$c *= a$ is equivalent to $c = c * a$
/= Divide AND	It divides left operand with the right operand and assign the result to left operand	$c /= a$ is equivalent to $c = c / a$ $c /= a$ is equivalent to $c = c / a$
Modulus AND	It takes modulus using two operands and assign the result to left operand	$c %= a$ is equivalent to $c = c \% a$
**= Exponent AND	Performs exponential (power) calculation on operators and assign value to the left operand	$c **= a$ is equivalent to $c = c ** a$
//= Floor Division	It performs floor division on operators and assign value to the left operand	$c //= a$ is equivalent to $c = c // a$

### 6.6 IDENTITY OPERATOR

Operator	Description	Example
Is	Evaluates to true if the variables on either side of the operator point to the same object and false otherwise.	$x$ is $y$ , here <b>is</b> results in 1 if $id(x)$

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

		equals id(y).
is not	Evaluates to false if the variables on either side of the operator point to the same object and true otherwise.	x is not y, here <b>is</b> <b>not</b> results in 1 if id(x) is not equal to id(y)

### 6.7 COMPARISON OPERATOR

Operator	Description	Example
& Binary AND	Operator copies a bit to the result if it exists in both operands	(a & b) (means 0000 1100)
Binary OR	It copies a bit if it exists in either operand.	(a   b) = 61 (means 0011 1101)
^ Binary XOR	It copies the bit if it is set in one operand but not both.	(a ^ b) = 49 (means 0011 0001)
~ Binary Ones Complement	It is unary and has the effect of 'flipping' bits.	(~a) = -61 (means 1100 0011 in 2's complement form due to a

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

		signed binary number.
<< Binary Left Shift	The left operands value is moved left by the number of bits specified by the right operand.	$a \ll 2 = 240$ (means 1111 0000)
>> Binary Right Shift	The left operands value is moved right by the number of bits specified by the right operand.	$a \gg 2 = 15$ (means 0000 1111)

### 6.8 LOGICAL OPERATOR

Operator	Description	Example
and Logical AND	If both the operands are true then condition becomes true.	(a and b) is true.
or Logical OR	If any of the two operands are non-zero then condition becomes true.	(a or b) is true.
not Logical NOT	Used to reverse the logical state of its operand.	Not(a and b) is false.

### 6.9 MEMBERSHIP OPERATORS

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Operator	Description	Example
In	Evaluates to true if it finds a variable in the specified sequence and false otherwise.	x in y, here in results in a 1 if x is a member of sequence y.
not in	Evaluates to true if it does not finds a variable in the specified sequence and false otherwise.	x not in y, here not in results in a 1 if x is not a member of sequence y.

### 6.10 LIST

The list is a most versatile data type available in Python which can be written as a list of comma-separated values (items) between square brackets. Important thing about a list is that items in a list need not be of the same type.

Creating a list is as simple as putting different comma-separated values between square brackets. For example –

```
list1 = ['physics','chemistry',1997,2000];
```

```
list2 = [1,2,3,4,5];
```

```
list3 = ["a","b","c","d"]
```

#### Basic List Operations

Lists respond to the + and \* operators much like strings; they mean concatenation and repetition here too, except that the result is a new list, not a string.



## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Python Expression	Results	Description
<code>len([1, 2, 3])</code>	3	Length
<code>[1, 2, 3] + [4, 5, 6]</code>	<code>[1, 2, 3, 4, 5, 6]</code>	Concatenation
<code>['Hi!'] * 4</code>	<code>['Hi!', 'Hi!', 'Hi!', 'Hi!']</code>	Repetition
<code>3 in [1, 2, 3]</code>	True	Membership
<code>for x in [1, 2, 3]: print x,</code>	1 2 3	Iteration

### Built-in List Functions & Methods:

Python includes the following list functions –

SN	Function with Description
1	<u><code>cmp(list1, list2)</code></u> Compares elements of both lists.
2	<u><code>len(list)</code></u> Gives the total length of the list.
3	<u><code>max(list)</code></u> Returns item from the list with max value.
4	<u><code>min(list)</code></u>

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

	Returns item from the list with min value.
5	<u>list(seq)</u>  Converts a tuple into list.

Python includes following list methods

SN	Methods with Description
1	<u>list.append(obj)</u>  Appends object obj to list
2	<u>list.count(obj)</u>  Returns count of how many times obj occurs in list
3	<u>list.extend(seq)</u>  Appends the contents of seq to list
4	<u>list.index(obj)</u>  Returns the lowest index in list that obj appears
5	<u>list.insert(index, obj)</u>  Inserts object obj into list at offset index
6	<u>list.pop(obj=list[-1])</u>  Removes and returns last object or obj from list
7	<u>list.remove(obj)</u>  Removes object obj from list

8	<u>list.reverse()</u> Reverses objects of list in place
9	<u>list.sort([func])</u> Sorts objects of list, use compare function if given

## 6.11 TUPLES

A tuple is a sequence of immutable Python objects. Tuples are sequences, just like lists. The differences between tuples and lists are, the tuples cannot be changed unlike lists and tuples use parentheses, whereas lists use square brackets.

Creating a tuple is as simple as putting different comma-separated values. Optionally we can put these comma-separated values between parentheses also. For example –

```
tup1 =('physics','chemistry',1997,2000);
tup2 =(1,2,3,4,5);
tup3 ="a","b","c","d";
```

The empty tuple is written as two parentheses containing nothing –

```
tup1 =();
```

To write a tuple containing a single value you have to include a comma, even though there is only one value –

```
tup1 =(50,);
```

Like string indices, tuple indices start at 0, and they can be sliced, concatenated, and so on.

### Accessing Values in Tuples:

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

To access values in tuple, use the square brackets for slicing along with the index or indices to obtain value available at that index. For example –

```
tup1 = ('physics','chemistry',1997,2000);
tup2 = (1,2,3,4,5,6,7);
print "tup1[0]: ", tup1[0]
print "tup2[1:5]: ", tup2[1:5]
```

When the code is executed, it produces the following result –

```
tup1[0]: physics
tup2[1:5]: [2, 3, 4, 5]
```

### Updating Tuples:

Tuples are immutable which means you cannot update or change the values of tuple elements. We are able to take portions of existing tuples to create new tuples as the following example demonstrates –

```
tup1 =(12,34.56);
tup2 =('abc','xyz');
tup3 = tup1 + tup2;
print tup3
```

When the above code is executed, it produces the following result –

```
(12, 34.56, 'abc', 'xyz')
```

### Delete Tuple Elements

Removing individual tuple elements is not possible. There is, of course, nothing wrong with putting together another tuple with the undesired elements discarded.

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

To explicitly remove an entire tuple, just use the **del** statement. For example:

```
tup = ('physics', 'chemistry', 1997, 2000);

print tup

del tup;

print "After deleting tup : "

print tup
```

## Basic Tuples Operations:

Python Expression	Results	Description
len((1, 2, 3))	3	Length
(1, 2, 3) + (4, 5, 6)	(1, 2, 3, 4, 5, 6)	Concatenation
('Hi!') * 4	('Hi!', 'Hi!', 'Hi!', 'Hi!')	Repetition
3 in (1, 2, 3)	True	Membership
for x in (1, 2, 3): print x,	1 2 3	Iteration

## 6.12 DICTIONARY

Each key is separated from its value by a colon (:), the items are separated by commas, and the whole thing is enclosed in curly braces. An empty dictionary without any items is written with just two curly braces, like this: {}.

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Keys are unique within a dictionary while values may not be. The values of a dictionary can be of any type, but the keys must be of an immutable data type such as strings, numbers, or tuples.

### Accessing Values in Dictionary:

To access dictionary elements, you can use the familiar square brackets along with the key to obtain its value. Following is a simple example –

```
dict={'Name':'Zara','Age':7,'Class':'First'}
```

```
print"dict['Name']: ", dict['Name']
```

```
print"dict['Age']: ", dict['Age']
```

Result –

```
dict['Name']: Zara
```

```
dict['Age']: 7
```

### Updating Dictionary

We can update a dictionary by adding a new entry or a key-value pair, modifying an existing entry, or deleting an existing entry as shown below in the simple example –

```
dict={'Name':'Zara','Age':7,'Class':'First'}
```

```
dict['Age']=8;# update existing entry
```

```
dict['School']="DPS School";# Add new entry
```

```
print"dict['Age']: ", dict['Age']
```

```
print"dict['School']: ", dict['School']
```

Result –

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
dict['Age']: 8
dict['School']: DPS School
```

## Delete Dictionary Elements

We can either remove individual dictionary elements or clear the entire contents of a dictionary. You can also delete entire dictionary in a single operation.

To explicitly remove an entire dictionary, just use the **del** statement. Following is a simple example –

```
dict = {'Name':'Zara','Age':7,'Class':'First'}

del dict['Name'];# remove entry with key 'Name'

dict.clear();# remove all entries in dict

del dict ;# delete entire dictionary

print"dict['Age']: ", dict['Age']

print"dict['School']: ", dict['School']
```

## Built-in Dictionary Functions & Methods–

Python includes the following dictionary functions –

SN	Function with Description
1	<u>cmp(dict1, dict2)</u> Compares elements of both dict.
2	<u>len(dict)</u>

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

	Gives the total length of the dictionary. This would be equal to the number of items in the dictionary.
3	<u>str(dict)</u>  Produces a printable string representation of a dictionary

Python includes following dictionary methods –

SN	Methods with Description
1	<b>dict.clear():</b> Removes all elements of dictionary dict
2	<b>dict. Copy():</b> Returns a shallow copy of dictionary dict
3	<b>dict.fromkeys():</b> Create a new dictionary with keys from seq and values set to value.
4	<b>dict.get(key, default=None):</b> For key key, returns value or default if key not in dictionary
5	<b>dict.has_key(key):</b> Returns true if key in dictionary dict, false otherwise
6	<b>dict.items():</b> Returns a list of dict's (key, value) tuple pairs
7	<b>dict.keys():</b> Returns list of dictionary dict's keys



## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

8	<b>dict.setdefault(key, default=None):</b> Similar to get(), but will set dict[key]=default if key is not already in dict
9	<b>dict.update(dict2):</b> Adds dictionary dict2's key-values pairs to dict
10	<b>dict.values():</b> Returns list of dictionary dict's values

A function is a block of organized, reusable code that is used to perform a single, related action. Functions provide better modularity for your application and a high degree of code reusing. Python gives you many built-in functions like print(), etc. but you can also create your own functions. These functions are called user-defined functions.

### Defining a Function

Simple rules to define a function in Python.

- Function blocks begin with the keyword def followed by the function name and parentheses ( ( ) ).
- Any input parameters or arguments should be placed within these parentheses. You can also define parameters inside these parentheses.
- The first statement of a function can be an optional statement - the documentation string of the function or docstring.
- The code block within every function starts with a colon (:) and is indented.
- The statement return [expression] exits a function, optionally passing back an expression to the caller. A return statement with no arguments is the same as return None.

```
def functionname(parameters):
```

```
"function_docstring"
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
function_suite
return[expression]
```

## Calling a Function

Defining a function only gives it a name, specifies the parameters that are to be included in the function and structures the blocks of code. Once the basic structure of a function is finalized, you can execute it by calling it from another function or directly from the Python prompt. Following is the example to call printme() function –

```
Function definition is here

def printme(str):
 "This prints a passed string into this function"
 print str
 return;

Now you can call printme function

printme("I'm first call to user defined function!")

printme("Again second call to the same function")
```

When the above code is executed, it produces the following result –

```
I'm first call to user defined function!

Again second call to the same function
```

## Function Arguments

You can call a function by using the following types of formal arguments:

- Required arguments
- Keyword arguments

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

- Default arguments
- Variable-length arguments

## Scope of Variables

All variables in a program may not be accessible at all locations in that program. This depends on where you have declared a variable.

The scope of a variable determines the portion of the program where you can access a particular identifier. There are two basic scopes of variables in Python –

- Global variables
- Local variables

## Global vs. Local Variables

Variables that are defined inside a function body have a local scope, and those defined outside have a global scope.

This means that local variables can be accessed only inside the function in which they are declared, whereas global variables can be accessed throughout the program body by all functions. When you call a function, the variables declared inside it are brought into scope. Following is a simple example –

```
total =0;# This is global variable.

Function definition is here

def sum(arg1, arg2):

Add both the parameters and return them."

 total = arg1 + arg2;# Here total is local variable.

print"Inside the function local total : ", total

return total;

sum(10,20);
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
print"Outside the function global total : ", total
```

**Result –**

```
Inside the functionlocal total :30
```

```
Outside the functionglobal total :0
```

A module allows you to logically organize your Python code. Grouping related code into a module makes the code easier to understand and use. A module is a Python object with arbitrarily named attributes that you can bind and reference. Simply, a module is a file consisting of Python code. A module can define functions, classes and variables. A module can also include runnable code.

### **Example:**

The Python code for a module named a name normally resides in a file named aname.py. Here's an example of a simple module, support.py

```
def print_func(par):
print"Hello : ", par
return
```

### **The import Statement**

The import has the following syntax:

```
import module1[, module2[,... moduleN]
```

When the interpreter encounters an import statement, it imports the module if the module is present in the search path. A search path is a list of directories that the interpreter searches before importing a module. For example, to import the module support.py, you need to put the following command at the top of the script –

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

A module is loaded only once, regardless of the number of times it is imported. This prevents the module execution from happening over and over again if multiple imports occur.

### Packages in Python

A package is a hierarchical file directory structure that defines a single Python application environment that consists of modules and sub packages and sub-sub packages.

Consider a file Pots.py available in Phone directory. This file has following line of source code –

```
defPots():
print"I'm Pots Phone"
```

Similar way, we have another two files having different functions with the same name as above –

- Phone/Isdn.py file having function Isdn()
- Phone/G3.py file having function G3()

Now, create one more file \_\_init\_\_.py in Phone directory –

- Phone/\_\_init\_\_.py

To make all of your functions available when you've imported Phone, to put explicit import statements in \_\_init\_\_.py as follows –

```
fromPotsimportPots
fromIsdnimportIsdn
from G3 import G3
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

After you add these lines to `__init__.py`, you have all of these classes available when you import the Phone package.

```
Now import your Phone Package.
```

```
import Phone
```

```
Phone.Pots()
```

```
Phone.Isdn()
```

```
Phone.G3()
```

RESULT:

```
I'm Pots Phone
```

```
I'm 3GPhone
```

```
I'm ISDN Phone
```

In the above example, we have taken example of a single functions in each file, but you can keep multiple functions in your files. You can also define different Python classes in those files and then you can create your packages out of those classes.

This chapter covers all the basic I/O functions available in Python.

### Printing to the Screen

The simplest way to produce output is using the print statement where you can pass zero or more expressions separated by commas. This function converts the expressions you pass into a string and writes the result to standard output as follows –

```
print"Python is really a great language,","isn't it?"
```

```
Python is really a great language, isn't it?
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Reading Keyboard Input

Python provides two built-in functions to read a line of text from standard input, which by default comes from the keyboard. These functions are –

- `raw_input`
- `input`

### The `raw_input` Function

The `raw_input([prompt])` function reads one line from standard input and returns it as a string (removing the trailing newline).

```
str = raw_input("Enter your input: ");
print"Received input is : ", str
```

This prompts you to enter any string and it would display same string on the screen. When I typed "Hello Python!", its output is like this –

```
Enter your input:HelloPython
Received input is:HelloPython
```

### The `input` Function

The `input([prompt])` function is equivalent to `raw_input`, except that it assumes the input is a valid Python expression and returns the evaluated result to you.

```
str = input("Enter your input: ");
print"Received input is : ", str
```

This would produce the following result against the entered input –

```
Enter your input:[x*5for x in range(2,10,2)]
Recieved input is:[10,20,30,40]
```

## Opening and Closing Files

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Until now, you have been reading and writing to the standard input and output. Now, we will see how to use actual data files.

Python provides basic functions and methods necessary to manipulate files by default. You can do most of the file manipulation using a **file** object.

## The open Function

Before you can read or write a file, you have to open it using Python's built-in `open()` function. This function creates a **file** object, which would be utilized to call other support methods associated with it.

### Syntax

```
file object= open(file_name [, access_mode][, buffering])
```

Here are parameter details:

- **file\_name:** The `file_name` argument is a string value that contains the name of the file that you want to access.
- **access\_mode:** The `access_mode` determines the mode in which the file has to be opened, i.e., read, write, append, etc. A complete list of possible values is given below in the table. This is optional parameter and the default file access mode is read (r).
- **buffering:** If the buffering value is set to 0, no buffering takes place. If the buffering value is 1, line buffering is performed while accessing a file. If you specify the buffering value as an integer greater than 1, then buffering action is performed with the indicated buffer size. If negative, the buffer size is the system default(default behavior).

Here is a list of the different modes of opening a file –

Modes	Description
-------	-------------



## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

R	Opens a file for reading only. The file pointer is placed at the beginning of the file. This is the default mode.
Rb	Opens a file for reading only in binary format. The file pointer is placed at the beginning of the file. This is the default mode.
r+	Opens a file for both reading and writing. The file pointer placed at the beginning of the file.
rb+	Opens a file for both reading and writing in binary format. The file pointer placed at the beginning of the file.
W	Opens a file for writing only. Overwrites the file if the file exists. If the file does not exist, creates a new file for writing.
Wb	Opens a file for writing only in binary format. Overwrites the file if the file exists. If the file does not exist, creates a new file for writing.
w+	Opens a file for both writing and reading. Overwrites the existing file if the file exists. If the file does not exist, creates a new file for reading and writing.
wb+	Opens a file for both writing and reading in binary format. Overwrites the existing file if the file exists. If the file does not exist, creates a new file for reading and writing.

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

A	Opens a file for appending. The file pointer is at the end of the file if the file exists. That is, the file is in the append mode. If the file does not exist, it creates a new file for writing.
Ab	Opens a file for appending in binary format. The file pointer is at the end of the file if the file exists. That is, the file is in the append mode. If the file does not exist, it creates a new file for writing.
a+	Opens a file for both appending and reading. The file pointer is at the end of the file if the file exists. The file opens in the append mode. If the file does not exist, it creates a new file for reading and writing.
ab+	Opens a file for both appending and reading in binary format. The file pointer is at the end of the file if the file exists. The file opens in the append mode. If the file does not exist, it creates a new file for reading and writing.

### The file Object Attributes

Once a file is opened and you have one file object, you can get various information related to that file.

Here is a list of all attributes related to file object:

Attribute	Description
file.closed	Returns true if file is closed, false otherwise.
file.mode	Returns access mode with which file was opened.

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

file.name	Returns name of the file.
file.softspace	Returns false if space explicitly required with print, true otherwise.

### Example

```
Open a file

fo = open("foo.txt","wb")

print"Name of the file: ", fo.name

print"Closed or not : ", fo.closed

print"Opening mode : ", fo.mode

print"Softspace flag : ", fo.softspace
```

This produces the following result –

```
Name of the file: foo.txt
Closed or not : False
Opening mode : wb
Softspace flag : 0
```

### The close() Method

The close() method of a file object flushes any unwritten information and closes the file object, after which no more writing can be done. Python automatically closes a file when the reference object of a file is reassigned to another file. It is a good practice to use the close() method to close a file.

### Syntax

```
fileObject.close();
```

### Example

```
Open a file
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
fo = open("foo.txt","wb")

print"Name of the file: ", fo.name

Close open file

fo.close()
```

Result –

```
Name of the file: foo.txt
```

### Reading and Writing Files

The file object provides a set of access methods to make our lives easier. We would see how to use read() and write() methods to read and write files.

#### The write() Method

The write() method writes any string to an open file. It is important to note that Python strings can have binary data and not just text. The write() method does not add a newline character ('\n') to the end of the string **Syntax**

```
fileObject.write(string);
```

Here, passed parameter is the content to be written into the opened file. **Example**

```
Open a file

fo = open("foo.txt","wb")

fo.write("Python is a great language.\nYeah its great!!\n");

Close open file

fo.close()
```

The above method would create foo.txt file and would write given content in that file and finally it would close that file. If you would open this file, it would have following content.

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Python is a great language.

Yeah its great!!

The read() Method

The read() method reads a string from an open file. It is important to note that Python strings can have binary data. apart from text data.

Syntax

```
fileObject.read([count]);
```

Here, passed parameter is the number of bytes to be read from the opened file. This method starts reading from the beginning of the file and if count is missing, then it tries to read as much as possible, maybe until the end of file.

Example

Let's take a file foo.txt, which we created above.

```
Open a file
fo = open("foo.txt","r+")
str = fo.read(10);
print"Read String is : ", str
Close open file
fo.close()
```

This produces the following result –

```
ReadStringis:Pythonis
```

File Positions

The tell() method tells you the current position within the file; in other words, the next read or write will occur at that many bytes from the beginning of the file.

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

The `seek(offset[, from])` method changes the current file position. The `offset` argument indicates the number of bytes to be moved. The `from` argument specifies the reference position from where the bytes are to be moved.

If `from` is set to 0, it means use the beginning of the file as the reference position and 1 means use the current position as the reference position and if it is set to 2 then the end of the file would be taken as the reference position.

### Example

Let us take a file `foo.txt`, which we created above.

```
Open a file

fo = open("foo.txt","r+")

str = fo.read(10);

print"Read String is : ", str

Check current position

position = fo.tell();

print"Current file position : ", position

Reposition pointer at the beginning once again

position = fo.seek(0,0);

str = fo.read(10);

print"Again read String is : ", str

Close open file

fo.close()
```

This produces the following result –

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
ReadStringis:Pythonis
```

```
Current file position :10
```

```
Again read Stringis:Pythonis
```

## Renaming and Deleting Files

Python **OS** module provides methods that help you perform file-processing operations, such as renaming and deleting files.

To use this module you need to import it first and then you can call any related functions.

### The rename() Method

The rename() method takes two arguments, the current filename and the new filename.

#### Syntax

```
os.rename(current_file_name, new_file_name)
```

#### Example

Following is the example to rename an existing file test1.txt:

```
import os

Rename a file from test1.txt to test2.txt

os.rename("test1.txt","test2.txt")
```

### The remove() Method

You can use the remove() method to delete files by supplying the name of the file to be deleted as the argument.

#### Syntax

```
os.remove(file_name)
```

#### Example

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Following is the example to delete an existing file test2.txt –

```
#!/usr/bin/python

import os

Delete file test2.txt

os.remove("text2.txt")
```

## Directories in Python

All files are contained within various directories, and Python has no problem handling these too. The `os` module has several methods that help you create, remove, and change directories.

### The `mkdir()` Method

You can use the `mkdir()` method of the `OS` module to create directories in the current directory. You need to supply an argument to this method which contains the name of the directory to be created.

#### Syntax

```
os.mkdir("newdir")
```

#### Example

Following is the example to create a directory test in the current directory –

```
#!/usr/bin/python

import os

Create a directory "test"

os.mkdir("test")
```

### The `chdir()` Method



## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

You can use the `chdir()` method to change the current directory. The `chdir()` method takes an argument, which is the name of the directory that you want to make the current directory.

### Syntax

```
os.chdir("newdir")
```

### Example

Following is the example to go into `"/home/newdir"` directory –

```
#!/usr/bin/python

import os

Changing a directory to "/home/newdir"

os.chdir("/home/newdir")
```

### The `getcwd()` Method

The `getcwd()` method displays the current working directory.

### Syntax

```
os.getcwd()
```

### Example

Following is the example to give current directory –

```
import os

This would give location of the current directory

os.getcwd()
```

### The `rmdir()` Method

The `rmdir()` method deletes the directory, which is passed as an argument in the method.

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Before removing a directory, all the contents in it should be removed.

Syntax:

```
os.rmdir('dirname')
```

Example

Following is the example to remove "/tmp/test" directory. It is required to give fully qualified name of the directory, otherwise it would search for that directory in the current directory.

```
import os

This would remove "/tmp/test" directory.

os.rmdir("/tmp/test")
```

File & Directory Related Methods

There are three important sources, which provide a wide range of utility methods to handle and manipulate files & directories on Windows and Unix operating systems. They are as follows –

- **File Object Methods:** The file object provides functions to manipulate files.
- **OS Object Methods:** This provides methods to process files as well as directories.

Python provides two very important features to handle any unexpected error in your Python programs and to add debugging capabilities in them –

- **Exception Handling:** This would be covered in this tutorial. Here is a list standard Exceptions available in Python: Standard Exceptions.
- **Assertions:** This would be covered in Assertions in Python

List of Standard Exceptions –

EXCEPTION	DESCRIPTION
-----------	-------------

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

NAME	
Exception	Base class for all exceptions
StopIteration	Raised when the next() method of an iterator does not point to any object.
SystemExit	Raised by the sys.exit() function.
StandardError	Base class for all built-in exceptions except StopIteration and SystemExit.
ArithmeticError	Base class for all errors that occur for numeric calculation.
OverflowError	Raised when a calculation exceeds maximum limit for a numeric type.
FloatingPointError	Raised when a floating point calculation fails.
ZeroDivisionError	Raised when division or modulo by zero takes place for all numeric types.
AssertionError	Raised in case of failure of the Assert statement.
AttributeError	Raised in case of failure of attribute reference or assignment.

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

EOFError	Raised when there is no input from either the <code>raw_input()</code> or <code>input()</code> function and the end of file is reached.
ImportError	Raised when an import statement fails.
KeyboardInterrupt	Raised when the user interrupts program execution, usually by pressing Ctrl+c.
LookupError	Base class for all lookup errors.
IndexError	Raised when an index is not found in a sequence.
KeyError	Raised when the specified key is not found in the dictionary.
NameError	Raised when an identifier is not found in the local or global namespace.
UnboundLocalError or EnvironmentError	Raised when trying to access a local variable in a function or method but no value has been assigned to it.  Base class for all exceptions that occur outside the Python environment.
IOError  IOError	Raised when an input/ output operation fails, such as the print statement or the <code>open()</code> function when trying to open a file that does not exist.  Raised for operating system-related errors.

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

SyntaxError	Raised when there is an error in Python syntax.
IndentationError	Raised when indentation is not specified properly.
SystemError	Raised when the interpreter finds an internal problem, but when this error is encountered the Python interpreter does not exit.
SystemExit	Raised when Python interpreter is quit by using the sys.exit() function. If not handled in the code, causes the interpreter to exit.
TypeError	Raised when an operation or function is attempted that is invalid for the specified data type.
ValueError	Raised when the built-in function for a data type has the valid type of arguments, but the arguments have invalid values specified.
RuntimeError	Raised when a generated error does not fall into any category.
NotImplementedError	Raised when an abstract method that needs to be implemented in an inherited class is not actually implemented.

### What is Exception?

An exception is an event, which occurs during the execution of a program that disrupts the normal flow of the program's instructions. In general, when a Python script encounters a situation that it cannot cope with, it raises an exception. An exception is a Python object that represents an error.

When a Python script raises an exception, it must either handle the exception immediately otherwise it terminates and quits.

### Handling an exception

If you have some suspicious code that may raise an exception, you can defend your program by placing the suspicious code in a **try:** block. After the **try:** block, include an **except** statement, followed by a block of code which handles the problem as elegantly as possible.

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

The Python standard for database interfaces is the Python DB-API. Most Python database interfaces adhere to this standard.

You can choose the right database for your application. Python Database API supports a wide range of database servers such as –

- GadFly
- mSQL
- MySQL
- PostgreSQL
- Microsoft SQL Server 2000
- Informix
- Interbase
- Oracle
- Sybase

The DB API provides a minimal standard for working with databases using Python structures and syntax wherever possible. This API includes the following:

- Importing the API module.
- Acquiring a connection with the database.
- Issuing SQL statements and stored procedures.
- Closing the connection

## 7. SYSTEM REQUIREMENTS

### 7.1 HARDWARE REQUIREMENTS

- Processor - Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM - 4 GB
- Hard Disk - 40 GB.

### 7.2 SOFTWARE REQUIREMENTS

- Operating System - windows 7 / 8.1 / 10/
- Server - XAMPP Web Server
- Database - MYSQL Server 5.0
- Frontend - HTML, CSS, JS
- Backend - Python
- IDE - Pycharm

## 8. SYSTEM DESIGN

### 8.1 DATAFLOW DIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. ADFD may be used to represent a system at any level of abstraction.



8.1 DATAFLOW DIAGRAM

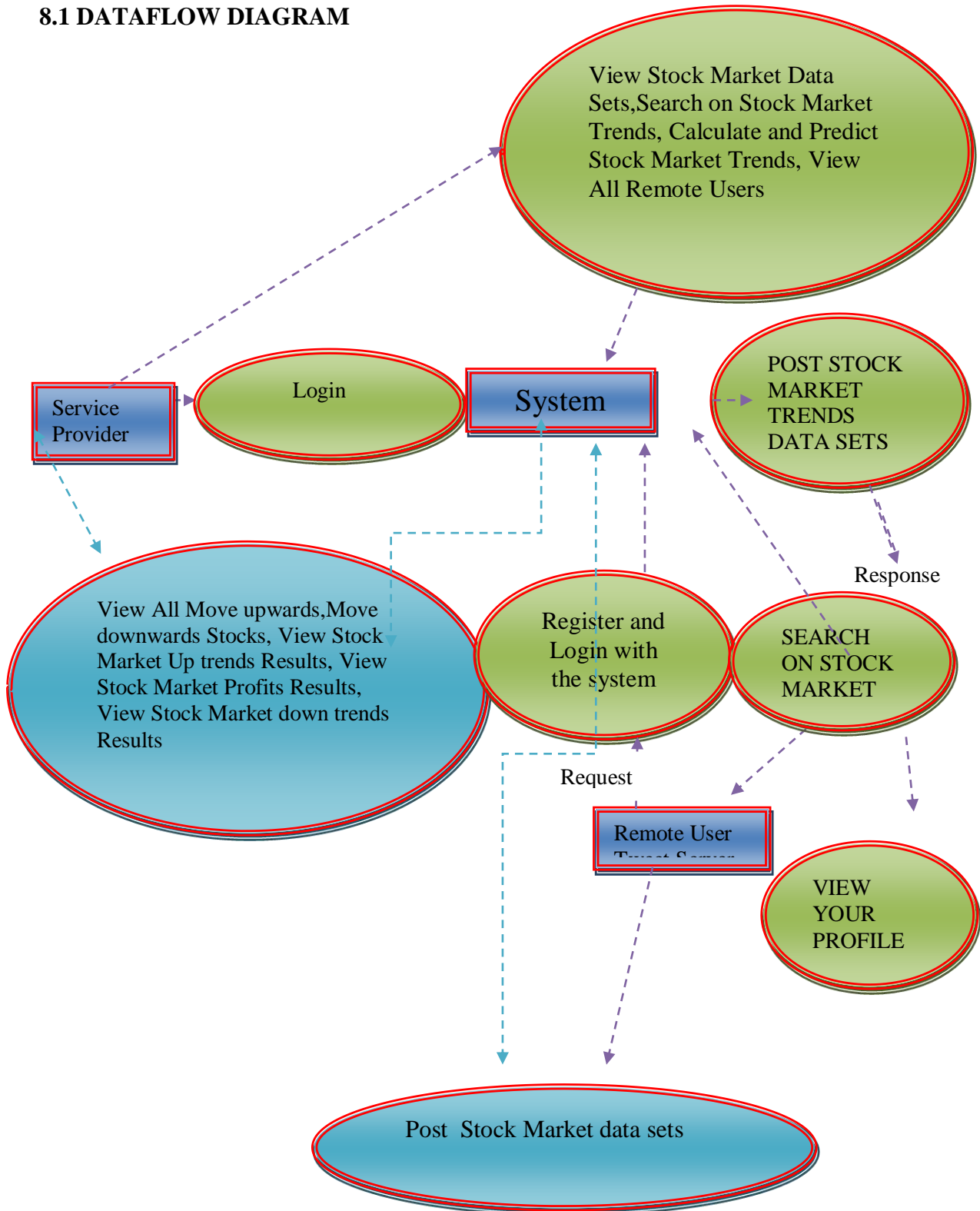


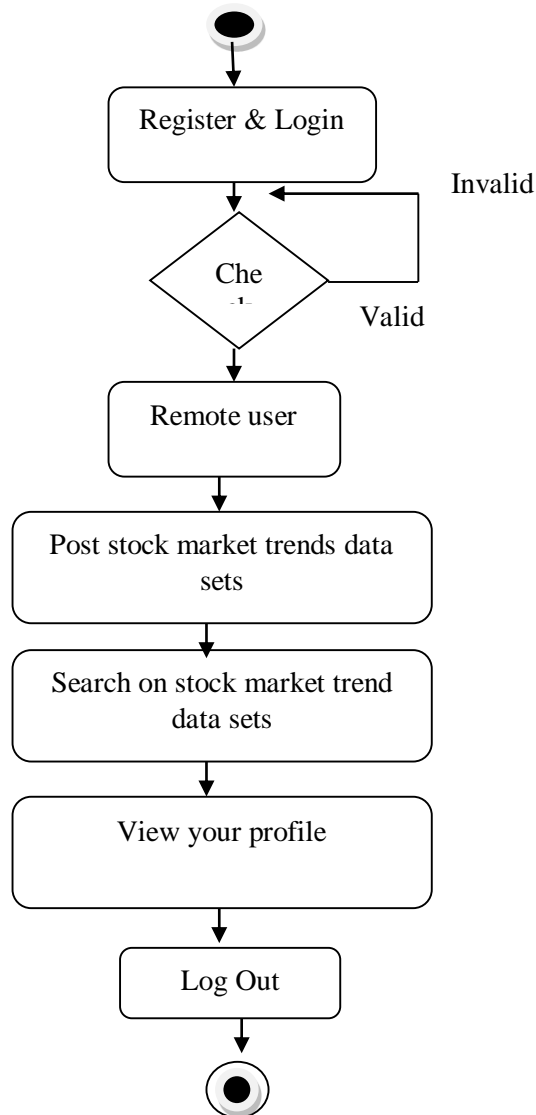
Fig 8.1 Dataflow Diagram

## 8.2 UML DIAGRAMS

### 8.2.1 Activity Diagram

Activity diagrams are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language, activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the overall flow of control.

#### 8.2.1.1 Activity Diagram for remote user



**Fig 8.2.1.1 Activity Diagram for remote user**

8.2.1.2 Activity Diagram for Service provider

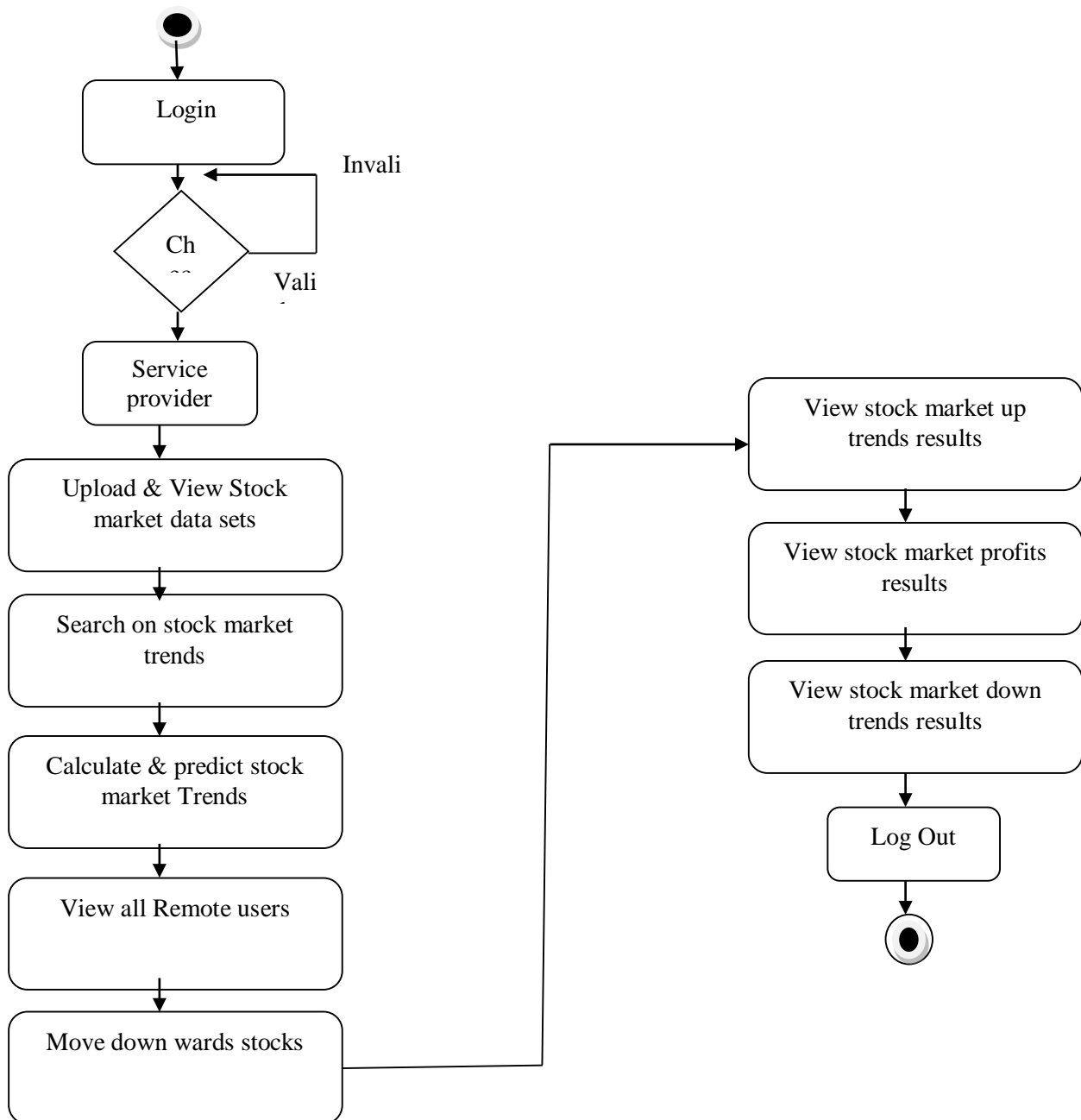
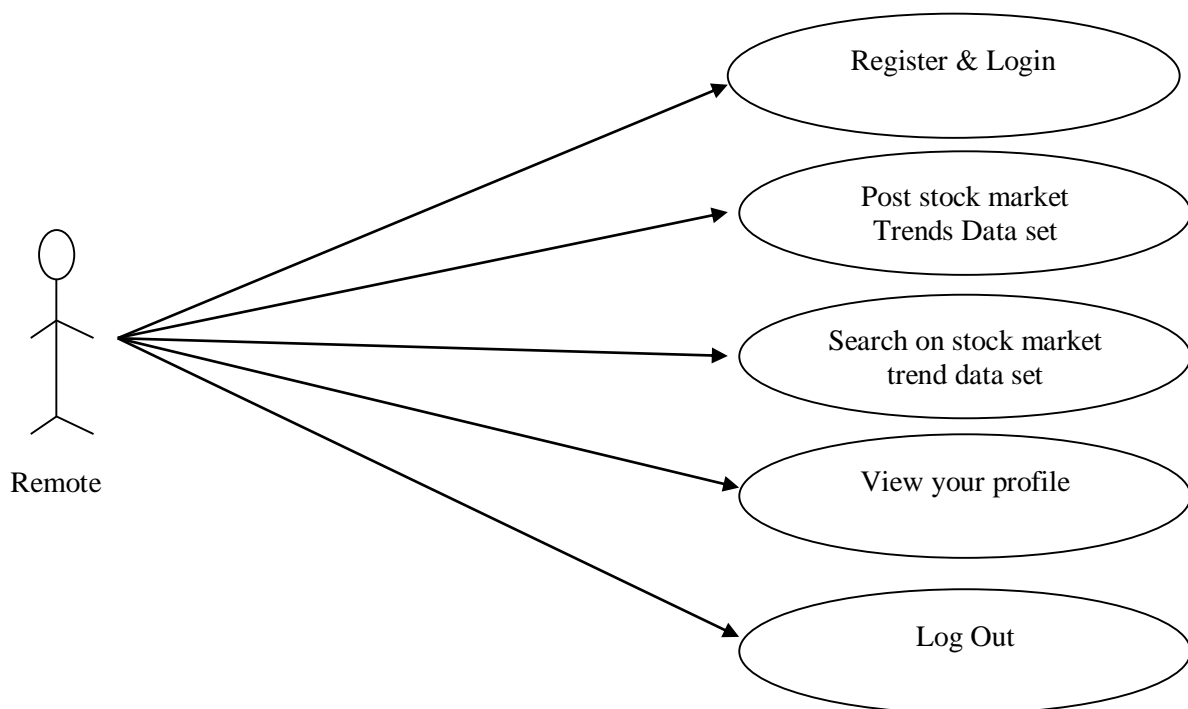


Fig 8.2.1.2 Activity Diagram for Service provider

### 8.2.2 Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

#### 8.2.2.1 Use case Diagram for Remote User



**Fig 8.2.2.1 Use case Diagram for Remote User**

8.2.2.2 Use case Diagram for Service provider

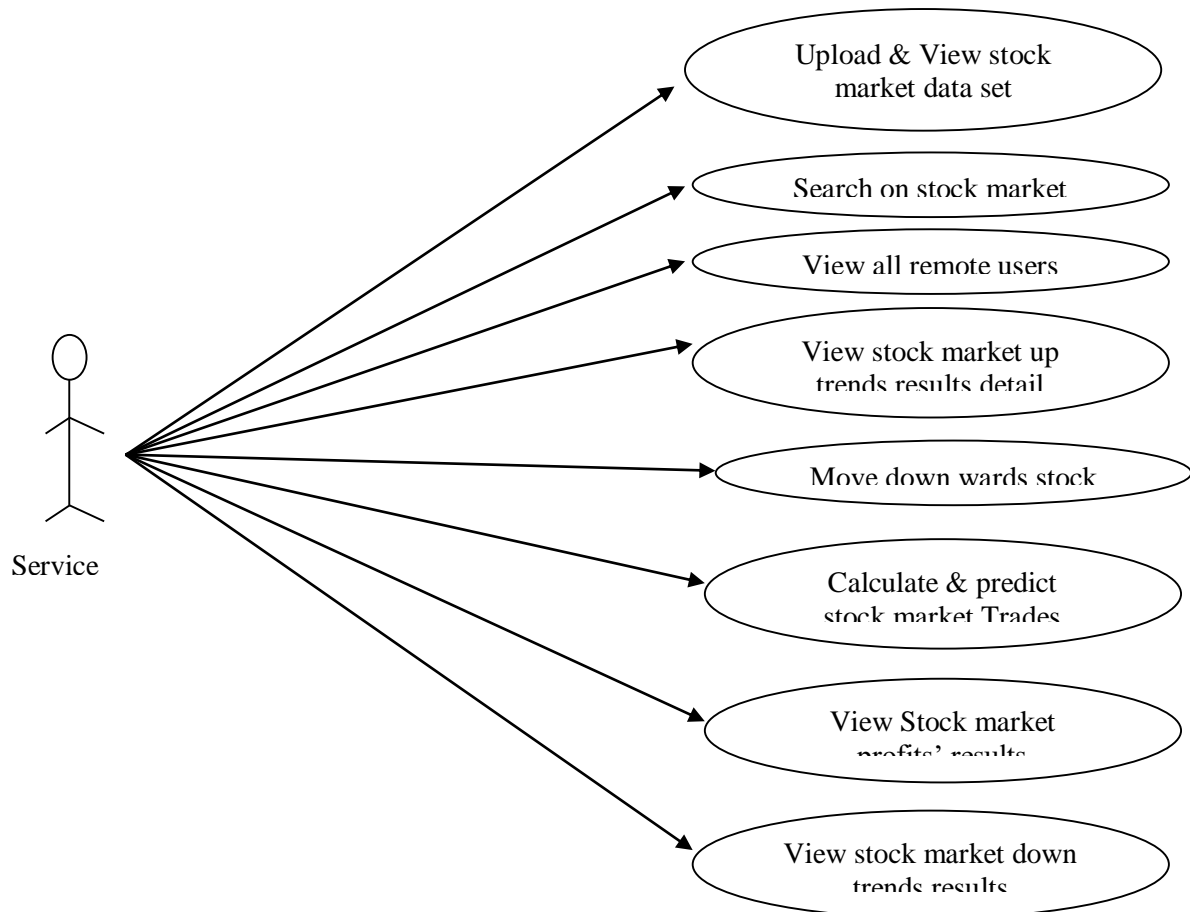
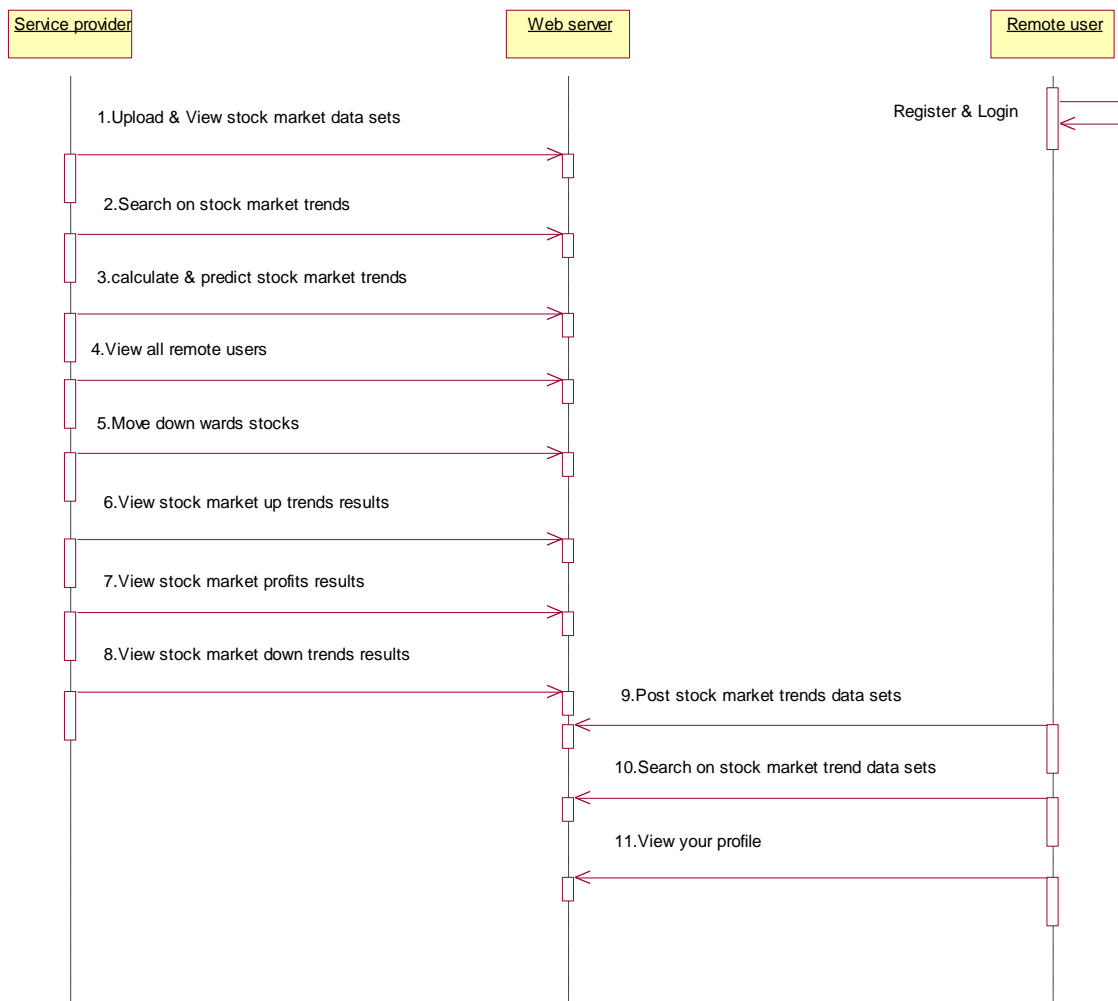


Fig 8.2.2.2 Use case Diagram for Service Provider

## 8.2.3 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are sometimes called event diagram, event scenarios, and timing diagram.



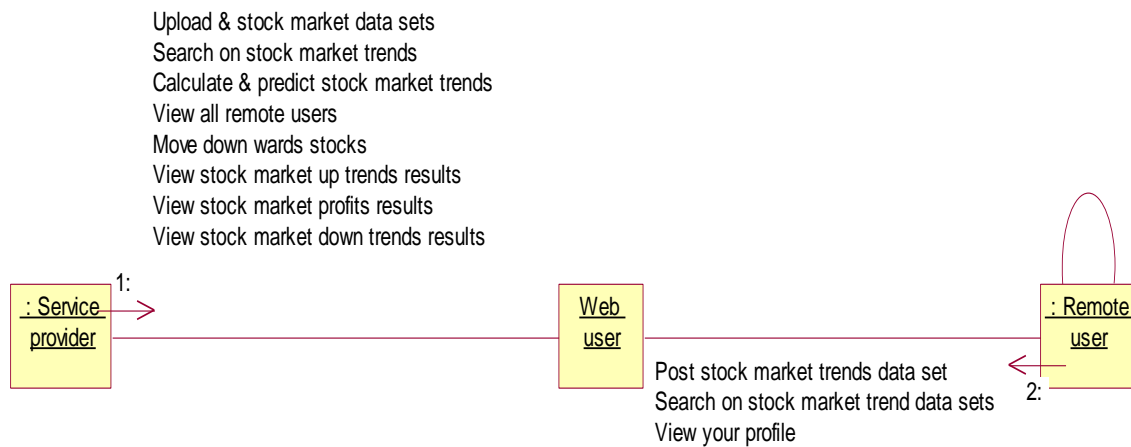
**Fig 8.2.3 Sequence Diagram**

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## 8.2.4 Collaboration Diagram

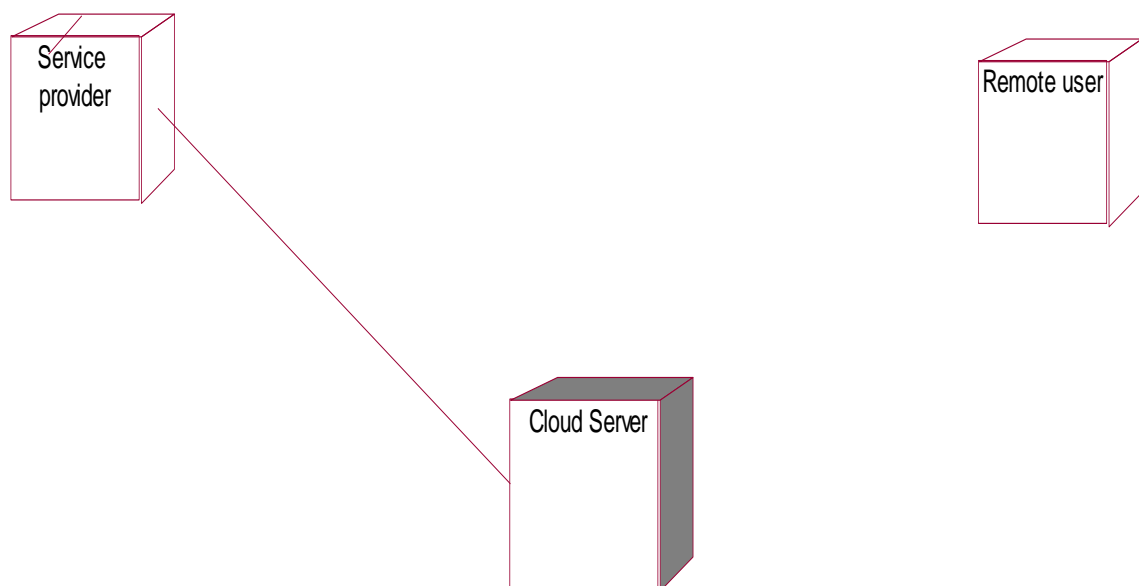
A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.



**Fig 8.2.4 Collaboration Diagram**

## 8.2.5 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.



**Fig 8.2.5 Deployment diagram**



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## 8.2.6 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes, Responsibilities and Collaborators approach.

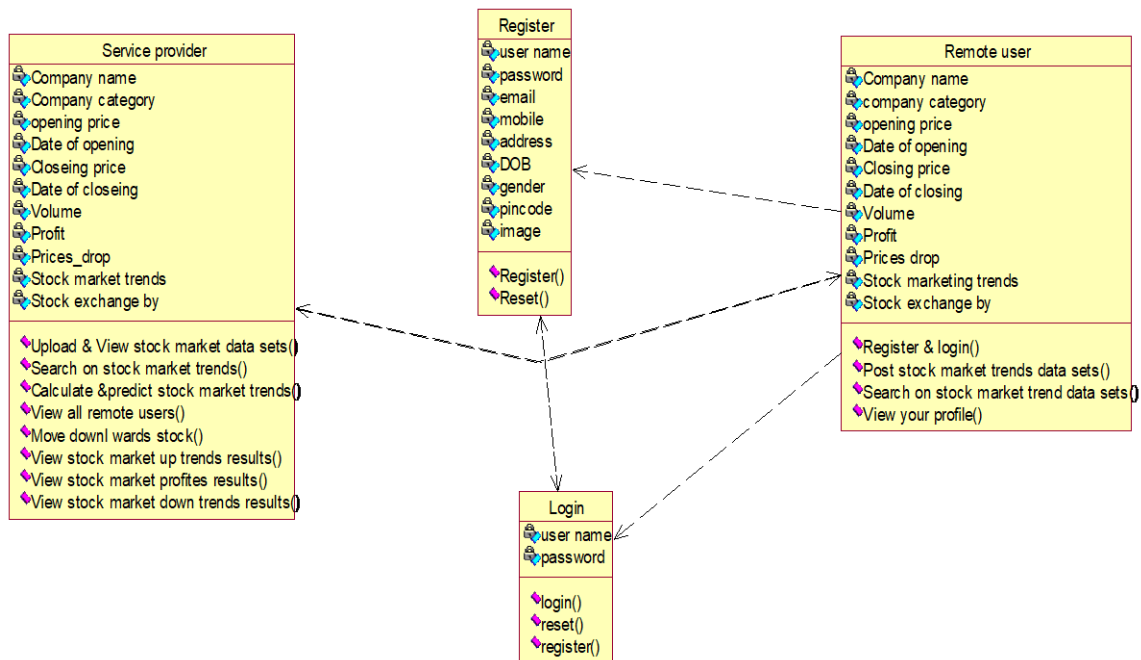
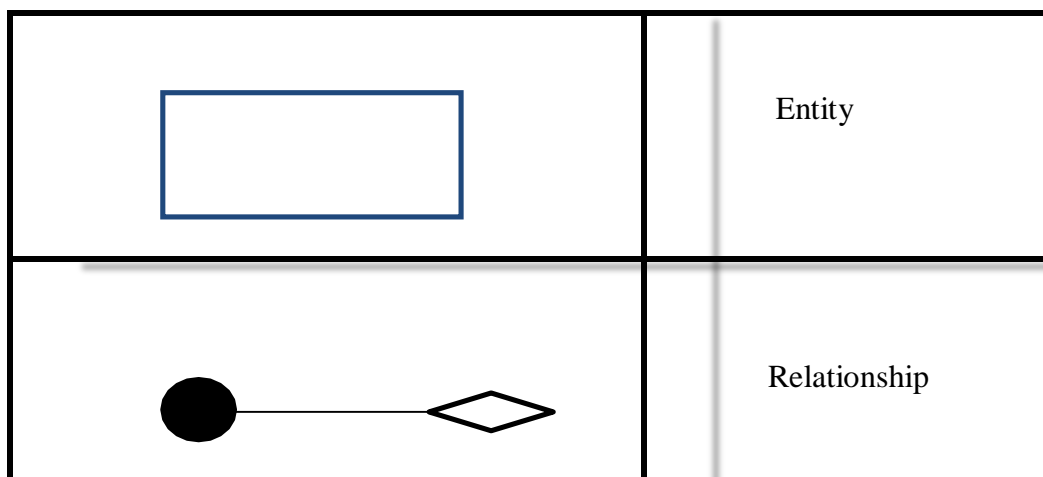


Fig 8.2.6 Class Diagram

### 8.3 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.



**Fig8.3.1: E-R Notations**

## 9. IMPLEMENTATION

### 9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities
4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### 9.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet there quirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections of the
  - Future.
  - Signal important events, opportunities, problems, or warnings.
  - Trigger an action.
  - Confirm an action.

## 9.4 CODING

### Model.py

```
from django.db import models

Create your models here.
from django.db.models import CASCADE

class ClientRegister_Model(models.Model):
 username = models.CharField(max_length=30)
 email = models.EmailField(max_length=30)
 password = models.CharField(max_length=10)
 phoneno = models.CharField(max_length=10)
 country = models.CharField(max_length=30)
 state = models.CharField(max_length=30)
 city = models.CharField(max_length=30)

class stock_market_model(models.Model):

 Company_Name= models.CharField(max_length=300)
 Company_Category= models.CharField(max_length=300)
 Opening_Price= models.CharField(max_length=300)
 Date_Of_Opening= models.CharField(max_length=300)
 Closing_Price= models.CharField(max_length=300)
 Date_Of_Closing= models.CharField(max_length=300)
 volume= models.CharField(max_length=300)
 Profit= models.CharField(max_length=300)
 prices_drop= models.CharField(max_length=300)
 Stock_Market_Trends= models.CharField(max_length=300)
 Stock_Exchange_By= models.CharField(max_length=300)

class predicting_stock_marketrends_model(models.Model):

 names= models.CharField(max_length=300)
 Company_Category= models.CharField(max_length=300)
 Opening_Price= models.CharField(max_length=300)
 Date_Of_Opening= models.CharField(max_length=300)
 Closing_Price= models.CharField(max_length=300)
 Date_Of_Closing= models.CharField(max_length=300)
 volume= models.CharField(max_length=300)
 Profit= models.CharField(max_length=300)
 prices_drop= models.CharField(max_length=300)
 Stock_Market_Trends= models.CharField(max_length=300)
 Stock_Exchange_By= models.CharField(max_length=300)

class search_ratio_model(models.Model):
 names = models.CharField(max_length=300)
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
ratio = models.CharField(max_length=300)
```

## **views.py**

```
from django.db.models import Count
from django.db.models import Q
from django.shortcuts import render, redirect, get_object_or_404
import datetime
import openpyxl

Create your views here.
from Remote_User.models import
ClientRegister_Model,stock_market_model,predicting_stock_markettrends_model

def login(request):

 if request.method == "POST" and 'submit1' in request.POST:

 username = request.POST.get('username')
 password = request.POST.get('password')
 try:

 enter = ClientRegister_Model.objects.get(username=username, password=password)
 request.session["userid"] = enter.id

 return redirect('Add_DataSet_Details')
 except:
 pass

 return render(request,'RUser/login.html')

def Add_DataSet_Details(request):
 if "GET" == request.method:
 return render(request, 'RUser/Add_DataSet_Details.html', {})
 else:
 excel_file = request.FILES["excel_file"]

 # you may put validations here to check extension or file size

 wb = openpyxl.load_workbook(excel_file)

 # getting all sheets
 sheets = wb.sheetnames
 print(sheets)
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
getting a particular sheet
worksheet = wb["Sheet1"]
print(worksheet)

getting active sheet
active_sheet = wb.active
print(active_sheet)

reading a cell
print(worksheet["A1"].value)

excel_data = list()
iterating over the rows and
getting value from each cell in row
for row in worksheet.iter_rows():
 row_data = list()
 for cell in row:
 row_data.append(str(cell.value))
 print(cell.value)
 excel_data.append(row_data)

 stock_market_model.objects.all().delete()

for r in range(1, active_sheet.max_row+1):
 stock_market_model.objects.create(
 Company_Name=active_sheet.cell(r, 1).value,
 Company_Category=active_sheet.cell(r, 2).value,
 Opening_Price=active_sheet.cell(r, 3).value,
 Date_Of_Opening=active_sheet.cell(r, 4).value,
 Closing_Price=active_sheet.cell(r, 5).value,
 Date_Of_Closing=active_sheet.cell(r, 6).value,
 volume=active_sheet.cell(r, 7).value,
 Profit='---',
 prices_drop='---',
 Stock_Market_Trends='---',
 Stock_Exchange_By=active_sheet.cell(r, 11).value
)

return render(request, 'RUser/Add_DataSet_Details.html', {"excel_data": excel_data})

def Register1(request):
 if request.method == "POST":
 username = request.POST.get('username')
 email = request.POST.get('email')
 password = request.POST.get('password')
 phoneno = request.POST.get('phoneno')
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
country = request.POST.get('country')
state = request.POST.get('state')
city = request.POST.get('city')
ClientRegister_Model.objects.create(username=username, email=email,
password=password, phoneno=phoneno,
country=country, state=state, city=city)

return render(request, 'RUser/Register1.html')
else:

return render(request, 'RUser/Register1.html')

def ViewYourProfile(request):
userid = request.session['userid']
obj = ClientRegister_Model.objects.get(id= userid)
return render(request, 'RUser/ViewYourProfile.html', {'object':obj})

def Search_StockMarket_DataSets(request):
if request.method == "POST":
kword = request.POST.get('keyword')
print(kword)
obj = stock_market_model.objects.all().filter(Company_Name__contains=kword)

obj1 = stock_market_model.objects.get(Company_Name__contains=kword)
opening = int(obj1.Opening_Price)
closing = int(obj1.Closing_Price)
trends = closing - opening

if (opening < closing):
val = 'Profit'
Stock_Market_Trends = 'Uptrends'
if (opening > closing):
val = 'prices drop'
Stock_Market_Trends = 'downtrends'
if (opening == closing):
val = 'Horizontal'
Stock_Market_Trends = 'HorizontalTrends'

return render(request, 'RUser/Search_StockMarket_DataSets.html', {'objs': obj, 'trends':
trends, 'val': val, 'Stock_Market_Trends': Stock_Market_Trends})
return render(request, 'RUser/Search_StockMarket_DataSets.html')

def ratings(request, pk):
vott1, vott, neg = 0, 0, 0
objs = stock_market_model.objects.get(id=pk)
unid = objs.id
vot_count = stock_market_model.objects.all().filter(id=unid)
```



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
for t in vot_count:
 vott = t.ratings
 vott1 = vott + 1
 obj = get_object_or_404(stock_market_model, id=unid)
 obj.ratings = vott1
 obj.save(update_fields=["ratings"])
 return redirect('Add_DataSet_Details')

return render(request, 'RUser/ratings.html', {'objs':vott1})
```

## Register.html

```
<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css"
rel="stylesheet" id="bootstrap-css">

<!DOCTYPE html>

<html lang="en">

<title>Login</title>

<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

<head>

<link rel="icon" href="images/icon.png" type="image/x-icon" />

<link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Righteous" rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

<style>
body {
}
.container-fluid {padding:50px;}
.container{background-color:white;padding:50px; }
#title{ font-family: 'Fredoka One', cursive;
}
.text-uppercase{
font-family: 'Righteous', cursive;
}
}
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
.style1 {color: #FF0000}
.style4 {color: #FF0000; font-weight: bold; }
</style>
</head>
<body>
<div class="container-fluid">
<div class="container">
<h2 class="style1 text-center" id="title">Predicting Stock Market Trends Using
Machine Learning and Deep Learning Algorithms Via Continuous and Binary Data; a
Comparative Analysis
</h2>
<p class="text-center">
<small id="passwordHelpInline" class="text-muted">Stock market,
trends prediction, classication, machine learning, deep learning.

</small></p>
<hr>
<div class="row">
<div class="col-md-5">
<form role="form" method="POST" >
{% csrf_token %}
<fieldset>
<p class="text-uppercase pull-center"> </p>

</fieldset>

</form>
</div>

<div class="col-md-2">
<!--null-->
</div>

<div class="col-md-5">
<form method="POST" role="form
{% csrf_token %}

<fieldset>
<p class="text-uppercase"> Login Using Your Account: </p>

</div>

class="form-group">
<input type="text" name="username" class="form-control input-lg" placeholder="User
Name" required>
</div>
<div class="form-group">
<input type="password" name="password" class="form-control input-lg"
placeholder="Password" required>
</div>
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
<div>
<input type="submit" name="submit1" class="btn btn-md" value="sign_in">
</div></br>
<p class="text-uppercase"> Login Using Your Account: </p>

<div>

<button class="btn btn-lg ">SERVICE
PROVIDER</button>
<button class="btn btn-lg ">REGISTER</button>
</div>
</fieldset>
</form>
</div>
</div>
</div>

</div>
</body>
```

```
</html>
Apps.py
```

```
from django.apps import AppConfig
```

```
class ClientSiteConfig(AppConfig):
 name = 'Remote_User'
```

## **Views.py**

```
from django.db.models import Count, Avg
from django.shortcuts import render, redirect
from django.db.models import Count
from django.db.models import Q
import datetime
```

```
Create your views here.
from Remote_User.models import
ClientRegister_Model,stock_market_model,predicting_stock_markettrends_model
```

```
def serviceproviderlogin(request):
 if request.method == "POST":
 admin = request.POST.get('username')
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
password = request.POST.get('password')
if admin == "SProvider" and password == "SProvider":
 stock_market_model.objects.all().delete()
 predicting_stock_market_trends_model.objects.all().delete()
 return redirect('View_Remote_Users')

return render(request, 'SProvider/serviceproviderlogin.html')

def view_trending_questions(request, chart_type):
 dd = {}
 pos, neu, neg = 0, 0, 0
 poss = None
 topic =
 predicting_stock_market_trends_model.objects.values('ratings').annotate(dcount=Count('rating
s')).order_by('-dcount')
 for t in topic:
 topics = t['ratings']

 pos_count = predicting_stock_market_trends_model.objects.filter(topics=topics).values('names'
).annotate(topiccount=Count('ratings'))
 poss = pos_count
 for pp in pos_count:
 senti = pp['names']
 if senti == 'positive':
 pos = pp['topiccount']
 elif senti == 'negative':
 neg = pp['topiccount']
 elif senti == 'neutral':
 neu = pp['topiccount']
 dd[topics] = [pos, neg, neu]
 return
render(request, 'SProvider/view_trending_questions.html', {'object': topic, 'dd': dd, 'chart_type': cha
rt_type})

def Search_StockMarket(request): # Search

 if request.method == "POST":
 kword = request.POST.get('keyword')
 print(kword)
 obj = stock_market_model.objects.all().filter(Company_Name__contains=kword)

 obj1 = stock_market_model.objects.get(Company_Name__contains=kword)
 opening = int(obj1.Opening_Price)
 closing = int(obj1.Closing_Price)
 trends = closing - opening

 if (opening < closing):
 val = 'Profit'
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
 Stock_Market_Trends='Uptrends'
 if(opening>closing):
 val = 'prices drop'
 Stock_Market_Trends = 'downtrends'
 if (opening == closing):
 val = 'Horizontal'
 Stock_Market_Trends = 'HorizontalTrends'

 return render(request, 'SProvider/Search_StockMarket.html', {'objs': obj,'trends':
trends,'val': val,'Stock_Market_Trends': Stock_Market_Trends})

 return render(request, 'SProvider/Search_StockMarket.html')

def View_All_StockMarket_Prediction_Details(request):

 pl=0
 pl1=0
 obj1 = stock_market_model.objects.values(
 'Company_Name',
 'Company_Category',
 'Opening_Price',
 'Date_Of_Opening',
 'Closing_Price',
 'Date_Of_Closing',
 'volume',
 'Profit',
 'prices_drop',
 'Stock_Market_Trends',
 'Stock_Exchange_By')

 predicting_stock_marketrends_model.objects.all().delete()
 for t in obj1:

 Company_Name=t['Company_Name']
 Company_Category=t['Company_Category']
 Opening_Price=int(t['Opening_Price'])
 Date_Of_Opening=t['Date_Of_Opening']
 Closing_Price=int(t['Closing_Price'])
 Date_Of_Closing=t['Date_Of_Closing']
 volume=t['volume']
 Profit=t['Profit']
 prices_drop=t['prices_drop']
 Stock_Market_Trends=t['Stock_Market_Trends']
 Stock_Exchange_By=t['Stock_Exchange_By']

 Total =Closing_Price-Opening_Price

 if (Opening_Price < Closing_Price):
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
 val = 'Profit'
 Stock_Market_Trends = 'Up trends'
 finalstr=val+':'+Stock_Market_Trends
if (Opening_Price > Closing_Price):
 val = 'prices drop'
 Stock_Market_Trends = 'down trends'
 finalstr = val + ':' + Stock_Market_Trends
if (Opening_Price == Closing_Price):
 val = 'Horizontal'
 Stock_Market_Trends = 'Horizontal Trends'
 finalstr = val + ':' + Stock_Market_Trends
if (Total > 0):
 pl = Total
 predicting_stock_markettrends_model.objects.create(names=Company_Name,
Company_Category=Company_Category,
 Opening_Price=Opening_Price,
 Date_Of_Opening=Date_Of_Opening,
 Closing_Price=Closing_Price,
 Date_Of_Closing=Date_Of_Closing,
volume=volume,
 Profit=pl, prices_drop=0,
Stock_Market_Trends=finalstr,
 Stock_Exchange_By=Stock_Exchange_By)

 if (Total < 0):
 pl1 = Total

 predicting_stock_markettrends_model.objects.create(names=Company_Name,
Company_Category=Company_Category,
 Opening_Price=Opening_Price,
Date_Of_Opening=Date_Of_Opening,
 Closing_Price=Closing_Price,
Date_Of_Closing=Date_Of_Closing,
 volume=volume, Profit=0, prices_drop=pl1,
 Stock_Market_Trends=finalstr,
 Stock_Exchange_By=Stock_Exchange_By)

 if (Total == 0):
 pl1 = Total

 predicting_stock_markettrends_model.objects.create(names=Company_Name,
Company_Category=Company_Category,
 Opening_Price=Opening_Price,
Date_Of_Opening=Date_Of_Opening,
 Closing_Price=Closing_Price,
Date_Of_Closing=Date_Of_Closing,
 volume=volume, Profit=0, prices_drop=0,
 Stock_Market_Trends=finalstr,
 Stock_Exchange_By=Stock_Exchange_By)

obj = predicting_stock_markettrends_model.objects.all()
```

## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
return render(request, 'SProvider/View_All_StockMarket_Prediction_Details.html', {'objs':
obj})
```

```
def View_Remote_Users(request):
 obj=ClientRegister_Model.objects.all()
 return render(request,'SProvider/View_Remote_Users.html',{ 'objects':obj})
```

```
def ViewTrendings(request):
 topic =
 predicting_stock_markettrends_model.objects.values('topics').annotate(dcount=Count('topics'
)).order_by('-dcount')
 return render(request,'SProvider/ViewTrendings.html',{ 'objects':topic })
```

```
def negativechart(request,chart_type):
 dd = {}
 pos, neu, neg = 0, 0, 0
 poss = None
 topic =
 predicting_stock_markettrends_model.objects.values('ratings').annotate(dcount=Count('rating
s')).order_by('-dcount')
 for t in topic:
 topics = t['ratings']
 pos_count =
 predicting_stock_markettrends_model.objects.filter(topics=topics).values('names').annotate(t
opiccount=Count('ratings'))
 poss = pos_count
 for pp in pos_count:
 senti = pp['names']
 if senti == 'positive':
 pos = pp['topiccount']
 elif senti == 'negative':
 neg = pp['topiccount']
 elif senti == 'nutral':
 neu = pp['topiccount']
 dd[topics] = [pos, neg, neu]
 return
 render(request,'SProvider/negativechart.html',{ 'object':topic,'dd':dd,'chart_type':chart_type})
```

```
def charts(request,chart_type):
 chart1 =
 predicting_stock_markettrends_model.objects.values('names').annotate(dcount=Avg('Profit'))
 return render(request,"SProvider/charts.html", {'form':chart1, 'chart_type':chart_type})
```

```
def charts1(request,chart_type):
 chart1 =
 predicting_stock_markettrends_model.objects.values('names').annotate(dcount=Avg('prices_
drop'))
 return render(request,"SProvider/charts1.html", {'form':chart1, 'chart_type':chart_type})
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
def View_StockMarket_Details(request):
 obj = stock_market_model.objects.all()
 return render(request, 'SProvider/View_StockMarket_Details.html', {'list_objects': obj})

def likeschart(request, like_chart):
 charts
=predicting_stock_markettrends_model.objects.values('names').annotate(dcount=Avg('Profit'
))
 return render(request, "SProvider/likeschart.html", {'form':charts, 'like_chart':like_chart})

def View_StockMarketUpDown(request):
 obj = predicting_stock_markettrends_model.objects.all()
 return render(request, 'SProvider/View_StockMarketUpDown.html', {'objs': obj})
```

## Search\_StockMarket\_Datasets.html

```
{% extends 'RUser/design.html' %}
{% block userblock %}

<link rel="icon" href="images/icon.png" type="image/x-icon" />

<link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Righteous" rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

<style>
body {background-color:#000000;}
.container-fluid {padding:50px;}
.container{background-color:white;padding:50px; }
#title{font-family: 'Fredoka One', cursive;
}
.text-uppercase{
font-family: 'Righteous', cursive;
}
.tweettext{

border: 2px solid yellowgreen;
width: 1104px;
height: 442px;
overflow: scroll;
background-color:;
}
.style1 {
color: #FF0000;
```



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
font-weight: bold;
}
.style4 {color: #FFFF00; font-weight: bold; }
.style6 {color: #0000FF}
</style>

<body>
<div class="container-fluid">
<div class="container">

<div class="row">
<div class="col-md-5">

<form role="form" method="POST" >
{% csrf_token %}
<fieldset>
<p class="text-uppercase pull-center style1">SEARCH STOCK MARKET TRENDS DATA
DETAILS !!! </p>
<hr>

 {% csrf_token %}
<table width="568" align="center">
<tr>
<td width="287" height="44" bgcolor="#FF0000"><div align="center"><span class="style4
style2">Enter Company Name as Keyword Here </div></td>
<td width="269"><input type="text" name="keyword" ></td>
</tr>
<td><p> </p>
<p>
<input name="submit" type="submit" class="style1" value="Search">
</p></td>
</tr>
</table>
</fieldset>

</form>

<form role="form" method="POST" >
{% csrf_token %}
<fieldset>
<p class="text-uppercase pull-center style1">STOCK MARKET PROFIT OR LOSS PRICE
:: Rs.{{ trends }} /- </p>
<p class="text-uppercase pull-center style1">STOCK MARKET TRENDS PREDICTION ::
{{ Stock_Market_Trends }}</p>
<p class="text-uppercase pull-center style1">STOCK MARKET STATUS PREDICTION ::
{{ val }}</p>

<p>
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

class="text-uppercase pull-center style1">VIEW ALL STOCK MARKET DATA SET DETAILS !!! </p>

<hr>

<div class="tweettext">

<table border="5" bordercolor="#FF00FF">

<tr><td bgcolor="#FF0000"><span class="style4">Company Name</span></td>

<td bgcolor="#FF0000"><span class="style4">Company Category</span></td>

<td bgcolor="#FF0000"><span class="style4">Opening Price</span></td>

<td bgcolor="#FF0000"><span class="style4">Date Of Opening</span></td>

<td bgcolor="#FF0000"><span class="style4">Closing Price</span></td>

<td bgcolor="#FF0000"><span class="style4">Date Of Closing</span></td>

<td bgcolor="#FF0000"><span class="style4">volume</span></td>

<td bgcolor="#FF0000"><span class="style4">Profit</span></td>

<td bgcolor="#FF0000"><span class="style4">Prices drop</span></td>

<td bgcolor="#FF0000"><span class="style4">Stock Market Trends</span></td>

<td bgcolor="#FF0000"><span class="style4">Stock Exchange By</span></td>

</tr>

</tr>

{ % for object in objs % }

<tr>

<td style="color:red; font-size:20px; font-family:fantasy" ><div align="center">{ { object.Company\_Name } }</div></td>

<td style="font-family:monospace; font-size:19px; "><div align="center">{ { object.Company\_Category } }</div></td>

<td style="font-family:monospace; font-size:19px; "><div align="center">{ { object.Opening\_Price } }</div></td>

<td style="font-family:monospace; font-size:19px; "><div align="center">{ { object.Date\_Of\_Opening } }</div></td>

<td style="font-family:monospace; font-size:19px; "><div align="center">{ { object.Closing\_Price } }</div></td>

<td style="font-family:monospace; font-size:19px; "><div align="center">{ { object.Date\_Of\_Closing } }</div></td>

<td style="font-family:monospace; font-size:19px; "><div align="center">{ { object.volume } }</div></td>

<td bgcolor="#FF00FF" style="font-family:monospace; font-size:19px; "><div align="center">{ { object.Profit } }</div></td>

<td bgcolor="#FF00FF" style="font-family:monospace; font-size:19px; "><div align="center">{ { object.prices\_drop } }</div></td>

<td bgcolor="#FF00FF" style="font-family:monospace; font-size:19px; "><div align="center">{ { object.Stock\_Market\_Trends } }</div></td>

<td style="font-family:monospace; font-size:19px; "><div align="center">{ { object.Stock\_Exchange\_By } }</div></td>

</tr>

{ % endfor % }

</table>

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
</div>
```

```
</fieldset>
```

```
</form>
```

```
</div>
```

```
<div class="col-md-2">
```

```
<!-----null----->
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
{% endblock % }
```

```
<tr>
```

```
Add_Dataset_Details.html
```

```
{% extends 'RUser/design.html' % }
```

```
{% block userblock % }
```

```
<link rel="icon" href="images/icon.png" type="image/x-icon" />
```

```
<link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
```

```
<link href="https://fonts.googleapis.com/css?family=Righteous" rel="stylesheet">
```

```
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">
```

```
<style>
```

```
body {background-color:#FFFFFF;}
```

```
.container-fluid {padding:50px;}
```

```
.container{background-color:white;padding:50px;}
```

```
#title{font-family: 'Fredoka One', cursive;
```

```
}
```

```
.text-uppercase{
```

```
font-family: 'Righteous', cursive;
```

```
}
```

```
input,textarea{
```

```
font-family:Aldrich;
```

```
font-size:15px;
```

```
}
```

```
.style1 {
```

```
color: #FF0000;
```

```
font-weight: bold;
```

```
}
```

```
.style4 {color: #FFFF00; font-weight: bold; }
```

```
.style5 {color: #FF0000; font-weight: bold; font-style: italic; }
```

```
</style>
```



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
 {% endfor %}
</table>

 {{obj}}

</fieldset>
</form>
</div>

<div class="col-md-2">
<!--null-->
</div>
</div>
</div>
</div>
{% endblock %}
```

## Settings.py

```
import os

Build paths inside the project like this: os.path.join(BASE_DIR, ...)
BASE_DIR = os.path.dirname(os.path.dirname(os.path.abspath(__file__)))

Quick-start development settings - unsuitable for production
See https://docs.djangoproject.com/en/3.0/howto/deployment/checklist/

SECURITY WARNING: keep the secret key used in production secret!
SECRET_KEY = 'm+1edl5m-5@u9u!b8=-4-4mq&o1%agco2xpl8c!7sn7!eowjk#'

SECURITY WARNING: don't run with debug turned on in production!
DEBUG = True

ALLOWED_HOSTS = []

Application definition

INSTALLED_APPS = [
 'django.contrib.admin',
 'django.contrib.auth',
 'django.contrib.contenttypes',
 'django.contrib.sessions',
 'django.contrib.messages',
 'django.contrib.staticfiles',
 'Remote_User',
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
'Service_Provider',
]
```

```
MIDDLEWARE = [
 'django.middleware.security.SecurityMiddleware',
 'django.contrib.sessions.middleware.SessionMiddleware',
 'django.middleware.common.CommonMiddleware',
 'django.middleware.csrf.CsrfViewMiddleware',
 'django.contrib.auth.middleware.AuthenticationMiddleware',
 'django.contrib.messages.middleware.MessageMiddleware',
 'django.middleware.clickjacking.XFrameOptionsMiddleware',
]
```

```
ROOT_URLCONF = 'predicting_stock_marketrends.urls'
```

```
TEMPLATES = [
 {
 'BACKEND': 'django.template.backends.django.DjangoTemplates',
 'DIRS': [(os.path.join(BASE_DIR, 'Template/htmls'))],
 'APP_DIRS': True,
 'OPTIONS': {
 'context_processors': [
 'django.template.context_processors.debug',
 'django.template.context_processors.request',
 'django.contrib.auth.context_processors.auth',
 'django.contrib.messages.context_processors.messages',
],
 },
],
]
```

```
WSGI_APPLICATION = 'predicting_stock_marketrends.wsgi.application'
```

```
Database
https://docs.djangoproject.com/en/3.0/ref/settings/#databases
```

```
DATABASES = {
 'default': {
 'ENGINE': 'django.db.backends.mysql',
 'NAME': 'predicting_stock_marketrends',
 'USER': 'root',
 'PASSWORD': '',
 'HOST': '127.0.0.1',
 'PORT': '3306',
 }
}
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
}

Password validation
https://docs.djangoproject.com/en/3.0/ref/settings/#auth-password-validators

AUTH_PASSWORD_VALIDATORS = [
 {
 'NAME': 'django.contrib.auth.password_validation.UserAttributeSimilarityValidator',
 },
 {
 'NAME': 'django.contrib.auth.password_validation.MinimumLengthValidator',
 },
 {
 'NAME': 'django.contrib.auth.password_validation.CommonPasswordValidator',
 },
 {
 'NAME': 'django.contrib.auth.password_validation.NumericPasswordValidator',
 },
]

Internationalization
https://docs.djangoproject.com/en/3.0/topics/i18n/

LANGUAGE_CODE = 'en-us'

TIME_ZONE = 'UTC'

USE_I18N = True

USE_L10N = True

USE_TZ = True

Static files (CSS, JavaScript, Images)
https://docs.djangoproject.com/en/3.0/howto/static-files/

STATIC_URL = '/static/'
STATICFILES_DIRS = [os.path.join(BASE_DIR, 'Template/images')]
MEDIA_URL = '/media/'
MEDIA_ROOT = os.path.join(BASE_DIR, 'Template/media')

STATIC_ROOT = '/static/'

STATIC_URL = '/static/'
```

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Urls.py

```
"""predicting_stock_markettrends URL Configuration
```

The `urlpatterns` list routes URLs to views. For more information please see:

<https://docs.djangoproject.com/en/3.0/topics/http/urls/>

Examples:

Function views

1. Add an import: from my\_app import views
2. Add a URL to urlpatterns: path("", views.home, name='home')

Class-based views

1. Add an import: from other\_app.views import Home
2. Add a URL to urlpatterns: path("", Home.as\_view(), name='home')

Including another URLconf

1. Import the include() function: from django.urls import include, path
2. Add a URL to urlpatterns: path('blog/', include('blog.urls'))

```
.....
```

```
from django.conf.urls import url
from django.contrib import admin
from Remote_User import views as remoteuser
from predicting_stock_markettrends import settings
from Service_Provider import views as serviceprovider
from django.conf.urls.static import static
```

```
urlpatterns = [
 url('admin/', admin.site.urls),
 url(r'^$', remoteuser.login, name="login"),
 url(r'^Register1/$', remoteuser.Register1, name="Register1"),
 url(r'^Search_StockMarket_DataSets/$', remoteuser.Search_StockMarket_DataSets,
name="Search_StockMarket_DataSets"),
 url(r'^ratings/(?P<pk>\d+)/$', remoteuser.ratings, name="ratings"),
 url(r'^ViewYourProfile/$', remoteuser.ViewYourProfile, name="ViewYourProfile"),
 url(r'^Add_DataSet_Details/$', remoteuser.Add_DataSet_Details,
name="Add_DataSet_Details"),
 url(r'^serviceproviderlogin/$',serviceprovider.serviceproviderlogin,
name="serviceproviderlogin"),

url(r'^View_Remote_Users/$',serviceprovider.View_Remote_Users,name="View_Remote_Us
ers"),
 url(r'^charts/(?P<chart_type>\w+)', serviceprovider.charts,name="charts"),
 url(r'^charts1/(?P<chart_type>\w+)', serviceprovider.charts1, name="charts1"),
 url(r'^likeschart/(?P<like_chart>\w+)', serviceprovider.likeschart, name="likeschart"),
 url(r'^Search_StockMarket/$', serviceprovider.Search_StockMarket,
name="Search_StockMarket"),

 url(r'^View_All_StockMarket_Prediction_Details/$',
serviceprovider.View_All_StockMarket_Prediction_Details,
name="View_All_StockMarket_Prediction_Details"),
```



## PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

```
url(r'^View_StockMarket_Details/$', serviceprovider.View_StockMarket_Details,
name="View_StockMarket_Details"),
url(r'^View_StockMarketUpDown/$', serviceprovider.View_StockMarketUpDown,
name="View_StockMarketUpDown"),
```

```
] + static(settings.MEDIA_URL, document_root=settings.MEDIA_ROOT)
```

## **10. SYSTEM TESTING**

### **10.1 SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, subassemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### **10.2 TYPES OF TESTING**

#### **Unit testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### **Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

#### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

## **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

## **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

## **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

### 10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

#### Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

#### Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

#### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

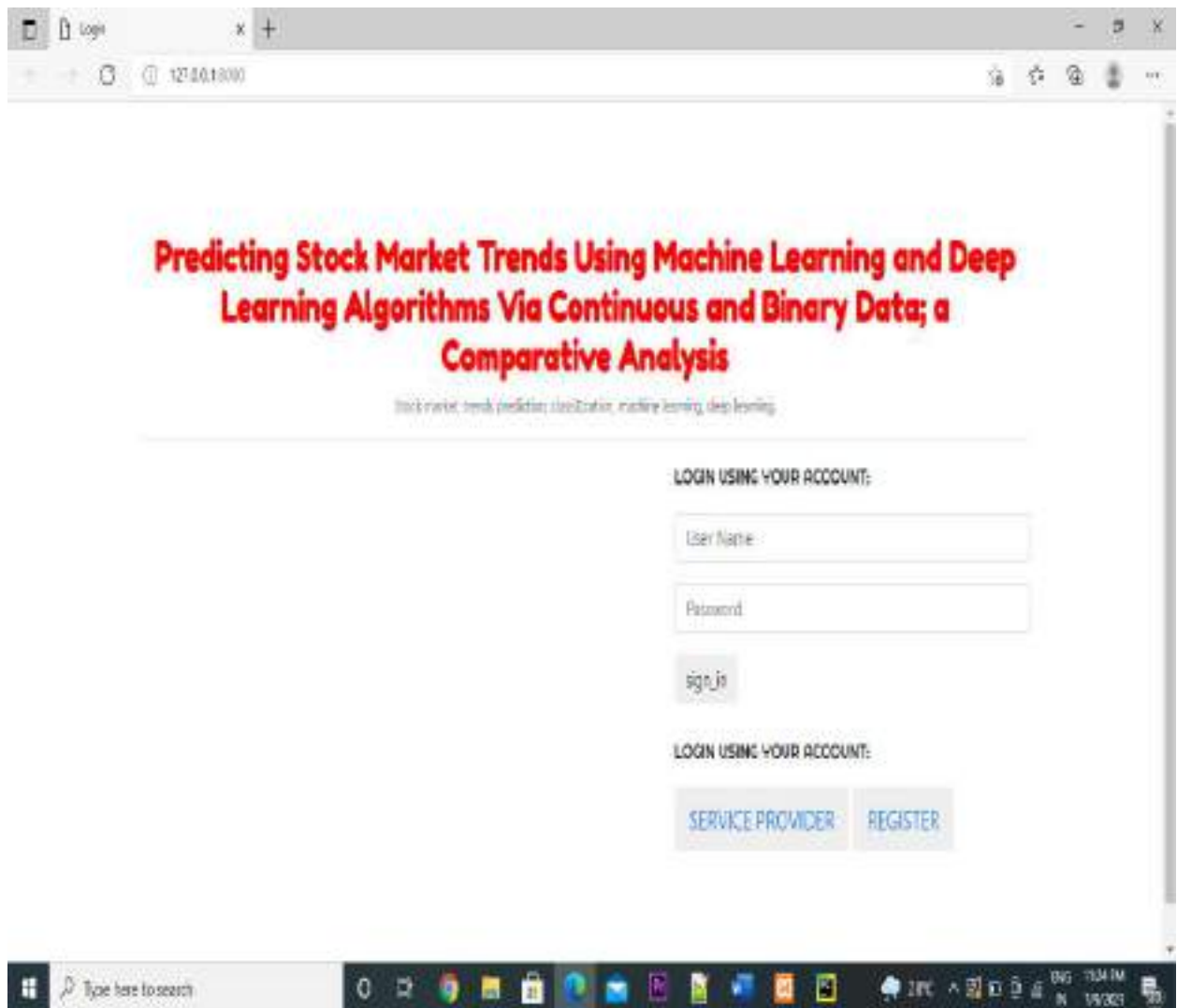
#### Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## 11.SCREENSHOTS

### Screen 1:

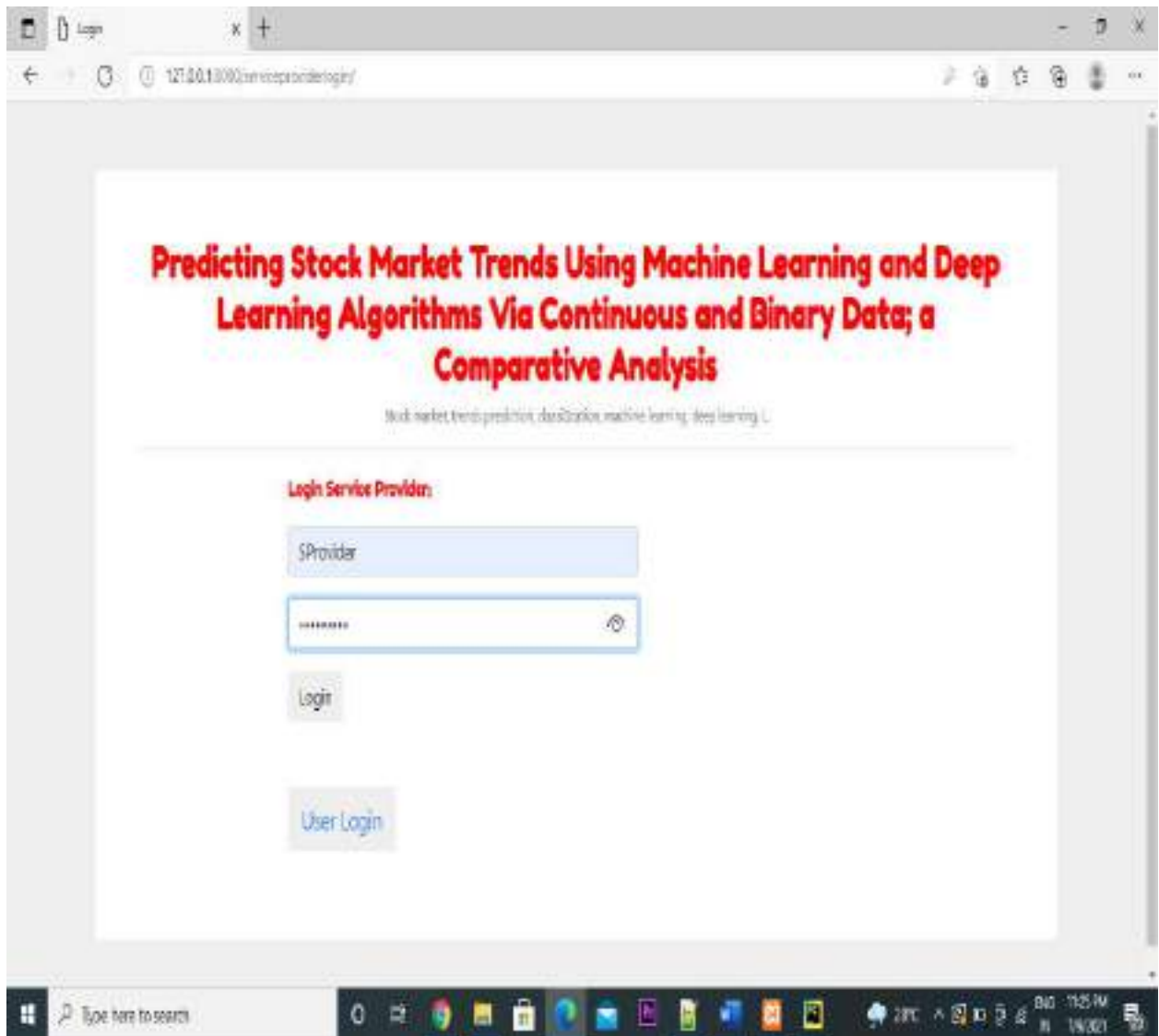


Home Page

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Screen 2:



**Service Provider Login Page**

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 3:

The screenshot shows a web browser window displaying a service provider's home page. The page has a dark red header with the following navigation links: "View Stock Market Data Sets", "Search on Stock Market Trends", "Calculate and Predict Stock Market Trends", "View All Remote Users", "View All Move upwards, Move downwards Stocks", "View Stock Market Up trends Results", "View Stock Market Profits Results", "View Stock Market down trends Results", and "Logout".

Below the navigation links, there is a white box containing a table titled "VIEW ALL REMOTE USERS !!". The table has the following columns: USER NAME, EMAIL, Mob No, Country, State, and City. The data rows are as follows:

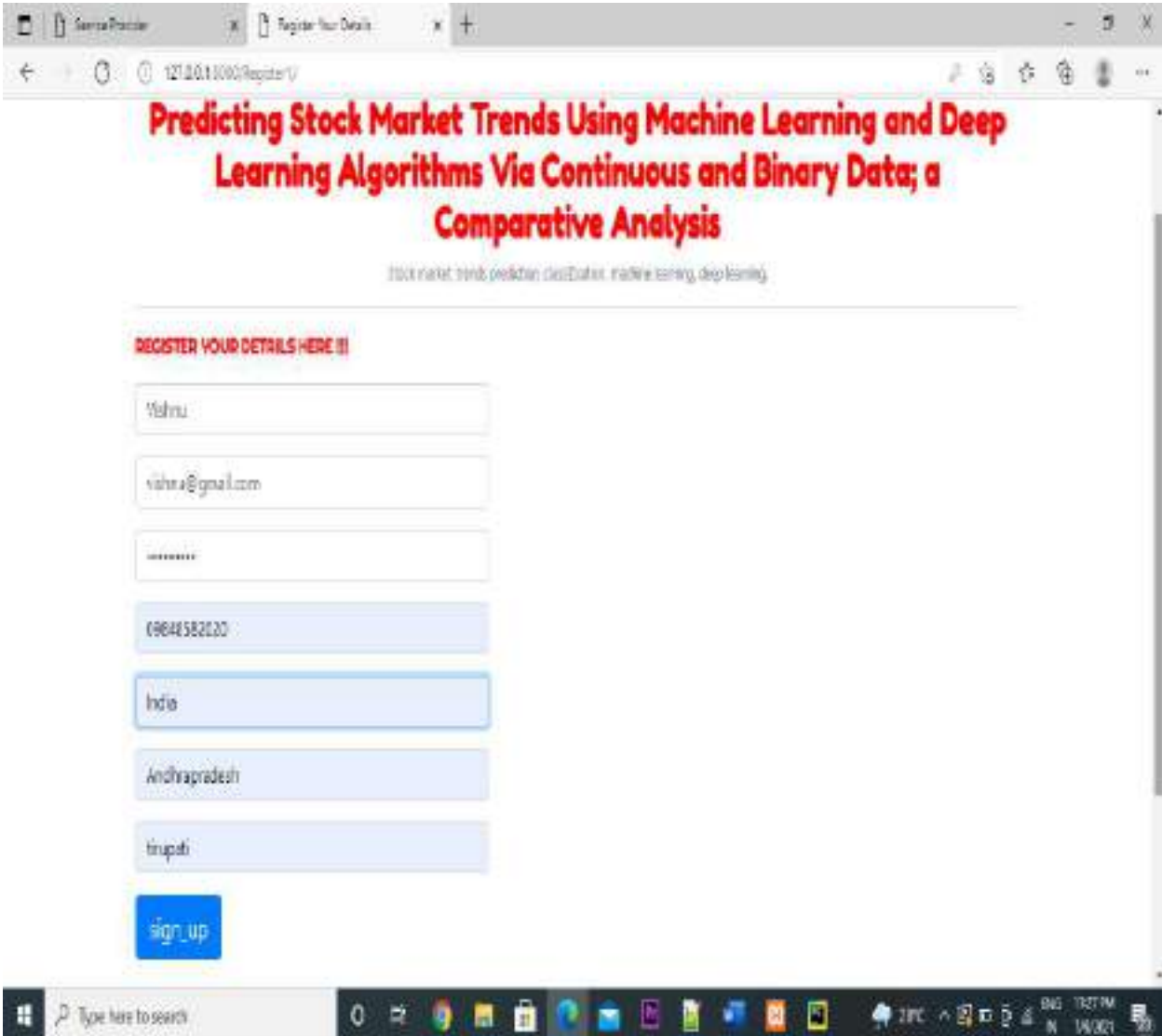
USER NAME	EMAIL	Mob No	Country	State	City
Govind	Govind.123@gmail.com	9535866270	India	Karnataka	Bangalore
Manjunath	lmksmanju13@gmail.com	9535866270	India	Karnataka	Bangalore
lmksmanju	lmksmanju13@gmail.com	9535866271	India	Karnataka	Bangalore
Arvind	Arvind123@gmail.com	9535866270	India	Karnataka	Bangalore
Amar	Amar123@gmail.com	9535866270	India	Karnataka	Bangalore
Anil	Anil123@gmail.com	9535866270	India	Karnataka	Bangalore
Raju	Raju123@gmail.com	9535866270	India	Karnataka	Bangalore

Home Page of Service Provider

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Screen 4:



The screenshot displays a web browser window with the following content:

- Browser Tabs:** "Sanna Pradip" and "Register Your Details".
- Address Bar:** "127.0.0.1:8080/Register/V".
- Page Title:** "Predicting Stock Market Trends Using Machine Learning and Deep Learning Algorithms Via Continuous and Binary Data; a Comparative Analysis".
- Subtitle:** "Stock market trend prediction classification machine learning deep learning".
- Form Header:** "REGISTER YOUR DETAILS HERE !!".
- Form Fields:**
  - First Name: "Vishnu"
  - Email: "vishnu@gmail.com"
  - Password: "\*\*\*\*\*"
  - Phone Number: "9864858202"
  - Country: "India"
  - State: "Andhrapradesh"
  - City: "tirupati"
- Form Action:** A blue "sign\_up" button.

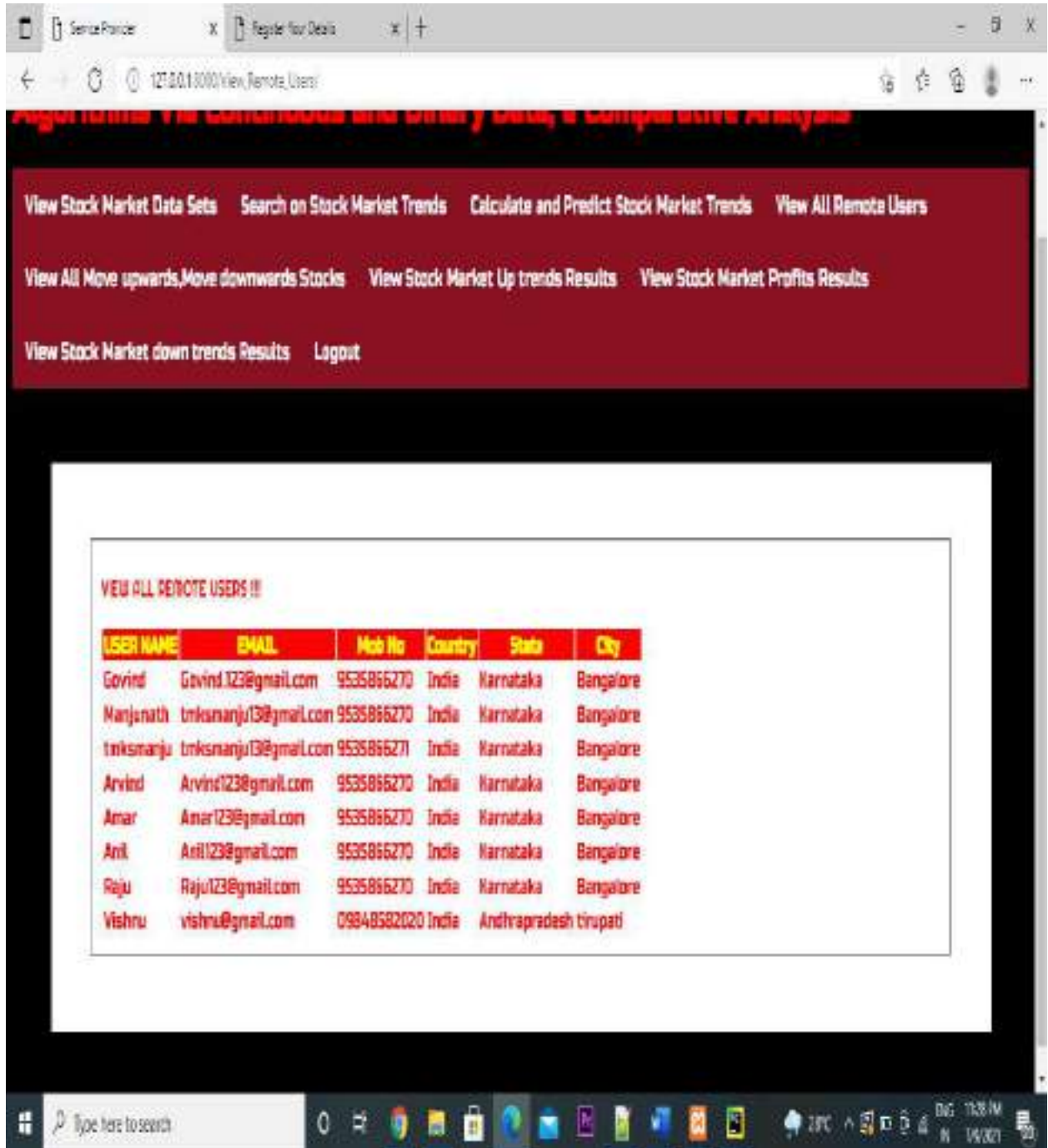
The Windows taskbar at the bottom shows the search bar, taskbar icons, and system tray with the date "14/02/2021" and time "11:27 AM".

### Remote User Registration



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 5:

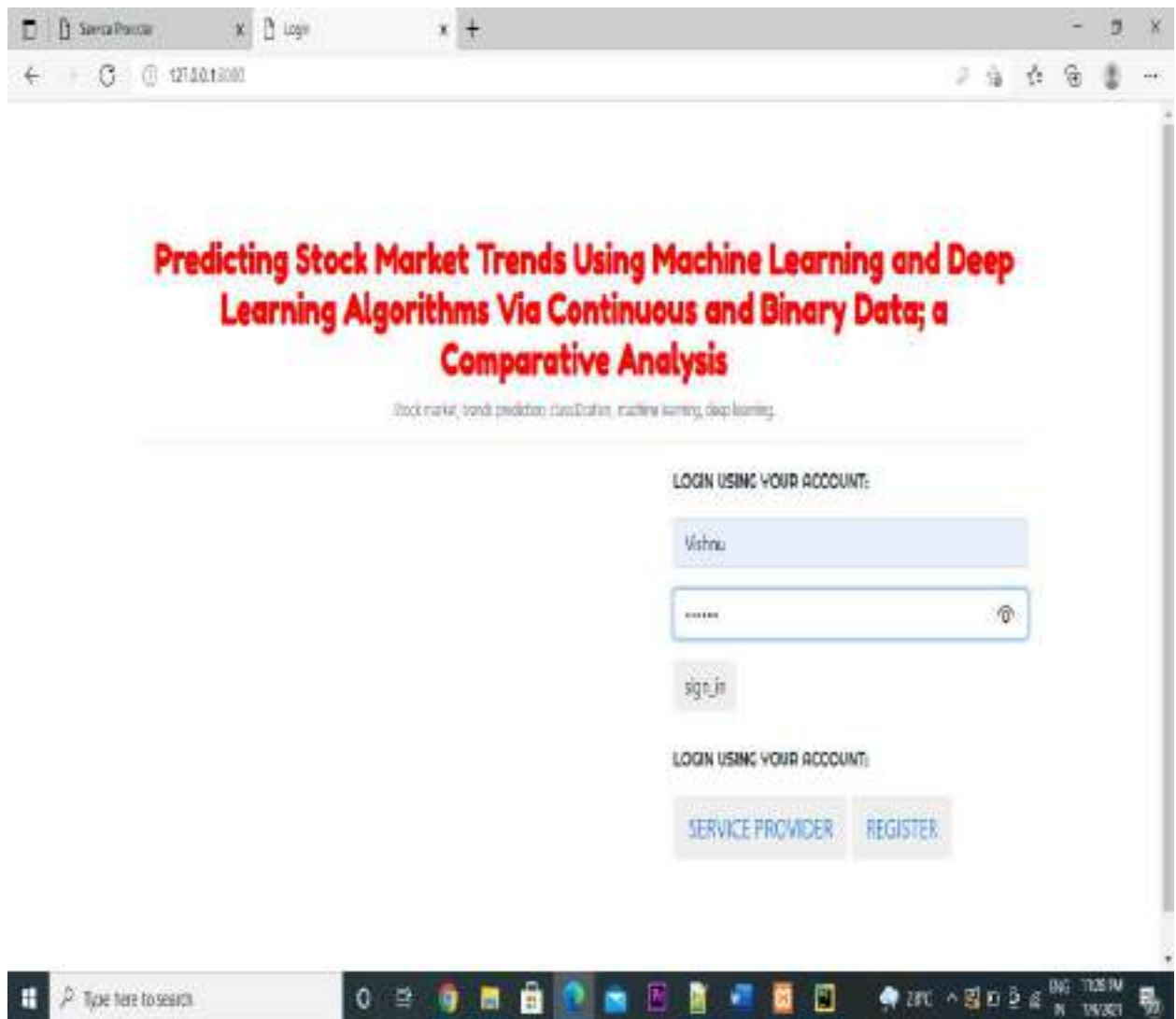


Remote User in Service Provider After Registration

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Screen 6:

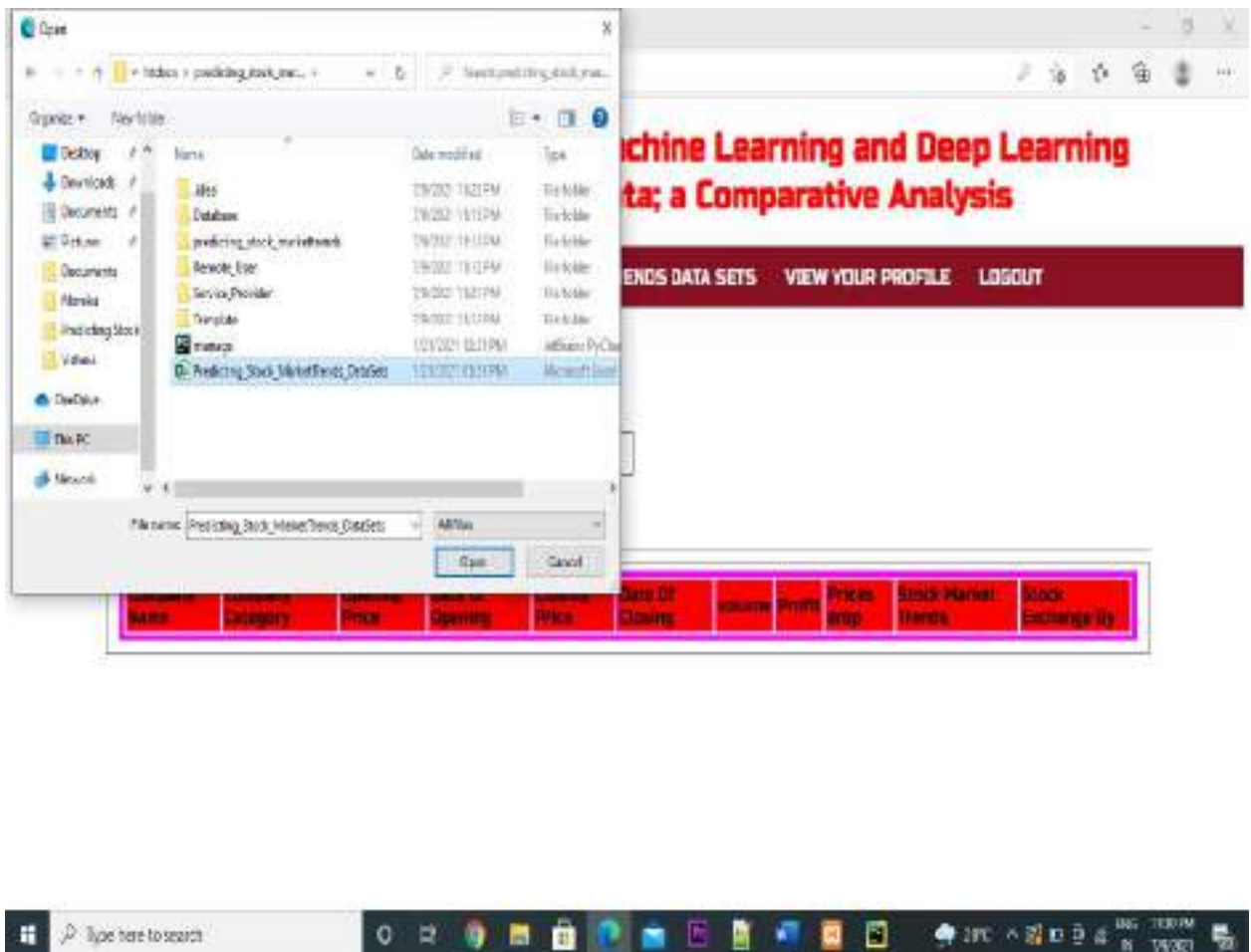


## Remote User Login

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Screen 7:



## Browsing For Stock Market Dataset

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 8:

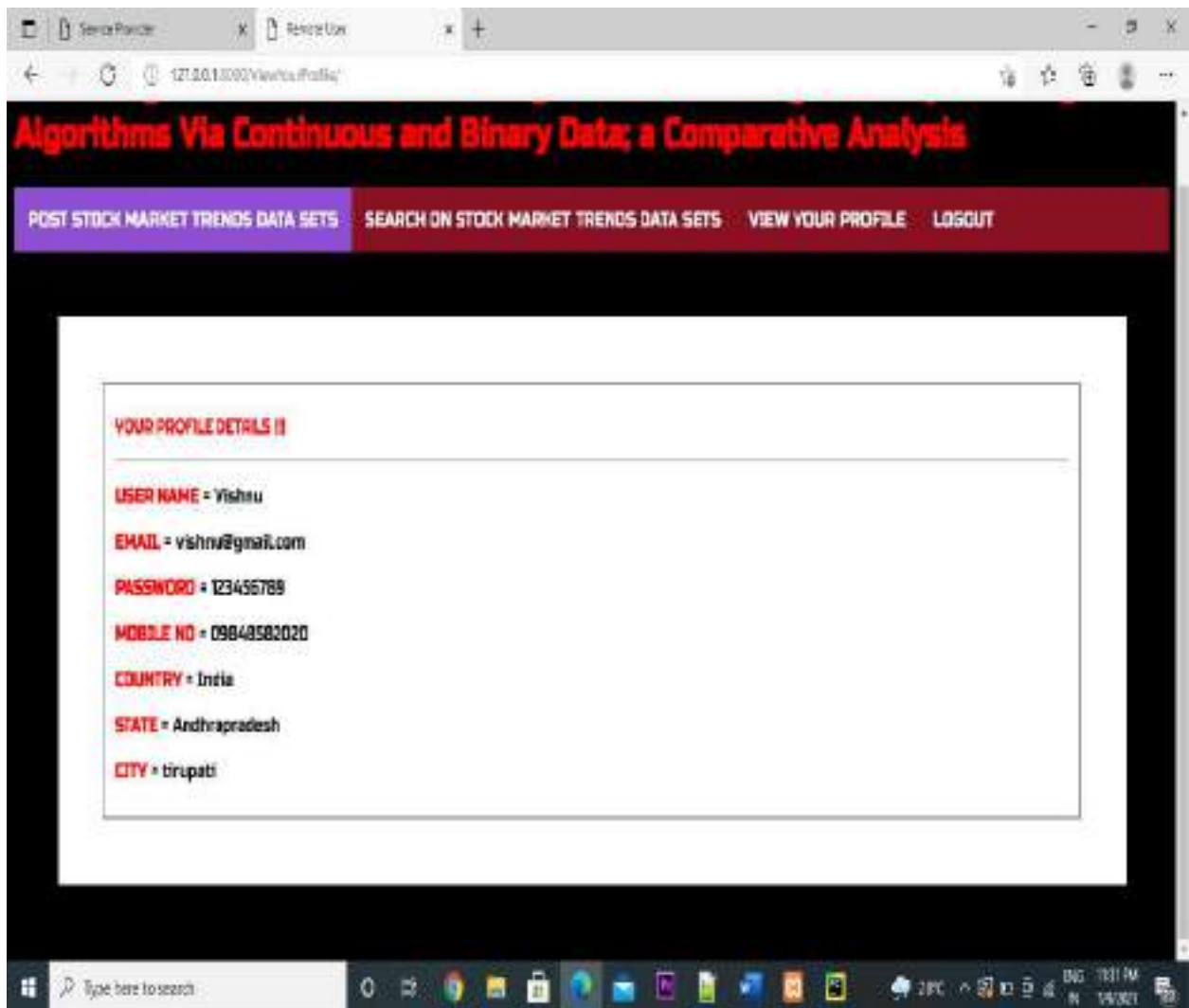
Company Name	Company Category	Opening Price	Date Of Opening	Closing Price	Date Of Closing	Volume	Profit	Price Drop	Stock Market Trends	Stock Exchange By
Reliance	Petrol and Diesel	7827262736	2020-10-01 00:00:00	7896497304	31/12/2020	4789922	No	No	No	NSE
Wipro	Software	1890000078	2018-01-01 00:00:00	1790070800	31/12/2018	3789008	No	No	No	NSE
IBM	Hardware	9800928378	2019-01-01 00:00:00	9800928378	31/12/2019	5789008	No	No	No	NSE
Vodafone	Telecom	8739282738	2020-05-01 00:00:00	8939282738	31/12/2020	1789922	No	No	No	NSE
Vivo	Mobiles	19872635632	2018-11-01 00:00:00	19872635632	31/12/2018	2789008	No	No	No	NSE
Hp	Software	2800928378	2019-05-01 00:00:00	2800928378	31/12/2019	5789008	No	No	No	NSE
Shell	Petrol and Diesel	1828374837	2020-10-01 00:00:00	18928374837	31/12/2020	3789922	No	No	No	NSE
Samsung	Mobiles	2890000078	2018-07-01 00:00:00	2790070800	31/12/2018	4789008	No	No	No	NSE
LG	Home Appliances	8273835617	2019-07-01 00:00:00	7273835617	31/12/2019	5789008	No	No	No	NSE
Airtel	Telecom	7625372837	2020-08-01 00:00:00	7625372837	31/12/2020	4780000	No	No	No	NSE
Acer	Hardware	8920283746	2018-12-01 00:00:00	6920283746	31/12/2018	3789008	No	No	No	NSE
Dell	Software	6718272363	14/1/2019	6918272363	31/12/2019	5789008	No	No	No	NSE
TVS	Motor	4892827383	2020-09-01	3892827383	31/12/2020	4789922	No	No	No	NSE

Stock Market Dataset Details

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Screen 9:



**Remote User Profile**



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 10:

SEARCH STOCK MARKET TRENDS DATA DETAILS !!

Enter Company Name as Keyword Here

Search

STOCK MARKET PROFIT OR LOSS PRICE :: Rs.69234558 /-

STOCK MARKET TRENDS PREDICTION :: Upwards

STOCK MARKET STATUS PREDICTION :: Profit

VIEW ALL STOCK MARKET DATA SET DETAILS !!

Company Name	Company Category	Opening Price	Date Of Opening	Closing Price	Date Of Closing	Volume	Profit	Price Drop	Stock Market Trends	Stock Exchange By
Reliance	Petrol and Diesel	7827262736	2020-10-01-00:00:00	7896497304	31/12/2020	4789922				NSE

Reliance Stock Market Trend Details

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 11:

Enter Company Name as Keyword Here

Search

STOCK MARKET PROFIT OR LOSS PRICE :: Rs.0 /-

STOCK MARKET TRENDS PREDICTION :: HorizontalTrends

STOCK MARKET STATUS PREDICTION :: Horizontal

VIEW ALL STOCK MARKET DATA SET DETAILS !!

Company Name	Company Category	Opening Price	Date Of Opening	Closing Price	Date Of Closing	volume	Profit	Price drop	Stock Market Trends	Stock Exchange By
Vivo	Mobiles	19872635632	2018-11-01 00:00:00	19872635632	31/12/2018	2789008				NSE

**Vivo Stock Market Trend Details**

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Screen 12:

STOCK MARKET PROFIT OR LOSS PRICE :: Rs.0 /-

STOCK MARKET TRENDS PREDICTION :: HorizontalTrends

STOCK MARKET STATUS PREDICTION :: Horizontal

VIEW ALL STOCK MARKET DATA SET DETAILS !!

Company Name	Company Category	Opening Price	Date Of Opening	Closing Price	Date Of Closing	Volume	Profit	Price drop	Stock Market Trends	Stock Exchange By
IBM	Hardware	9800928378	2019-01-01 00:00:00	9800928378	31/12/2019	5789000				NSE

**IBM Stock Market Trend Details**



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

---

## Screen 13:

STOCK MARKET PROFIT OR LOSS PRICE = Rs.17000000000 /-

STOCK MARKET TRENDS PREDICTION = Uptrend

STOCK MARKET STATUS PREDICTION = Profit

VIEW ALL STOCK MARKET DATA SET DETAILS !!

Company Name	Company Category	Opening Price	Date Of Opening	Closing Price	Date Of Closing	Volume	Profit	Price drop	Stock Market Trends	Stock Exchange By
Shell	Petrol and Diesel	1928374837	2020-10-01 00:00:00	18928374837	31/12/2020	3789922				NSE

**Shell Stock Market Trend Details**

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 14:

The screenshot shows a web browser window with the address bar displaying '127.0.0.1:8080/View\_All\_StockMarket\_Prediction\_Details/'. The main content area contains a table with the following data:

Company Name	Company Category	Opening Price	Date Of Opening	Closing Price	Date Of Closing	Volume	Profit	Prices drop	Stock Mark
Reliance	Petrol and Diesel	7827262736	2020-10-01 00:00:00	7496497304	31/12/2020	4789922	69234500	0	Profit
Wipro	Software	1890000018	2018-01-01 00:00:00	1790070000	31/12/2018	3709006	0	99920118	prices
ION	Hardware	9800928378	2019-01-01 00:00:00	9800928378	31/12/2019	5789006	0	0	Horizont
Vodafone	Telecom	8739282738	2020-05-01 00:00:00	8639282738	31/12/2020	1709922	200000000	0	Profit

Calculating All Stock Market Dataset Details

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 15:

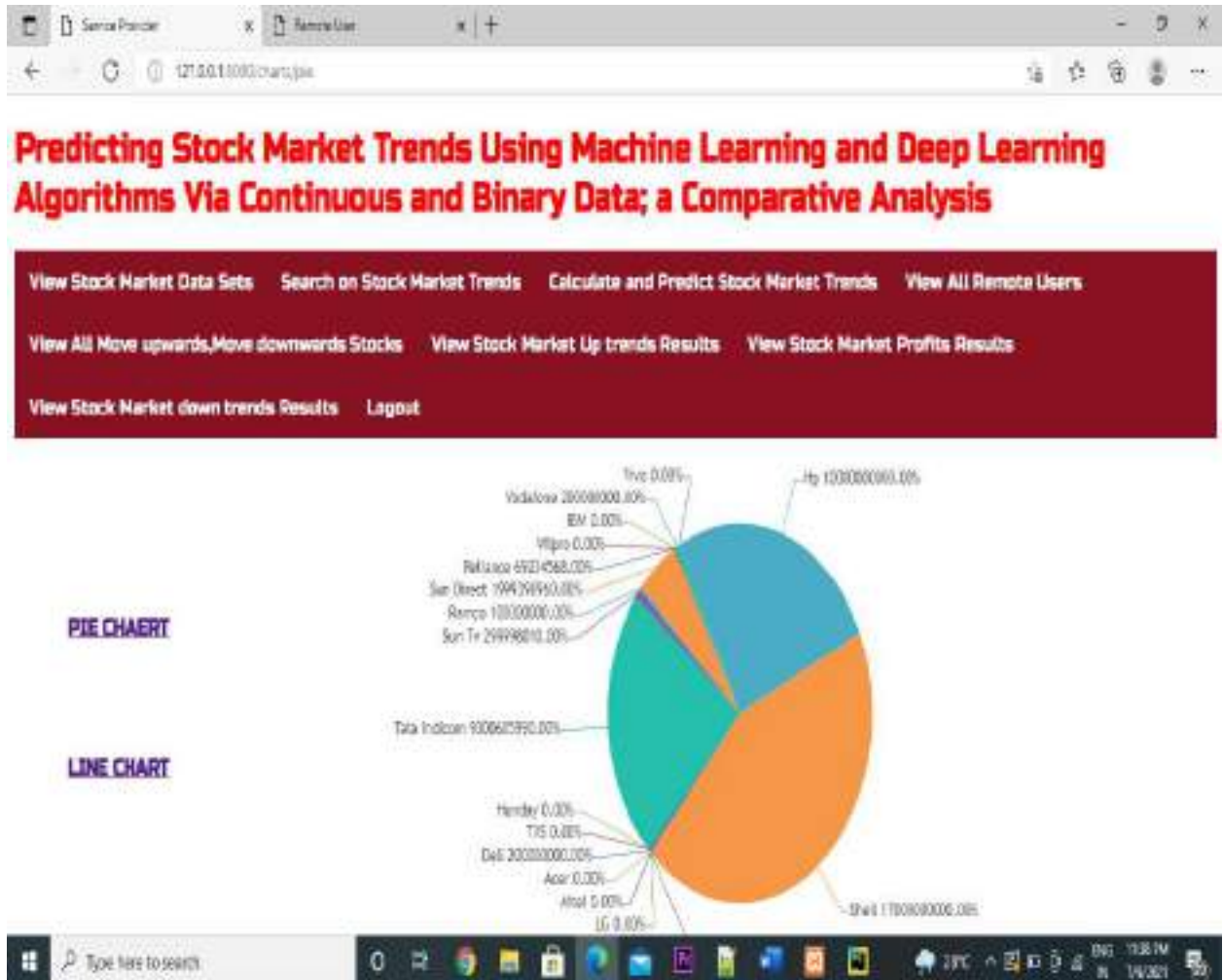
Company Name	Company Category	Opening Price	Date Of Opening	Closing Price	Date Of Closing	Move Upwards	Move Downwards
Reliance	Petrol and Diesel	7827162736	2020-10-01 00:00:00	7896497304	31/12/2020	59234568	0
Wipro	Software	1898600018	2018-01-01 00:00:00	1790078800	31/12/2018	0	99329238
HCL	Hardware	9800928378	2019-01-01 00:00:00	9800928378	31/12/2019	0	0
Vodafone	Telecom	8739282738	2020-05-01 00:00:00	8939282738	31/12/2020	200000000	0
Vivo	Mobiles	19872635632	2018-11-01 00:00:00	19872635632	31/12/2018	0	0
Hp	Software	2000928378	2019-05-01 00:00:00	12000928378	31/12/2019	1000000000	0

**View All Stock Market Move upwards or Downwards Details**



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 17:

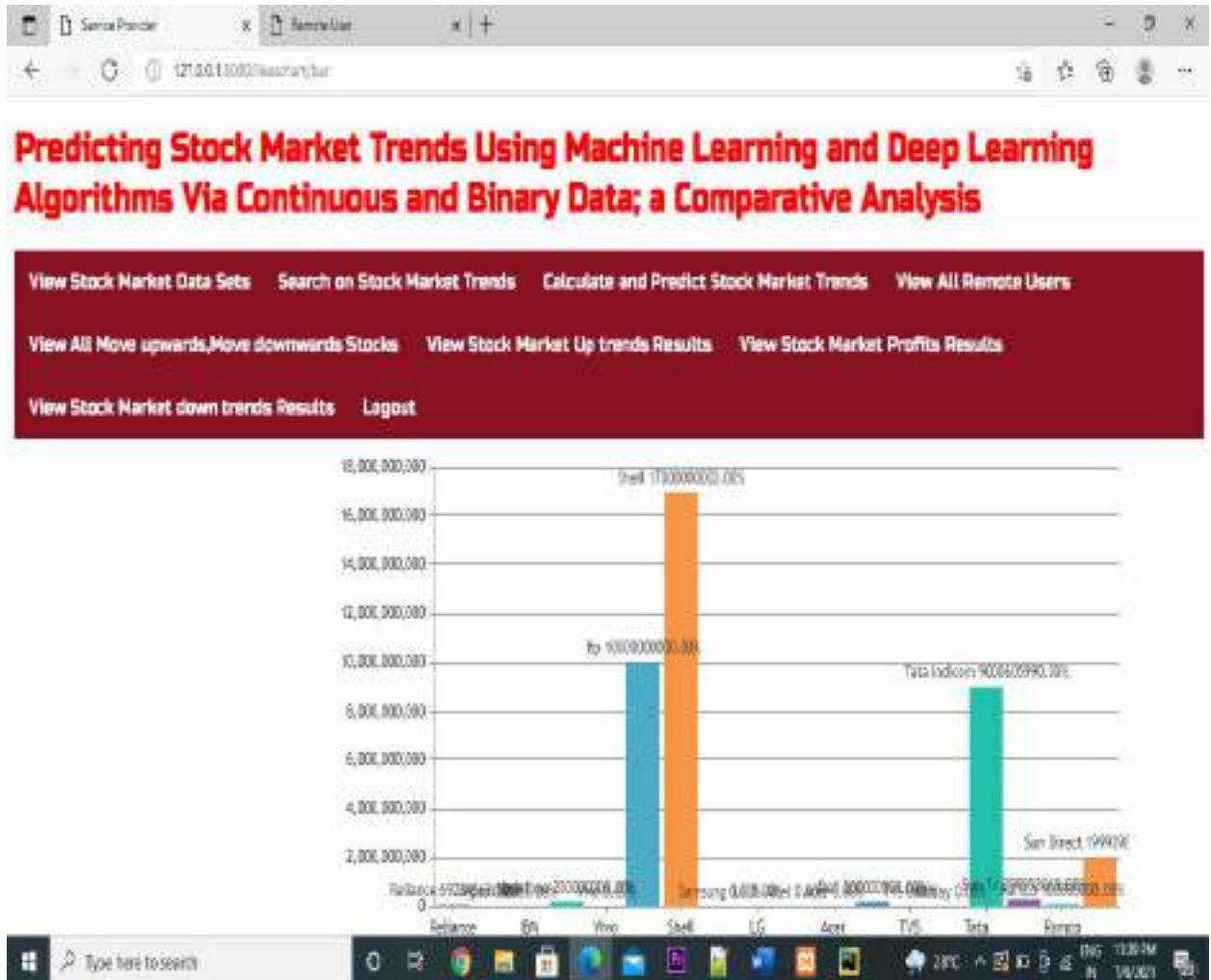


View Stock Market Up trends Results In Pie chart



# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

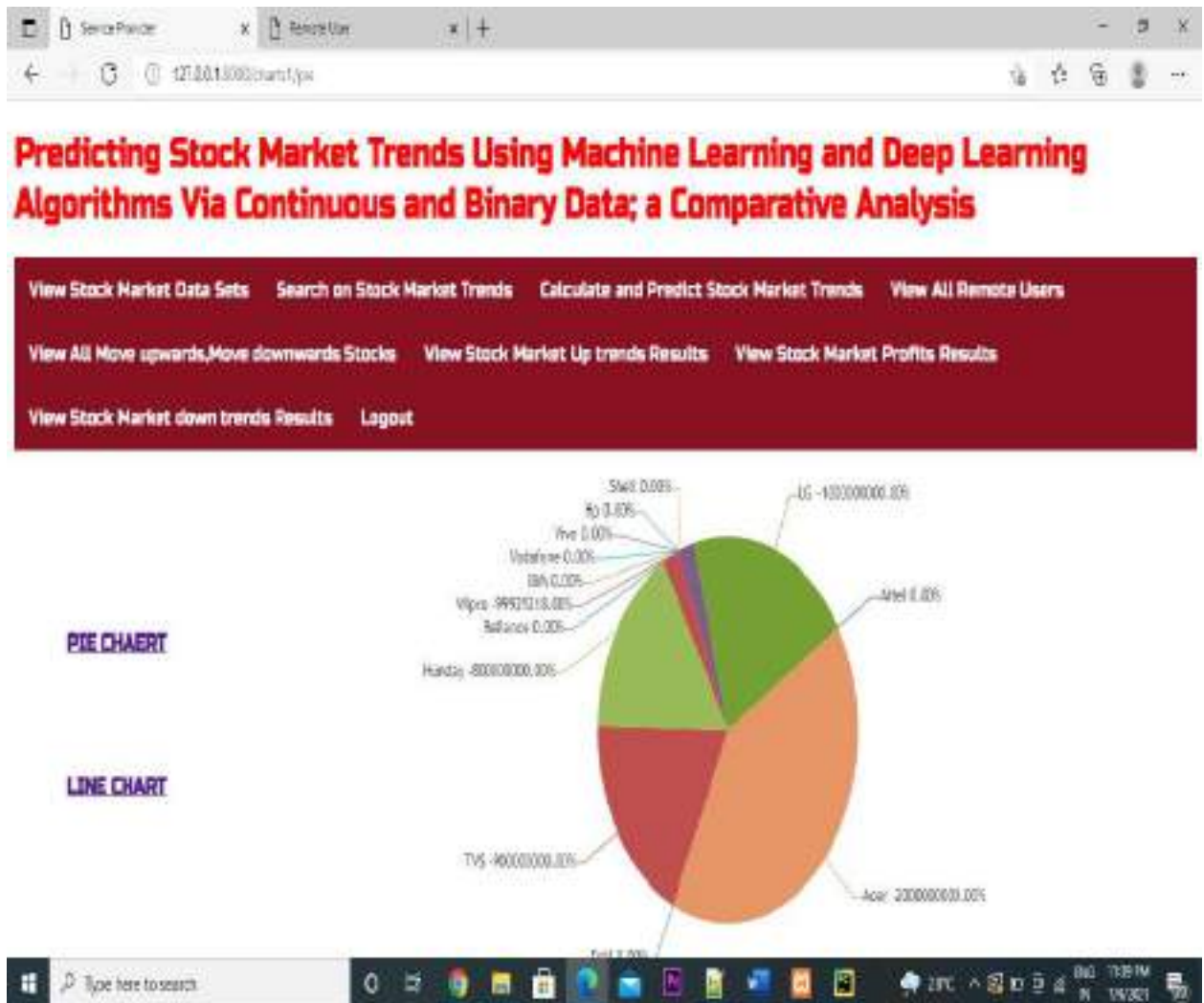
## Screen 18:



### View Stock Market Profit Results

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

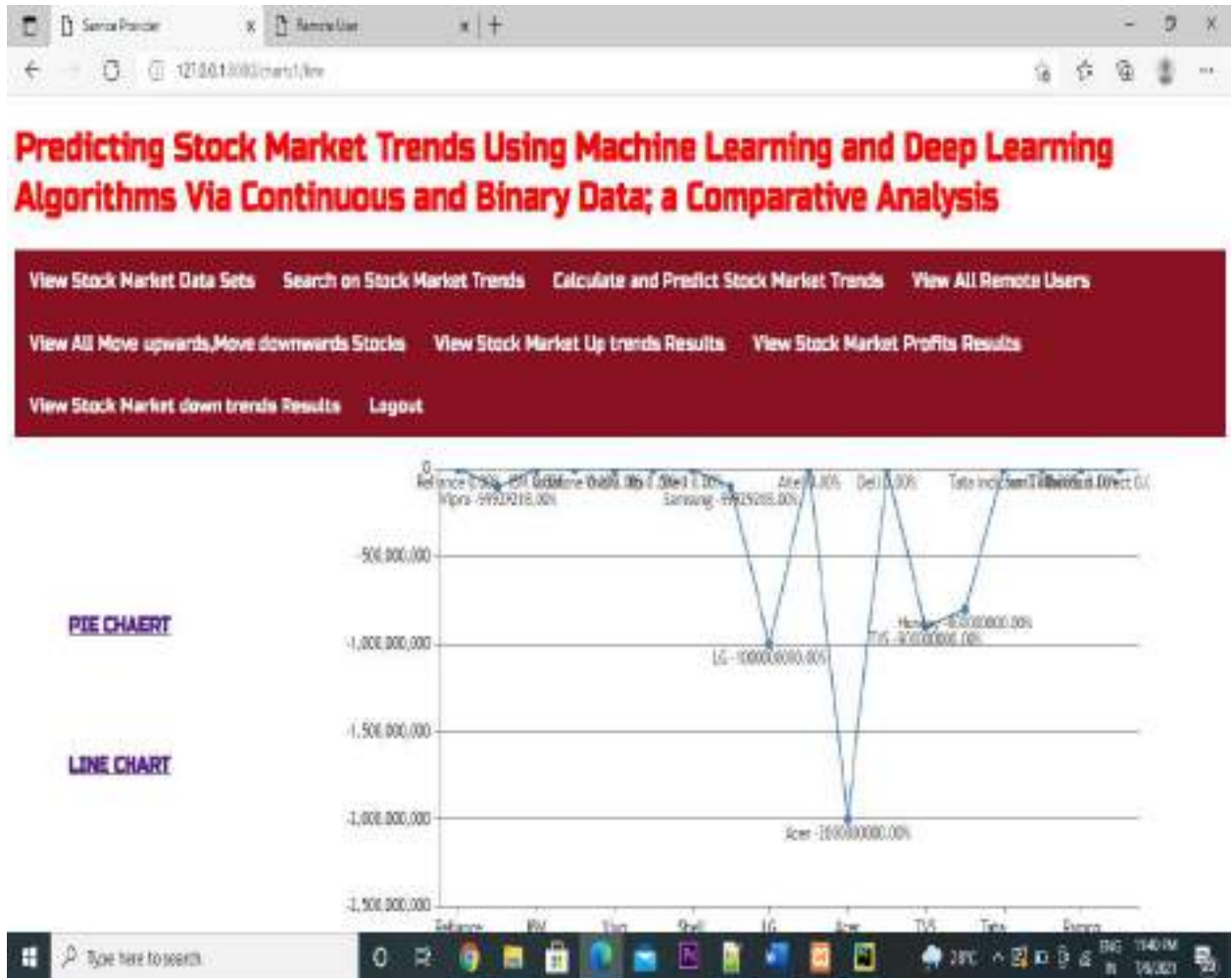
## Screen 19:



View Stock Market down Trend Results in Pie chart

# PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

## Screen 20:



View Stock Market down Trend Results in Line Chart



## CONCLUSION

The purpose of this study was the prediction task of stock market movement by machine learning and deep learning algorithms. Four stock market groups, namely diversified financials, petroleum, non-metallic minerals and basic metals, from Tehran stock exchange were chosen, and the data set was based on ten years of historical records with ten technical features. Also, nine machine learning models (Decision Tree, Random Forest, Adaboost, XG Boost, SVC, Bayes, KNN, Logistic Regression and ANN) and two deep learning methods (RNN and LSTM) were employed as predictors.

## **FUTURE ENHANCEMENT**

In future, we supposed two approaches for input values to models, continuous data and binary data, and we employed three classification metrics for evaluations. Our experimental works showed that there was a significant improvement in the performance of models when they use binary data instead of continuous one. Indeed, deep learning algorithms (RNN and LSTM) were our superior models in both approaches.

## REFERENCES

- [1] J. Murphy, *Technical Analysis of the Financial Markets: A Comprehensive Guide to Trading Methods and Applications*. Penguin, 1999.
- [2] T. Turner, *A Beginner's Guide To Day Trading Online*, 2nd ed. New York, NY, USA: Simon and Schuster, 2007.
- [3] H. Maqsood, I. Mehmood, M. Maqsood, M. Yasir, S. Afzal, F. Aadil, M. M. Selim, and K. Muhammad, "A local and global event sentiment based efficient stock exchange forecasting using deep learning," *Int. J. Inf. Manage.*, vol. 50, pp. 432451, Feb. 2020.
- [4] W. Long, Z. Lu, and L. Cui, "Deep learning-based feature engineering for stock price movement prediction," *Knowl.-Based Syst.*, vol. 164, pp. 163173, Jan. 2019.
- [5] J. B. Duarte Duarte, L. H. Talero Sarmiento, and K. J. Sierra Juárez, "Evaluation of the effect of investor psychology on an artificial stock market through its degree of efficiency," *Contaduría y Administración*, vol. 62, no. 4, pp. 13611376, Oct. 2017.

A  
Project Report  
on  
HANDLING BIG DATA USING A DATA-AWARE HDFS AND  
EVOLUTIONARY CLUSTERING TECHNIQUE

*Submitted in partial fulfilment for the award of the degree*

of

Master of Computer Applications

*Submitted By*

A. AKHILA

(Reg.no.19F65F0001)

*Under the esteemed guidance of*

Mr. P. KARTHIKEYAN M.C.A, M.E.,

Associate professor, Department of MCA



Department of Master of Computer Applications

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, puttur-517583,  
Andhara Pradesh.

2020 - 2021

# SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)

(NAAC Accredited with 'A' Grade, NBA Accredited Institution)

Siddharth Nagar, Narayanavanam Road, Puttur-517583, Andhara Pradesh.

## DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS



### CERTIFICATE

*This is to certify that this project report titled "HANDLING BIG DATA USING A DATA-AWARE HDFS AND EVOLUTIONARY CLUSTERING TECHNIQUE" that is being submitted by A. AKHILA (Reg no:19F65F0001) in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by her under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **A. AKHILA** hereby declare that the project report entitled “**HANDLING BIG DATA USING A DATA-AWARE HDFS AND EVOLUTIONARY CLUSTERING TECHNIQUE**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. KARTHIKEYAN**, MCA., M.E. Associate Professor in MCA Department, **SIDDHARTHINSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur. For the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**A. AKHILA**

**Date:**

**Reg. No.: 19F65F0001**

## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide Mr. **P. KARTHIKEYAN**, MCA., M.E. Associate Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN**, MCA., M.E. **HOD**, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. ChandraSekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** For providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department and Project co-ordinator who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(A AKHILA)

# CONTENTS

<b>S. No.</b>	<b>CHAPTERS</b>	<b>Page No.</b>
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1 - 8
2	SYSTEM STUDY	9 -10
3	SYSTEM ANALYSIS	
	3.1. EXISTING SYSTEM	11
	3.2. DIS-ADVANTAGES	11
	3.3. PROPOSED SYSTEM	11
	3.4. ADVANTAGES	12
4	SOFTWARE MODULES	13 – 15
5	SYSTEM ARCHITECTURE	16
6	SOFTWARE ENVIRONMENT	17 -23
7	SYSTEM REQUIREMENTS	24
8	SYSTEM DESIGN	25 – 34
9	IMPLEMENTATIONS	35 – 61
10	SYSTEM TESTING	62 – 65
11	SCREEN SHOTS	66 – 93
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	



## ABSTRACT

The increased use of cyber-enabled systems and Internet-of-Things (IoT) led to a massive amount of data with different structures. Most big data solutions are built on top of the Hadoop eco-system or use its distributed file system (HDFS). However, studies have shown inefficiency in such systems when dealing with today's data. Some research overcame these problems for specific types of graph data, but today's data are more than one type of data. Such efficiency issues lead to largescale problems, including larger space required in data centres, and waste in resources (like power consumption), that in turn lead to environmental problems (such as more carbon emission). We propose a data-aware module for the Hadoop eco-system. We also propose a distributed encoding technique for Genetic Algorithms. Our framework allows Hadoop to manage the distribution of data and its placement based on cluster analysis of the data itself. We are able to handle a broad range of data types as well as optimize query time and resource usage

**Key words:** Big Data, Genetic Algorithms, Data Aware HDFS, Evolutionary Clustering Technique.

## LIST OF FIGURES

<b>S. No.</b>	<b>Names</b>	<b>Pg. No.</b>
1	1.1. Under the big data	2
2	1.2. Hadoop frame work	3
3	1.3. Hadoop Architecture	4
4	1.4. HDFS Architecture	8
5	4.3. Algorithm for RDF clustering	14
6	4.4. Distributed genetic algorithm	15
7	5.1. System architecture	16
8	6.1. program compilation & interpretation	18
9	6.2. Java platform	19
10	6.3. Tomcat 6.0 web server	21
11	8.1. user data flow diagram	26
12	8.2. Admin data flow diagram	27
13	8.3. class diagram	29
14	8.4. user use case diagram	30
15	8.5. Admin use case diagram	30
16	8.6. user sequence diagram	31
17	8.7. Admin sequence diagram	32
18	8.8. user component diagram	33
19	8.9. Admin component diagram	33
20	8.10. E-R diagram	34
21	11. Screen shots	66 – 93

## LIST OF ABBREVIATIONS

<b>S. NO.</b>	<b>ACRONYMS</b>	<b>ABBREVIATIONS</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	HDFS	Hadoop Distributed File System
11	YARN	Yet Another Resource Negotiator
12	DBMS	Database Management System
12	RDF	Resource Description Framework
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

# **INTRODUCTION**

## 1. INTRODUCTION

### 1.1. What is big data?

Big data is a collection of large datasets that cannot be processed using traditional computing techniques. It is not a single technique or a tool, rather it has become a complete subject, which involves various tools, techniques and frameworks.

### 1.2. What comes under the big data?

Big data involves the data produced by different devices and applications. Given below are some of the fields that come under the umbrella of Big Data.

- **Black Box Data** – It is a component of helicopter, airplanes, and jets, etc. It captures voices of the flight crew, recordings of microphones and earphones, and the performance information of the aircraft.
- **Social Media Data** – Social media such as Facebook and Twitter hold information and the views posted by millions of people across the globe.
- **Stock Exchange Data** – The stock exchange data holds information about the ‘buy’ and ‘sell’ decisions made on a share of different companies made by the customers.
- **Power Grid Data** – The power grid data holds information consumed by a particular node with respect to a base station.
- **Transport Data** – Transport data includes model, capacity, distance and availability of a vehicle.
- **Search Engine Data** – Search engines retrieve lots of data from different



Fig 1.1. under the big data

Thus, Big Data includes huge volume, high velocity, and extensible variety of data. The data in it will be of three types.

- **Structured data** – Relational data.
- **Semi Structured data** – XML data.
- **Unstructured data** – Word, PDF, Text, Media Logs.

### 1.3. Benefits of big data:

Using the information kept in the social network like Facebook, the marketing agencies are learning about the response for their campaigns, promotions, and other advertising mediums.

- Using the information in the social media like preferences and product perception of their consumers, product companies and retail organizations are planning their production.
- Using the data regarding the previous medical history of patients, hospitals are providing better and quick service.

## 1.4. What is Hadoop?

Using the solution provided by Google, **Doug Cutting** and his team developed an Open-Source Project called **HADOOP**.

Hadoop runs applications using the MapReduce algorithm, where the data is processed in parallel with others. In short, Hadoop is used to develop applications that could perform complete statistical analysis on huge amounts of data.

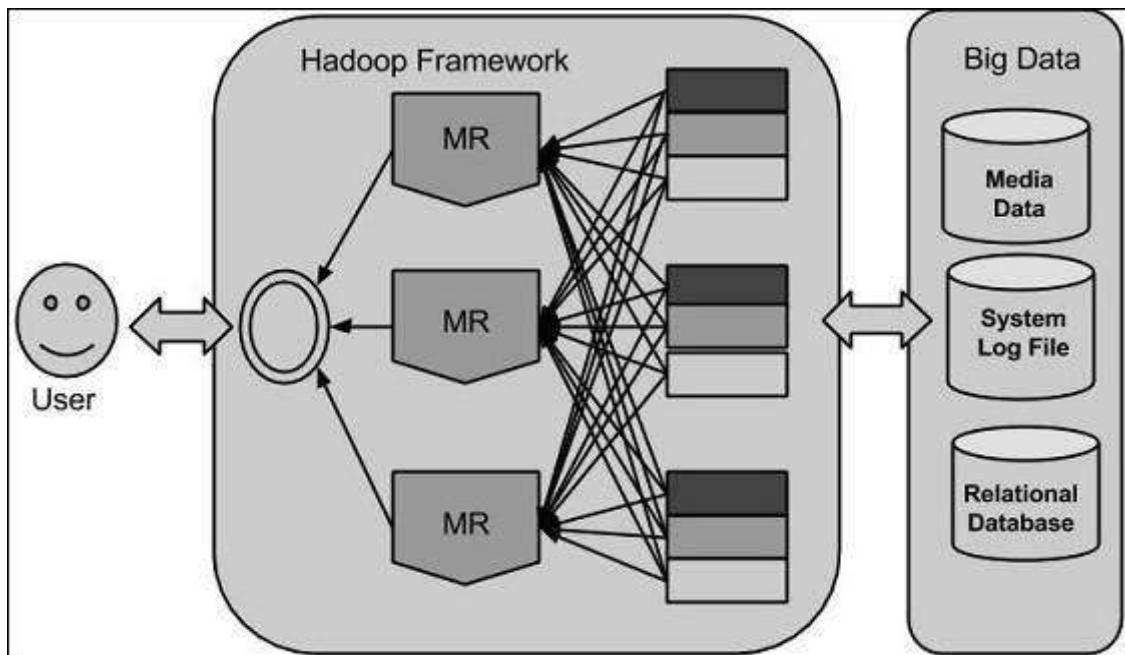


Fig 1.2. Hadoop framework

Hadoop is an Apache open-source framework written in java that allows distributed processing of large datasets across clusters of computers using simple programming models. The Hadoop framework application works in an environment that provides distributed *storage* and *computation* across clusters of computers. Hadoop is designed to scale up from single server to thousands of machines, each offering local computation and storage.

## 1.5. Hadoop Architecture:

At its core, Hadoop has two major layers namely –

- Processing/Computation layer (MapReduce), and
- Storage layer (Hadoop Distributed File System).

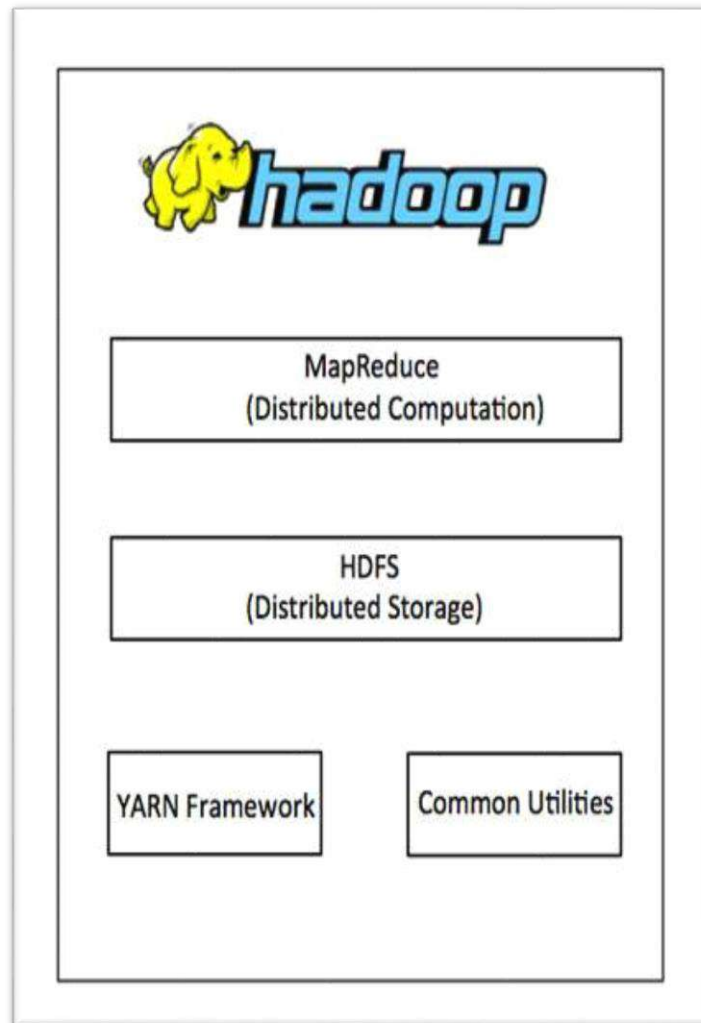


Fig 1.3. Hadoop Architecture

### MapReduce:

MapReduce is a parallel programming model for writing distributed applications devised at Google for efficient processing of large amounts of data (multi-terabyte data-sets), on large clusters (thousands of nodes) of commodity hardware in a reliable, fault-tolerant manner. The MapReduce program runs on Hadoop which is an Apache open-source framework.



## Hadoop Distributed File System:

The Hadoop Distributed File System (HDFS) is based on the Google File System (GFS) and provides a distributed file system that is designed to run on commodity hardware. It has many similarities with existing distributed file systems. However, the differences from other distributed file systems are significant. It is highly fault-tolerant and is designed to be deployed on low-cost hardware. It provides high throughput access to application data and is suitable for applications having large datasets.

Apart from the above-mentioned two core components, Hadoop framework also includes the following two modules –

- **Hadoop Common** – These are Java libraries and utilities required by other Hadoop modules.
- **Hadoop YARN** – This is a framework for job scheduling and cluster resource management.

### 1.6. How does Hadoop work?

It is quite expensive to build bigger servers with heavy configurations that handle large scale processing, but as an alternative, you can tie together many commodity computers with single-CPU, as a single functional distributed system and practically, the clustered machines can read the dataset in parallel and provide a much higher throughput. Moreover, it is cheaper than one high-end server. So, this is the first motivational factor behind using Hadoop that it runs across clustered and low-cost machines.

Hadoop runs code across a cluster of computers. This process includes the following core tasks that Hadoop performs

- Data is initially divided into directories and files. Files are divided into uniform sized blocks of 128M and 64M (preferably 128M).
- These files are then distributed across various cluster nodes for further processing.
- HDFS, being on top of the local file system, supervises the processing.
- Blocks are replicated for handling hardware failure.
- Checking that the code was executed successfully.

- Performing the sort that takes place between the map and reduce stages.
- Sending the sorted data to a certain computer.
- Writing the debugging logs for each job.

### **1.7. Advantages of Hadoop:**

- Hadoop framework allows the user to quickly write and test distributed systems. It is efficient, and it automatic distributes the data and work across the machines and in turn, utilizes the underlying parallelism of the CPU cores.
- Hadoop does not rely on hardware to provide fault-tolerance and high availability (FTHA), rather Hadoop library itself has been designed to detect and handle failures at the application layer.
- Servers can be added or removed from the cluster dynamically and Hadoop continues to operate without interruption.
- Another big advantage of Hadoop is that apart from being open source, it is compatible on all the platforms since it is Java based.

### **1.8. WHAT IS HDFS?**

Hadoop File System was developed using distributed file system design. It is run on commodity hardware. Unlike other distributed systems, HDFS is highly fault tolerant and designed using low-cost hardware.

HDFS holds very large amount of data and provides easier access. To store such huge data, the files are stored across multiple machines. These files are stored in redundant fashion to rescue the system from possible data losses in case of failure. HDFS also makes applications available to parallel processing.

### **1.9. Features of HDFS:**

- It is suitable for the distributed storage and processing.
- Hadoop provides a command interface to interact with HDFS.
- The built-in servers of name node and data node help users to easily check the status of cluster.
- Streaming access to file system data.

- HDFS provides file permissions and authentication.

### 1.10. HDFS Architecture:

Given below is the architecture of a Hadoop File System.

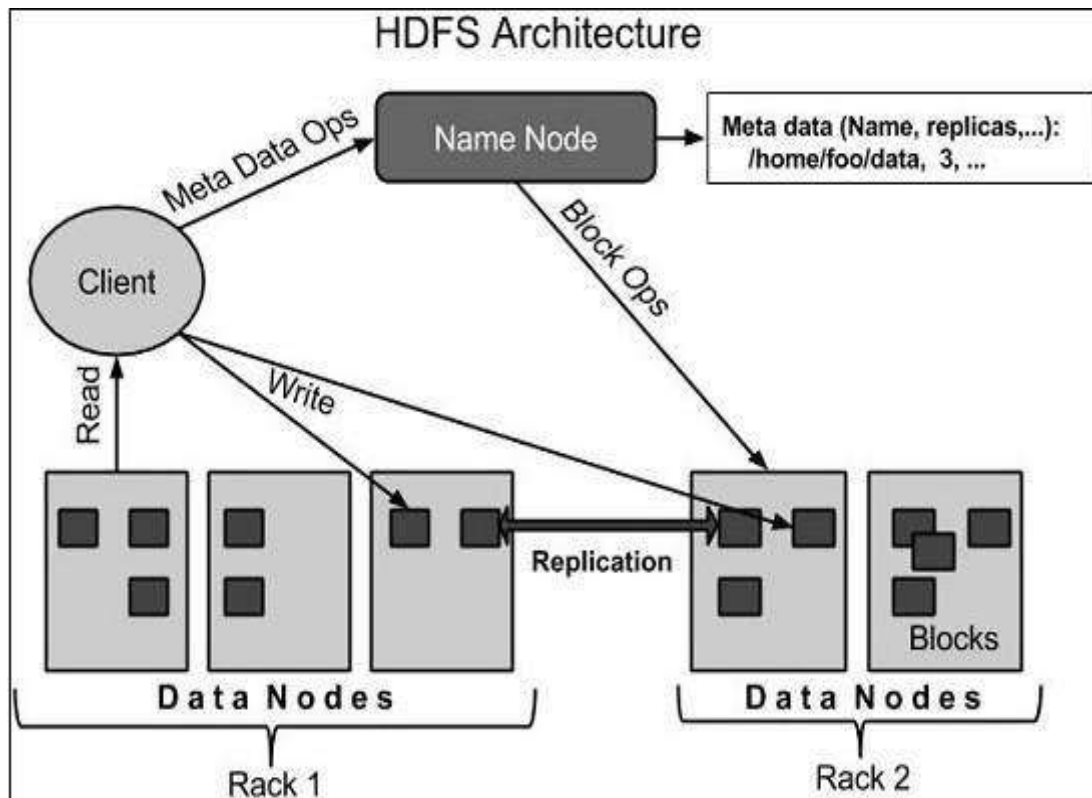


Fig 1.4. HDFS Architecture.

#### Name node:

HDFS follows the master-slave architecture and it has the following elements.

The name node is the commodity hardware that contains the GNU/Linux operating system and the name node software. It is a software that can be run on commodity hardware. The system having the name node acts as the master server and it does the following tasks –

- Manages the file system namespace.
- Regulates client's access to files.

- It also executes file system operations such as renaming, closing, and opening files and directories.

### **Data node:**

The data node is a commodity hardware having the GNU/Linux operating system and data node software. For every node (Commodity hardware/System) in a cluster, there will be a data node. These nodes manage the data storage of their system.

- Data nodes perform read-write operations on the file systems, as per client request.
- They also perform operations such as block creation, deletion, and replication according to the instructions of the name node.

### **Block:**

Generally, the user data is stored in the files of HDFS. The file in a file system will be divided into one or more segments and/or stored in individual data nodes. These file segments are called as blocks. In other words, the minimum amount of data that HDFS can read or write is called a Block. The default block size is 64MB, but it can be increased as per the need to change in HDFS configuration.

# **SYSTEM STUDY**

## 2. SYSTEM STUDY

### 2.1. Feasibility Study

The achievability of the undertaking is examined in this stage and strategic agreement is advanced with an exceptionally broad arrangement for the task and some quotes. During framework examination the possibility investigation of the proposed framework is to be completed. This is to guarantee that the proposed framework isn't a weight to the organization. For possibility investigation, some comprehension of the significant necessities for the framework is fundamental.

Three key considerations involved in the feasibility analysis are

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

### 2.2. Economical Feasibility

In this Economical feasibility it is compiled to check the monetary effect that the framework will have on the association. The measure of asset that the organization can fill the innovative work of the framework is restricted. The uses should be legitimized. Consequently, the created framework too inside the financial plan and this was accomplished on the grounds that the majority of the innovations utilized are unreservedly accessible. Just the modified items must be bought.

### 2.3. Technical Feasibility

This investigation is completed to check the specialized possibility, that is, the specialized prerequisites of the framework. Any framework created should not have a popularity on the accessible specialized assets. This will prompt high requests on the accessible specialized assets. This will prompt high requests being set on the customer. The created framework should have an unobtrusive necessity, as just insignificant or invalid changes

## **2.4. Social Feasibility**

The part of study is to check the degree of acknowledgment of the framework by the client. This incorporates the way toward preparing the client to utilize the framework proficiently. The client should not feel compromised by the framework, rather should acknowledge it as a need. The degree of acknowledgment by the clients exclusively relies upon the techniques that are utilized to teach the client about the framework and to make him acquainted with it. His degree of certainty should be raised with the goal that he is likewise ready to make some helpful analysis, which is invited, as he is the last client of the framework

# **SYSTEM ANALYSIS**



## **3. SYSTEM ANALYSIS**

### **3.1. EXISTING SYSTEM**

Systems like Sempala, PigSPARQL, MapMerge and MAPSIN utilize various procedures to store RDF diagrams. These structures change all predicates into segments and make tables' compositions appropriately, at that point change significantly increases into conventional data set records. Such structures have a constraint of refreshing all information when new predicates become accessible alongside new information, and besides, refreshing plans! Subsequently, finding out about RDF and diagram-based data sets, where the updates accompany new predicates, is simpler.

### **3.2. DIS-ADVANTAGES:**

- Conventional storage can price lot of cash to keep big records.
- Masses of massive statistics is unstructured.
- Massive records analysis violates principles of privateness.
- It could be used for manipulation of patron statistics.
- Huge records analysis is not beneficial in short run. It needs to be analyzed for longer length to leverage its benefits.
- Large information evaluation effects are misleading on occasion.
- Speedy updates in massive facts can mismatch real figures.

### **3.3. PROPOSED SYSTEM:**

The proposed system implements a Hadoop cluster that contains three dedicated machines that are connected via LAN switch in a star topology connection in a fully distributed multi-node implementation and all the work is done under Linux environment. The proposed system is used to work on a sample data set that exceeded 5.7 GB in size in CSV file format as a sample of semi-structured data with more than 36 million records that contains household level transactions for more than two years of transactions from a group of a 2500 households who are frequent shoppers at the retailer stores that are located in different locations and contains various

types of commodities, this data set failed to be accessed and displayed in the traditional database management systems due to its large size and the fact that any software application has limitations in handling huge amounts of data

### **Proposed framework as follows:**

- (1) after collecting the data or gathering old datasets, this module converts the data into the desired network graphs;
- (2) finding patterns in the graphs, the module distributes the data into the right data blocks;
- (3) distributes the blocks into the right machine accordingly; and
- (4) an optimized HDFS serves as a data source for services to execute queries and provide a platform to apply graph algorithms efficiently as well as

### **3.4. ADVANTAGES:**

- Information accumulation from more than one resources, which include the net, social media systems, on-line shopping sites, organization databases, external 0.33-birthday celebration resources, and so forth.
- Real-time forecasting and monitoring of enterprise as well as the market.
- Become aware of important points hidden within big datasets to persuade business choices.
- Directly mitigate dangers via optimizing complex decisions for unforeseen activities and capacity threats.
- Release the proper capability of facts-driven advertising and marketing.

# **SOFTWARE MODULES**

## 4. SOFTWARE MODULES

### 4.1. MODULES:

- Data Aggregation
- Partitioning and Placement
- Quadruple's placement

### 4.2. Module Description:

#### ➤ **Data Aggregation:**

Gather information from numerous sources and convert them into quads with a feeling of construction for various information, Stream changes powerfully and push to the chart data set. A tale encoding of chromosomes was utilized to deal with the advanced information grouping issue alongside novel hybrid, change and assessment strategies to convey the necessities of the new circulated encoding strategy.

#### ➤ **Partitioning and Placement:**

The goal in this step was to place quadruples that belong to the same cluster and have a high degree of connectivity into the same partition to ensure locality of intra-cluster quadruples. Another goal was to place highly connected inter-clusters into a close partition physically.

#### ➤ **Quadruple's placement:**

Parcels are made dependent on the quantity of machines; each machine has its own segment. A MapReduce work examines the quadruples and places quadruples identified with one irregular bunch in one segment at that point transmits the set quadruples, prompting where all associated groups' IDs are put away for the following sweep. The subsequent sweep puts the quadruples for the nearest between groups in a similar segment and produces from the first dataset. Further, the second nearest between groups are set into the following nearest parcel. When there are not any more interconnected groups left, another arbitrary bunch is browsed the dataset until no more information is accessible. Fig. for instance, delineates how bunches with three between group network are put in a similar HDFS hub, and with

two between bunch availability are put in the following HDFS hub, further groups are set in additional hubs.

### 4.3. ALGORITHM:

#### 4.4. Distributed genetic algorithm for RDF clustering

Evaluating the population, the selection process starts based on each solution ID and its fitness. Tournament selection is the selection used, and the reason is to avoid converging to locally optimal solutions, which are a lot based on our encoding technique. By ranking the population and choosing solutions from each class, a set of parents along with the new offspring IDs were constructed. Fig. is a high-level diagram showing the steps in which the algorithm creates GA operator's tasks

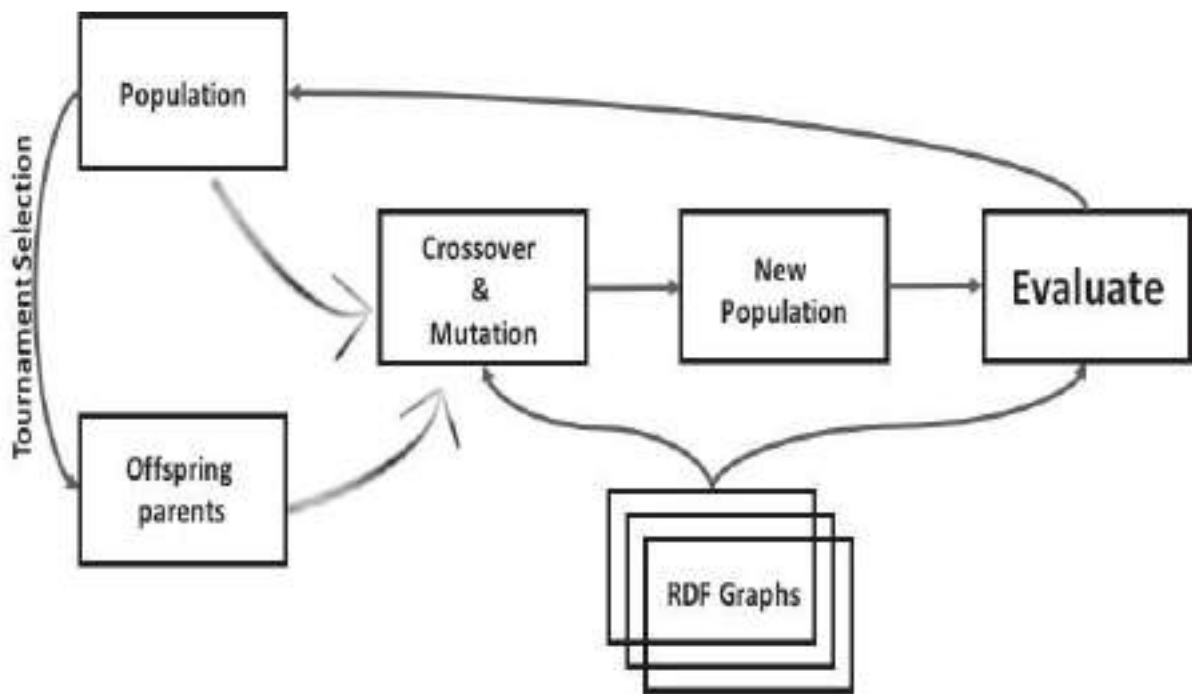


Fig 4.3. algorithm for RDF clustering

#### 4.5. Distributed genetic algorithm: -

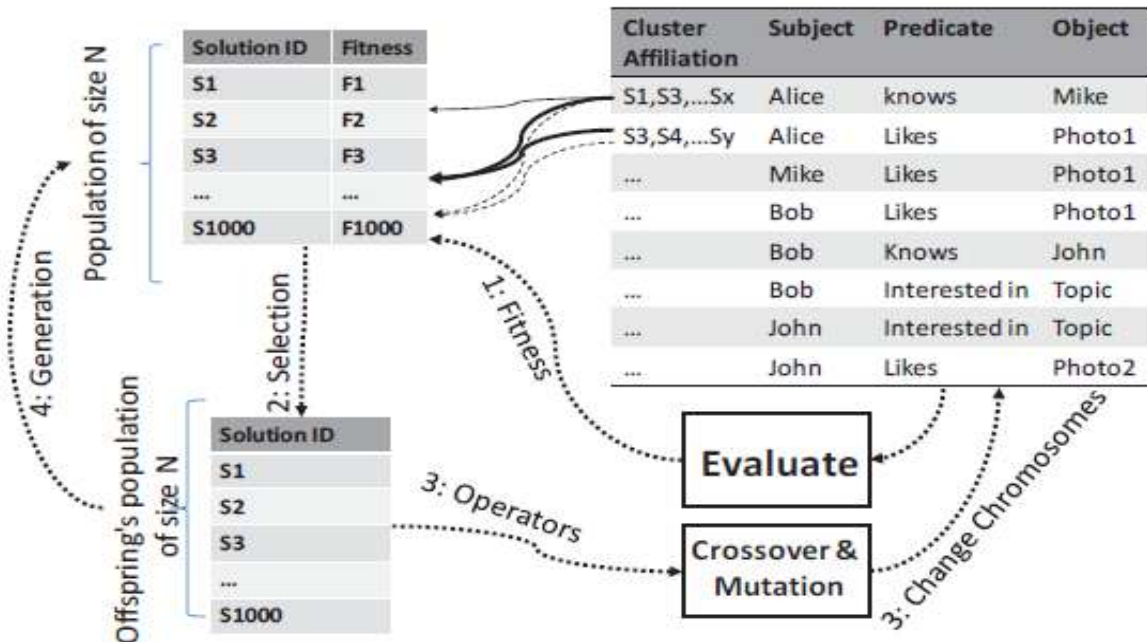


Fig 4.4. Distributed genetic algorithm

The processes of representation, population initialization, evaluation, selection and offspring evaluation to population are illustrated in Fig. The numbers represent the processes and tasks order. Since we were dealing with dynamic data as one of the Big-Data five V limitations (Velocity, Variety, Veracity, Value and Volume), the algorithm gets suspended when it converges to the same solution for a sequence of generations then continues working

# SYSTEM ARCHITECTURE

## 5.SYSTEM ARCHITECTURE

### 5.1. System Architecture:

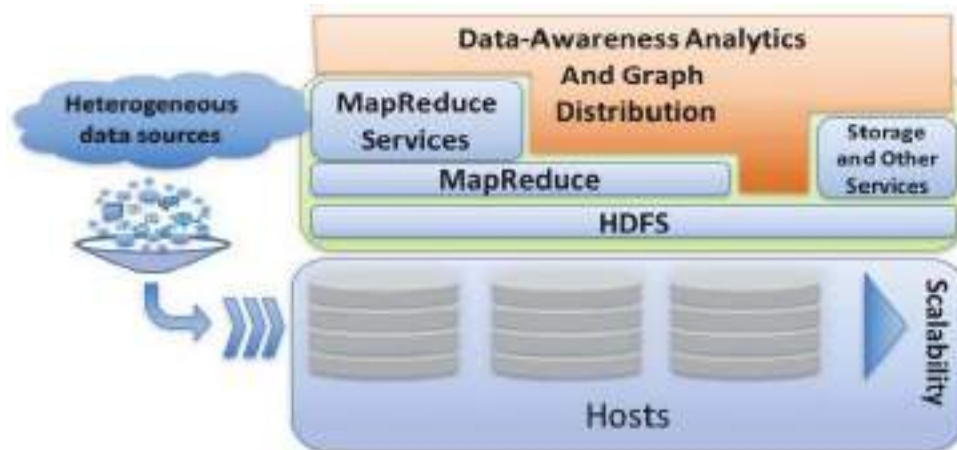


Fig 5.1. System Architecture

Our clustering framework is a part of the proposed data-awareness module running on the top of the distributed data storage.

The framework interacts with HDFS and its available services to provide updated cluster as data flows in HDFS. our goal is to achieve optimization by planning related data together and reducing overhead on the data movement between hosts. Data transfer mostly happens in aggregation processes or joins.



# **SOFTWARE ENVIRONMENT**

## 6.SOFTWARE ENVIRONMENT

### 6.1 Java Technology

Initially Java was used for interaction television, but it couldn't support because of its advanced technology. Java, programming language was introduced in **Sun Microsystems** by **James Gosling** at 1991.

Java, is widely used object oriented and is most popularly used programming language. It is widely used because of its security features.

Java technology is both a programming language and a platform. It was introduced to have a simple feature like:

**Simple, Architecture neutral, Object oriented, Portable, Distributed, High performance, Interpreted, Multithreaded, Robust, Dynamic, Secure.**

It is used in the fields like:

Mobile App Development, Desktop GUI Applications, Web-based Applications, Gaming Applications, Big Data Technologies, Distributed Applications, Cloud-based Applications, IoT Applications.

Java technology is both a programming language and a platform The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance

- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on any computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

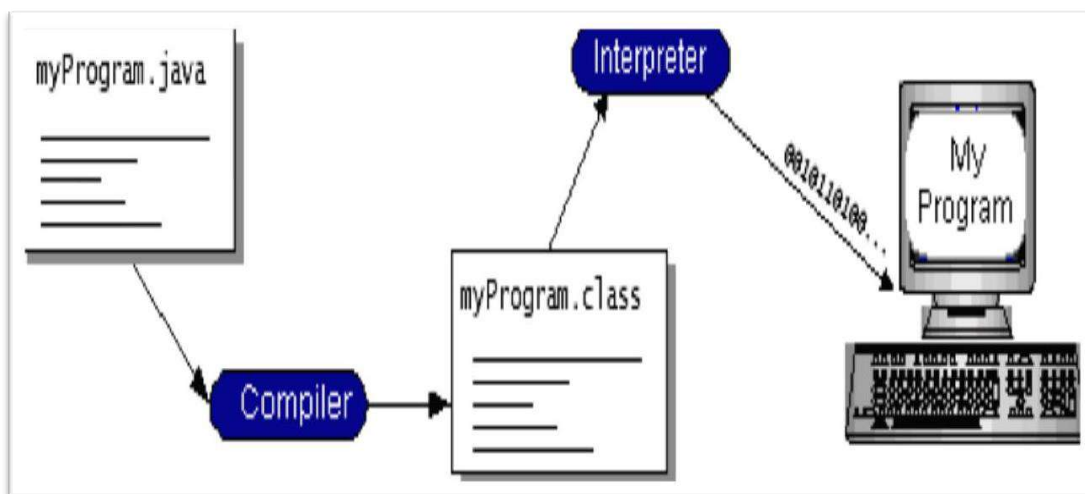


Fig 6.1. Program Compilation and Interpretation

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make "write once, run anywhere" possible. You can compile your program into byte codes on any platform

that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.

## 6.2. The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? High lights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

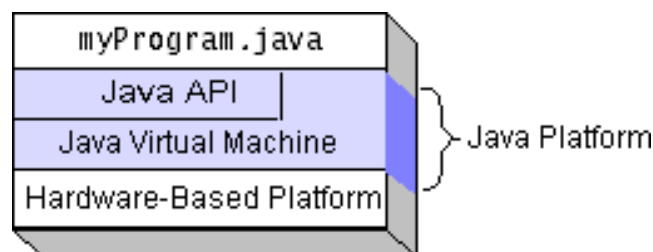


Fig 6.2. Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a its lower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring performance close to that of native code without threatening portability.

### **6.3. What Can Java Technology Do?**

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

### **6.4. Tomcat server:**

Tomcat is an open-source web server developed by Apache Group. Apache Tomcat is the servlet container that is used in the official Reference Implementation for the Java Servlet and Java Server Pages technologies. The Java Servlet and Java Server Pages specifications are developed by Sun under the Java Community Process. Web Servers like Apache Tomcat support only web components while an application server supports web components as well as business components (BEAs WebLogic, is one of the popular application server). To develop a web application with jsp/servlet install any web server like JRun, Tomcat etc to run your application.

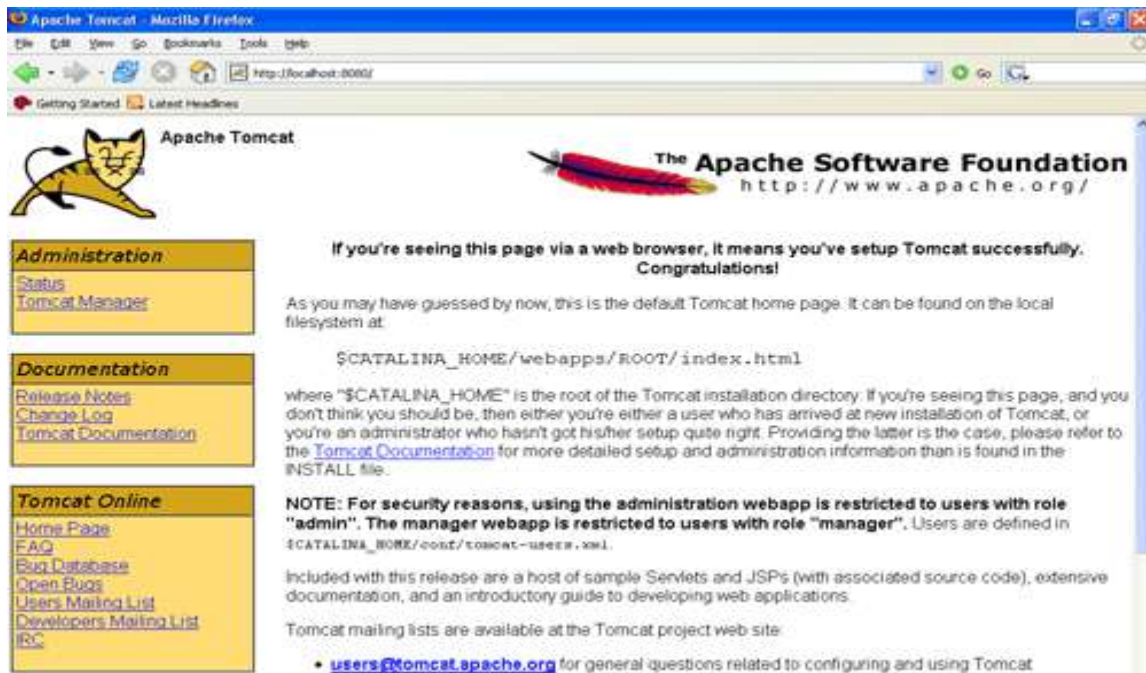


Fig 6.4. Tomcat 6.0 web server

### 6.5. How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid a memory leak. Its object orientation, its Java Beans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as

twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.

- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent bytecodes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly” without recompiling the entire program.

## 6.6. ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the

beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent.

### **6.7. JDBC**

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90-day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.



# SYSTEM REQUIREMENTS

## 7.SYSTEM REQUIREMENTS

### 7.1. HARDWARE REQUIREMENTS:

- Processor - Pentium-III
- Speed - 1.1Ghz
- RAM - 256 MB (min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

### 7.2 SOFTWARE REQUIREMENT:

- Operating System - Windows95/98/2000/XP /7
- Application Server - Tomcat5.0/6.X /8.X
- Front End - HTML, Java, JSP
- Scripts - JavaScript, JQuery
- Server-side Script - Java Server Pages.
- Database connectivity - my sql

# **SYSTEM DESIGN**

## 8. SYSTEM DESIGN

### 8.1. Data Flow Diagram:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction. DFD may be partitioned into levels that represent increasing information flow and functional detail

User

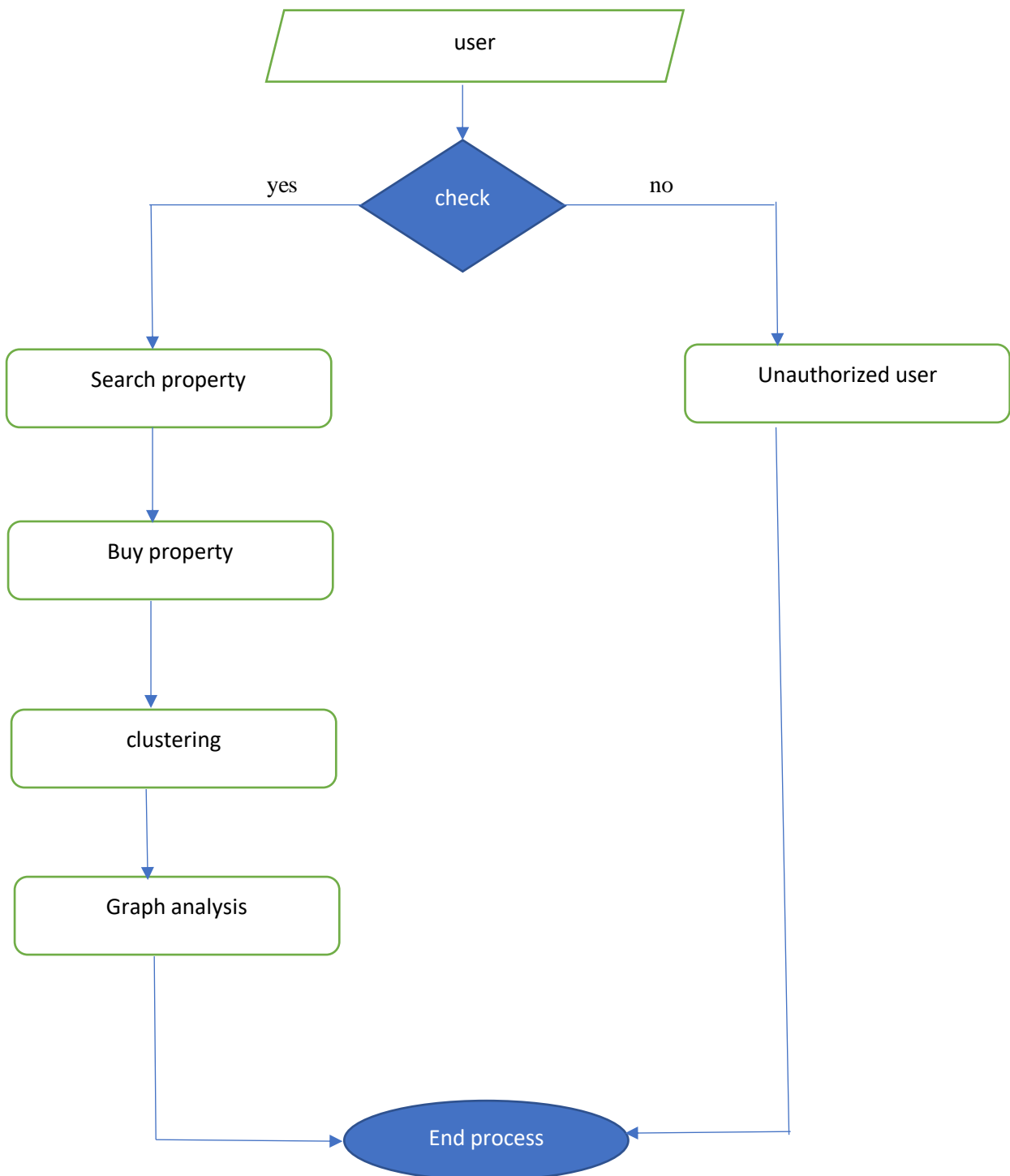


Fig 8.1. user data flow diagram

## Admin

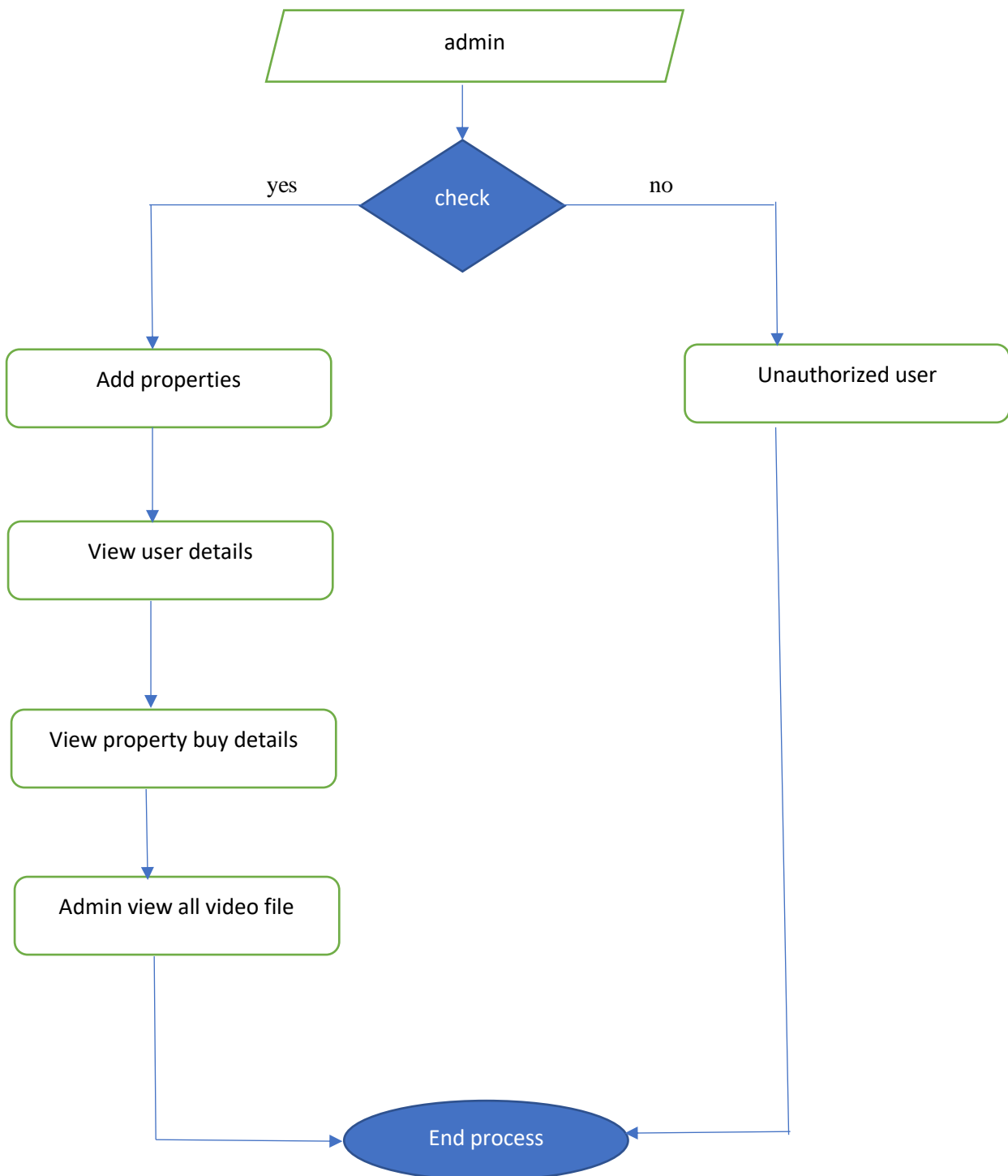


Fig 8.2. Admin data flow diagram

## 8.2. UML DIAGRAMS

UML stands for Unified Modelling Language. UML is a standardized general-purpose modelling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group. The goal is for UML to become a common language for creating models of object-oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artefacts of software system, as well as for business modeling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems. The UML is a very important part of developing objects-oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

## 8.3. Goals

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.
7. Integrate best practices

## 8.4. CLASS DIAGRAM

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.

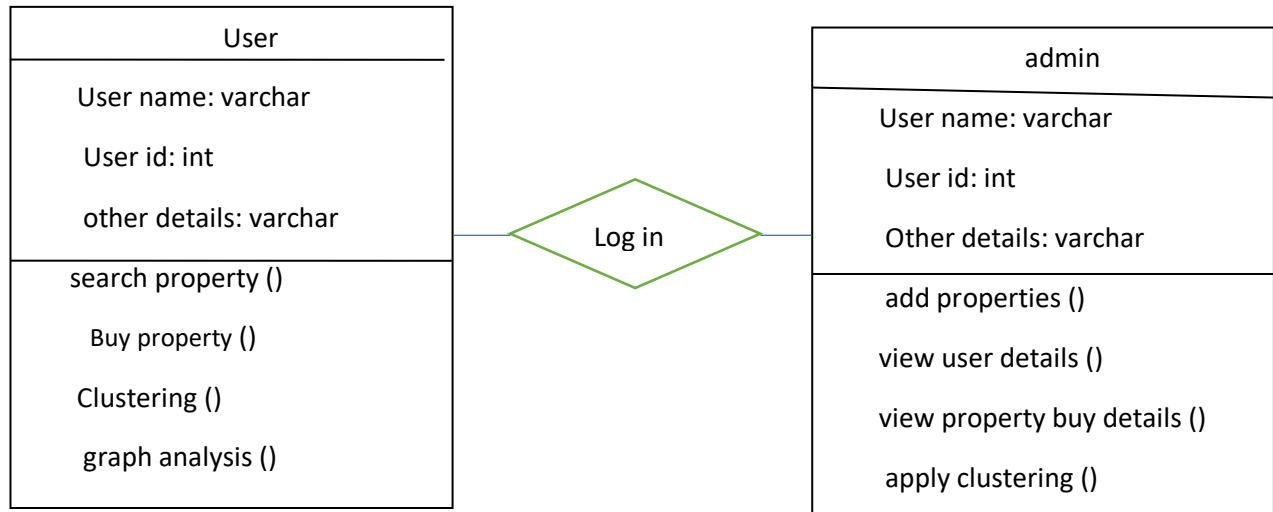


Fig 8.3. class diagram

## 8.5. USE CASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type of behavioural diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.



## User

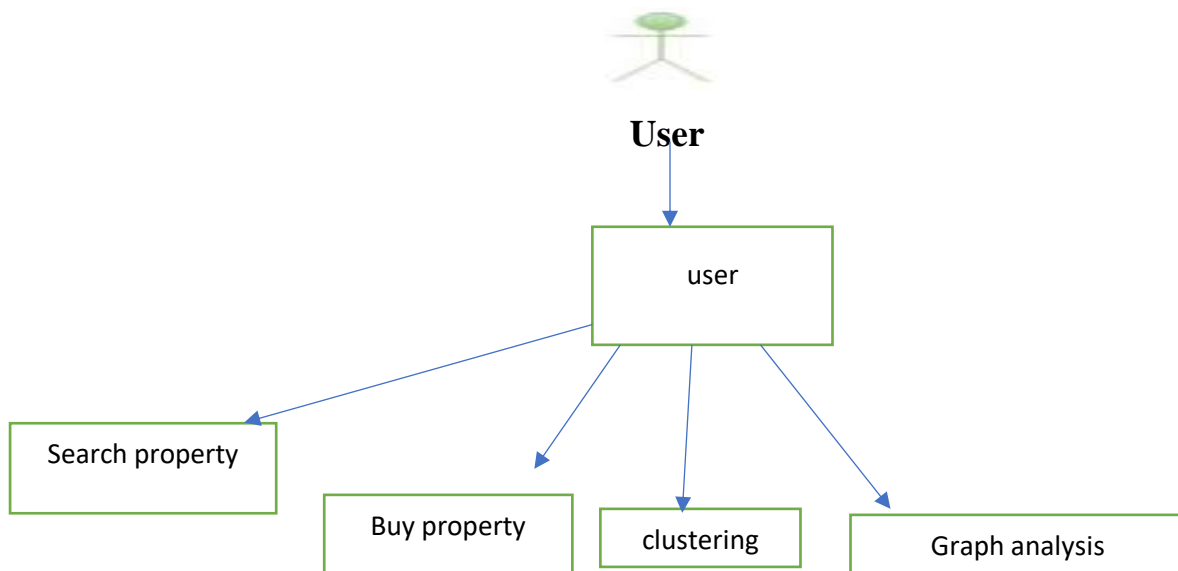


Fig 8.4. user use case diagram

## Admin

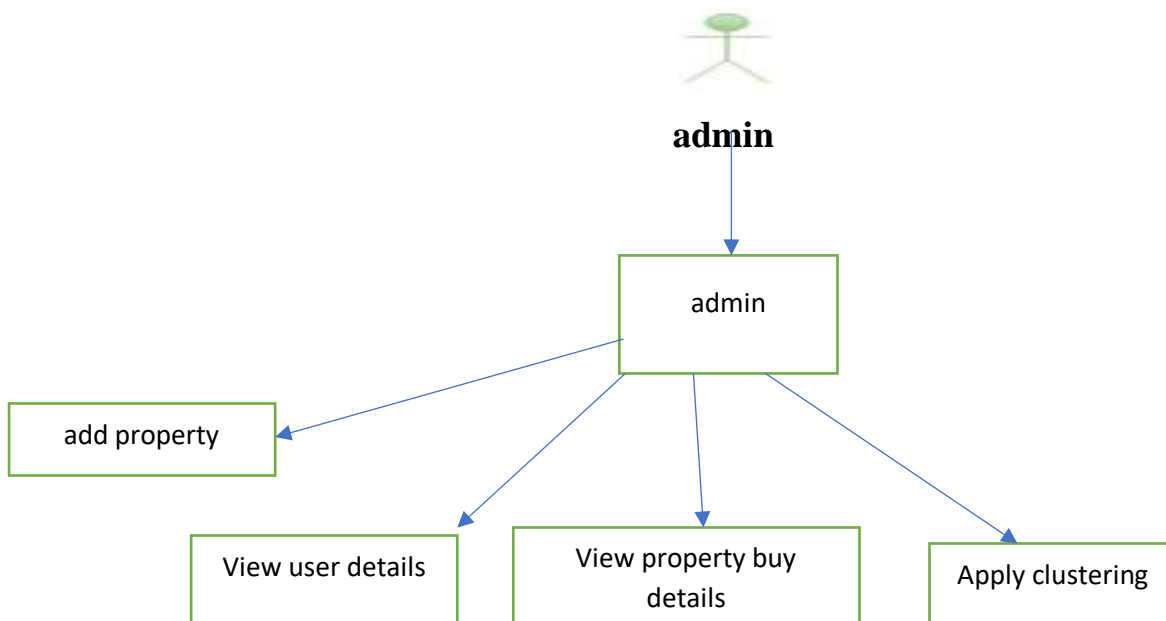


Fig 8.5. Admin use case diagram

## 8.6. SEQUENCE DIAGRAM

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams

User

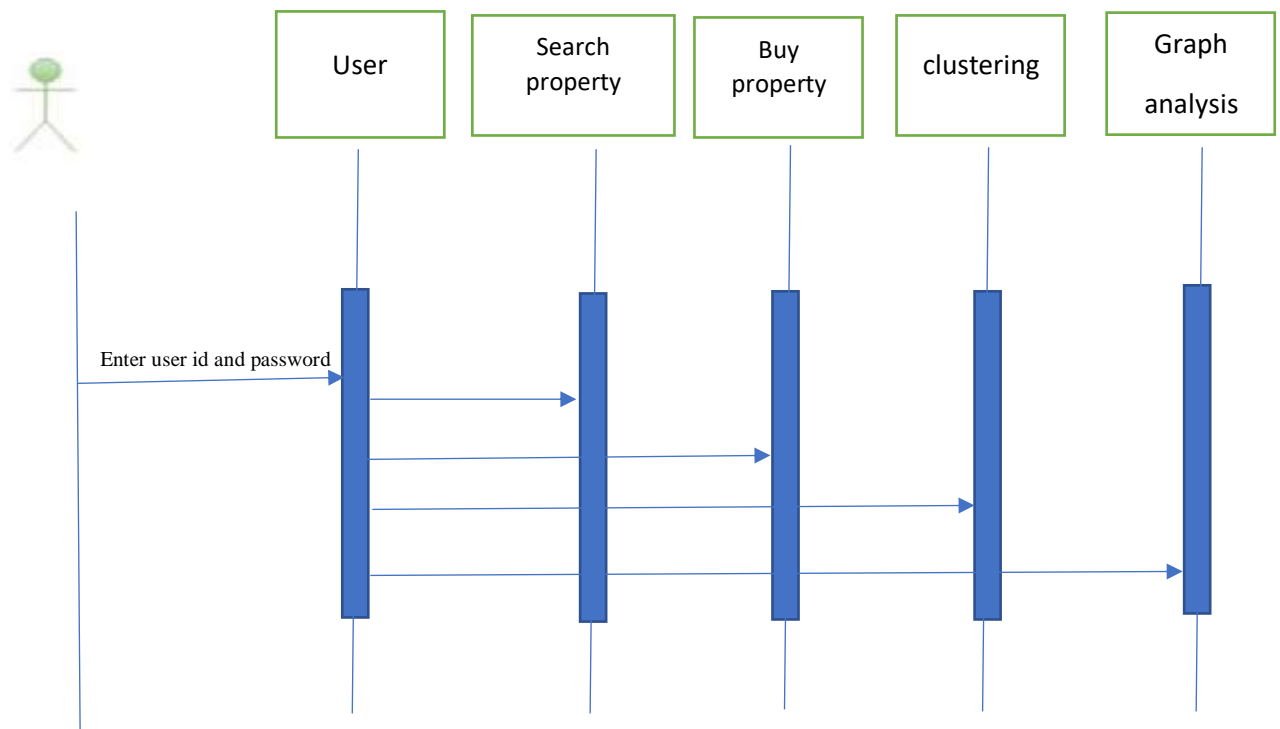


Fig 8.6. user sequence diagram

## Admin

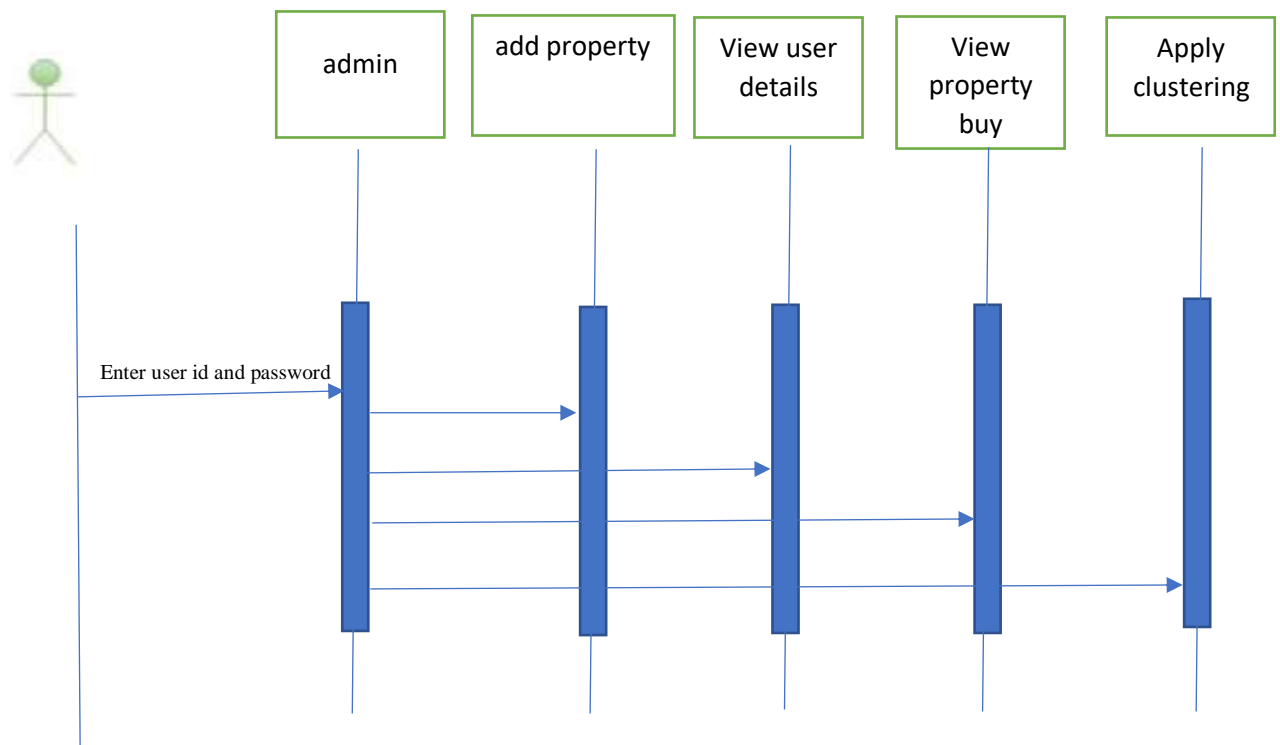


Fig 8.7. Admin sequence diagram

## 8.7. COMPONENT DIAGRAM

A component diagram is used to break down a large object-oriented system into the smaller components, so as to make them more manageable. It models the physical view of a system such as executables, files, libraries, etc. that resides within the node.

It visualizes the relationships as well as the organization between the components present in the system. It helps in forming an executable system. A component is a single unit of the system, which is replaceable and executable. The implementation details of a component are hidden, and it necessitates an interface to execute a function. It is like a black box whose behaviour is explained by the provided and required interfaces.

**user**

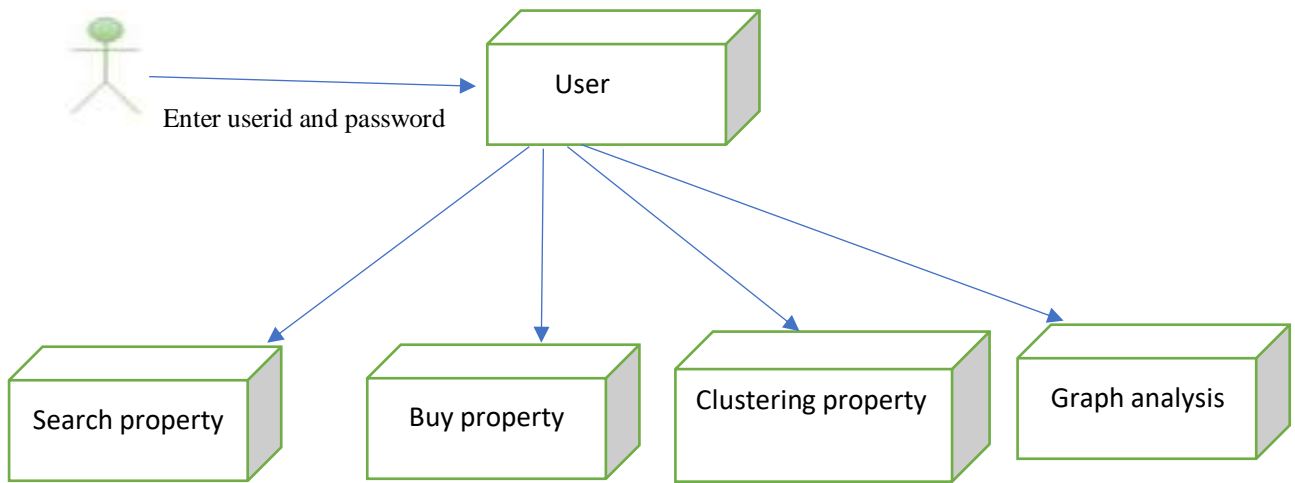


Fig 8.8. user component diagram

**Admin**

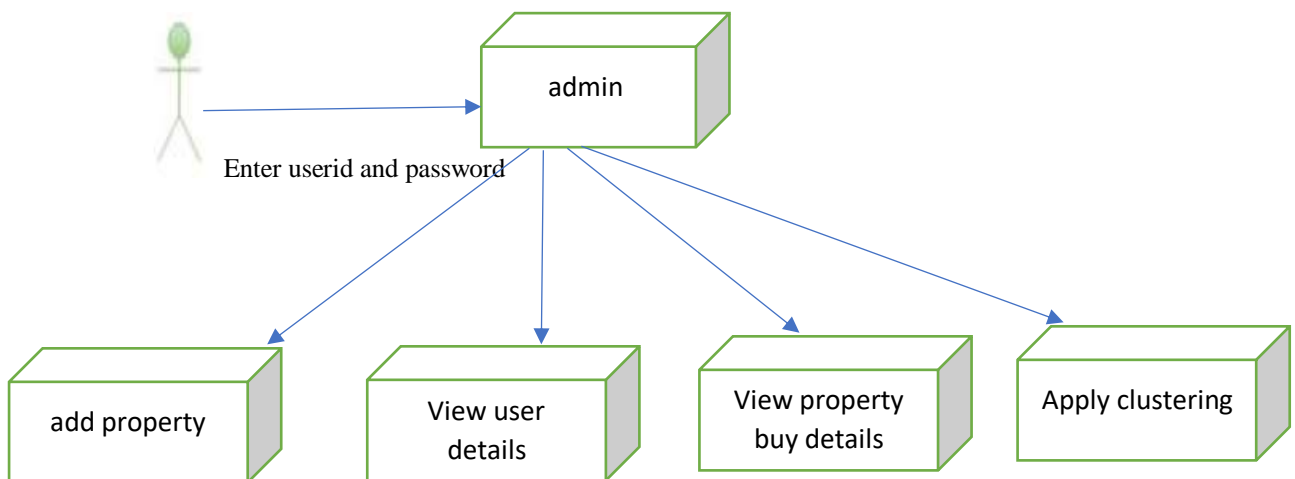


Fig 8. 9. Admin component diagram

### 8.3. E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labelled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.

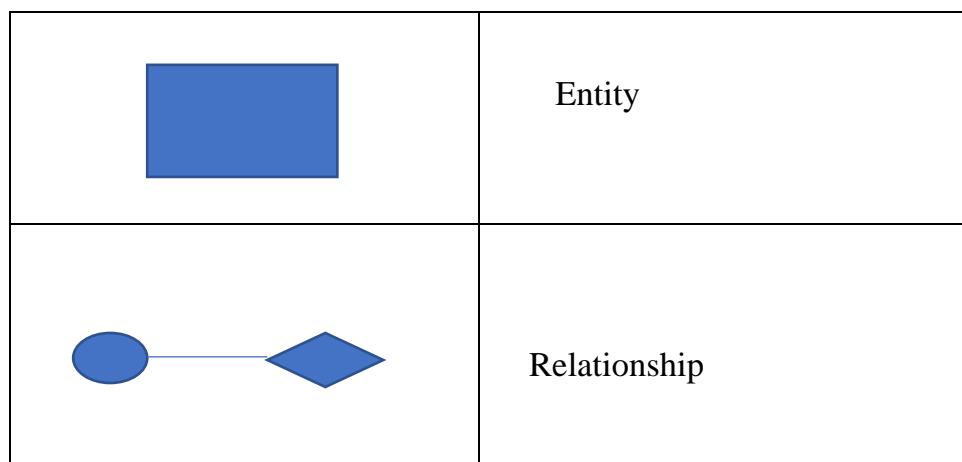


Fig 8.10. E-R diagram

# **IMPLEMENTATION**

## 9. IMPLEMENTATION

### 9.1. INPUT AND OUTPUT DESIGN

#### 9.2. Data design

It is an association between the information system and the customer. It incorporates the making subtlety and strategies for data status and those methods are critical to put trade data in to a usable structure for taking care of can be practiced by inspecting the PC to examine data from a formed or printed report or it can occur by having people entering the data direct into the system. The structure of data bases on controlling the proportion of data required, controlling the goofs, avoiding delay, sidestepping extra methods and keeping the methodology essential. The data is organized in such a way thusly, that it outfits security and accommodation with holding the assurance.

#### 9.3. Objectives

1. Information Design is the course toward changing over a client organized outline of the obligation to a PC based construction. This course of action is fundamental to keep up a crucial decent way from messes up in the information input procedure and display the right going to the association for getting right data from the modernized design.
2. It is drilled by simplifying to use evaluates for the information territory to oversee huge volume of information. The objective of orchestrating input is to make information section more direct and to be liberated from fumbles. The information area screen is masterminded with the objective that all the information controls can be performed. It also gives record seeing work environments.
3. Exactly when the data is entered it will check for its authenticity. Data can be entered with the help of screens. Fitting messages are given as when required so the customer won't be in maize of second. Thusly the objective of data setup is to make a data plan that is definitely not hard to follow.

## 9.4. CODING

### i. Location. jsp

```
<!DOCTYPE html>

<html>

<head>

<title>Handling of big data</title>

<!--css-->

<link href="css/bootstrap.css" rel="stylesheet" type="text/css" media="all" />

<link href="css/style.css" rel="stylesheet" type="text/css" media="all" />

<!--css-->

<% @page import="java.text.SimpleDateFormat"%>

<% @ page import="java.sql. *, databaseconnection. *" %>

<meta name="viewport" content="width=device-width, initial-scale=1">

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<meta name="keywords" content="Home Plat Responsive web template, Bootstrap
Web Templates, Flat Web Templates, Android Compatible web template,
Smartphone Compatible web template, free web designs for Nokia, Samsung, LG, Sony
Ericsson, Motorola web design" />

<script type="application/x-JavaScript">addEventListener ("load", function () {set
Timeout(hideURLbar,0);}, false); functionhideURLbar () {window. scroll to
(0,1);}</script>

<!--js-->

<script src="js/jquery.min.js"></script>

<script src="js/bootstrap.min.js"></script>
```



```
<script type="text/JavaScript" src="js/numscroller-1.0.js"></script>

<! --js-->

<! --webfonts-->

<link
href="//fonts.googleapis.com/css?family=Josefin+Sans:400,700italic,700,600italic,600
,400italic,300italic,300,100italic,100' rel='stylesheet' type='text/css'>

<link
href="//fonts.googleapis.com/css?family=Open+Sans:400,300,300italic,400italic,600,
600italic,700,700italic,800,800italic' rel='stylesheet' type='text/css'>

<! --webfonts-->

<script>

$(function () {

 $("#datepicker"). datepicker ();

 });

</script>

<script language="JavaScript" type="text/JavaScript">

function validation ()

{

if (document. form1.pname. selected Index==0)

{alert ("Please select Product Name");

document. form1.pname. focus ();

return false;

}

var bb=document. form1.startdate.value;
```

```
if(bb=="")
{
alert ("Enter Start Date");

document. form1.startdate. focus ();

return false;

}

var cc=document. form1.enddate.value;

if(cc=="")
{

alert ("Enter End Date");

document. form1.enddate. focus ();

return false;

}

return true;

}

</script>

<style>

#customers {

font-family: "Trebuchet MS", Arial, Helvetica, sans-serif;

border-collapse: collapse;

width: 100%;

margin-top:50px;

background-colour: white;
```

```
}

#customers td, #customers th {

 border: 1px solid #ddd;

 padding: 8px;

}

#customers tr: nth-child(even) {background-colour: #f2f2f2;}

#customers tr: hover {background-colour: #ddd;}

#customers th {

 padding-top: 12px;

 padding-bottom: 12px;

 text-align: left;

 background-colour: #045766;

 colour: white;

}

</style>

</head>

<body>

<! --header-->

<div class="header" id="home">

<div class="header-top">

<h1>Handling Big Data Using a Data-Aware HDFS and
Evolutionary Clustering Technique</h1>

</div>
```

```
</div>

</div>

<div class="container">

<div class="header-bottom">

<nav class="navbar navbar-default">

<div class="container-fluid">

<!-- Brand and toggle get grouped for better mobile display -->

<div class="navbar-header">

<button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-
target="#bs-example-navbar-collapse-1" aria-expanded="false">

Toggle navigation

<span class="icon-
bar">

</button>

</div>

<!-- Collect the nav links, forms, and other content for toggling -->

View Graph

<li class="menu__item">Logout</nav>

<div class="clearfix"></div>

</div><!-- /. navbar-collapse -->

<!-- /.container-fluid -->

</div>

</nav>
```

```
<! --header-->

<! --banner-->

<! --banner-->

<! --about-->

<div class="content">

<div class="about-w3ls">

<div class="container">

<h2 class="tittle">View Graph</h2>

<div class="about-grids">

<form method="post" name="form1" action="locationdb.jsp" on submit="return
validation ();">

<table width="546" height="274" style="padding-top:20px; margin-left:370px;
margin-top:20px; padding-left:130px;"><tr><td><font size="4"
colour="black">Select Product</td>

<td><select name="panama" ><option>Select Product</option>

<%Statement st4 = null;ResultSet rs4=null;

Try

{

Connection con4=Databasecon.getconnection();

st4=con4.createStatement();

String sql4="select * from product";

rs4=st4.executeQuery(sql4);

while (rs4.next()){ %>

<option value="<%=rs4.getString("pname")%>
```

```
<%=rs4.getString("pname")%>
</option>
<!-- <input="hidden" name="catid" value="<%=rs5.getString("catid")%>" > --%>

<% }
}
catch (Exception eq5)
{
out. println (eq5.getMessage());
}
%>
</select></td>
</tr>
<tr><td>Start Date</td>
<td><input type="text" name="startdate" style="border-radius:10px; width:200px;
height:30px; colour: black; border:2px solid black; font-size:20px;"></td>
</tr>
<tr><td>End date</td><td><input
type="text" name="end date" style="border-radius:10px; width:200px; height:30px;
colour: black; border:2px solid black; font-size:20px;"></td>
</tr>
</table>
<p>
```

```
<input type="submit" value="Submit" class="button" style="width:150px; height:35px; font-family: Georgia; font-size:18px; font-weight: bold; font-variant: small-caps; margin-left:480px; margin-top:30px;" />
```

```
</p>
```

```
</form>
```

```
<div class="clearfix"></div>
```

```
</div></div>
```

```
</div><!--count-->
```

```
<!--count-->
```

```
</div><!--about-->
```

```
<!--footer-->
```

```
<!--footer-->
```

```
<!--copy-->
```

```
<div class="copy-section"><div class="container">
```

```
<p>Handling Big Data Using a Data-Aware HDFS and Evolutionary Clustering Technique</p>
```

```
</div>
```

```
</div>
```

```
<!--copy-->
```

```
<!--signin--><!--signin-->
```

```
<!--Register-->
```

```
<!--Register-->
```

```
</body></html>
```

**ii. user home. Jsp:**

```
<% @ page import="java.sql. *, databaseconnection. *" %>

<%String name=(String)session. get Attribute("name");

String id=(String)session. get Attribute("id");

String age=(String)session. get Attribute("age");

System.out.println("keyword1=====" +keyword1);

session. set Attribute ("keyword1", keyword1);

Stringpid=null,
category=null,subcategory=null,pname=null,color=null,price=null,buy=null;

%>

<!DOCTYPE html>

<html>

<head>

<title>Handling of big data</title>

<! --css-->

<link href="css/bootstrap.css" rel="stylesheet" type="text/css" media="all" />

<link href="css/style.css" rel="stylesheet" type="text/css" media="all" />

<! --css-->

<meta name="viewport" content="width=device-width, initial-scale=1">

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<meta name="keywords" content="Home Plat Responsive web template, Bootstrap
Web Templates, Flat Web Templates, Android Compatible web template,
Smartphone Compatible web template, free webdesigns for Nokia, Samsung, LG, Sony
Ericsson, Motorola web design" />
```



```
<script type="application/x-JavaScript">addEventListener ("load", function ()
{setTimeout (hideURLbar, 0);}, false); function hideURLbar () {window. scroll to
(0,1);}</script>
```

```
<! --js-->
```

```
<script src="js/jquery.min.js"></script>
```

```
<script src="js/bootstrap.min.js"></script>
```

```
<script type="text/JavaScript" src="js/numscroller-1.0.js"></script>
```

```
<! --js-->
```

```
<! --webfonts-->
```

```
<body>
```

```
<! --header-->
```

```
<div class="header" id="home"> <div class="header-top">
```

```
<div class="container"><div class="logo">
```

```
<h1>Handling Big Data Using a Data-Aware HDFS and
Evolutionary Clustering Technique</h1>
```

```
</div></div></div>
```

```
<div class="container">
```

```
<div class="header-bottom">
```

```
<nav class="navbar navbar-default">
```

```
<div class="container-fluid">
```

```
<! -- Brand and toggle get grouped for better mobile display -->
```

```
<div class="navbar-header">
```

```
<button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-
target="#bs-example-navbar-collapse-1" aria-expanded="false">
```

```
Toggle navigation

</button>

</div>

<!-- Collect the nav links, forms, and other content for toggling -->

<div class="collapse navbar-collapse" id="bs-example-navbar-collapse-1">

<nav class="menu menu--francisco">

<ul class="nav navbar-nav menu__list"><li class="menu__item--current">Search
Property<li class="menu__item"><a href="index.html"
class="menu__link">Logout</nav>

<div class="clearfix"></div>

</div><!-- /. navbar-collapse -->

<!-- /.container-fluid -->

</div></nav></div></div></div>

<!--header-->

<!--banner-->

<!--banner-->

<!--about-->

<div class="content">

<div class="about-w3ls">
```

```
<div class="container">
<h2 class="title">Search Product</h2>
<div class="about-grids">
<div class="col-md-6 about-grid1">
<imgsrc="images/search1.png" class="img-responsive" alt="" width="300"/
style="margin-left:150px;">
</div>
<div class="col-md-6 about-grid" style="border:7px solid #1A3381;"><form name="f"
action="userhome1.jsp" method="POST" onsubmit="return validation ();" >
<marquee behaviour="alternate"><marquee width="200">Register
Here</marquee></marquee></td></tr> -->
<marquee behaviour="alternate"><marquee width="200">Register
Here</marquee></marquee></td></tr> -->
<table width="546" height="174" style="padding-top:20px;margin-left:70px;margin-
top:20px;padding-left:130px;">
<% Statement st4 = null;
ResultSet rs4=null;
Try{
Connection con4=Databasecon.getconnection();
st4=con4.createStatement();
String sql4="select * from product where category='"+keyword1+" group by
subcategory";
rs4=st4.executeQuery(sql4);
int n=1;%>
```

```
<%

while (rs4.next()){s

pid=rs4.getString("pid");

category=rs4.getString("subcategory");

%>

<ahref="searchdb.jsp?category=<%=rs4.getString("subcategory")%>"><b
style="colour:green;margin-left:200px;text-align:center;font-
size:25px;"><%=rs4.getString("subcategory") %>

catch (Exception ex4){

out. println (ex4.getMessage());

}

%>

</table>

</form>

</div>

<div class="clearfix"></div>

</div>

</div>

</div>

<!--count-->

<!--count-->

</div>
```

```
<! --about-->

<! --footer-->

<! --footer-->

<! --copy-->

<div class="copy-section">

<div class="container">

<p>Handling Big Data Using a Data-Aware HDFS and Evolutionary Clustering
Technique</p>

</div>

</div>

<! --copy-->

<! --signin-->

<! --signin-->

<! --Register-->

<! --Register-->

</body>

</html>
```

iii. **Admin-home. Jsp:**

```
<!DOCTYPE html>

<html>

<head>

<title>Handling of big data</title>

<! --css-->
```

```
<link href="css/bootstrap.css" rel="stylesheet" type="text/css" media="all" />
<link href="css/style.css" rel="stylesheet" type="text/css" media="all" />
<!--css-->
<meta name="viewport" content="width=device-width, initial-scale=1">
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<meta name="keywords" content="Home Plat Responsive web template, Bootstrap
Web Templates, Flat Web Templates, Android Compatible web template,
Smartphone Compatible web template, free webdesigns for Nokia, Samsung, LG, Sony
Ericsson, Motorola web design" />
<script type="application/x-JavaScript">addEventListener ("load", function ()
{setTimeout (hideURLbar, 0);}, false); function hideURLbar () {window. scroll to
(0,1);}</script>
<!--js-->
<script src="js/jquery.min.js"></script>
<script src="js/bootstrap.min.js"></script>
<script type="text/JavaScript" src="js/numscroller-1.0.js"></script>
<!--js-->
<!--webfonts-->
<link
href="//fonts.googleapis.com/css?family=Josefin+Sans:400,700italic,700,600italic,600
,400italic,300italic,300,100italic,100' rel='stylesheet' type='text/css'>
<link
href="//fonts.googleapis.com/css?family=Open+Sans:400,300,300italic,400italic,600,
600italic,700,700italic,800,800italic' rel='stylesheet' type='text/css'>
<!--webfonts-->
```

```
<script language="JavaScript" type="text/JavaScript">
function validation ()
{
var c=document.f.name.value;
if(c=="")
{
alert ("Enter Username");
document.f.name. focus();
return false;
}
var b=document.f. pass. Value;
if(b=="")
</script>
</head>
<body>
<! --header-->
<div class="header" id="home">
<div class="header-top">
<h1>Handling Big Data Using a Data-Aware HDFS and
Evolutionary Clustering Technique</h1>
</div>
</div>
<div class="container"><div class="header-bottom">
```

```
<nav class="navbar navbar-default">

<div class="container-fluid">

<!-- Brand and toggle get grouped for better mobile display -->

<div class="navbar-header">

<button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-
target="#bs-example-navbar-collapse-1" aria-expanded="false">

Toggle navigation<!-- Collect the nav links, forms, and
other content for toggling --><div class="collapse navbar-collapse" id="bs-example-
navbar-collapse-1"><nav class="menu menu--francisco">

<ul class="nav navbar-nav menu__list">

<li class="menu__itemmenu__item--current"><a href="index.html"
class="menu__link">Home

<li class="menu__item">User

<li class="menu__item">Admin

</nav>

<div class="clearfix"></div>

<!-- /.container-fluid -->

</div>

</nav>

<!--header-->

<!--banner-->
```



```
<div class="banner1">
<div class="container">
</div>
<div class="content">
<div class="about-w3ls">
<h2 class="tittle">Admin Login</h2><div class="about-grids">
<imgsrc="images/log2.png" class="img-responsive" alt="" width="300"/
style="margin-left:150px;">
</div>
<div class="col-md-6 about-grid" style="border:7px solid #1A3381;">
<form name="f" action="alogindb.jsp" method="POST" onsubmit="return validation
();" >
<!-- <marquee behaviour="alternate"><marquee width="200">Register
Here</marquee></marquee></td></tr> -->
<!-- <marquee behaviour="alternate"><marquee width="200">Register
Here</marquee></marquee></td></tr> -->
<table width="546" height="174" style="padding-top:20px; margin-left:70px; margin-
top:20px; padding-left:130px;">
<tr><td> Username</td>
<td><input type="text" name="name" placeholder="Username" style="border-
radius:10px; width:200px; height:30px; colour: black; border:2px solid black; font-
size:20px;"></td>
</tr>
<tr><td>Password</td>
</table>
```

```
<input type="submit" value="Login" name="submit" style="margin-left:250px;
background-colour: black; colour: white; font-size:20px; margin-
top:20px;">
</br>

</form>

</div>

<div class="clearfix"></div></div>

</div>

<!--count-->

</div>

<!--about-->

<!--footer-->

<!--copy-->

<div class="copy-section">

<div class="container">

<p>Handling Big Data Using a Data-Aware HDFS and Evolutionary Clustering
Technique</p>

</div>

</div>

<!--copy-->

<!--signin-->

<!--Register-->

</body>

</html>
```

**iii. admin db.login. Jsp:**

```
<%@ page import="java.sql. *, databaseconnection. *" %>
<html>
<head>
<title>Temporary Keyword</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
</head>

<body>
<%
Statement st = null;
ResultSetrs = null;
String name = request.getParameter("name");
System.out.println("name="+name);
String password = request. getParameter("pass");
System.out.println("password="+password);
session. setAttribute("name", name);
session. setAttribute ("password", password);
if ((name. Equals("admin")) & (password. Equals("admin")))
{
response. sendRedirect("admin_home.jsp");
}

Else
{
%>
<script>
Alert("Enter Correct Username and Password");
window. Location="admin.jsp";
</script>
<%
```

```
}
```

```
%>
```

```
</body>
```

```
</html>
```

iv. **Add product.java:**

```
<% @pageimport="com.
```

```
oreilly.servlet.*,java.sql.*,java.lang.*,databaseconnection.*,java.text.SimpleDateFormat,java.util.*,java.io.*,javax.servlet.*, javax.servlet.http.*" error
Page="Error. Jsp"%>
```

```
<% @page import=" java. security. Message Digest"%>
```

```
<% @page import=" java. Security. *"%>
```

```
<% @page import="javax. crypto. *"%>
```

```
<%Stringcatname=null, subcatname=null, pname=null, model no=null, colour=null,
type=null, price=null, image=null, website=null;
```

```
Statement st = null;
```

```
ResultSet rs1=null;
```

```
int iid=0, count=0;
```

```
try
```

```
{
```

```
Connection con1 =Databasecon.getConnection();
```

```
st=con1.createStatement();
```

```
String sql1="select max(pid) from product";
```

```
rs1=st.executeQuery(sql1);
```

```
while(rs1.next(){
```

```
if (rs1.getInt(1) ==0)
```

```
iid=1;
```

```
else
```

```
iid=rs1.getInt(1) +1;
```

```
Array Listlist = new Array List();
ServletContext context = getServletContext ();
String file=null;
java. util.Date now = new java. util. Date();
String date=now. toString();

String DATE_FORMAT = "dd-MM-yyyy";

File file1 = null;
try {
MultipartRequest multi = new MultipartRequest (request, dirName, 10 * 1024
* 1024); // 10MB
Enumeration params = multi. getParameterNames();
while (params.hasMoreElements())

{

paramname = (String) params. next Element();
if(paramname. equalsIgnoreCase("cat name"))
{
cat name=multi. getParameter(paramname);
}
If(paramname. equalsIgnoreCase("subcatname"))
{
subcatname=multi. getParameter(paramname);
}
If(paramname. equalsIgnoreCase("pname"))
int f = 0;
Enumeration files = multi. get Filenames();
while (files. hasMoreElements ())
{
paramname = (String) files. next Element ();
if(paramname. equals("d1"))
```

```
{
paramname = null;
}
if (paramname!= null)
{
f = 1;
image = multi.getFilesystemName(paramname);
}

FileInputStream fs1 = null;

//name=dirName+"\\Gallery\\"+image;Connection
con=Databasecon.getConnection();

Prepared Statementps=con. prepareStatement("INSERT INTO product
VALUES(?,?,?,?,?,?,?,?,?)");
ps. setInt(1, iid);
ps. set String(2, cat name);
ps. setString(3, subcatname);
ps. setString (4, pname);
ps. setString (5, model no);
if (f == 0)
ps. set Object (8, null);
else if (f == 1)
{
fs1 = (FileInputStream)list. Get (0);
ps. setBinaryStream (8, fs1, fs1.available());
}
int x=ps. execute Update ();
if (x!=0)
catch (Exception e)
```

```
{
 out.println (e. get Message ());
}
catch (Exception eq)
{
 out.println (eq. get Message ());
}

%>
```

**v. user login.java:**

```
<% @page import="javax. mail. Session"%>

<% @page import="java.nio. channels. SeekableByteChannel"%>

<% @ page import="java.sql. *, databaseconnection. *" %>

<%

String name=null, id=null, email=null;

String a=request. getParameter("name");

String b=request. getParameter("pass");

try

{

 Connection con =Databasecon.getConnection();

 PreparedStatementPS=con. prepareStatement ("select * from register where
 uname='"+a+"' && password='"+b+"'");

 ResultSetrs=ps. execute Query();

 if(rs. Next ())

 {

 name=rs. get String("uname");
```

```
 session.setAttribute ("name", name);

 id=rs. get String("id");

 session.setAttribute ("id", id);

 email=rs. get String("email");

 session.setAttribute ("gender", gender);

 String location=rs. get String("location");

 session.setAttribute ("location", location);

 response.sendRedirect("user_home.jsp");

}

Else

{

%>

<script>

Alert("Invalid user");

window. Location="user. Jsp";

</script>

<%

}

}

Catch(Exception e)

{

out. println (e. get Message ());

}%>
```



vi. **Databaseconnection.java:**

```
package databaseconnection;

import java.sql. *;

public class Database on
{
static Connection con;

public static Connection getconnection ()
{
try
{
Class.forName("com. mysql. jdbc. Driver");

DriverManager.getConnection("jdbc:mysql://localhost:3306/handling_bigdata","root",
"root");

}

catch (Exception e)

{

System.out.println("class error");

}

return con;

}

}
```

# **SYSTEM TESTING**

## **10.SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, subassemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### **10.1. TYPES OF TESTS**

#### **1. Unit testing**

This type of testing involves the testing of design that validate that the internal program logic is functioning properly, that gives valid output after taking input. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. This type of testing performs basic tests at component level and test a specific business process, application, and/or system configuration. This test ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### **2. Integration testing**

This type of testing is designed in such a way to test integrated software components to determine if they actually run as one program. Integration type of testing, the event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

### 3. Functional test

These tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centred on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### 4. System testing

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration-oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### 5. White box testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

## **6. Black box testing:**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box. you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

### **10.2. Test strategy and approach**

Field testing will be performed manually and functional tests will be written in detail.

### **10.3. Test objectives**

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

### **10.4. Features to be tested**

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

### **10.5. Integration Testing:**

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects. The task of the integration test is to check that components or software applications, e.g., components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## **10.6. Acceptance Testing:**

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test result:** All the test cases.

# **SCREEN SHOTS**

## 11. SCREEN SHOTS

### 11.1 Home screen:

This is the Home page of my project



Fig 11.1. Home screen



## 11.2. Admin login:

This is admin page. He will manage all the details of the user



Fig 11.2. Admin login

### 11.3. Add product:

In this page Admin is uploading products to the system.



Fig 11.3. Add product

### 11.4. uploaded successfully:

In this page Admin uploaded product that is uploaded successfully.

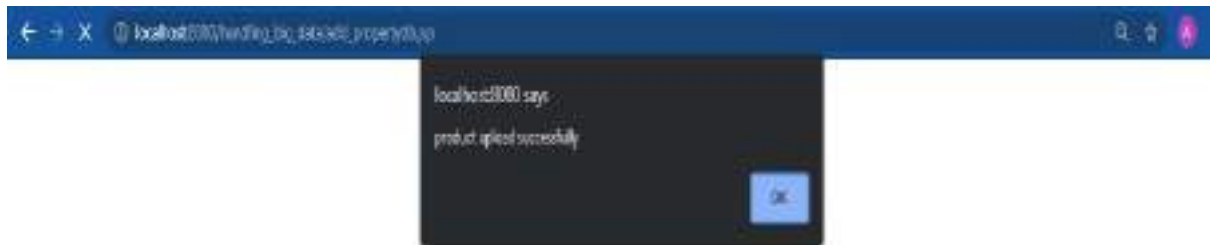


Fig 11.4. uploaded successfully

## 11.5. user register

This is user page user is registering to the system with details.



The screenshot displays a web browser window with the address bar showing a local file path. The page title is "Handling Big Data Using a Data-Aware HDFS and Evolutionary Clustering Technique". Below the title is a navigation menu with "Home", "User", and "Admin" links. The main content area is titled "User Register" and features an illustration of a person holding a key. To the right of the illustration is a registration form with the following fields and values:

Field	Value
Full Name	ojj
User Name	ojj
Email	ojj@gmail.com
Password	***
Confirm Password	***
Age	47
Gender	Female
Location	Andhra Pradesh

A "Register" button is located at the bottom of the form.

fig.11.5. user register

## 11.6. user registered system successfully:

In this page user registered system successfully.



Fig 11.6. user registered system successfully

## 11.7. user login:

In this page user login to the system with username and password.



Fig 11.7. user login

## 11.8. search product:

In this page user searching for the product to buy.

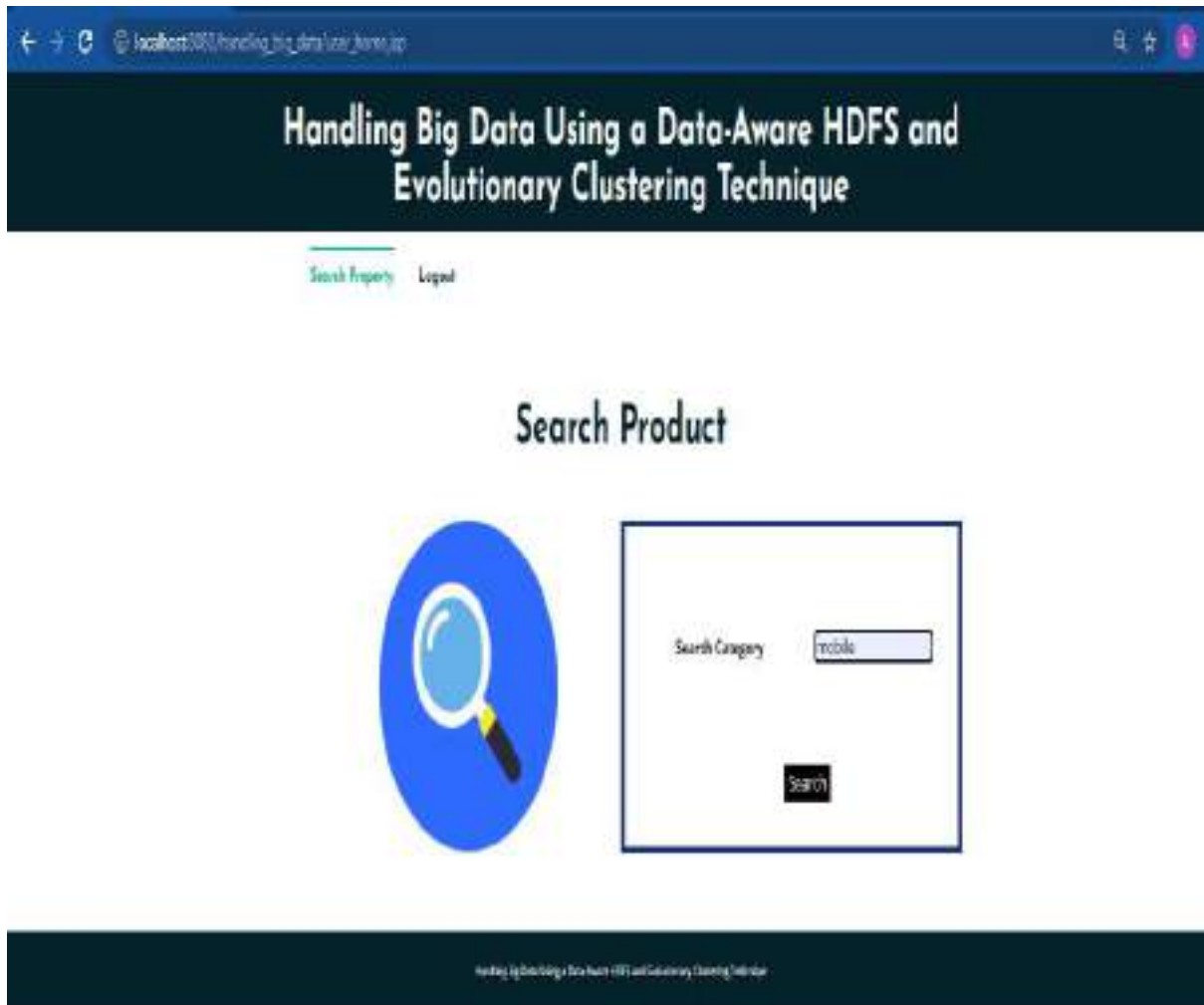


Fig 11.8. search product

## 11.9. search product:

In this page user found this many mobile models of mobile phone



Fig 11.9. search product



### 11.10. Search product:

In this age these are the Samsung galaxy company mobiles to buy.



Fig 11.10. search product

### 11.11. view product:

In this page user is buying the product.



Fig 11.11. view product.

### 11.12. Buy product:

In this page he is adding his bank details to make the payment of buy product.



Fig 11.12. buy product.

### 11.13. Order successfully:

In this page the order is placed successfully.



Fig 11.13. order successfully.

### 11.14. view user details:

In this page admin is viewing the users who login to system.



Fig 11.14. view user details

### 11.15. view buy details:

In this page admin is viewing the buyer details.



Fig 11.15. view buy details

### 11.16. Clustering technique:

In this page we are running clustering technique.



Fig 11.16. clustering technique.

### 11.17. View graph:

In this page we view the graph based on prediction variables age, gender, location.



Fig 11.17. view graph.



### 11.18. view graph:

In this page viewing graph by adding based on age how many Samsung mobiles are ordered.



Fig 11.18. view graph

### 11.19. view graph:

In this page viewing graph by adding based on age how many Samsung mobiles are ordered.



fig 11.19. view graph.

### 11.20 view graph:

In this page found the result of viewing graph by adding based on age how many Samsung mobiles are ordered.

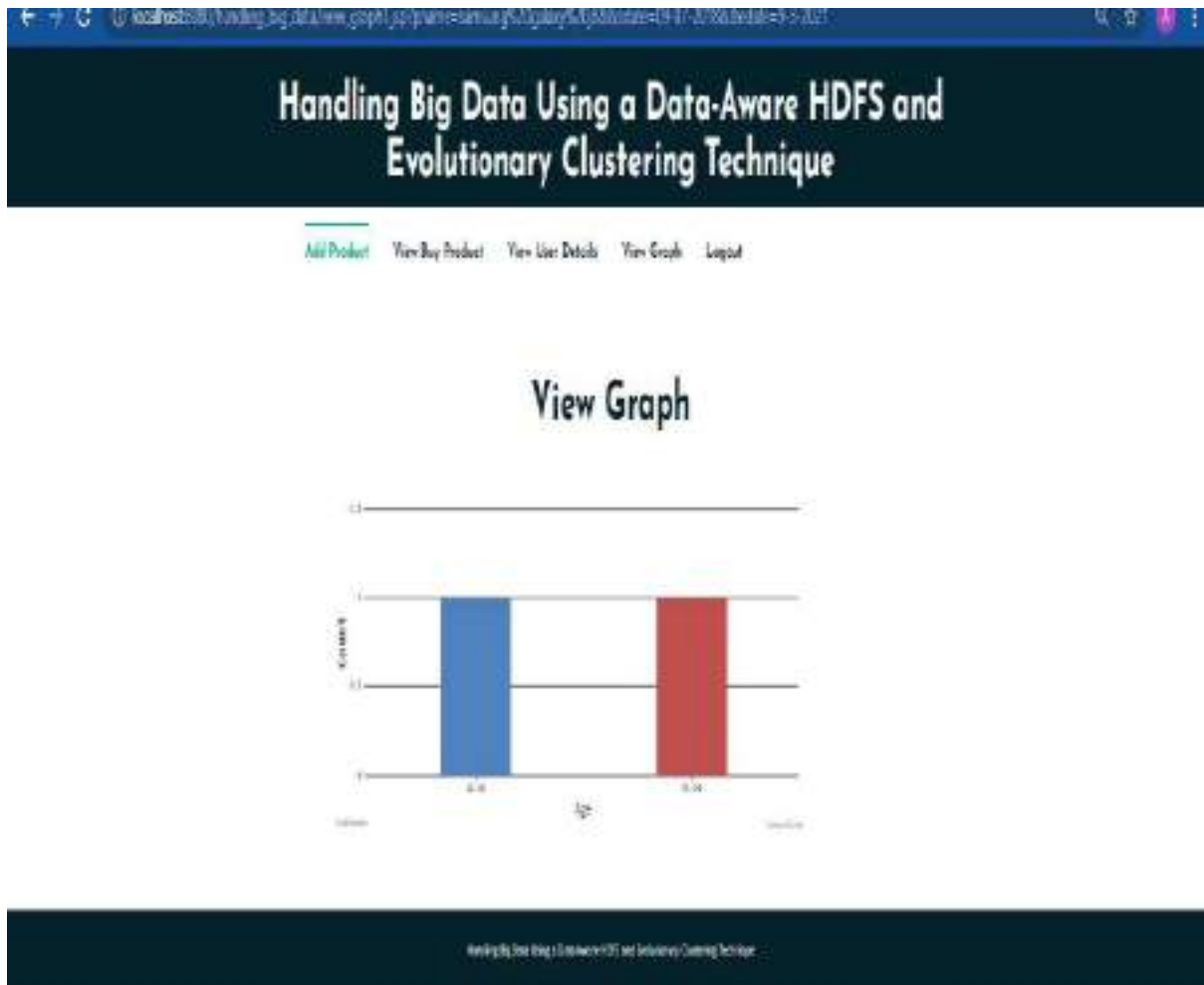


Fig 11.20 view graph:

### 11.21. view graph:

In this page found the result of viewing graph by adding based on gender how many Samsung mobiles are ordered.



Fig 11.21. view graph.

## 11.22. view graph:

In this page found the result of viewing graph by adding based on gender how many Samsung mobiles are ordered.



Fig 11.22. view graph.

### 11.23. view graph.

In this page found the result of viewing graph by adding based on gender how many Samsung mobiles are ordered.



Fig 11.23. view graph.

### 11.24. view graph:

In this page found the result of viewing graph by adding based on gender how many Samsung mobiles are ordered.

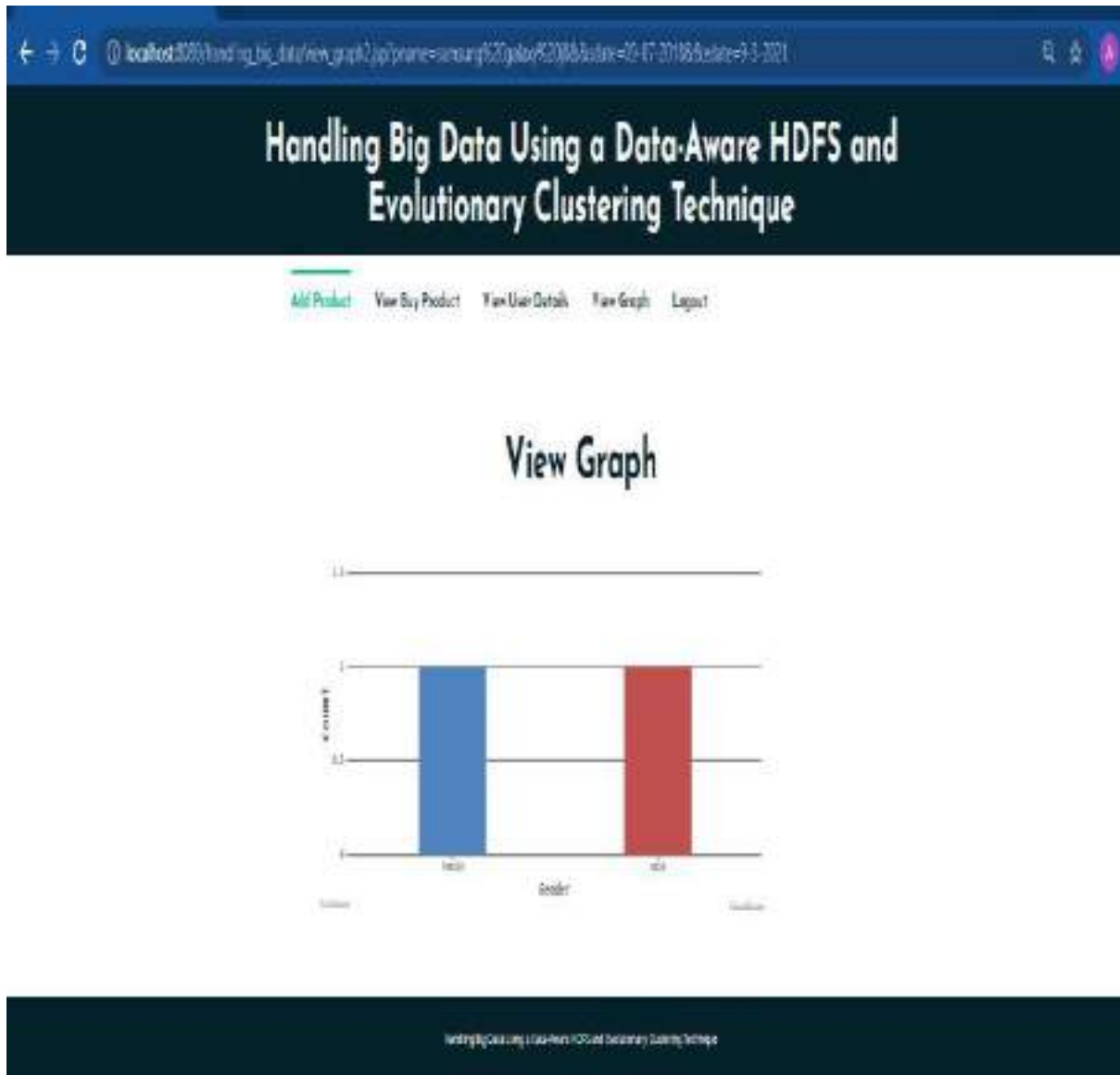


Fig 11.24. view graph

## 11.25. view graph:

In this page found the result of viewing graph by adding based on location how many Samsung mobiles are ordered.



Fig 11.25. view graph.



## 11.26. view graph:

In this page found the result of viewing graph by adding based on location how many Samsung mobiles are ordered.



Fig 11.26. view graph.

### 11.27. view graph:

In this page found the result of viewing graph by adding based on location how many Samsung mobiles are ordered.

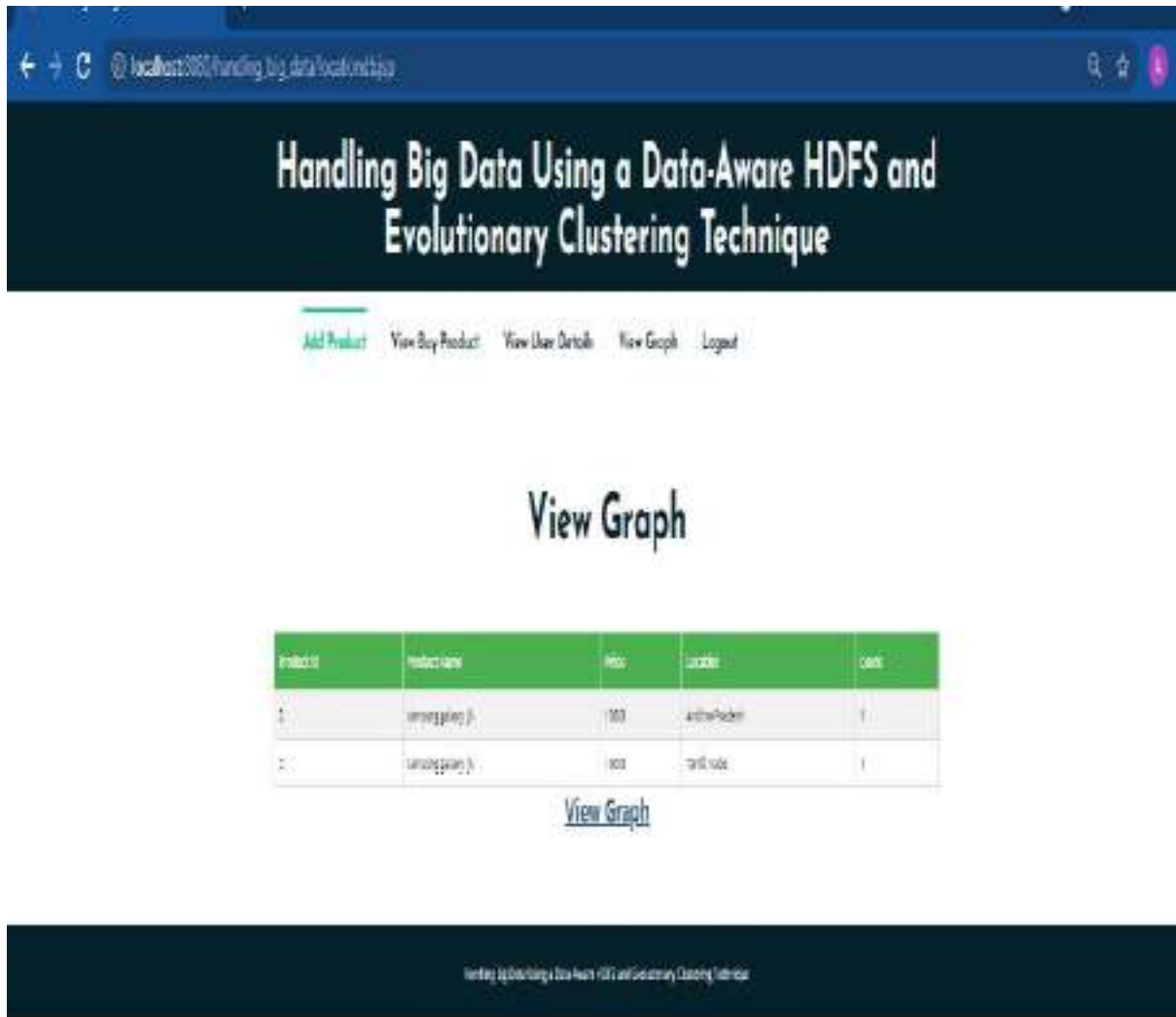


Fig 11.27. view graph.

### 11.28. view graph:

In this page found the result of viewing graph by adding based on location how many Samsung mobiles are ordered.

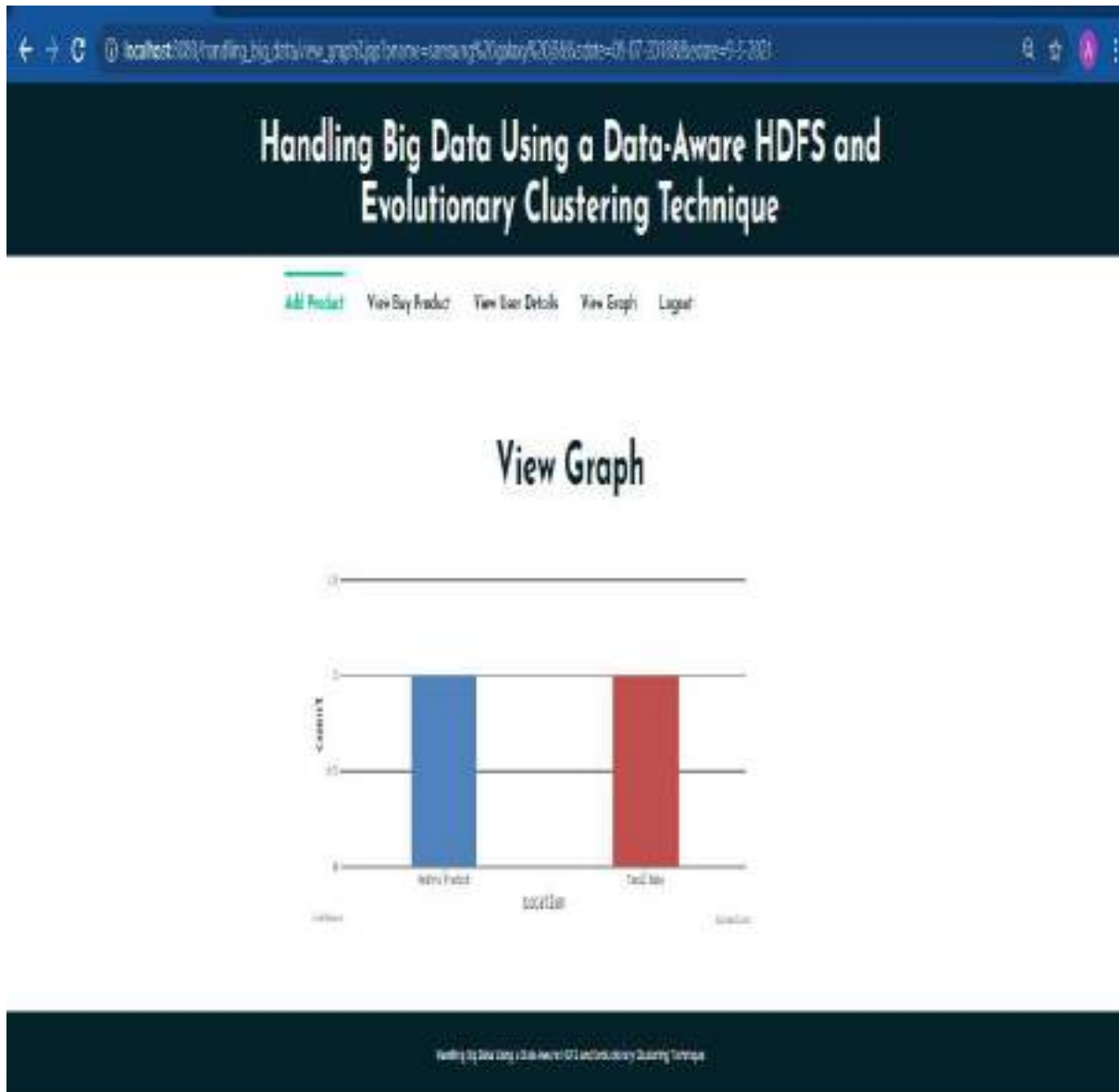


Fig 11.28. view graph.

# CONCLUSION

## **CONCLUSION**

Here proposed a group-based information parcelling to control the actual region of the information to It merits the exertion, in any case, to consider the effect of astute information arrangement on such techniques. For future work, we intend to additionally improve the disseminated encoding and the hereditary administrators to decrease calculation overhead.

# **FUTURE ENHANCEMENT**

## **FUTURE ENHANCEMENT**

We additionally plan to try different things with dynamic updates for a bigger speed of information stream and to use apparatuses and systems of the lambda design and cutting-edge investigation introduced in the new examinations.

# REFERENCES



## REFERENCES

- J.P. Ferguson, D. Palejev, "Calibration of p-values for multiple testing problems in genomics", *Stat. Appl. Genet. Molec. Biol.*, vol. 13(6),2014, pp. 659–73, doi: 10.1515/sagmb-2013-0074.
- S. Gilbert, N. Lynch, "Perspectives on the CAP Theorem", *Computer*, vol. 45, no. 2, 2012, pp. 30–36, <http://doi.ieeecomputersociety.org/10.1109/MC.2011.389>.
- T. Gruber, "Toward Principles for the Design of Ontologies Used for Knowledge Sharing", *International Journal of Human-Computer Studies*, Vol. 43, 1995, pp. 907–928, doi:10.1006/ijhc.1995.1081.
- Advanced Computing and Data Center, IICT, <http://hpc.acad.bg/>.
- O. Kounchev et al, "Astroinformatics: A Synthesis between Astronomical Imaging and Information & Communication Technologies", In: *Modern Trends in Mathematics and Physics*, ed. S.S. Tinchev, Heron Press, Sofia, 2009, pp. 60–6
- M. Hajeer, D. Dasgupta, A. Semenov and J. Veijalainen, "Distributed evolutionary approach to data clustering and modeling," in *Computational Intelligence and Data Mining (CIDM), 2014 IEEE Symposium*, 2014.
- H. Song, P. Basanta-Val, A. Steed, M. Jo and Z. Lv, "Next-generation big data analytics: State of the art, challenges, and future research topics," *IEEE Transactions on Industrial Informatics*, p. In Press, 2017.
- N. Agnihotri and A. K. Sharma, "Proposed algorithms for effective real time stream analysis in big data," in *Image Information Processing (ICIIP), 2015 Third International Conference on*, 2015.
- L. Aniello, R. Baldoni and L. Querzoni, "Adaptive online scheduling in storm," in *Proceedings of the 7th ACM international conference on Distributed event-based systems*, 2013.

**A**

**Project Report**

**on**

**ACHIEVING SECURE AND EFFICIENT DYNAMIC SEARCHABLE  
SYMMETRIC ENCRYPTION OVER MEDICAL CLOUD DATA**

*Submitted in partial fulfilment for the award of the degree*

**of**

**Master of Computer Applications**

*Submitted by*

**PALLAPU ARUNKUMAR**

**(Reg. No. 19F65F0002)**

*Under the esteemed guidance of*

**Mr. P. BALAJI, MCA,M.Tech,**  
**Associate Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**

**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**(2020-2021)**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled “ACHIEVING SECURE ANEFFICIENT DYNAMIC SEARCHABLE SYMMETRIC ENCRYPTION OVER MEDICAL CLOUD DATA” that is being submitted by **PALLAPU ARUNKUMAR (Reg. No. 19F65F0002)** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **PALLAPU ARUNKUMAR** hereby declare that the project report entitled "**ACHIEVING SECURE AND EFFICIENT DYNAMIC SEARCHABLE SYMMETRIC ENCRYPTION OVER MEDICAL CLOUD DATA**" is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. BALAJI, MCA,M.Tech**, Associate Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APPLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**PALLAPU ARUNKUMAR**

**Reg. No.: 19F65F0002**

## **ACKNOWLEDGEMENT**

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. P. BALAJI, MCA,M.Tech.** Associate Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E., HOD,** Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved Chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to Project Coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

**(PALLAPU ARUNKUMAR)**

# CONTENTS

<b>S. No.</b>	<b>CHAPTERS</b>	<b>Page No.</b>
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF ABBREVIATIONS	Ii
1	INTRODUCTION	1
2	SYSTEM STUDY	6
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	8
	3.2 DISADVANTAGES	8
	3.3 PROPOSED SYSTEM	8
	3.4 ADVANTAGES	9
4	SOFTWARE MODULES	10
5	SYSTEM ARCHITECTURE	13
6	SOFTWARE ENVIRONMENT	14
7	SYSTEM REQUIREMENTS	33
8	SYSTEM DESIGN	34
9	IMPLEMENTATION	48
10	SYSTEM TESTING	84
11	SCREEN SHOTS	88
	CONCLUSION	99
	FUTURE ENHANCEMENT	100
	REFERENCES	101

## ABSTRACT

In medical cloud computing, a patient can remotely outsource her medical data to the cloud server. In this case, only authorized doctors are allowed to access the data since the medical data is highly sensitive. Before outsourcing, the data is commonly encrypted, where the corresponding secret key is sent to authorized doctors. However, performing searches on encrypted medical data is difficult without decryption. In this project, we propose two Secure and Efficient Dynamic Searchable Symmetric Encryption (SEDSSE) schemes over medical cloud data. First, we utilize the secure k-Nearest Neighbor (kNN) and Attribute-Based Encryption (ABE) techniques to construct a dynamic searchable symmetric encryption scheme, which can achieve forward privacy and backward privacy simultaneously. These two security properties are vital and very challenging in the area of dynamic searchable symmetric encryption. Then, we propose an enhanced scheme to solve the key sharing problem which widely exists in the kNN based searchable encryption scheme. Compared with existing proposals, our schemes are better in terms of storage, search and updating complexity.

## LIST OF FIGURES

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1	1.1. Structure of Service models	3
2	5.1. System Architecture	12
3	5.2. Block Diagram	13
4	6.1. Compilation & Interpretation	15
5	6.2. Execution for different platforms	15
6	6.3. Java Platform	16
7	6.4. Java IDE	18
8	6.5. TCP Connection	24
9	6.6. The 32 bit address	26
10	6.7. General J2ME Architecture	29
11	8.1. Data Flow Diagram	35
12	8.2.1. Activity Diagram	36
13	8.2.2. Use Case Diagram	40
14	8.2.3. Sequence Diagram	43
15	8.2.4. Collaboration Diagram	44
16	8.2.5 Deployment Diagram	45
17	8.2.6. Class Diagram	46
18	8.3. E-R Notations	47
19	Screen Shots	88



## LIST OF ABBREVIATIONS

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	MCD	Medical Cloud Data
11	DBMS	Database Management System
12	PHS	Patient Health Care System
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

## 1. INTRODUCTION

### 1.1 What is Cloud Computing?

**Cloud computing** is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced

### 1.2 How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.

The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

### 1.3 Characteristics and Service Models:

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

➤ **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.

➤ **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

➤ **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

➤ **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the

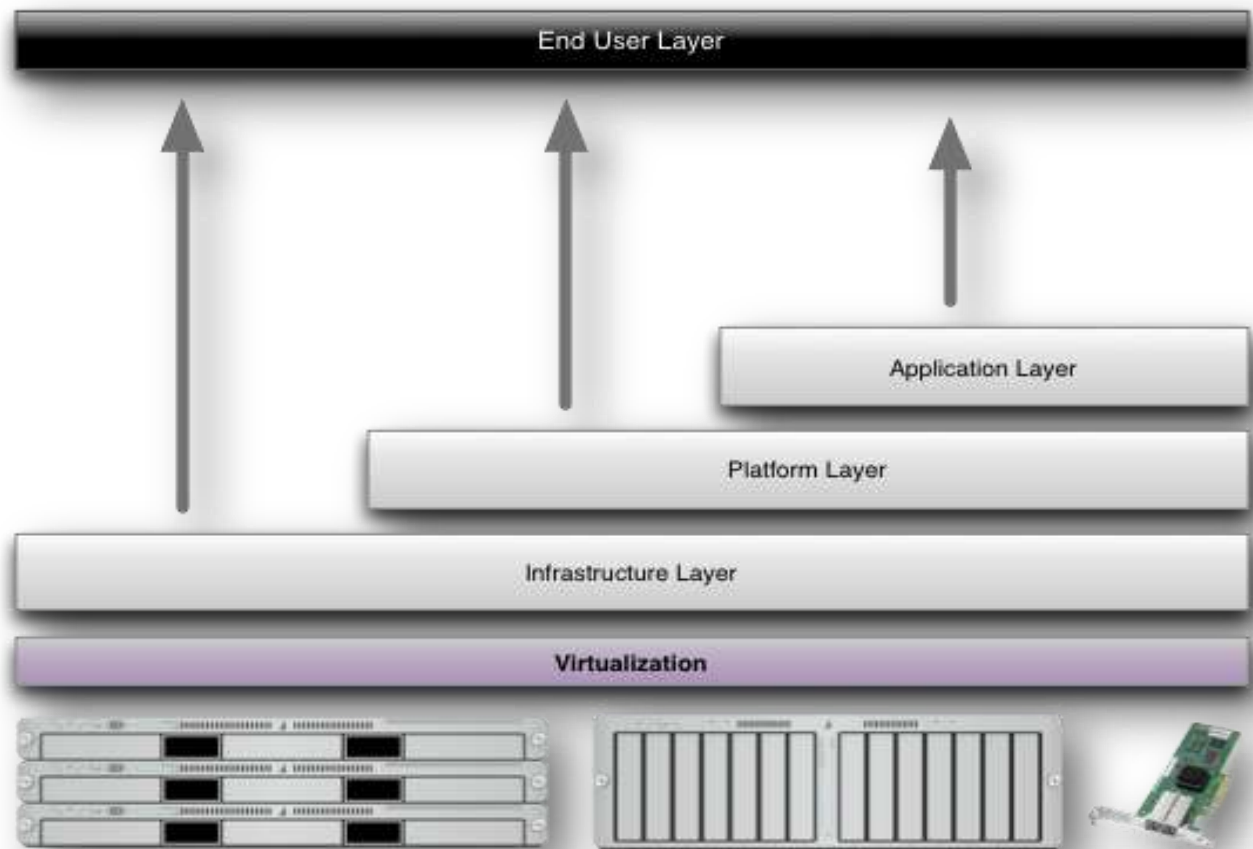
consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

➤ **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

## 1.4 Service Models

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layer are completed by an end user layer

that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.



**Fig 1.3: Structure of service models**

### **1.5 Benefits of cloud computing:**

- 1. Achieve economies of scale** – increase volume output or productivity

with fewer people. Your cost per unit, project or product plummets.

2. **Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
3. **Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
4. **Streamline processes.** Get more work done in less time with less people.
5. **Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
6. **Improve accessibility.** You have access anytime, anywhere, making your life so much easier!
7. **Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
8. **Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
9. **Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
10. **Improve flexibility.** You can change direction without serious "people" or "financial" issues at stake.

## 1.6 Advantages:

- **Price:** Pay for only the resources used.
- **Security:** Cloud instances are isolated in the network from other instances for improved security.
- **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud's core hardware.
- **Scalability:** Auto-deploy cloud instances when needed.

- **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
- **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
- **Traffic:** Deals with spike in traffic with quick deployment of additional

## **2. SYSTEM STUDY**

### **2.1 FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

### **2.2 ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

### **2.3 TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high

demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

## **2.4 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.



## 3. SYSTEM ANALYSIS

### 3.1 EXISTING SYSTEM

The concept of SPE was first proposed by Boneh which supports single keyword search on encrypted data but the computation overhead is heavy. Curtmola refined the definition of SSE later. After this work, Boneh proposed conjunctive, subset, and range queries on encrypted data. Recently in static searchable symmetric encryption, Wang et al. have developed the ranked keyword search scheme and proposed a novel scheme supporting similarity search in However, these schemes cannot efficiently support multi-keyword search. To overcome this problem, Sun et al proposed a multi-keyword scheme which also considers the relevance scores of keywords, and it can achieve efficient query by utilizing the multidimensional tree technique.

In Yu proposed a multi-keyword topk retrieval scheme with fully homomorphic encryption, which can return ranked results and achieve high security. Cao proposed a multi-keyword ranked search scheme, which can return ranked results of searching according to the number of matching keywords and its extended versions achieve higher efficiency. As mentioned by Ren, there still exists many security challenges for public clouds.

### 3.2 DISADVANTAGES OF EXISTING SYSTEM

- The system is not implemented Forward privacy and backward privacy.
- The system is not implemented Attribute-based encryption.

### 3.3 PROPOSED SYSTEM

- ❖ In the proposed system, the system proposes a Secure and Efficient Dynamic Searchable Symmetric Encryption (SEDSSE) scheme over medical cloud data. This work extends and improves our previous research. Specifically, this paper addresses two new issues: the collusion between the cloud server and search users as well as different secret key distribution among search users. In addition, we apply the new design to the health care system. Furthermore, the security and performance are analyzed. The original contributions of the paper are:

- ❖ Firstly, the system combines the k-Nearest Neighbor (kNN) and Attribute-Based Encryption (ABE) techniques to propose a Secure and Efficient Dynamic Searchable Symmetric Encryption scheme, named SEPSSE I. The proposed scheme can achieve forward privacy, backward privacy, and collusion resistance between the cloud server and search users.

- ❖ Secondly, based on the scheme, we further propose an enhanced scheme, named SEPSSE II to solve the key sharing problem which widely exists in the kNN based searchable encryption schemes. Compared with the existing DSSE schemes, our proposed schemes are have less storage costs, search and updating complexity. Extensive experiments demonstrate the efficiency of our schemes in term of storage overhead, index building, trapdoor generating and query.

### **3.4 ADVANTAGES OF PROPOSED SYSTEM**

- The system implemented very strong security scheme of Privacy protection of documents, indexes and trapdoors.
- The system provides Collusion resistance between the cloud server and search Users.

## 4. SOFTWARE MODULES

### 4.1 MODULES

- PATIENT
- CLOUD SERVER
- DOCTOR
- ATTACKER

MODULES	DESCRIPTION
---------	-------------

#### **Patient**

In this module, the Patient maintained their data in the server. The Patient can have capable of manipulating data file and performs the following operations Upload patient details, ENC Attached Document, View uploaded patient detail, View treatment schedule date & time from doctor, Delete files/ patient detail, Verify patient details, Manage bank account, View your bill & make payment.

#### **Cloud server**

In this module, the Cloud server maintained their data in the server. The Cloud server can have capable of manipulating data file and performs the following operations Add hospitals & department, View patients & authorize, View Doctors & authorize, View patient disease details & related doctor details in ABE formate, View all patient results from doctor, Make bill & view total bill, View all patient treatment schedule transactions, View chart results.

#### **Doctor**

In this module, the Cloud server maintained their data in the server. The Cloud server can have capable of manipulating data file and performs the following operations View profile, View patient details & send request acceptance for patient with treatment scheduled date & time, Add treatment details based on Disease to corresponding patient, View all scheduled patient details.

#### **Attacker**

In this module, he login and the do operations like attacker patient details

## 5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

### 5.1 SYSTEM ARCHIECTURE

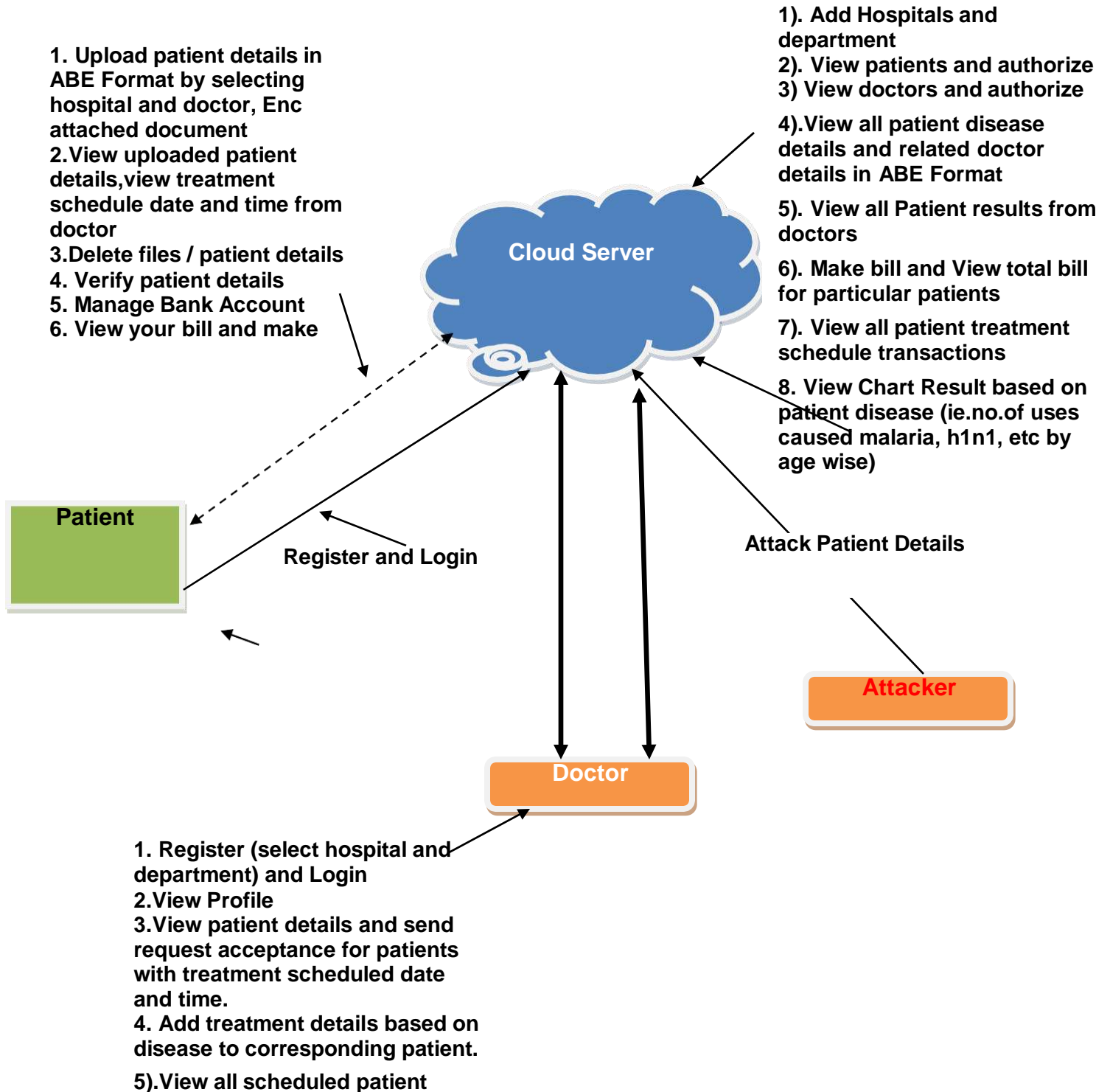


Fig 5.1 System Architecture

### 5.2 DATAFLOW DIAGRAM

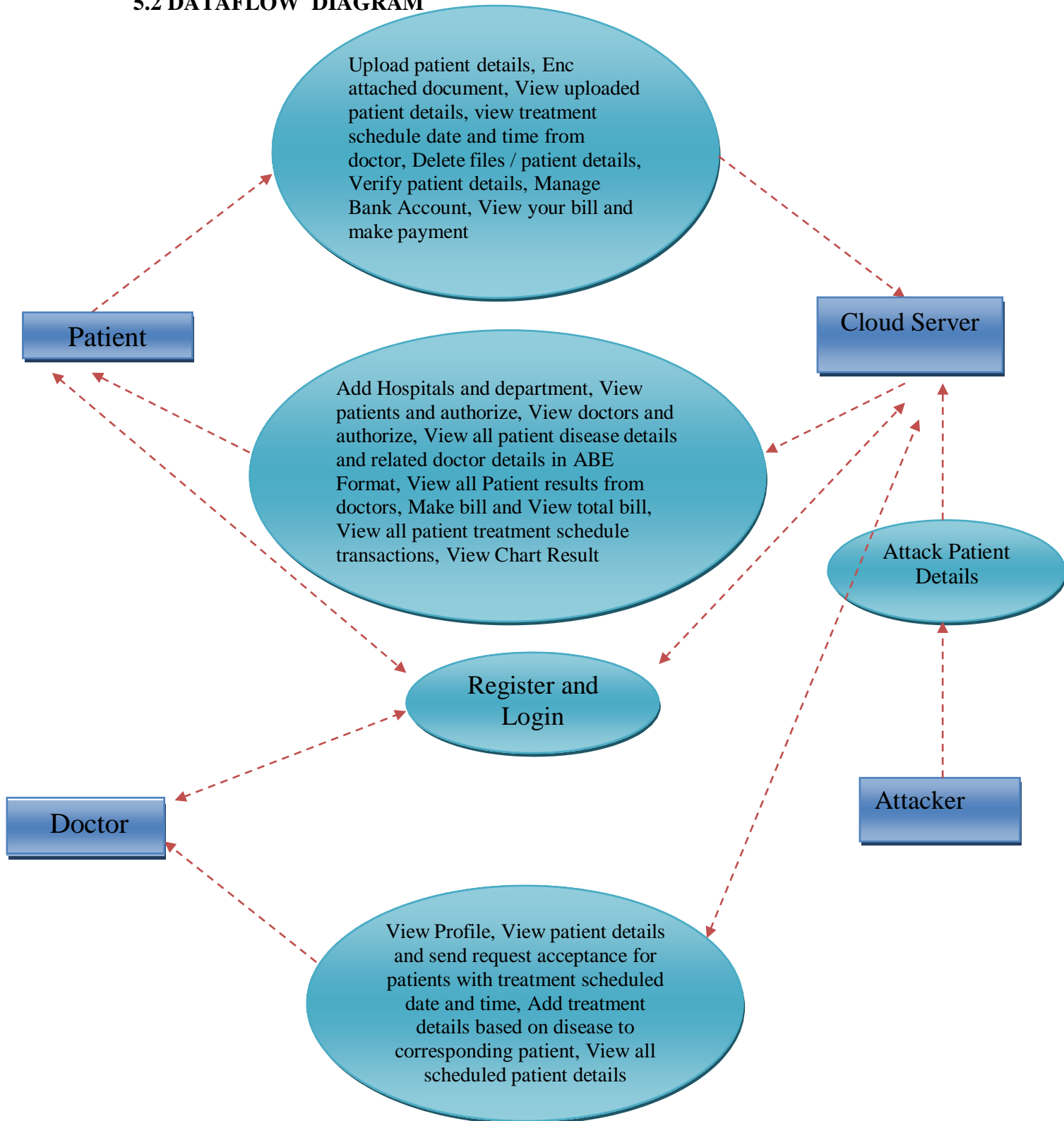


Fig 5.2 DataFlow Diagram

## 6.SOFTWARE ENVIRONMENT

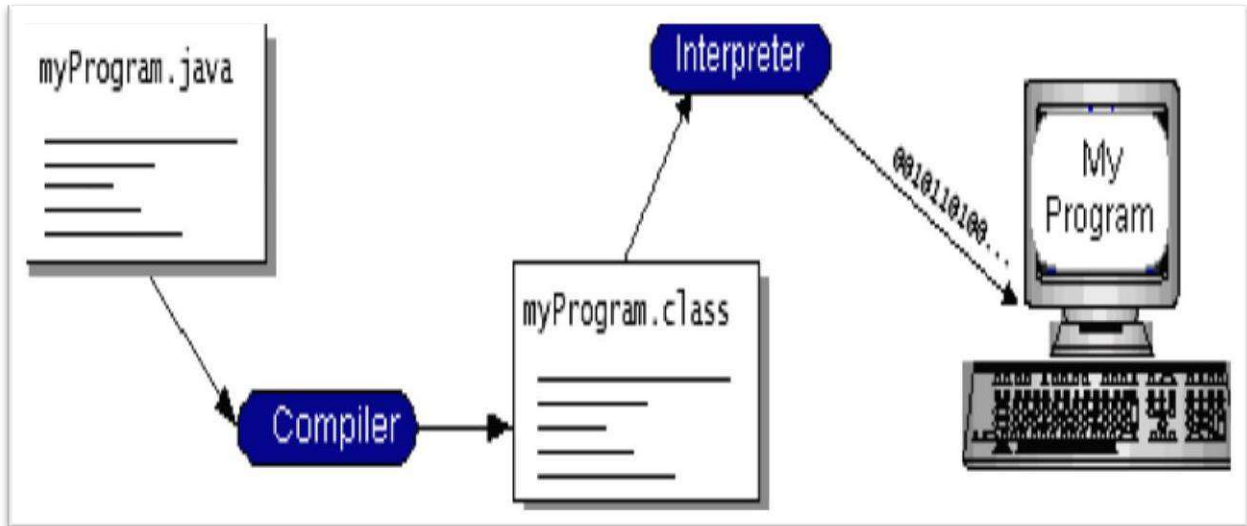
### 6.1 JavaTechnology

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

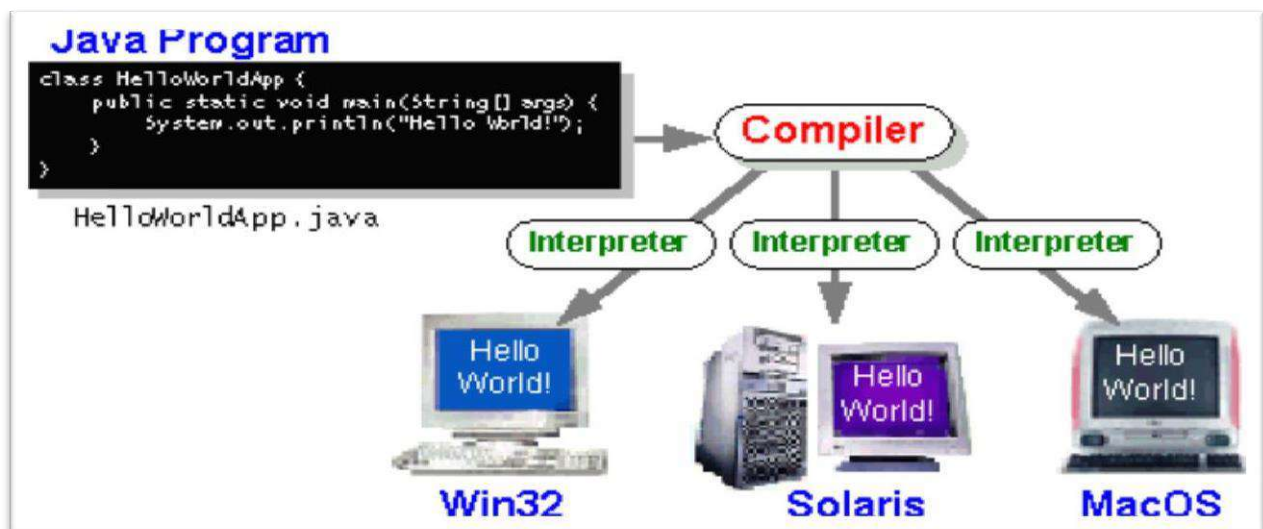




**Fig 6.1: Program Compilation and Interpretation**

### 6.2 Executin for different platforms

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it’s a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming



language can run on Windows 2000, a Solaris workstation, or on an iMac.

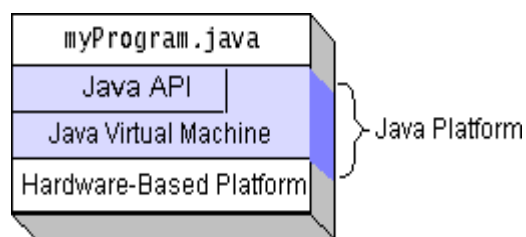
**Fig 6.2: Execution for different platforms**

### 6.3 The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.



**Fig 6.3: Java Platform**

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance close to that of native code without threatening portability.

## 6.4 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.
- **Security:** Both low level and high level, including electronic

signatures, public and private key management, access control, and certificates.

- **Software components:** Known as JavaBeans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a widerange of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

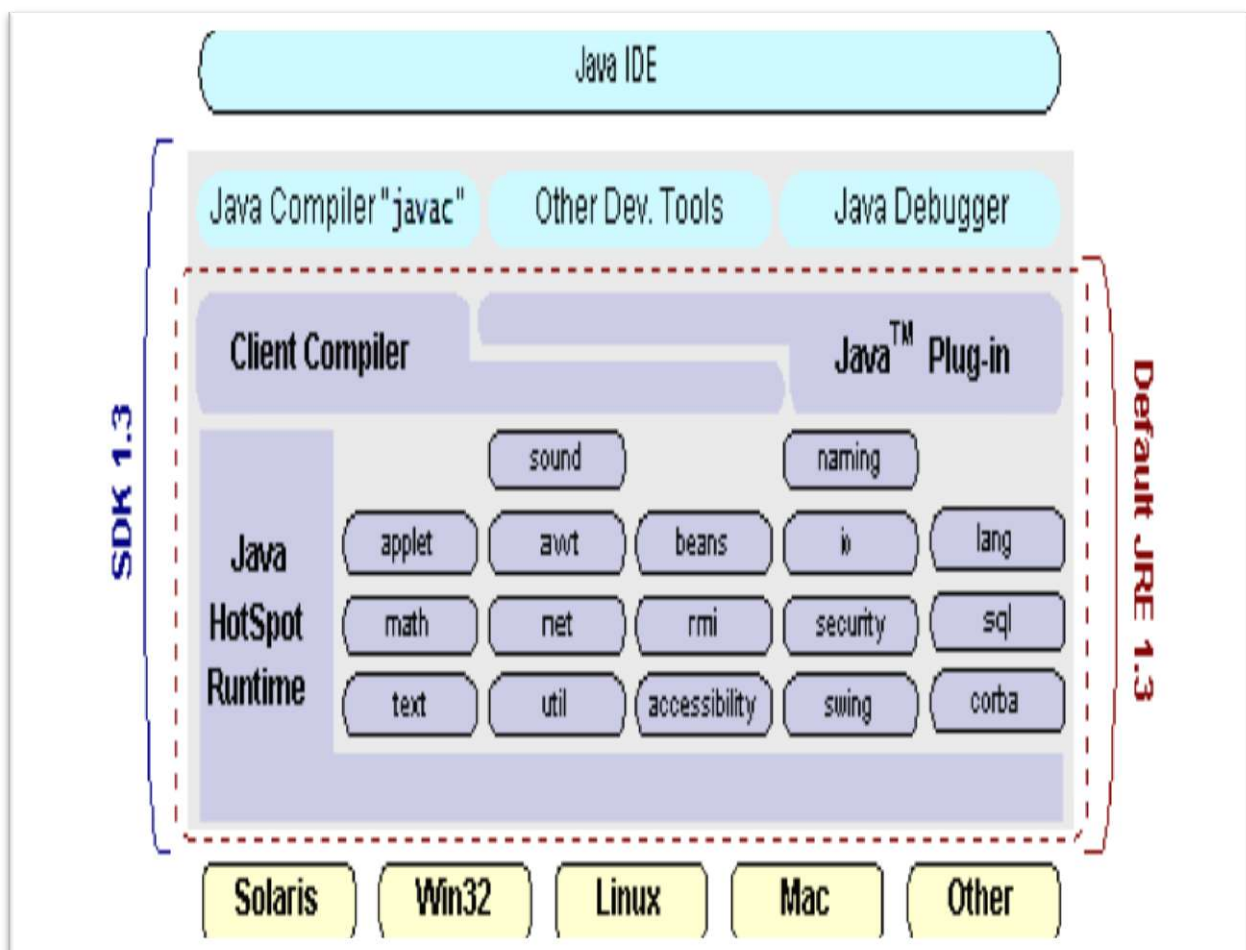


Fig 6.4: Java IDE

## How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a

central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

## **ODBC**

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two

as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a

client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

## **JDBC**

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC



drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

## **JDB**

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

### **SQL Level**

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.

### **SQL Conformance**

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through to the underlying database driver. This allows the connectivity module to handle non- standard functionality in a manner that is



suitable for its users.

### **JDBC must be implemental on top of common database interfaces**

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

### **Provide a Java interface that is consistent with the rest of the Java system**

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

### **Keep it simple**

This goal probably appears in all software design goal listings. JDBC is no exception. Sun felt that the design of JDBC should be very simple, allowing for only one method of completing a task per mechanism. Allowing duplicate functionality only serves to confuse the users of the API.

### **Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

### **Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java

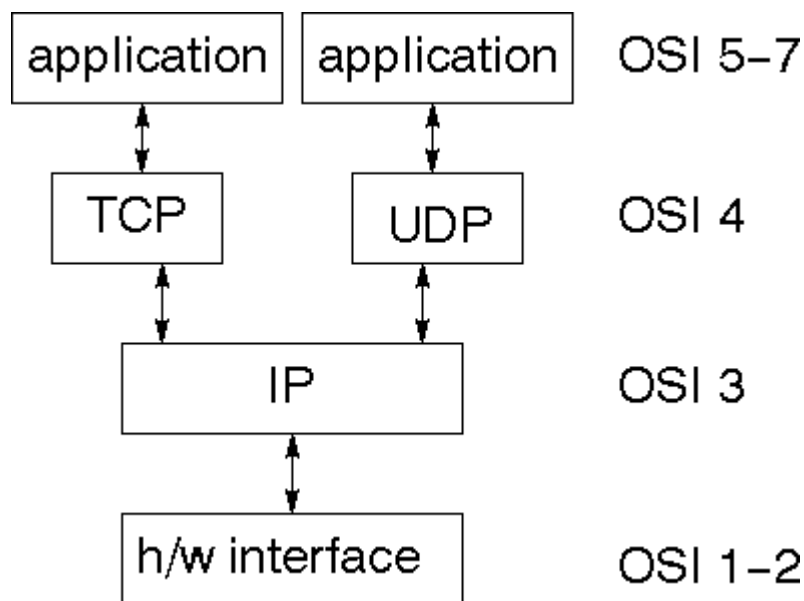
program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

## Networking

### TCP/IP stack

The TCP/IP stack is shorter than the OSI one:



**Fig 6.5: TCP is a connection-oriented protocol, UDP (User Datagram Protocol)**

## **IP datagram's**

The IP layer provides a connectionless and unreliable delivery system. It considers each datagram independently of the others. Any association between datagram must be supplied by the higher layers. The IP layer supplies a checksum that includes its own header. The header includes the source and destination addresses. The IP layer handles routing through an Internet. It is also responsible for breaking up large datagram into smaller ones for transmission and reassembling them at the other end.

### **6.6 UDP**

UDP is also connectionless and unreliable. What it adds to IP is a checksum for the contents of the datagram and port numbers. These are used to give a client/server model - see later.

### **TCP**

TCP supplies logic to give a reliable connection-oriented protocol above IP. It provides a virtual circuit that two processes can use to communicate.

### **Internet addresses**

In order to use a service, you must be able to find it. The Internet uses an address scheme for machines so that they can be located. The address is a 32 bit integer which gives the IP address. This encodes a network ID and more addressing. The network ID falls into various classes according to the size of the network address.

### **Network address**

Class A uses 8 bits for the network address with 24 bits left over for other addressing. Class B uses 16 bit network addressing. Class C uses 24 bit network

addressing and class D uses all 32.

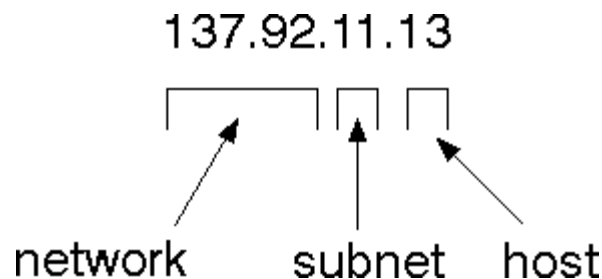
### Subnet address

Internally, the UNIX network is divided into sub networks. Building 11 is currently on one sub network and uses 10-bit addressing, allowing 1024 different hosts.

### Host address

8 bits are finally used for host addresses within our subnet. This places a limit of 256 machines that can be on the subnet.

### Total address



**Fig 6.6:** The 32 bit address is usually written as 4 integers separated by dots.

### Port addresses

A service exists on a host, and is identified by its port. This is a 16 bit number. To send a message to a server, you send it to the port for that service of the host that it is running on. This is not location transparency! Certain of these ports are "well known".

## SOCKETS

A socket is a data structure maintained by the system to handle network

connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
> #include
<sys/socket.
h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

## **JFREE CHART**

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

### **Map Visualizations**

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world.

The tasks in this project include. Sourcing freely redistributable vector outlines for

the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting somemore.

### **Time Series Chart Interactivity**

Implement a new (to JFreeChart) feature for interactive time series charts -- - to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

### **Dashboards**

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

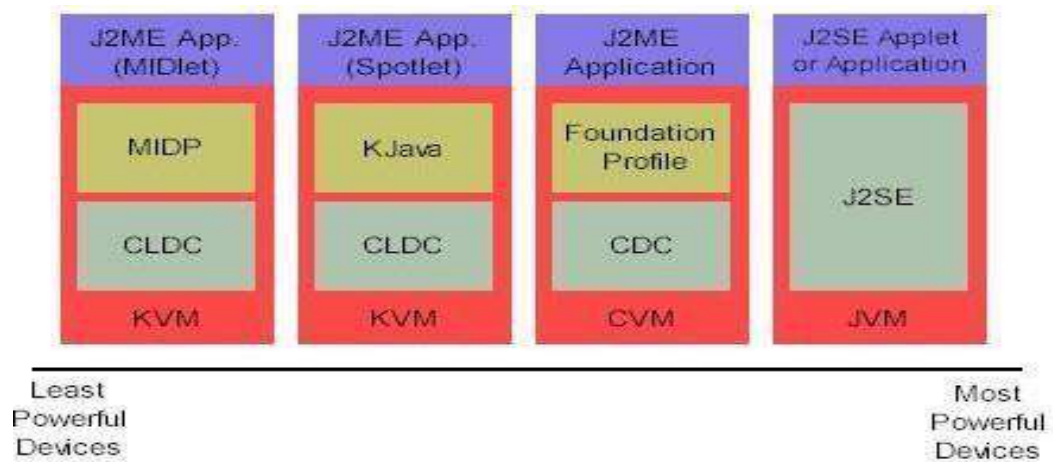
### **Property Editors**

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

## **6.7 J2ME (Java 2 Micro edition)**

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the JavaOne Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

### General J2ME architecture



**Fig 6.7: General J2ME Architecture**

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

### Developing J2ME applications

Introduction In this section, we will go over some considerations you need

to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

### **Design considerations for small devices**

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

### **Configurations overview**

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:



- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

## J2ME PROFILES

### What is a J2ME profile?

As we mentioned earlier in this tutorial, a profile defines the type of device supported. The Mobile Information Device Profile (MIDP), for example, defines classes for cellular phones. It adds domain-specific classes to the J2ME configuration to define uses for similar devices. Two profiles have been defined for J2ME and are built upon CLDC: KJava and MIDP. Both KJava and MIDP are associated with CLDC and smaller devices. Profiles are built on top of configurations. Because profiles are specific to the size of the device (amount of memory) on which an application runs, certain profiles are associated with certain configurations. A skeleton profile upon which you can create your own profile, the Foundation Profile, is available for CDC.

### Profile 1: KJava

Java is Sun's proprietary profile and contains the KJava API. The KJava profile is built on top of the CLDC configuration. The KJava virtual machine, KVM, accepts the same byte codes and class file format as the classic J2SE virtual machine. KJava contains a Sun-specific API that runs

on the Palm OS. The KJava API has a great deal in common with the J2SE Abstract Windowing Toolkit (AWT). However, because it is not a standard J2ME package, its main package is `com.sun.kjava`. We'll learn more about the KJava API later in this tutorial when we develop some sample applications.

## Profile 2: MIDP

MIDP is geared toward mobile devices such as cellular phones and pagers. The MIDP, like KJava, is built upon CLDC and provides a standard run-time environment that allows new applications and services to be deployed dynamically on end user devices. MIDP is a common, industry-standard profile for mobile devices that is not dependent on a specific vendor. It is a complete and supported foundation for mobile application development. MIDP contains the following packages, the first three of which are core CLDC packages, plus three MIDP-specific packages.

1. `java.lang`
2. `java.io`
3. `java.util`
4. `javax.microedition.io`
5. `javax.microedition.lcdui`
6. `javax.microedition.midlet`
7. `javax.microedition.rms`

## **7.SYSTEM REQUIREMENTS**

### **7.1 HARDWARE REQUIREMENTS**

- Processor : Intel (R) Core (TM) i3-4200U
- CPU : 1.6 GHz
- RAM : 4 GB
- Hard Disk : 40 GB.

### **SOFTWARE REQUIREMENTS**

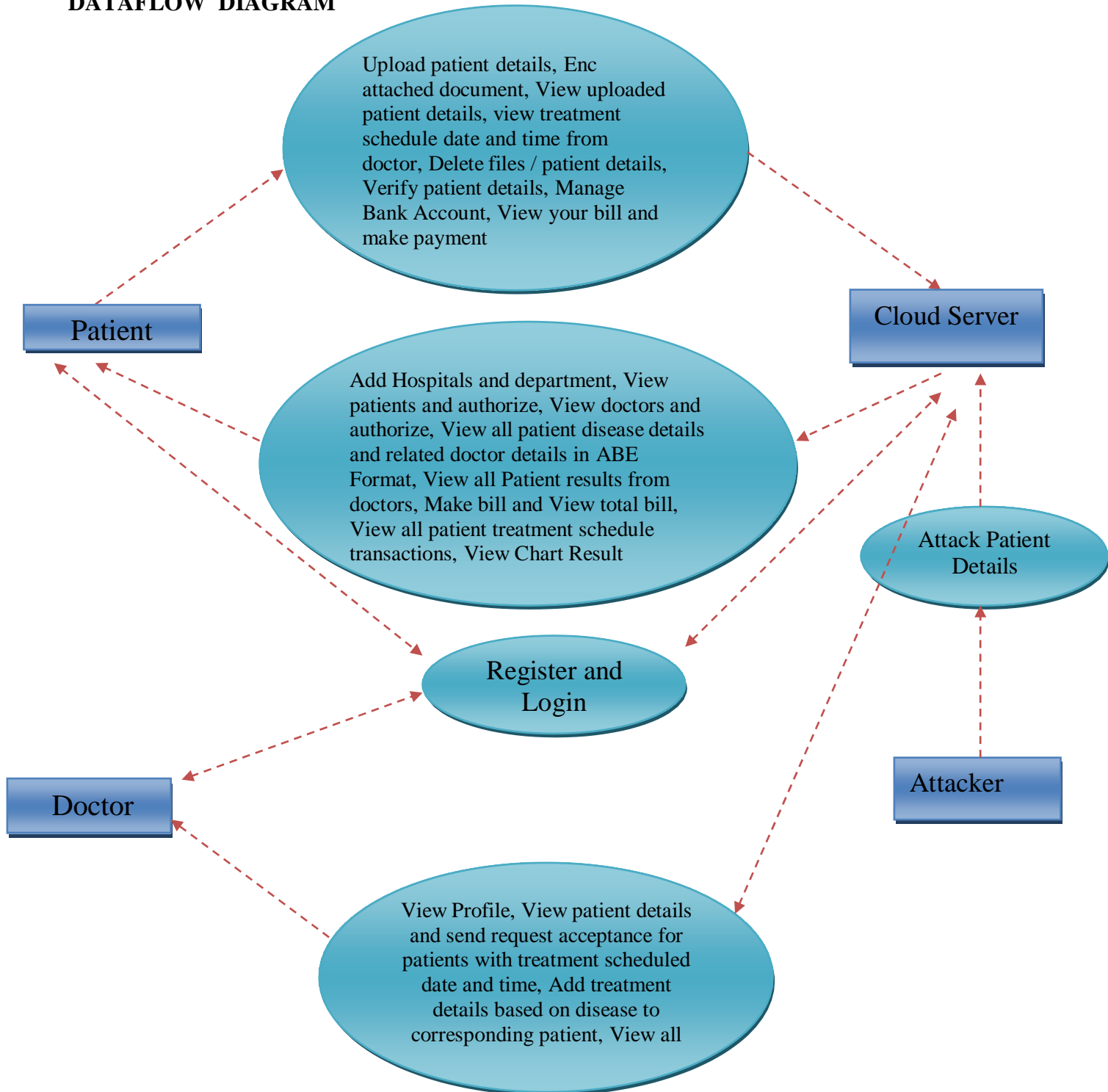
- Operating System : windows 7 / 8.1 / 10
- Server : Apache Tomcat 6
- Database : MYSQL Server 5.0
- Frontend : HTML, CSS, JS
- Backend : JSP

## 8.SYSTEM DESIGN

### 8.1DATAFLOW DIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction. DFD may be partitioned into levels that represent increasing information flow and functional detail.

**DATAFLOW DIAGRAM**



**Fig 8.1 DATAFLOW DIAGRAM**

## 8.2 UML DIAGRAMS

### Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

#### Activity Diagram for patient

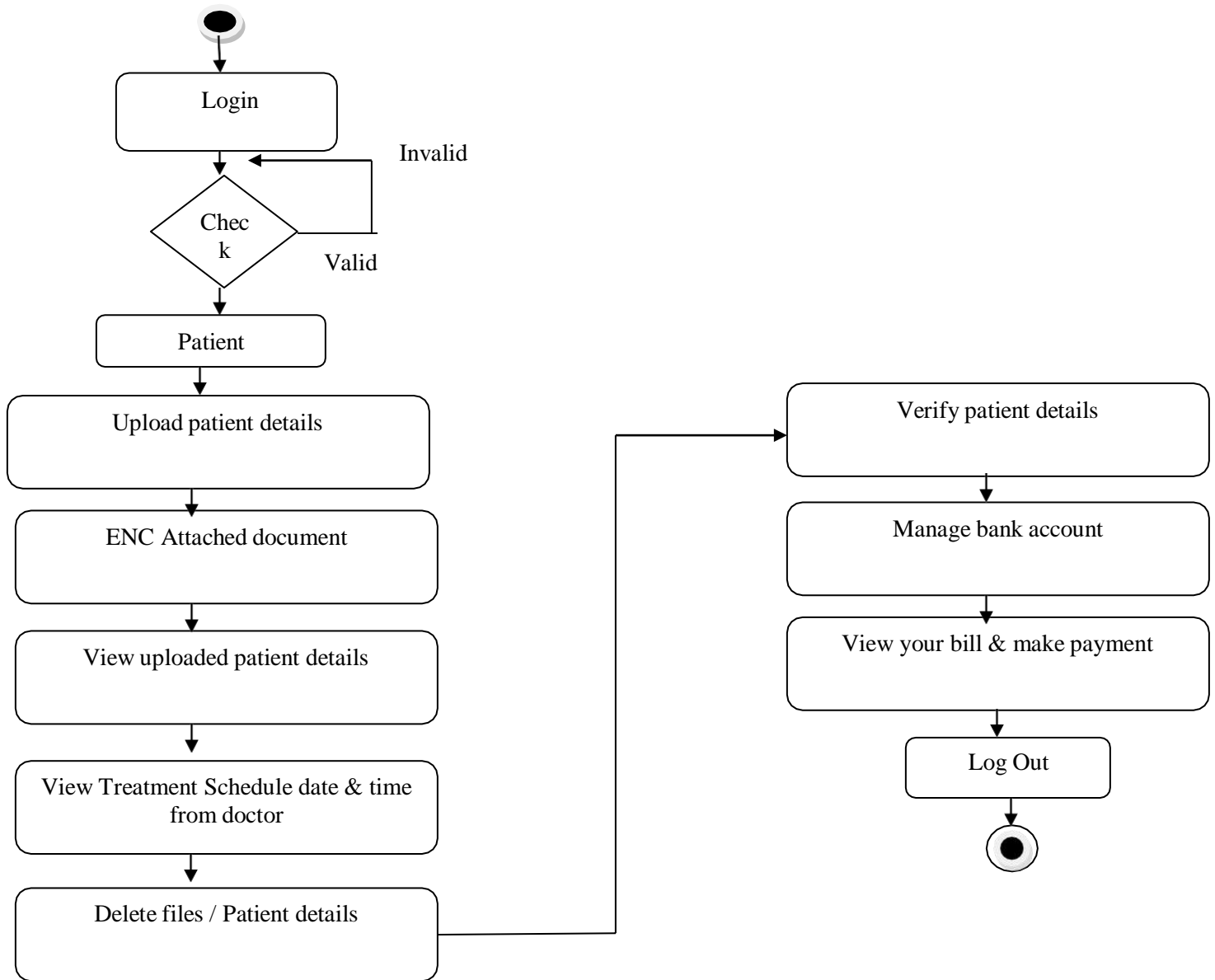


Fig 8.2.1.1 Activity Diagram for Patient

Activity Diagram for Cloud Server

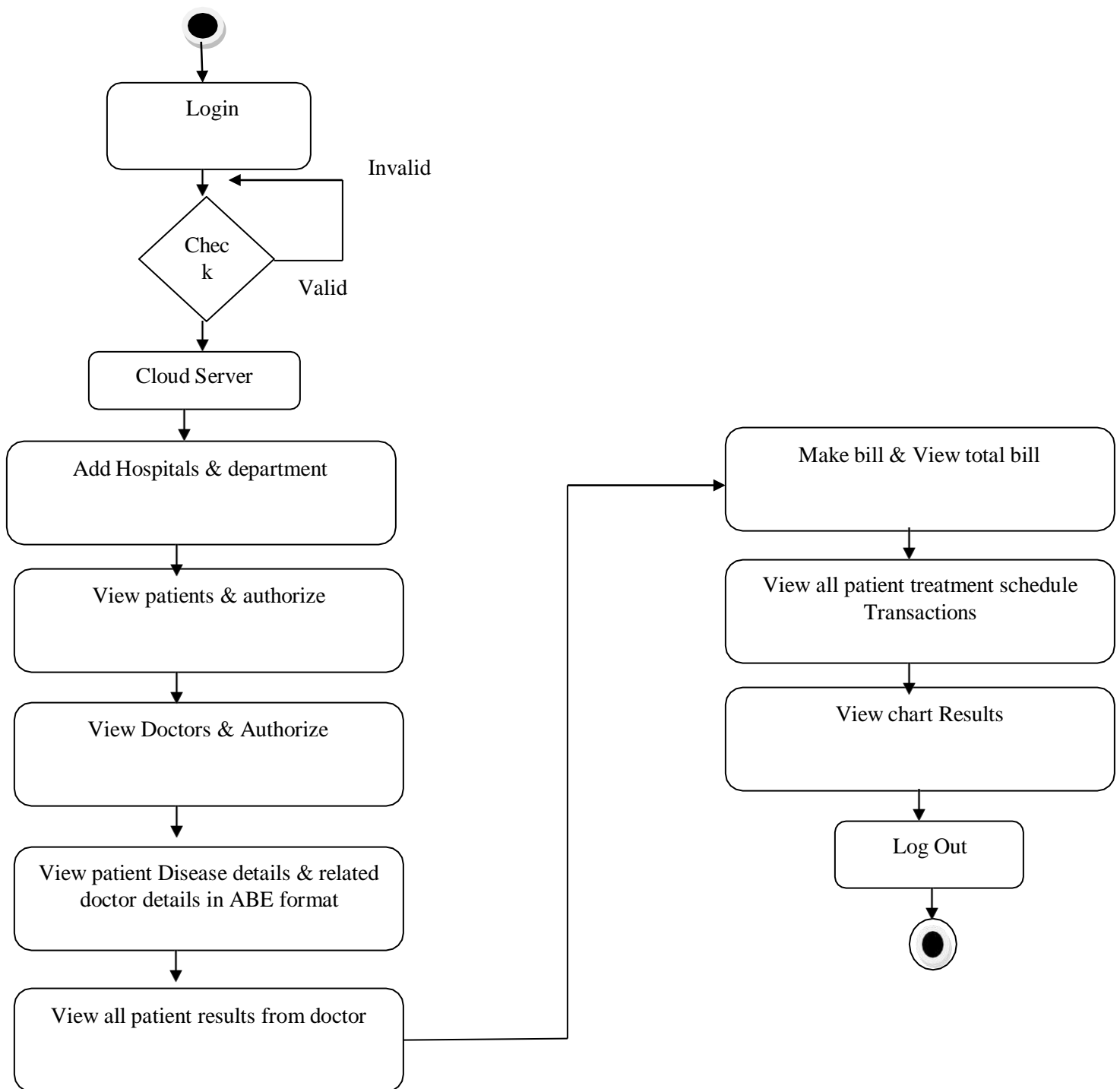
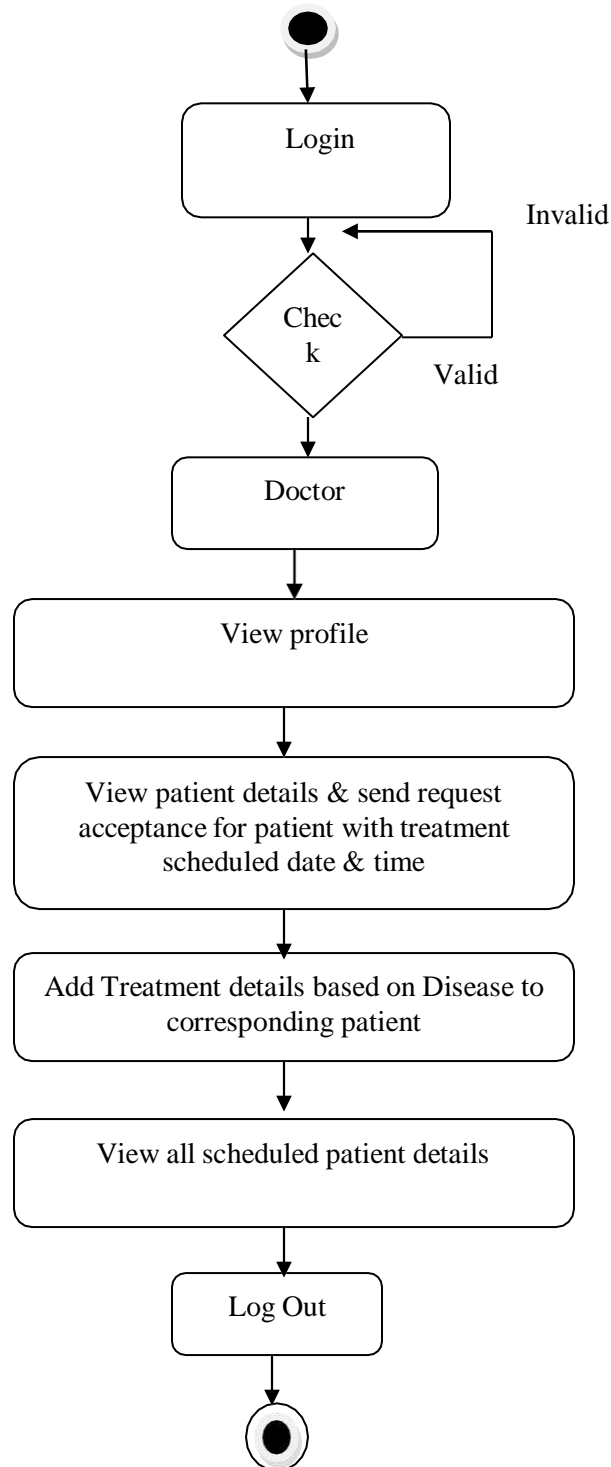


Fig 8.2.1.2 Activity Diagram for Cloud server

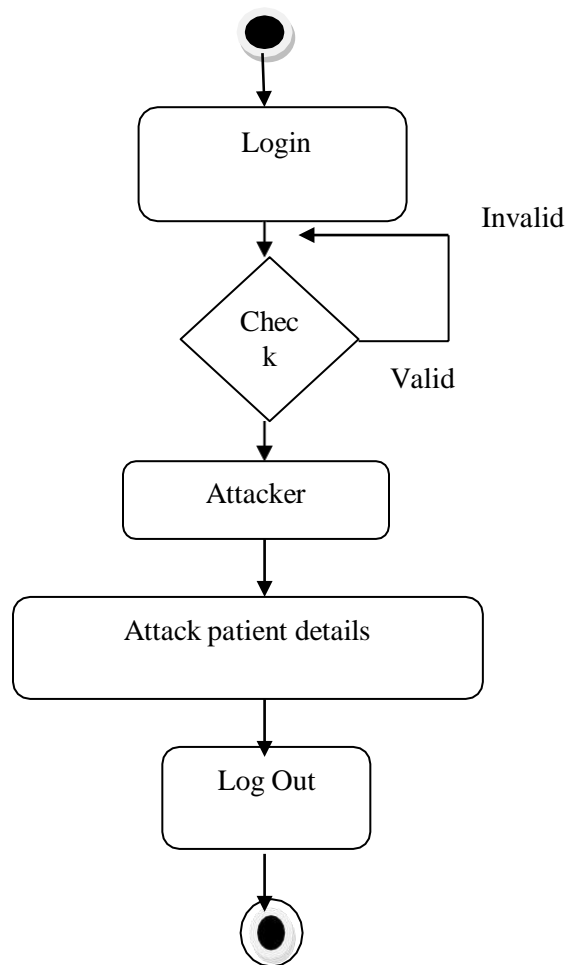
**Activity Diagram for Doctor**



**Fig 8.2.1.3 Activity Diagram for Doctor**



### Activity Diagram for attacker



**Fig 8.2.1.4 Activity Diagram for Attacker**

### Use Case Diagram

A Use case diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

#### Use Case Diagram for Patient

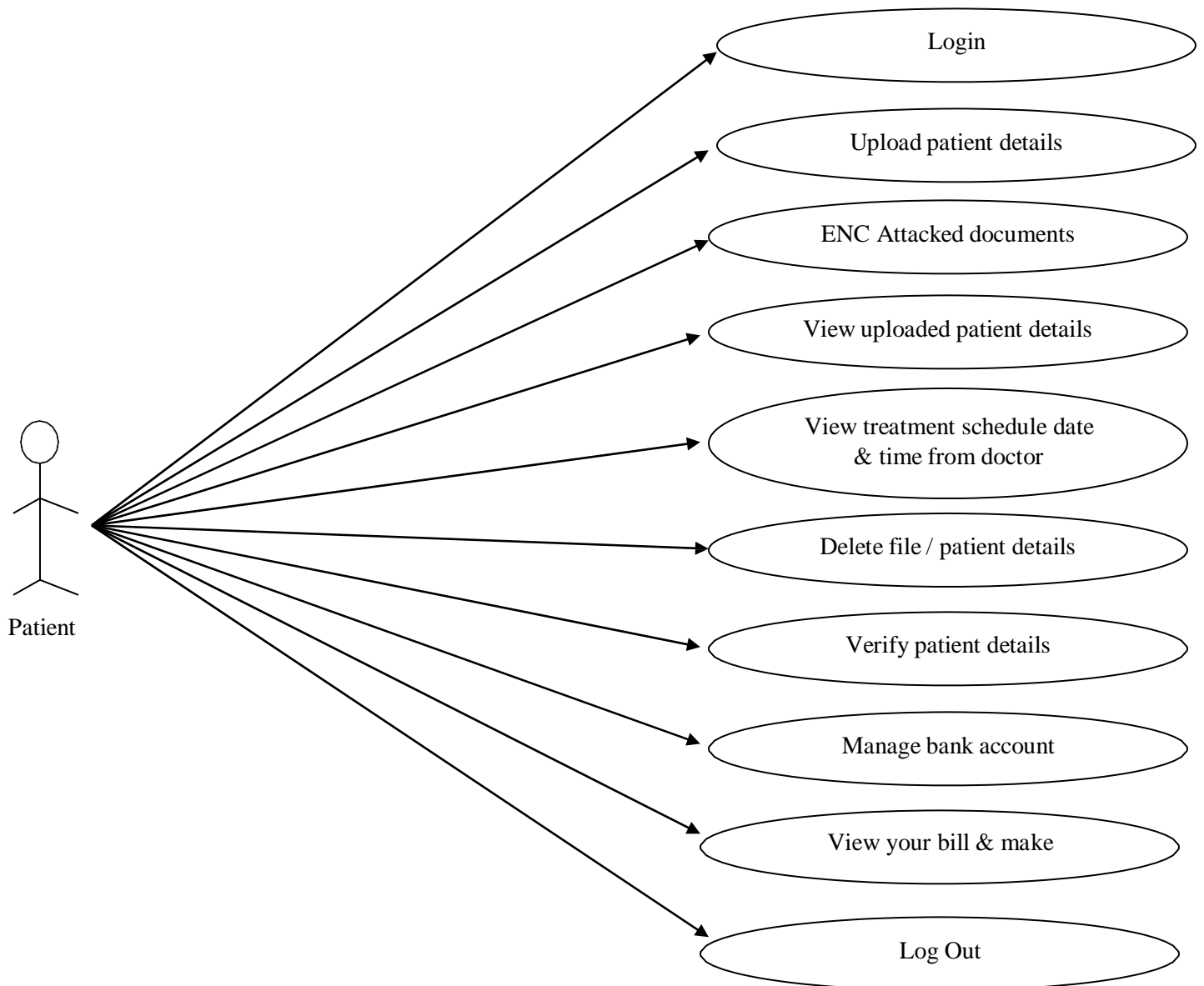


Fig 8.2.2.1 Use case Diagram for patient

Use Case Diagram for Cloud Server

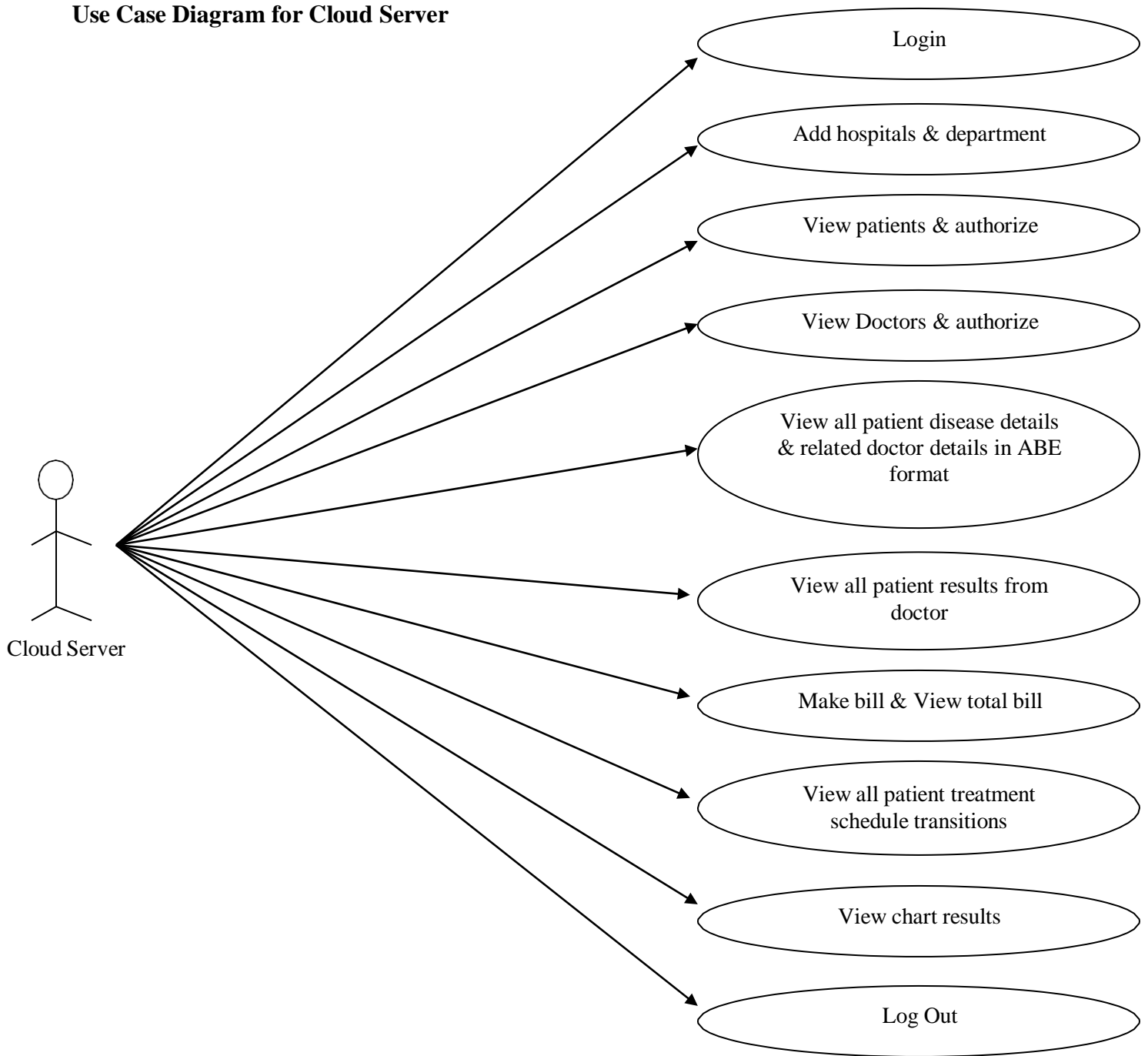
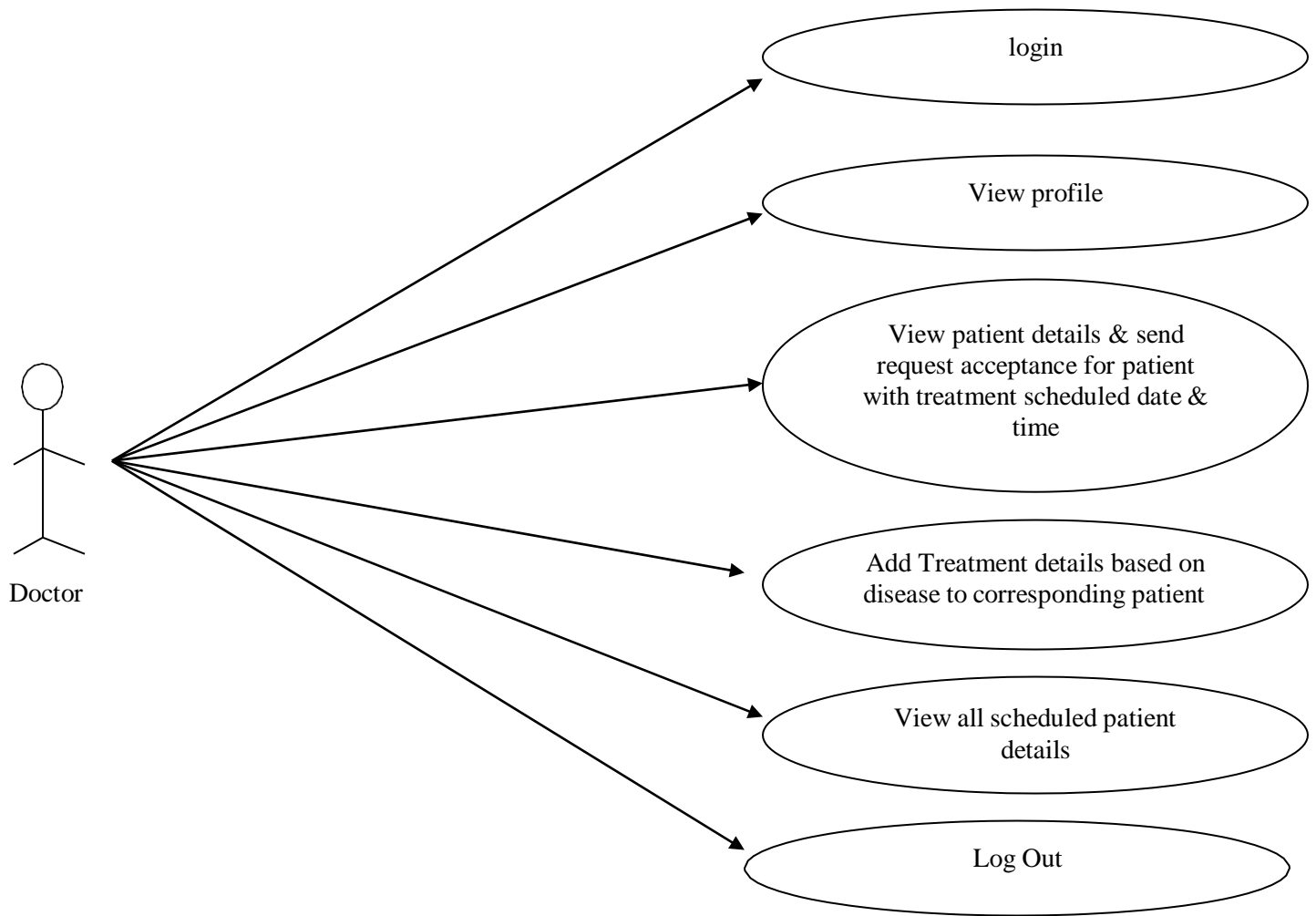


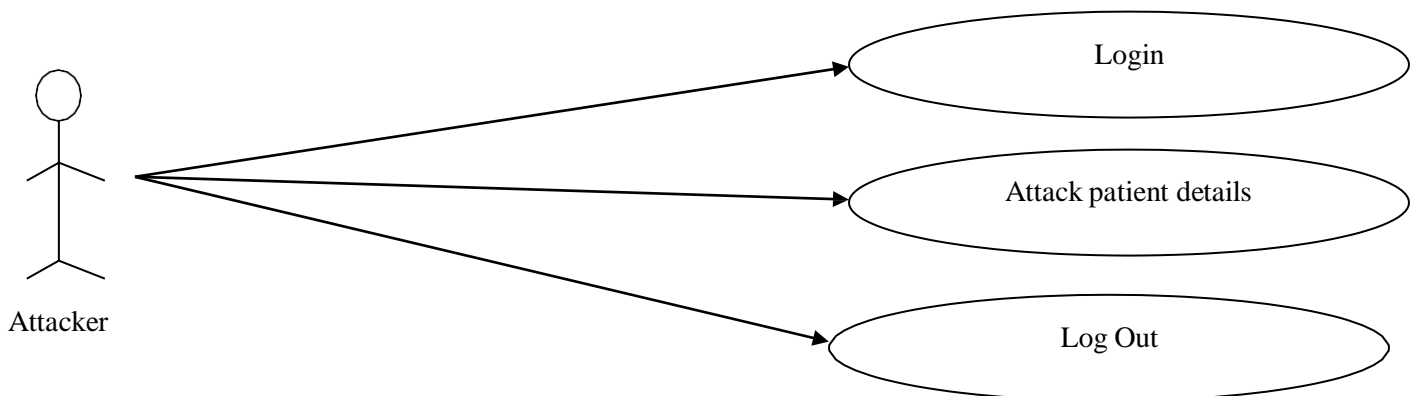
Fig 8.2.2.2 Use Case Diagram for Cloud Server

**Use Case Diagram for Doctor**



**Fig 8.2.2.3 Use Case Diagram for Doctor**

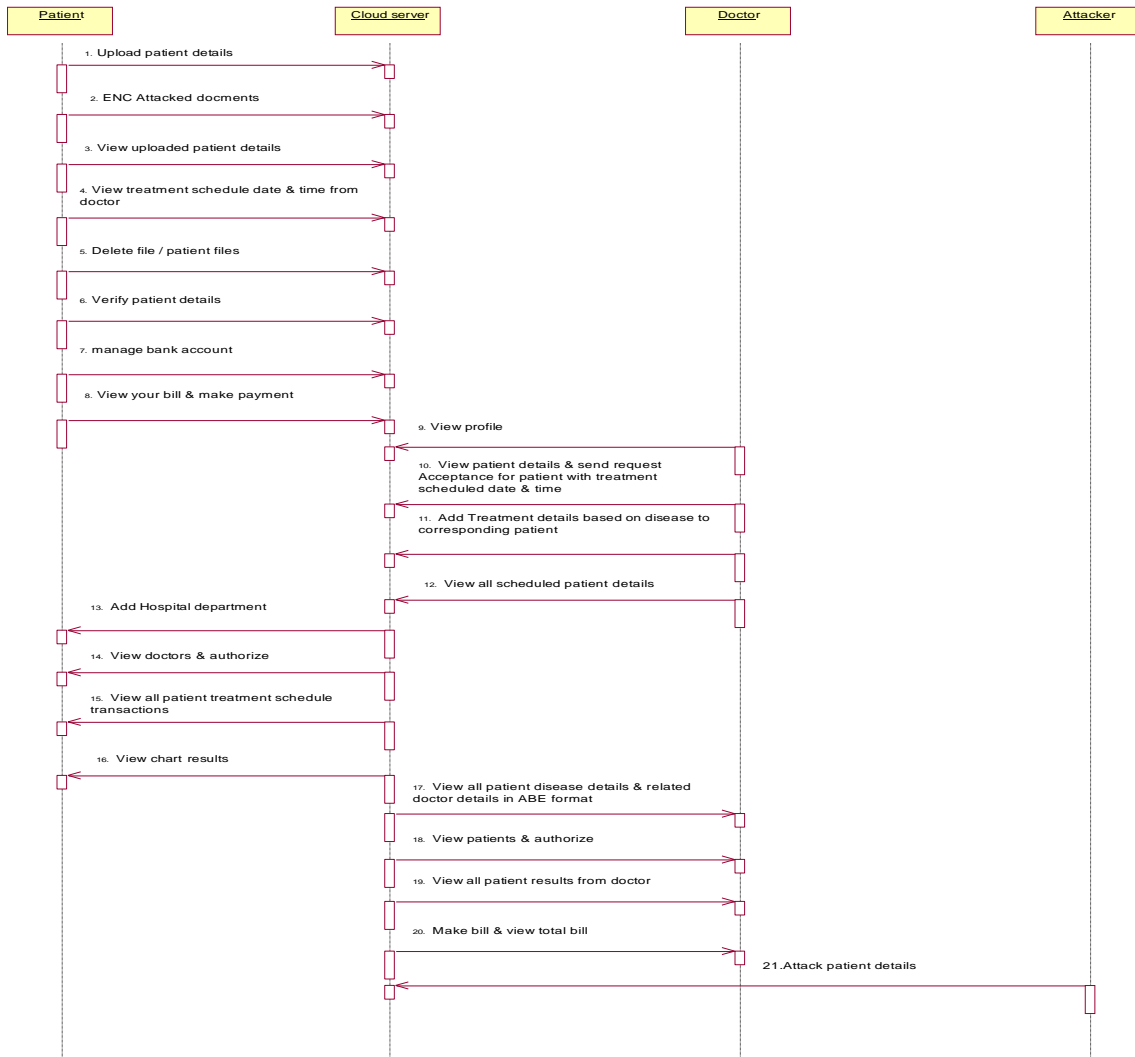
**Use Case Diagram for Attacker**



**Fig 8.2.2.4 Use Case Diagram for attackers**

## Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.



**Fig 8.2.3 Sequence Diagram**

### Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

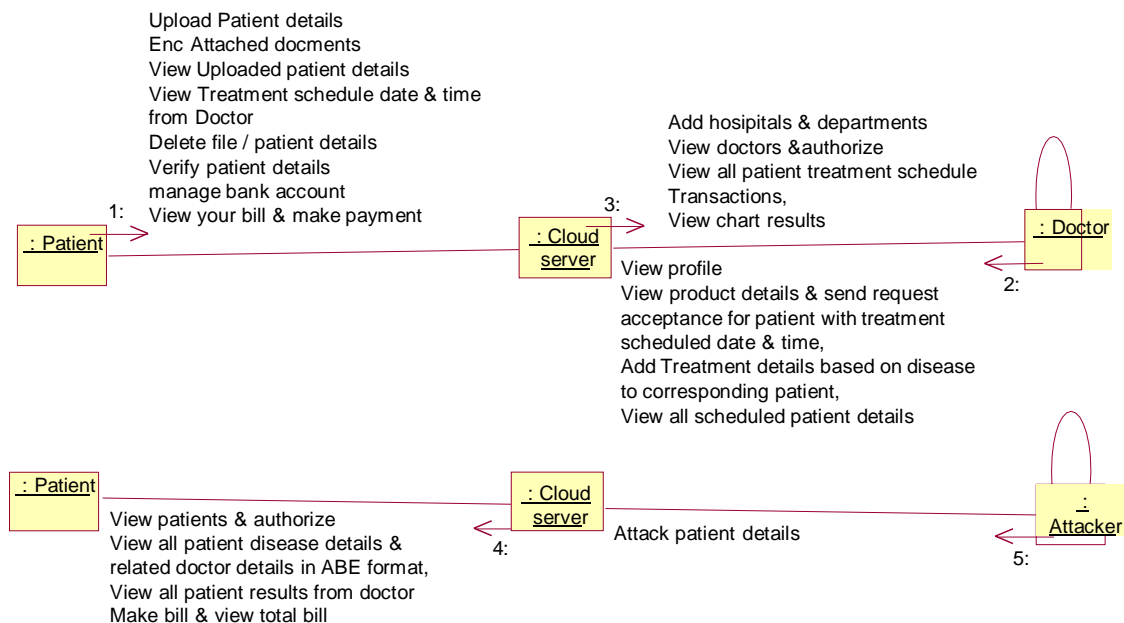
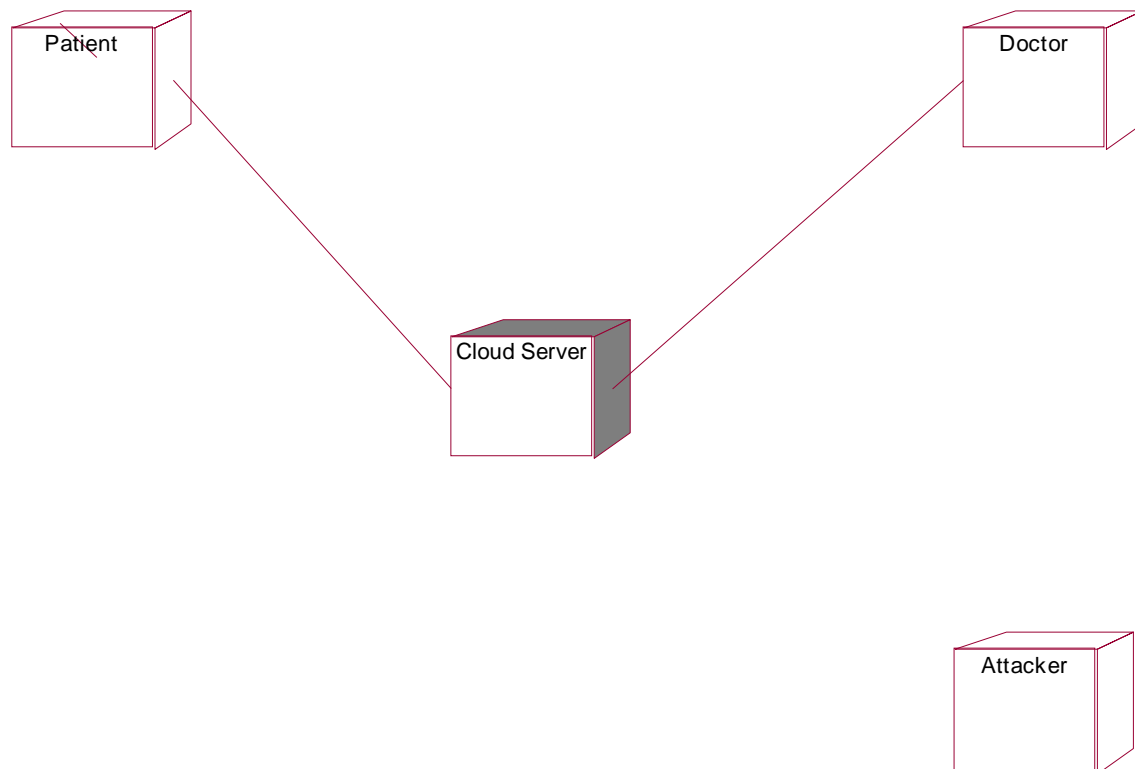


Fig 8.2.4 Collaboration Diagram

## Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.



**Fig8.2.5 Deployment diagram**

### Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.

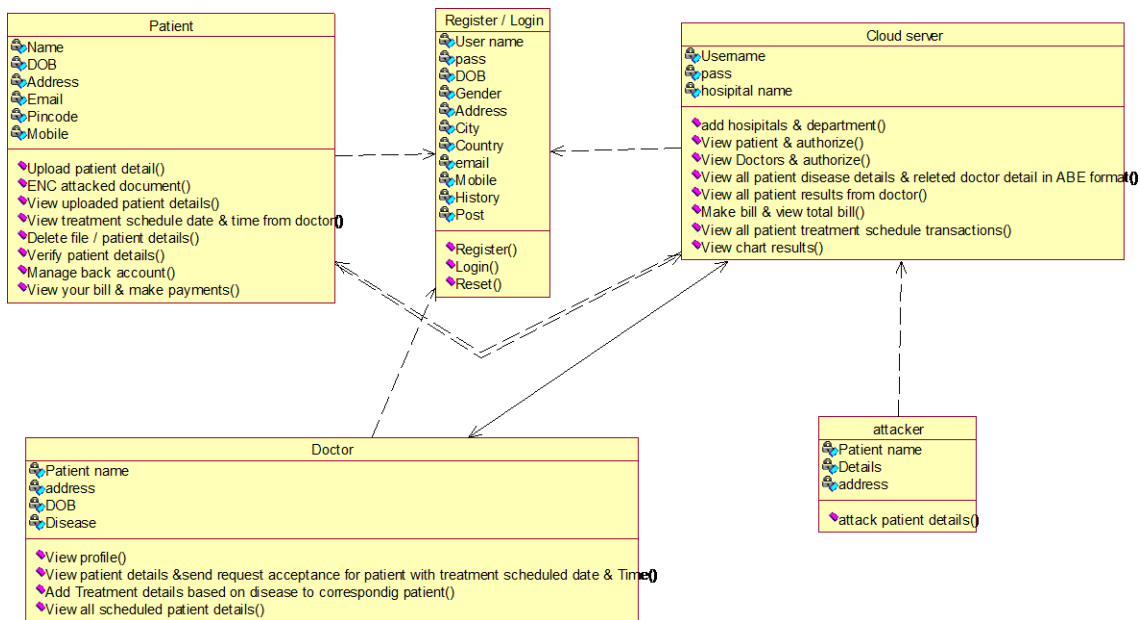
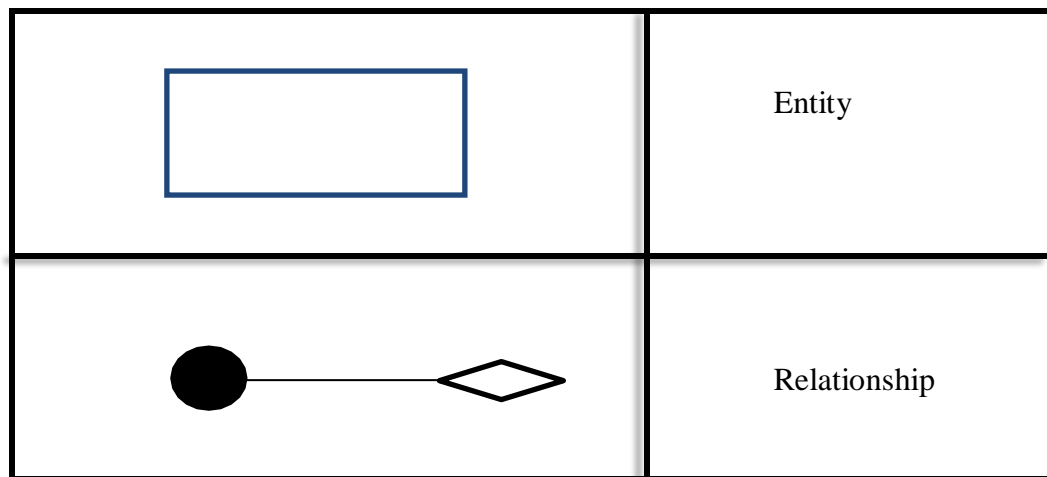


Fig 8.2.6 Class Diagram



### E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.



**Fig 8.3: E-R Notations**

## 9. IMPLEMENTATION

### 9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### 9.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections of the
  - Future.
  - Signal important events, opportunities, problems, or warnings.
  - Trigger an action.
  - Confirm an action.

## CODING

### Index.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<title>Home Page</title>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

<link href="style.css" rel="stylesheet" type="text/css" />

<script type="text/javascript" src="js/cufon-yui.js"></script>

<script type="text/javascript" src="js/georgia.js"></script>

<script type="text/javascript" src="js/cuf_run.js"></script>

<style type="text/css">

<!--

.style1 { font-size: 23px}

.style3 { font-size: 18}

.style2

{ color: #FF0000;

 font-weight: bold;

}

.style4 {color: #FF0000}

-->

</style>
```

```
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
 <h1>Achieving Secure and
Efficient Dynamic

 Searchable Symmetric Encryption over

 Medical Cloud Data</h1>
 </div>
 <div class="menu_nav">

 <li class="active">Home
 Patient
 Doctor
 Cloud Server

 <div class="clr"></div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
```

```
<div class="content_resize">
```

```
<div class="mainbar">
```

```
<div >
```

```
<h2>Introduction</h2>
```

```
<p> </p>
```

```

```

```
<p align="justify">In medical cloud computing, a patient can remotely outsource her medical data to the cloud server. In this case, only authorized doctors are allowed to access the data since the medical data is highly sensitive. Encrypting the data before outsourcing is a commonly used approach, where the patient only needs to send the corresponding encryption key to the authorized doctors. This, however, significantly limits the usability of outsourced medical data due to the difficulty of searching over the encrypted data. In this paper, we propose two Secure and Efficient Dynamic Searchable Symmetric Encryption (SEDSSE) schemes over medical cloud data. Firstly, we leverage the secure k-Nearest Neighbor (kNN) and Attribute-Based Encryption (ABE) techniques to propose a dynamic searchable symmetric encryption scheme, which can achieve two important security features, i.e., forward privacy and backward privacy which are very challenging in the area of dynamic searchable symmetric encryption. Then, we propose an enhanced scheme to solve the key sharing problem which widely exists in the kNN based searchable encryption scheme. Compared with existing proposals, our schemes are better in terms of storage, search and updating complexity. Extensive experiments demonstrate the efficiency of our schemes on storage overhead, index building, trapdoor generating and query.</p>
```

```
</div>
```

```
</div>
```

```
<div class="sidebar">
```

```
<div class="gadget">
```

```
<h2 class="star">Menu</h2>
```

```
<ul class="sb_menu">
```

```
Home
```

```
Patient
```

```
Doctor
Cloud Server

</div>
<div class="gadget">
<h2 class="star">Concepts

</h2>
<ul class="ex_menu">
Health care,

<li class="style2">Searchable encryption,
<li class="style2">Dynamic updating,
<li class="style4">Attribute-based encryption

</div>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
```

</html>

## **Style.css**

/\*

Design by <http://www.bluewebtemplates.com>

Released for free under a Creative Commons Attribution 3.0 License

\*/

@charset "utf-8";

body { margin:0; padding:0; width:100%; color:#5f5f5f; font:normal 12px/1.8em Georgia, "Times New Roman", Times, serif;}

html, .main { padding:0; margin:0; background-color:#fff;}

.clr { clear:both; padding:0; margin:0; width:100%; font-size:0px; line-height:0px;}

h1 { margin:0; padding:32px 0 0 40px; color:#fff; font:normal 40px/1.2em Georgia, "Times New Roman", Times, serif;}

h1 a, h1 a:hover { color:#fff; text-decoration:none;}

h1 span { color:#007236;}

h1 small { font:normal 13px/1.2em Georgia, "Times New Roman", Times, serif; color:#63d7f3;}

h2 { font:normal 24px Georgia, "Times New Roman", Times, serif; color:#4b4b4b; padding:8px 0; margin:8px 0;}

p { margin:8px 0; padding:0 0 8px 0; font:normal 12px/1.8em Georgia, "Times New Roman", Times, serif;}

a { color:#4ea4ba; text-decoration:underline;}

.header, .content, .menu\_nav, .fbg, .footer, form, ol, ol li, ul, .content .mainbar, .content .sidebar { margin:0; padding:0;}

.content\_resize, .fbg\_resize, .footer\_resize { margin:0 auto; padding:0 40px; width:890px;}



```
/* header */

.header { background:url(images/header_bg.jpg) repeat-x center top;}

.header_resize { margin:0 auto; padding:0; width:970px; height:383px;}

.header .logo { padding:0; float:left; width:auto;}

/* menu */

.menu_nav {

 float:right;

 width:auto;

 padding-top: 0px;

 padding-right: 0;

 padding-bottom: 0;

 padding-left: 0px;

}

.menu_nav ul { list-style:none; padding-top:14px;}

.menu_nav ul li { margin:0 4px; float:left;}

.menu_nav ul li a { display:block; margin:0; padding:20px 24px; color:#fff; text-decoration:none;}

.menu_nav ul li.active a, .menu_nav ul li a:hover { text-decoration:underline;}

/* content */

.content_resize { margin-top:-40px; padding:16px 0 24px 40px; width:930px; background-color:#fff;}
```

```
.content .mainbar { float:left; width:630px;}

.content .mainbar img { margin-bottom:24px; padding:4px; border:1px solid #b7b7b7;
background-color:#fff;}

.content .mainbar img.fl { float:left; margin-right:12px;}

.content .mainbar .article, .content .sidebar .gadget { margin:0; padding:0 0 16px 0;}

.content .sidebar { float:right; width:276px;}

ul.sb_menu, ul.ex_menu { margin:0; padding:0; list-style:none; color:#959595;}

ul.sb_menu li { padding:4px 0; border-bottom:1px solid #e3e3e3; width:220px;}

ul.ex_menu li { padding:4px 0 8px;}

ul.sb_menu li, ul.ex_menu li { margin:0; padding-left:16px; background:url(images/li.gif) no-
repeat left 9px;}

ul.sb_menu li a, ul.ex_menu li a { color:#5f5f5f; text-decoration:none; margin-left:-16px;
padding-left:16px;}

ul.sb_menu li a:hover, ul.ex_menu li a:hover { color:#4ea4ba;}

ul.sb_menu li a:hover { text-decoration:underline;}

ul.ex_menu li a:hover { text-decoration:none;}

/* subpages */

.content .mainbar .comment { margin:0; padding:16px 0 0 0;}

.content .mainbar .comment img.userpic { border:1px solid #dedede; margin:10px 16px 0 0;
padding:0; float:left;}

/* fbg */

.fbg_resize { padding:24px 40px; background-color:#4ea4ba;}

.fbg, .fbg a, .fbg h2 { color:#fff;}
```

```
.fbg img { padding:4px; background-color:#fff; border:1px solid #5e99a8;}

.fbg .col { margin:0; float:left;}

.fbg .c1 { padding:0 16px 0 0; width:240px;}

.fbg .c2 { padding:0 16px; width:296px;}

.fbg .c3 { padding:0 0 0 16px; width:290px;}

.fbg .c1 img { margin:4px;}

.fbg .c3 img { margin:8px 16px 4px 0; float:left;}

/* footer */

.footer { padding:16px;}

.footer p.lf { margin:0; padding:4px 0; float:right; width:auto; line-height:1.5em;
color:#727272;}

ul.fmenu { margin:0; padding:2px 0; list-style:none; float:left; width:auto;}

ul.fmenu li { margin:0; padding:0 4px; float:left;}

ul.fmenu li a { color:#727272; text-decoration:none; padding:2px 6px;}

ul.fmenu li a:hover, ul.fmenu li.active a { color:#4ea4ba;}

ul.fmenu li a:hover { text-decoration:underline;}

/* form */

ol { list-style:none;}

ol li { display:block; clear:both;}

ol li label { display:block; margin:0; padding:16px 0 0 0;}

ol li input.text { width:480px; border:1px solid #c0c0c0; margin:2px 0; padding:5px 2px;
height:16px; background:#fff;}
```

```
ol li textarea { width:480px; border:1px solid #c0c0c0; margin:2px 0; padding:2px;
background:#fff; }
```

```
ol li .send { margin:16px 0 0 0;}
```

### A Main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```

```
<title>Cloud Server Main</title>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
```

```
<link href="style.css" rel="stylesheet" type="text/css" />
```

```
<script type="text/javascript" src="js/cufon-yui.js"></script>
```

```
<script type="text/javascript" src="js/georgia.js"></script>
```

```
<script type="text/javascript" src="js/cuf_run.js"></script>
```

```
<style type="text/css">
```

```
<!--
```

```
.style1 { font-size: 23px }
```

```
.style3 { font-size: 18 }
```

```
.style4 {
```

```
 color: #FF0000;
```

```
 font-weight: bold;
```

```
}
```

```
-->
```

```
</style>
```

```
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
 <h1>Achieving Secure and
Efficient Dynamic

Searchable Symmetric Encryption over

Medical Cloud Data</h1>
 </div>
 <div class="menu_nav">

 <li class="active">Cloud
 Logout

 <div class="clr"></div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
```

```
<div class="article">
```

```
<h2>Welcome Cloud Server !!! </h2>
```

```
<p> </p>
```

```

```

```
<p align="justify" class="style4">In medical cloud computing, a patient can remotely outsource her medical data to the cloud server. In this case, only authorized doctors are allowed to access the data since the medical data is highly sensitive. Encrypting the data before outsourcing is a commonly used approach, where the patient only needs to send the corresponding encryption key to the authorized doctors. This, however, significantly limits the usability of outsourced medical data due to the difficulty of searching over the encrypted data. In this paper, we propose two Secure and Efficient Dynamic Searchable Symmetric Encryption (SEDSSE) schemes over medical cloud data. Firstly, we leverage the secure k-Nearest Neighbor (kNN) and Attribute-Based Encryption (ABE) techniques to propose a dynamic searchable symmetric encryption scheme, which can achieve two important security features, i.e., forward privacy and backward privacy which are very challenging in the area of dynamic searchable symmetric encryption. Then, we propose an enhanced scheme to solve the key sharing problem which widely exists in the kNN based searchable encryption scheme. Compared with existing proposals, our schemes are better in terms of storage, search and updating complexity. Extensive experiments demonstrate the efficiency of our schemes on storage overhead, index building, trapdoor generating and query.</p>
```

```
</div>
```

```
</div>
```

```
<div class="sidebar">
```

```
<div class="gadget">
```

```
<h2 class="star">Menu</h2>
```

```
<ul class="sb_menu">
```

```
Home
```

```
View and Authorize
Doctors
```

```
View and Authorize
Patients
```

```

 Add Hospital

 View Transactions

 View and Generate Bill

 View Patient
Results

 View Patient Details

 View Result

 Logout

</div>

<div class="gadget">

 <h2 class="star"> </h2>

</div>

</div>

<div class="clr"></div>

</div>

</div>

<div class="fbg"></div>

<div class="footer">

 <div class="footer_resize">

 <p class="lf"> </p>

```

```
<div class="clr"></div>

</div>

</div>

</div>

<div align=center></div>

</body>

</html>
```

### **D Register.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
 pageEncoding="ISO-8859-1"%>

 <% @page import ="java.util.*"%>

<% @ include file="connect.jsp" %>

 <% @page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.SecretKe
ySpec,org.bouncycastle.util.encoders.Base64"%>

 <% @ page
import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io.FileIn
putStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDigest,ja
va.io.BufferedInputStream" %>

<% @ page import
="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto.Cipher"
%>

 <% @page import
="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java.io.FileOutp
utStream,java.io.PrintStream"%>
```



```
<title>Doctor Register</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/georgia.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 23px}
.style3 { color: #FFFF00; font-weight: bold; }
--></style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
 <h1>Achieving
Secure and Efficient Dynamic

Searchable Symmetric Encryption over

Medical Cloud Data</h1>
 </div>
 <div class="menu_nav">
```

<ul>

```
Home
Patient
<li class="active">Doctor
Cloud

<div class="clr"></div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="content">
<div class="content_resize">
<div class="mainbar">
<div >
<h2>Doctor Register !!!</h2>
<p></p>
<form action="D_RegisterAuthentication.jsp" method="post" id=""
enctype="multipart/form-data">
<label for="name"> </label>
<table width="590" height="524" border="0" align="center" cellpadding="0"
cellspacing="0">
<tr>
<td width="259" bgcolor="#FF0000" scope="row"><div align="left" class="style3">
Name (required) : </div></td>
```

```
<td width="343"><input id="name" name="userid" class="text" /></td>
</tr>
<tr>
<td bgcolor="#FF0000" ><div align="left" class="style3">Password (required) :
</div></td>
<td><input type="password" id="password" name="pass" class="text" /></td>
</tr>
<tr>
<%
ArrayList hosp=new ArrayList();
ArrayList dep=new ArrayList();

String query="select * from hospital ";
Statement st=connection.createStatement();
ResultSet rs =st.executeQuery(query);
while(rs.next())
{
String hos=rs.getString(2);
hosp.add(hos);
}

String query1="select * from department ";
Statement st1=connection.createStatement();
ResultSet rs1 =st1.executeQuery(query1);
```

```
while(rs1.next())
{
 String dept=rs1.getString(2);
 dep.add(dept);
}

%>
```

<td bgcolor="#FF0000" scope="row"><div align="left" class="style3">Select Hospital (required) :

</div></td>

<td><select id="select" name="hospital" class="text">

<option>-Select-</option>

<%for(int i=0;i<hosp.size();i++){%>

<option><%=hosp.get(i)%></option>

<%}%>

</select></td>

</tr>

<tr>

<td bgcolor="#FF0000" scope="row"><div align="left" class="style3">Select Department (required) :

</div></td>

<td><select id="select2" name="department" class="text">

```
<option>-Select-</option>

<%for(int j=0;j<dep.size();j++){%>

<option><%=dep.get(j)%></option>

<%}%>

</select></td>

</tr>

<tr>

<td bgcolor="#FF0000" scope="row"><div align="left" class="style3">Email Address
(required) : </div></td>

<td><input id="email" name="email" class="text" /></td>

</tr>

<tr>

<td bgcolor="#FF0000" scope="row"><div align="left" class="style3">Mobile
Number (required) : </div></td>

<td><input id="mobile" name="mobile" class="text" /></td>

</tr>

<td bgcolor="#FF0000" scope="row">

<label for="label"> </label>

<label for="label">

<div align="left" class="style3">Your Address : </div>

</label>
```

```
</td>

<td><textarea name="address" cols="45" id="address"></textarea></td>

</tr>

<tr>

<td bgcolor="#FF0000" scope="row">

<label for="label"> </label>

<label for="label">

<div align="left" class="style3">Date of Birth (required) : </div>

</label>

</td>

<td><input id="dob" name="dob" class="text" /></td>

</tr>

<tr>

<td bgcolor="#FF0000" scope="row"><div align="left" class="style3">Select Gender
(required) : </div></td>

<td><select id="s1" name="gender" class="text">

<option>-Select-</option>

<option>Male</option>

<option>Female</option>

</select></td>

</tr>

<tr>
```

```
<td bgcolor="#FF0000" scope="row">
 <label for="label"> </label>
 <label for="label">

 <div align="left" class="style3">Enter Pincode (required) : </div>

 </label>
</td>
<td><input id="pincode" name="pincode" class="text" /></td>
</tr>
<tr>
 <td bgcolor="#FF0000" scope="row">
 <label for="location"> </label>
 <label for="location">

 <div align="left" class="style3">Enter Location (required) : </div>

 </label>
</td>
 <td><input id="loc" name="location" class="text" /></td>
</tr>
<tr>
 <td bgcolor="#FF0000" scope="row">
```



```
<label for="label"> </label>

<label for="label">

<div align="left" class="style3">Select Profile Picture (required) : </div>

</label>

</td>

<td><input type="file" id="pic" name="pic" class="text" /></td>

</tr>

<tr>

<td height="79" scope="row"> </td>

<td><input name="submit" type="submit" value="REGISTER" /></td>

</tr>

</table>

<p align="right">Back</p>

</form>

</div>

</div>

<div class="sidebar">

<div class="gadget">

<h2 class="star">Menu</h2>

<ul class="sb_menu">

Home
```

```
Patient
Doctor
Admin

</div>
<div class="gadget"></div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
```

### **P\_Login.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
```

```
<title>Patient Login</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/georgia.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 23px}
.style2 {
 color: #FF0000;
 font-weight: bold;
}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="logo">
<h1>Achieving Secure and Efficient Dynamic

Searchable Symmetric Encryption over

```



```
 </label>

<input name="userid" type="text" class="box" id="name" value="" />

<label for="email">

Password (required) </label>

<label for="email"></label>

<label for="email"> </label>

<input type="password" id="pass" name="pass" class="box" />

<p> </p>

<p>

<input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" />

<input type="reset" name="imageField" id="imageField" class="RESET" />

</p>

<p>New User? click here to
Register

</p>

</form>

</div>

</div>
```

```
<div class="sidebar">
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <ul class="sb_menu">
 Home
 Patient
 Doctor
 Cloud

 </div>
</div>
<div class="gadget"></div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
```

### **P\_MakePayment.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
 pageEncoding="ISO-8859-1"%>
 <% @page import ="java.util.*"%>
<% @ include file="connect.jsp" %>
 <% @page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.SecretKe
ySpec,org.bouncycastle.util.encoders.Base64"%>
 <% @ page
import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io.FileIn
putStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDigest,ja
va.io.BufferedInputStream" %>
<% @ page import
="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto.Cipher"
%>
 <% @page import
="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java.io.FileOutp
utStream,java.io.PrintStream"%>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title><%=application.getAttribute("pname")%> (Patient)</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/georgia.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<style type="text/css">
<!--
```

```
.style1 { font-size: 23px}

.style2 { color: #FF0000;font-weight: bold;}

.style21 { font-size:14px}

.style25 { color: #FFFF00}

.style26 {

 font-size: 14px;

 color: #FFFF00;

 font-weight: bold;

}

-->

</style>

</head>

<body>

<div class="main">

 <div class="header">

 <div class="header_resize">

 <div class="logo">

 <h1>Achieving Secure and Efficient Dynamic

Searchable Symmetric Encryption over

Medical Cloud Data</h1>

 </div>

 <div class="menu_nav">


```



```
<li class="active">Hi <%=application.getAttribute("pname")%> !!
(Patient)
```

```
Logout
```

```

```

```
<div class="clr"></div>
```

```
</div>
```

```
<div class="clr"></div>
```

```
</div>
```

```
</div>
```

```
<div class="content">
```

```
<div class="content_resize">
```

```
<div class="mainbar">
```

```
<div >
```

```
<h2 class="style2">View Scheduled Date and Time !!!</h2>
```

```
<p>Role : (Patient)</p>
```

```
<p> </p>
```

```
<table width="618" border="1.5" style="border-collapse:collapse" cellpadding="0"
cellspacing="0" align="center">
```

```
<%
```

```
String s1="",s2="",s3="",s4="",s5="",s6="",s7="",s8,s9="",s10,s11,s12,s13;
```

```
int i=0,j=0,k=0;
```

```
try
```

```

{

 %>

 <tr>

 <td width="28" height="30" bgcolor="#FF0000"><div align="center" class="style21
style25"> ID </div></td>

 <td width="90" bgcolor="#FF0000"><div align="center"
class="style26">Patient</div></td>

 <td width="67" bgcolor="#FF0000"><div align="center"
class="style26">Doctor</div></td>

 <td width="122" bgcolor="#FF0000"><div align="center" class="style26">Scheduled
D&T</div></td>

 <td width="75" bgcolor="#FF0000"><div align="center" class="style26">Amount
</div></td>

 <td width="129" bgcolor="#FF0000"><div align="center" class="style26">Details/File
</div></td>

 <td width="91" bgcolor="#FF0000"><div align="center" class="style26">Bill
</div></td>

 </tr>

<%

```

```
String pname=(String)application.getAttribute("pname");
```

```
String query="Select *from bill where status='Pending' and
patient='"+pname+"' ";
```

```
Statement st=connection.createStatement();
```

```
ResultSet rs=st.executeQuery(query);
```

```
while (rs.next())
{

 i=rs.getInt(1);
 s2=rs.getString(2);
 s3=rs.getString(3);
 s4=rs.getString(4);
 s5=rs.getString(5);
 s6=rs.getString(6);
 s7=rs.getString(7);

 String query1="Select *from files where patient='"+s2+"'
and fname='"+s4+"' ";

 Statement st1=connection.createStatement();
 ResultSet rs1=st1.executeQuery(query1);
 if (rs1.next())
 {

 String disease=rs1.getString(12);
 %>
 <tr>
 <td height="28"><div
align="center"><%=i%></div></td>
```

```
(<%=disease%>)</div></td>
<td><div align="center"><%=s2%>
<td><div align="center"><%=s3%></div></td>
<td><div align="center"><%=s5%></div></td>
<td><div align="center"><%=s6%></div></td>
<td><div align="center"><%=s4%></div></td>
<td><div align="center"><a
href="P_MakePayment1.jsp?id=<%=i%>">Make Payment </div></td>
</tr>
<%
}
}
connection.close();
}
catch(Exception e)
{
out.println(e.getMessage());
}
%>
</table>
<p align="justify"> </p>
<p align="right"> Back</p>
</div>
```

```
</div>
<div class="sidebar">
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <ul class="sb_menu">
 Home
 Logout

 </div>
</div>
<div class="gadget"></div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>.
```

## **10. SYSTEM TESTING**

### **10.1 SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### **10.2 TYPES OF TESTING**

#### **Unit testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### **Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

#### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

### **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

### 10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

#### Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

#### Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

#### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

#### Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.



## 11. SCREENSHOTS

SCREEN 1:



Fig 11.1 Home page

**Description:** This screen consist of cloud server admin page

SCREEN 2 :



11.2 Home page

**Description:** This screen contains the abstract of the project and cloud admin tabs

SCREEN 3 :



11.3 Doctor home page

**Description:** In the screen we are going to create the doctor profile

SCREEN 4:



11.4 View profile

**Description:** In this screen we are going to view the doctor profile with related details

SCREEN 5 :



11.5 Add account

**Description:** In this screen we are going to add the patient details with related information

SCREEN 6 :



View all patient and authorize

**Description:** In this is screen we are going to authorize the patients



SCREEN 7 :



Authorized

**Description:** In the screen we are going to authorize the patient

SCREEN 8 :



Add hospital and department

**Description:** In this screen we are going to add the hospital name and hospital department



SCREEN 9 :



View generated bill

**Description:** In the screen we are going to generate the bill of patient

SCREEN 10:



View patient results

**Description:** In the screen we are going to get the patient results



## CONCLUSION

In this Project, we propose two dynamic searchable encryption schemes with high security level. The first one can not only achieve collusion resistance between the cloud server and search users, but also can achieve both forward privacy and backward privacy. The second one further solves the key sharing problem which widely exists in the kNN based searchable encryption scheme. Performance evaluation demonstrates that the proposed schemes can achieve better efficiency than the existing works in terms of storage, search and updating complexity. Extensive experiments demonstrate the efficiency of our schemes in term of storage overhead, index building, trapdoor generating and query.

## **FUTURE ENHANCEMENT**

Future Work solves the key sharing problem which widely exists in the kNN based searchable encryption scheme. In this paper we propose two Secure and Efficient Dynamic Searchable Symmetric Encryption schemes over medical cloud data.

These two security properties are vital and very challenging in the area of dynamic searchable symmetric encryption. Then, we propose an enhanced scheme to solve the key sharing problem which widely exists in the current scheme.

## REFERENCES

- [1] M. Li, S. Yu, K. Ren, and W. Lou, "Securing personal health records in cloud computing: Patient-centric and fine-grained data access control in multi-owner settings," in *Security and Privacy in Communication Networks*. Springer, 2010, pp. 89–106.
- [2] A. M.-H. Kuo, "Opportunities and challenges of cloud computing to improve health care services," *Journal of medical Internet research*, vol. 13, no. 3, 2011.
- [3] M. Li, S. Yu, Y. Zheng, K. Ren, and W. Lou, "Scalable and secure sharing of personal health records in cloud computing using attribute-based encryption," *IEEE Transactions on Parallel and Distributed Systems*, vol. 24, no. 1, pp. 131–143, 2013.
- [4] L. M. Vaquero, L. Rodero-Merino, J. Caceres, and M. Lindner, "A break in the clouds: towards a cloud definition," *ACM SIGCOMM Computer Communication Review*, vol. 39, no. 1, pp. 50–55, 2008.
- [5] H. Liang, L. X. Cai, D. Huang, X. Shen, and D. Peng, "An smdpbased service model for interdomain resource allocation in mobile cloud networks," *IEEE Transactions on Vehicular Technology*, vol. 61, no. 5, pp. 2222–2232, 2012.
- [6] M. M. Mahmoud and X. Shen, "A cloud-based scheme for protecting source-location privacy against hotspot-locating attack in wireless sensor networks," *IEEE Transactions on Parallel and Distributed Systems*, vol. 23, no. 10, pp. 1805–1818, 2012.

**A**  
**Project Report**

**on**

**ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN  
UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

**Submitted in partial fulfilment for the award of the degree  
of**

**Master of Computer Applications**

*Submitted by*

**A.ARUNKUMAR**

**(Reg. No. 19F65F0003)**

*Under the esteemed guidance of*

**Mr. J.S. ANANDA KUMAR, MCA.,**

**Assistant Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with "A" Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**2020 – 2021**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with “A” Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**(2020-2021 )**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled “ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES” that is being submitted by A ARUNKUMAR (Reg. No. 19F65F0003) in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**



## **DECLARATION**

I, A ARUNKUMAR hereby declare that the project report entitled “ADVANCED PREDICTON OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNIG TECHINQUES” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of Mr. J.S ANANDA KUMAR, MCA. Assistant Professor in MCA Department, SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS), Puttur, for the award of the degree of MASTER OF COMPUTER APLLICATIONS. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**A ARUNKUMAR**

**Reg. No.: 19F65F0003**

## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project asuccessful one.

I am thankful to My Guide and Project Coordinator **Mr. J.S ANANDA KUMAR**, MCA. Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr.P.KARTHIKEYAN**, MCA.,M.E. HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the projectsuccessfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

( **A ARUNKUMAR** )

## CONTENT

<b>S.No</b>	<b>CHAPTERS</b>	<b>PAGE.NO</b>
	Abstract	
1.	Introduction	1
2.	Introduction to python	3
3.	System study	27
4.	System Analysis	29
	1.Existing methods	
	1.1.Disadvantages	
	2.Proposed methods	
	2.1.Advantages	
	3.Applications	
5.	System Modules	32
6.	System Architecture	35
7.	System Requirements	36
8.	Software Environment	37
9.	System Design	40
10.	Source code	50
11.	System testing	71
12.	Output Screens	75
	Conclusion	
	Future scope	
	Reference	

## **List of figures**

S.No	Name	Page. No
1.	Flow of the project	30
2.	System architecture	35
3.	Usecase Diagrams	41
4.	Class Diagrams	42
5.	Sequence Diagram	43
6.	Collaboration Diagram	44
7.	Deployment Diagram	44
8.	Activity Diagram	45
9.	Component Diagram	46
10.	ER Diagram	47
11.	DFD Diagram	48

## **List of Output Screens**

S.No	Screen Name	Page.No
1.	Home page	75
2.	Load Dataset page	75
3.	View Dataset page	76
4.	Split Dataset page	77
5.	Training Dataset page	78
6.	Prediction page	81

## **ABSTRACT:**

Predicting academic performance is an important task for the students in university, college, and school, etc. Machine Learning is a field of computer science that makes the computer to learn itself without any help of external programs. The dataset used in this project is stored in a cloud server and accessed using queries as and when required. There are two approaches for machine learning techniques one is supervised learning and the other one is unsupervised learning. In unsupervised learning, K-means clustering are being used and in supervised ensemble techniques like Random Forest and XG Boost algorithm are implemented. Nowadays evaluating the student performance of any organization is going to play a vital role to train the students. All of the above algorithms were combined and used for student evaluation and a possible suggestion to the student is provided to improve their career.

**KEYWORDS:** Predicting academic performance of students, Machine learning, K-Means, XG Boost, Random Forest, Ensemble, and Cloud Server.

## 1. INTRODUCTION

Students academic performance is a crucial part of an academic institution. This is considered as one of the important measures for many superior universities. Some researchers stated that the student academic performance can be measured through learning assessment and co-curriculum activities. Though, the majority of researchers have mentioned that the students past performances, achievements, and grades can play a vital role to predict the student success rate.

Predominantly, most of the higher level institutions use grade as the main measure to assess student's performance. In addition, course structure, student behavior and extracurricular activities will affect the student's academic performance. The student's academic program can be well planned during their sophomore period of studies in an institution to analyze the performance of students.

At present, machine learning algorithms are most popular to evaluate student's academic performance that has been extensively applied in the education sector. The topic of explanation and prediction of academic performance is widely researched. The ability to predict student performance is very important in educational environments. Increasing student success is a long term goal in all academic institutions. If educational institutions can predict students' academic performance early before their final examination, then extra effort can be taken to arrange proper support for the low performing students to improve their studies and help them to success.

On the other hand, identifying attributes that affect course success rate can assist in courses improvement.

Many organizations are also using cloud based infrastructure to enable seamless accessibility of their systems from anywhere around the world and for cheap. We will also incorporate these technologies in our project by storing the dataset in a cloud server.

## **2. INTRODUCTION TO PYTHON**

### **Python**

#### **What Is A Script?**

Up to this point, I have concentrated on the interactive programming capability of Python. This is a very useful capability that allows you to type in a program and to have it executed immediately in an interactive mode

#### **Scripts are reusable**

Basically, a script is a text file containing the statements that comprise a Python program. Once you have created the script, you can execute it over and over without having to retype it each time.

#### **Scripts are editable**

Perhaps, more importantly, you can make different versions of the script by modifying the statements from one file to the next using a text editor. Then you can execute each of the individual versions. In this way, it is easy to create different programs with a minimum amount of typing.

#### **You will need a text editor**

Just about any text editor will suffice for creating Python script files.

You can use *Microsoft Notepad*, *Microsoft WordPad*, *Microsoft Word*, or just about any word processor if you want to.



# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## **Difference between a script and a program**

### **Script:**

Scripts are distinct from the core code of the application, which is usually written in a different language, and are often created or at least modified by the end-user. Scripts are often interpreted from source code or byte code, whereas the applications they control are traditionally compiled to native machine code.

### **Program:**

The program has an executable form that the computer can use directly to execute the instructions.

The same program in its human-readable source code form, from which executable programs are derived (e.g., compiled).

## **Python**

What is Python? Chances you are asking yourself this. You may have found this book because you want to learn to program but don't know anything about programming languages. Or you may have heard of programming languages like C, C++, C#, or Java and want to know what Python is and how it compares to "big name" languages. Hopefully I can explain it for you.

### **Python concepts**

If you're not interested in the hows and whys of Python, feel free to skip to the next chapter. In this chapter I will try to explain to the reader why I think Python is one of the best languages available and why it's a great one to start programming with.

- Open source general-purpose language.
- Object Oriented, Procedural, Functional
- Easy to interface with C/ObjC/Java/Fortran
- Easy-ish to interface with C++ (via SWIG)

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

- Great interactive environment

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

- **Python is Interpreted** – Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- **Python is Interactive** – You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- **Python is Object-Oriented** – Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- **Python is a Beginner's Language** – Python is a great language for the beginner- level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

### History of Python

Python was developed by Guido van Rossum in the late eighties and early nineties at the National Research Institute for Mathematics and Computer Science in the Netherlands.

Python is derived from many other languages, including ABC, Modula-3, C, C++, Algol-68, SmallTalk, and Unix shell and other scripting languages.

Python is copyrighted. Like Perl, Python source code is now available under the GNU General Public License (GPL).

Python is now maintained by a core development team at the institute, although Guido van Rossum still holds a vital role in directing its progress.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## Python Features

Python's features include –

- **Easy-to-learn** – Python has few keywords, simple structure, and a clearly defined syntax. This allows the student to pick up the language quickly.
- **Easy-to-read** – Python code is more clearly defined and visible to the eyes.
- **Easy-to-maintain** – Python's source code is fairly easy-to-maintain.
- **A broad standard library** – Python's bulk of the library is very portable and cross-platform compatible on UNIX, Windows, and Macintosh.
- **Interactive Mode** – Python has support for an interactive mode which allows interactive testing and debugging of snippets of code.
- **Portable** – Python can run on a wide variety of hardware platforms and has the same interface on all platforms.
- **Extendable** – You can add low-level modules to the Python interpreter. These modules enable programmers to add to or customize their tools to be more efficient.
- **Databases** – Python provides interfaces to all major commercial databases.
- **GUI Programming** – Python supports GUI applications that can be created and ported to many system calls, libraries and windows systems, such as Windows MFC, Macintosh, and the X Window system of Unix.
- **Scalable** – Python provides a better structure and support for large programs than shell scripting.

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

Apart from the above-mentioned features, Python has a big list of good features, few are listed below –

- It supports functional and structured programming methods as well as OOP.
- It can be used as a scripting language or can be compiled to byte-code for building large applications.
- It provides very high-level dynamic data types and supports dynamic typechecking.
- IT supports automatic garbage collection.
- It can be easily integrated with C, C++, COM, ActiveX, CORBA, and Java.

### Dynamic vs Static

Types Python is a dynamic-typed language. Many other languages are static typed, such as C/C++ and Java. A static typed language requires the programmer to explicitly tell the computer what type of “thing” each data value is.

For example, in C if you had a variable that was to contain the price of something, you would have to declare the variable as a “float” type.

This tells the compiler that the only data that can be used for that variable must be a floating point number, i.e. a number with a decimal point. If any other data value was assigned to that variable, the compiler would give an error when trying to compile the program.

Python, however, doesn't require this. You simply give your variables names and assign values to them. The interpreter takes care of keeping track of what kinds of objects your program is using. This also means that you can change the size of the values as you develop the program. Say you have another decimal number (a.k.a. a floating point number) you need in your program.

## **ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

With a static typed language, you have to decide the memory size the variable can take when you first initialize that variable. A double is a floating point value that can handle a much larger number than a normal float (the actual memory sizes depend on the operating environment).

If you declare a variable to be a float but later on assign a value that is too big to your program will fail; you will have to go back and change that variable to be a double.

With Python, it doesn't matter. You simply give it whatever number you want and Python will take care of manipulating it as needed. It works for derived values.

For example, say you are dividing two numbers. One is a floating point number and one is an integer. Python realizes that it's more accurate to keep track of decimals so it automatically calculates the result as a floating point number

### **Variables**

Variables are nothing but reserved memory locations to store values. This means that when you create a variable you reserve some space in memory.

Based on the data type of a variable, the interpreter allocates memory and decides what can be stored in the reserved memory. Therefore, by assigning different data types to variables, you can store integers, decimals or characters in these variables.

### **Standard Data Types**

The data stored in memory can be of many types. For example, a person's age is stored as a numeric value and his or her address is stored as alphanumeric characters. Python has various standard data types that are used to define the operations possible on them and the storage method for each of them.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

Python has five standard data types –

- Numbers
- String
- List
- Tuple
- Dictionary

## Python Numbers

Number data types store numeric values. Number objects are created when you assign a value to them

## Python Strings

Strings in Python are identified as a contiguous set of characters represented in the quotation marks. Python allows for either pairs of single or double quotes. Subsets of strings can be taken using the slice operator ([ ] and [:] ) with indexes starting at 0 in the beginning of the string and working their way from -1 at the end.

## Python Lists

Lists are the most versatile of Python's compound data types. A list contains items separated by commas and enclosed within square brackets ([]). To some extent, lists are similar to arrays in C. One difference between them is that all the items belonging to a list can be of different data type.

The values stored in a list can be accessed using the slice operator ([ ] and [:]) with indexes starting at 0 in the beginning of the list and working their way to end -1. The plus (+) sign is the list concatenation operator, and the asterisk (\*) is the repetition operator.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## Python Tuples

A tuple is another sequence data type that is similar to the list. A tuple consists of a number of values separated by commas. Unlike lists, however, tuples are enclosed within parentheses.

The main differences between lists and tuples are: Lists are enclosed in brackets ( [ ] ) and their elements and size can be changed, while tuples are enclosed in parentheses ( ( ) ) and cannot be updated. Tuples can be thought of as **read-only** lists.

## Python Dictionary

Python's dictionaries are kind of hash table type. They work like associative arrays or hashes found in Perl and consist of key-value pairs. A dictionary key can be almost any Python type, but are usually numbers or strings. Values, on the other hand, can be any arbitrary Python object.

Dictionaries are enclosed by curly braces ( { } ) and values can be assigned and accessed using square braces ( [ ] ).

## Different modes in python

Python has two basic modes: normal and interactive.

The normal mode is the mode where the scripted and finished .py files are run in the Python interpreter.

Interactive mode is a command line shell which gives immediate feedback for each statement, while running previously fed statements in active memory. As new lines are fed into the interpreter, the fed program is evaluated both in part and in whole

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## Some Python Libraries:

1. Pandas
2. Numpy
3. Matplotlib
4. Seaborn
5. OpenCV
6. Keras
7. TensorFlow
8. NLTK
9. Scikit-Learn
10. SciPY
11. BeautifulSoup
12. TextBlob
13. Pillow
14. 14.Request
15. SQLAlchemy
16. PyTorch
17. Selenium

## Pandas:

- Pandas provide us with many Series and DataFrames. It allows you to easily organize, explore, represent, and manipulate data.
- Smart alignment and indexing featured in Pandas offer you a perfect organization and data labeling.
- Pandas has some special features that allow you to handle missing data or value with a proper measure.
- This package offers you such a clean code that even people with no or basic knowledge of programming can easily work with it.



## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

- It provides a collection of built-in tools that allows you to both read and write data in different web services, data-structure, and databases as well.
- Pandas can support JSON, Excel, CSV, HDF5, and many other formats. In fact, you can merge different databases at a time with Pandas.

### **Numpy:**

- Arrays of Numpy offer modern mathematical implementations on huge amount of data. Numpy makes the execution of these projects much easier and hassle-free.
- Numpy provides masked arrays along with general array objects. It also comes with functionalities such as manipulation of logical shapes, discrete Fourier transform, general linear algebra, and many more.
- While you change the shape of any N-dimensional arrays, Numpy will create new arrays for that and delete the old ones.
- This python package provides useful tools for integration. You can easily integrate Numpy with programming languages such as C, C++, and Fortran code.
- Numpy provides such functionalities that are comparable to MATLAB. They both allow users to get faster with operations.

### **Matplotlib:**

- Matplotlib can create such quality figures that are really good for publication. Figures you create with Matplotlib are available in hardcopy formats across different interactive platforms.
- You can use Matplotlib with different toolkits such as Python Scripts, IPython Shells, Jupyter Notebook, and many other four graphical user interfaces.
- A number of third-party libraries can be integrated with Matplotlib applications. Such as seaborn, ggplot, and other projection and mapping

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

toolkits such as basemap.

- An active community of developers is dedicated to helping you with any of your inquiries with Matplotlib. Their contribution to Matplotlib is highly praisable.
- Good thing is that you can track any bugs, new patches, and feature requests on the issue tracker page from Github. It is an official page for featuring different issues related to Matplotlib.

### **Seaborn:**

Seaborn is built on top of Python's core visualization library Matplotlib. It is meant to serve as a complement, and not a replacement. However, Seaborn comes with some very important features. Let us see a few of them here. The features help in –

- Built in themes for styling matplotlib graphics
- Visualizing univariate and bivariate data
- Fitting in and visualizing linear regression models
- Plotting statistical time series data
- Seaborn works well with NumPy and Pandas data structures
- It comes with built in themes for styling Marplotlib graphics.

In most cases, you will still use Matplotlib for simple plotting. The knowledge of Matplotlib is recommended to tweak Seaborn's default plots.

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

### **OpenCV:**

- OpenCV is an ideal image processing package that allows you to both read and write images at the same time.
- Computer Vision allows you to rebuild, interrupt, and comprehend a 3D environment from its respective 2D environment.
- This package allows you to diagnose special objects in any videos or images. Objects such as faces, eyes, trees, etc.
- You can also save and capture any moment of a video and also analyze its different properties such as motion, background, etc.
- OpenCV is compatible with many operating systems such as Windows, OS- X, Open BSD, and many others.

### **NLTK (Natural Language Tool Kit):**

- The text processing libraries of NLTK allow classification, tagging, tokenization, stemming, parsing, and semantic reasoning as well.
- NLTK contains a graphical illustration of data science. It also comes with a handbook for guiding through the principles of language processing for NLTK.
- It is open source and contains over fifty corpora and lexical resources such as open multilingual wordnet, question classification, SentiWordNet, SEMCOR, Stopwords Corpus, and many more.
- NLTK also features structure types, structure strings parsing, features different pathways, and re-entrance as well.

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

- This toolkit comes with a dynamic discussion forum where you can discuss and bring up any issues related to language NLTK.

### **Scikit-Learn:**

- Scikit Learn comes with a clean and neat API. It also provides very useful documentation for beginners.
- It comes with different algorithms – classification, clustering, and regression. It also supports random forests, k-means, gradient boosting, DBSCAN and others
- This package offers easy adaptability. Once you get well with the general functionalities of Scikit Learn, switching to other platforms will be no problem at all.
- Scikit Learn offers easy methods for data representation. Whether you want to present data as a table or matrix, it is all possible with Scikit Learn.
- It allows you to explore through digits that are written in hands. You can not only load but also visualize digits-data as well.

### **SciPY:**

- Scipy contains different modules. These modules are suitable for optimization, integration, linear algebra, and statistics, as well.
- It makes the best use of Numpy arrays for general data structures. In fact, Numpy is an integrated part of Scipy.
- Scipy can handle 1-d polynomials in two ways. Whether you can use poly1dclass from numpy or you can use co-efficient arrays to do the job.
- High-level scipy contains not only numpy but also numpy.lib.scimath as well. But it is better to use them from their direct source.
- A supporting community of Scipy is always there to answer your regular

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## Python class and objects

These are the building blocks of OOP. Class creates a new object. This object can be anything, whether an abstract data concept or a model of a physical object, e.g. a chair. Each class has individual characteristics unique to that class, including variables and methods. Classes are very powerful and currently “the big thing” in most programming languages. Hence, there are several chapters dedicated to OOP later in the book.

The class is the most basic component of object-oriented programming. Previously, you learned how to use functions to make your program do something.

Now will move into the big, scary world of Object-Oriented Programming (OOP). To be honest, it took me several months to get a handle on objects.

When I first learned C and C++, I did great; functions just made sense for me.

Having messed around with BASIC in the early '90s, I realized functions were just like subroutines so there wasn't much new to learn.

However, when my C++ course started talking about objects, classes, and all the new features of OOP, my grades definitely suffered.

Once you learn OOP, you'll realize that it's actually a pretty powerful tool. Plus many Python libraries and APIs use classes, so you should at least be able to understand what the code is doing.

One thing to note about Python and OOP: it's not mandatory to use objects in your code in a way that works best; maybe you don't need to have a full-blown class with initialization code and methods to just return a calculation. With Python, you can get as technical as you want.

As you've already seen, Python can do just fine with functions. Unlike languages such as Java, you aren't tied down to a single way of doing things; you can mix functions and classes as necessary in the same program. This lets you build the code

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

Objects are an encapsulation of variables and functions into a single entity. Objects get their variables and functions from classes. Classes are essentially a template to create your objects.

Here's a brief list of Python OOP ideas:

- The class statement creates a class object and gives it a name. This creates a new namespace.
- Assignments within the class create class attributes. These attributes are accessed by qualifying the name using dot syntax: `ClassName.Attribute`.
- Class attributes export the state of an object and its associated behavior. These attributes are shared by all instances of a class.
- Calling a class (just like a function) creates a new instance of the class.

This is where the multiple copies part comes in.

- Each instance gets ("inherits") the default class attributes and gets its own namespace. This prevents instance objects from overlapping and confusing the program.
- Using the term `self` identifies a particular instance, allowing for per-instance attributes. This allows items such as variables to be associated with a particular instance.

### **Inheritance**

First off, classes allow you to modify a program without really making changes to it.

To elaborate, by subclassing a class, you can change the behavior of the program by simply adding new components to it rather than rewriting the existing components.

As we've seen, an instance of a class inherits the attributes of that class.

## **ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

However, classes can also inherit attributes from other classes. Hence, a subclass inherits from a superclass allowing you to make a generic superclass that is specialized via subclasses.

The subclasses can override the logic in a superclass, allowing you to change the behavior of your classes without changing the superclass at all.

### **Operator Overloads:**

Operator overloading simply means that objects that you create from classes can respond to actions (operations) that are already defined within Python, such as addition, slicing, printing, etc.

Even though these actions can be implemented via class methods, using overloading ties the behavior closer to Python's object model and the object interfaces are more consistent to Python's built-in objects, hence overloading is easier to learn and use.

User-made classes can override nearly all of Python's built-in operation methods

### **Exceptions:**

I've talked about exceptions before but now I will talk about them in depth. Essentially, exceptions are events that modify program's flow, either intentionally or due to errors.

They are special events that can occur due to an error, e.g. trying to open a file that doesn't exist, or when the program reaches a marker, such as the completion of a loop.

Exceptions, by definition, don't occur very often; hence, they are the "exception to the rule" and a special class has been created for them. Exceptions are everywhere in Python.

Virtually every module in the standard Python library uses them, and Python itself will raise them in a lot of different circumstances.

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

Here are just a few examples:

- Accessing a non-existent dictionary key will raise a `KeyError` exception.
- Searching a list for a non-existent value will raise a `ValueError` exception.
- Calling a non-existent method will raise an `AttributeError` exception.
- Referencing a non-existent variable will raise a `NameError` exception.
- Mixing datatypes without coercion will raise a `TypeError` exception.

One use of exceptions is to catch a fault and allow the program to continue working; we have seen this before when we talked about files.

This is the most common way to use exceptions. When programming with the Python command line interpreter, you don't need to worry about catching exceptions.

Your program is usually short enough to not be hurt too much if an exception occurs.

Plus, having the exception occur at the command line is a quick and easy way to tell if your code logic has a problem.

However, if the same error occurred in your real program, it will fail and stop working. Exceptions can be created manually in the code by raising an exception.

It operates exactly as a system-caused exceptions, except that the programmer is doing it on purpose. This can be for a number of reasons. One of the benefits of using exceptions is that, by their nature, they don't put any overhead on the code processing.

Because exceptions aren't supposed to happen very often, they aren't processed until they occur.

Exceptions can be thought of as a special form of the `if/elif` statements. You can realistically do the same thing with `if` blocks as you can with exceptions.



## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

However, as already mentioned, exceptions aren't processed until they occur; if blocks are processed all the time.

Proper use of exceptions can help the performance of your program.

The more infrequent the error might occur, the better off you are to use exceptions; using if blocks requires Python to always test extra conditions before continuing.

Exceptions also make code management easier: if your programming logic is mixed in with error-handling if statements, it can be difficult to read, modify, and debug your program.

### User-Defined Exceptions

I won't spend too much time talking about this, but Python does allow for a programmer to create his own exceptions.

You probably won't have to do this very often but it's nice to have the option when necessary.

However, before making your own exceptions, make sure there isn't one of the built-in exceptions that will work for you.

They have been "tested by fire" over the years and not only work effectively, they have been optimized for performance and are bug-free.

Making your own exceptions involves object-oriented programming, which will be covered in the next chapter

. To make a custom exception, the programmer determines which base exception to use as the class to inherit from, e.g. making an exception for negative numbers or one for imaginary numbers would probably fall under the Arithmetic Error exception class.

To make a custom exception, simply inherit the base exception and define what it will do.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## **Python modules**

Python allows us to store our code in files (also called modules). This is very useful for more serious programming, where we do not want to retype a long function definition from the very beginning just to change one mistake. In doing this, we are essentially defining our own modules, just like the modules defined already in the Python library.

To support this, Python has a way to put definitions in a file and use them in a script or in an interactive instance of the interpreter. Such a file is called a *module*; definitions from a module can be *imported* into other modules or into the *main* module.

## **Testing code**

As indicated above, code is usually developed in a file using an editor.

To test the code, import it into a Python session and try to run it.

Usually there is an error, so you go back to the file, make a correction, and test again.

This process is repeated until you are satisfied that the code works.

The entire process is known as the development cycle.

There are two types of errors that you will encounter. Syntax errors occur when the form of some command is invalid.

This happens when you make typing errors such as misspellings, or call something by the wrong name, and for many other reasons. Python will always give an error message for a syntax error.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## **Functions in Python**

It is possible, and very useful, to define our own functions in Python. Generally speaking, if you need to do a calculation only once, then use the interpreter. But when you or others have need to perform a certain type of calculation many times, then define a function.

You use functions in programming to bundle a set of instructions that you want to use repeatedly or that, because of their complexity, are better self-contained in a sub-program and called when needed. That means that a function is a piece of code written to carry out a specified task.

To carry out that specific task, the function might or might not need multiple inputs. When the task is carried out, the function can or cannot return one or more values.

There are three types of functions in python:

help(), min(), print().

## **Python Namespace**

Generally speaking, a **namespace** (sometimes also called a context) is a naming system for making names unique to avoid ambiguity. Everybody knows a namespacing system from daily life, i.e. the naming of people in firstname and family name (surname).

An example is a network: each network device (workstation, server, printer, ...) needs a unique name and address. Yet another example is the directory structure of file systems.

The same file name can be used in different directories, the files can be uniquely accessed via the pathnames. Many programming languages use namespaces or contexts for identifiers. An identifier defined in a namespace is associated with that namespace.

## **ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

This way, the same identifier can be independently defined in multiple namespaces. (Like the same file names in different directories) Programming languages, which support namespaces, may have different rules that determine to which namespace an identifier belongs.

Namespaces in Python are implemented as Python dictionaries, this means it is a mapping from names (keys) to objects (values). The user doesn't have to know this to write a Python program and when using namespaces.

Some namespaces in Python:

- **names** of a module
- **local names** in a function or method invocation
- **built-in names**: this namespace contains built-in functions (e.g. abs(), cmp(), ...) and built-in exception names

### **Garbage Collection**

Garbage Collector exposes the underlying memory management mechanism of Python, the automatic garbage collector. The module includes functions for controlling how the collector operates and to examine the objects known to the system, either pending collection or stuck in reference cycles and unable to be freed.

### **Python XML Parser**

XML is a portable, open source language that allows programmers to develop applications that can be read by other applications, regardless of operating system and/or developmental language.

What is XML? The Extensible Markup Language XML is a markup language much like HTML or SGML.

This is recommended by the World Wide Web Consortium and available as an open standard.

## **ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

XML is extremely useful for keeping track of small to medium amounts of data without requiring a SQL-based backbone.

XML Parser Architectures and APIs The Python standard library provides a minimal but useful set of interfaces to work with XML.

The two most basic and broadly used APIs to XML data are the SAX and DOM interfaces.

Simple API for XML SAX : Here, you register callbacks for events of interest and then let the parser proceed through the document.

This is useful when your documents are large or you have memory limitations, it parses the file as it reads it from disk and the entire file is never stored in memory.

Document Object Model DOM API : This is a World Wide Web Consortium recommendation wherein the entire file is read into memory and stored in a hierarchical tree – based form to represent all the features of an XML document.

SAX obviously cannot process information as fast as DOM can when working with large files. On the other hand, using DOM exclusively can really kill your resources, especially if used on a lot of small files.

SAX is read-only, while DOM allows changes to the XML file. Since these two different APIs literally complement each other, there is no reason why you cannot use them both for large projects.

### **Python Web Frameworks**

A web framework is a code library that makes a developer's life easier when building reliable, scalable and maintainable web applications.

Why are web frameworks useful?

Web frameworks encapsulate what developers have learned over the past twenty years while programming sites and applications for the web. Frameworks make it easier to reuse code for common HTTP operations and to structure projects so

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

other developers with knowledge of the framework can quickly build and maintain the application.

### Common web framework functionality

Frameworks provide functionality in their code or through extensions to perform common operations required to run web applications. These common operations include:

1. URL routing
2. HTML, XML, JSON, and other output format templating
3. Database manipulation
4. Security against Cross-site request forgery (CSRF) and other attacks
5. Session storage and retrieval

Not all web frameworks include code for all of the above functionality. Frameworks fall on the spectrum from executing a single use case to providing every known web framework feature to every developer. Some frameworks take the "batteries-included" approach where everything possible comes bundled with the framework while others have a minimal core package that is amenable to extensions provided by other packages.

### Comparing web frameworks

There is also a repository called [compare-python-web-frameworks](#) where the same web application is being coded with varying Python web frameworks, templating engines and object.

### Web framework resources

- When you are learning how to use one or more web frameworks it's helpful to have an idea of what the code under the covers is doing.

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

- Frameworks is a really well done short video that explains how to choose between web frameworks. The author has some particular opinions about what should be in a framework. For the most part I agree although I've found sessions and database ORMs to be a helpful part of a framework when done well.
- what is a web framework? is an in-depth explanation of what web frameworks are and their relation to web servers.
- Django vs Flask vs Pyramid: Choosing a Python web framework contains background information and code comparisons for similar web applications built in these three big Python frameworks.
- This fascinating blog post takes a look at the code complexity of several Python web frameworks by providing visualizations based on their code bases.
- Python's web frameworks benchmarks is a test of the responsiveness of a framework with encoding an object to JSON and returning it as a response as well as retrieving data from the database and rendering it in a template. There were no conclusive results but the output is fun to read about nonetheless.
- What web frameworks do you use and why are they awesome? is a language agnostic Reddit discussion on web frameworks. It's interesting to see what programmers in other languages like and dislike about their suite of web frameworks compared to the main Python frameworks.
- This user-voted question & answer site asked "What are the best general purpose Python web frameworks usable in production?". The votes aren't as important as the list of the many frameworks that are available to Python developers.

### Web frameworks learning checklist

1. Choose a major Python web framework (Django or Flask are recommended) and stick with it. When you're just starting it's best to learn one framework first instead of bouncing around trying to understand every framework.

### **3. SYSTEM STUDY**

#### **FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

- ◆ **ECONOMICAL FEASIBILITY**
- ◆ **TECHNICAL FEASIBILITY**
- ◆ **SOCIAL FEASIBILITY**

#### **ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

#### **TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the



## **ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

### **SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

## **4. SYSTEM ANALYSIS**

### **EXISTING METHOD**

Earlier works involves using older Machine Learning algorithms like Logistic regression. They suffer from very low accuracies. There are Deep Learning based predictions as well which uses neural networks for prediction but they have high complexities and they fail to individually identify the important features for prediction.

### **DISADVANTAGES:**

- Low accuracy.
- High Variance.
- Incurs bias in classification.
- High Complexity.

### **PROPOSED METHOD**

In our research & extensive literature survey, we found that Random Forest works fine for Student's performance prediction with a great accuracy but it can be further increased by other tree based algorithm like XgBoost. Xgboost, when tuned properly can generate significant increase in performance. Also, we have used both unsupervised and supervised learning methods. The data is stored in a cloud server

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

which makes it easy to access from anywhere and this system generates predictions and provides suggestions to the student.

Flow of the project:

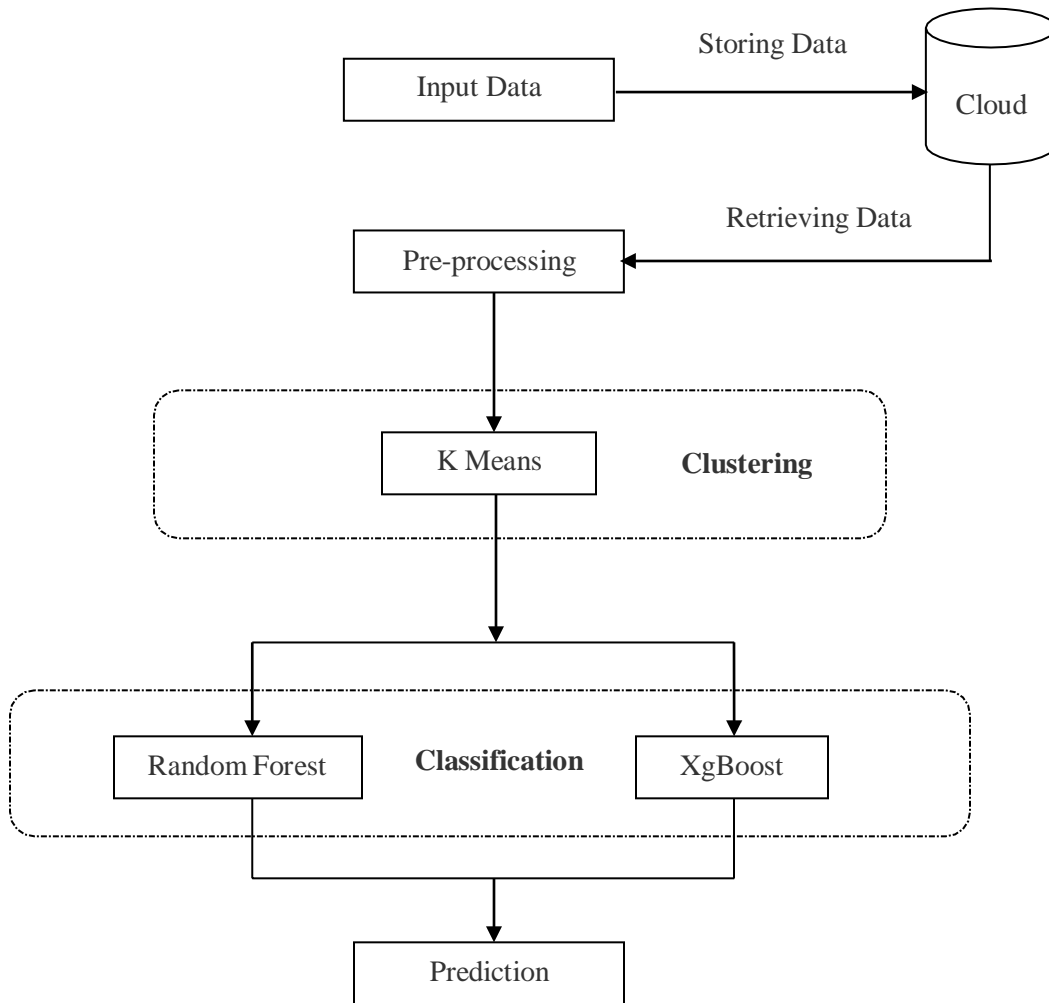


Fig1:Flow of the project

# **ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

## **ADVANTAGES:**

- Higher Accuracy.
- Low variance in classification.
- Bias due to assumption about dataset are minimum or even nonexistent.
- Low Complexities.
- Easy access of data

## **APPLICATIONS:**

- Schools.
- Universities and Colleges.
- Education department.
- Ed-Tech industries.
- Government agencies.

## **5. SYSTEM MODULES**

### **SystemUser**

#### **1. System:**

#### **Takes Dataset:**

The system takes in the .csv data uploaded by the user and load it in to a cloud server which acts as an interconnection for communication purposes using queries.

#### **Preprocessing:**

Data Preprocessing is a technique that is used to convert the raw data into a clean data set. Cleaning the data refers to removing the null values, filling the null values with meaningful value, removing duplicate values, removing outliers, removing unwanted attributes. If dataset contains any categorical records means convert those categorical variables to numerical values.

Here, we are removing rows with null values, Ordinal encoding the predictor variable, Label encoding the target variable.

#### **Splitting Dataset:**

The dataset is split into test and train dataset with a test size as entered by the user.

#### **Model Training:**

The models:

- K Means Clustering:
  - The algorithm will categorize the items into k groups of similarity.
  - To calculate that similarity, we will use the euclidean distance as measurement.
  - First we initialize k points, called means, randomly.

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

- We categorize each item to its closest mean and we update the mean's coordinates, which are the averages of the items categorized in that mean so far.
- We repeat the process for a given number of iterations and at the end, we have our clusters.
  
- Random Forest:
  - Random forest is a supervised learning algorithm.
  - The "forest" it builds, is an ensemble of decision trees, usually trained with the “bagging” method.
  - The general idea of the bagging method is that a combination of learning models increases the overall result.
  - It is also one of the most used algorithms, because of its simplicity and diversity.
  - It can be used for both classification and regression tasks.
  
- XgBoost:
  - Can be run on both single and distributed systems (Hadoop, Spark)
  - XG Boost is used in supervised learning (regression and classification problems).
  - Supports parallel processing.
  - Cache optimization.
  - Efficient memory management for large datasets exceeding RAM.
  - Has a variety of regularizations which helps in reducing over fitting.
  - Auto tree pruning – Decision tree will not grow further after certain limits internally.
  - Can handle missing values.
  - Has inbuilt Cross-Validation.
  - Takes care of outliers to some extent.

### **Prediction:**

The system takes input from the user for a student and predicts using the best model among the trained ones.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## 2. User

### **Upload Data:**

The user uploads a .csv dataset from the webb application which contains students performance parameters.

### **View Data:**

The user views the data in the webapp after it is cleaned. The user can also search any record by typing any keyword in the search box.

### **Input Test Size:**

The user enters the desired test dataset size in percentages in the webapp which will be used by the system for splitting the data.

### **Model Testing:**

The user tests all possible models trained by the system using the testing dataset and views their accuracies.

### **Prediction:**

The user enters the information about a student which is used by the system to predict the performance of that student.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

## 6. SYSTEM ARCHITECTURE

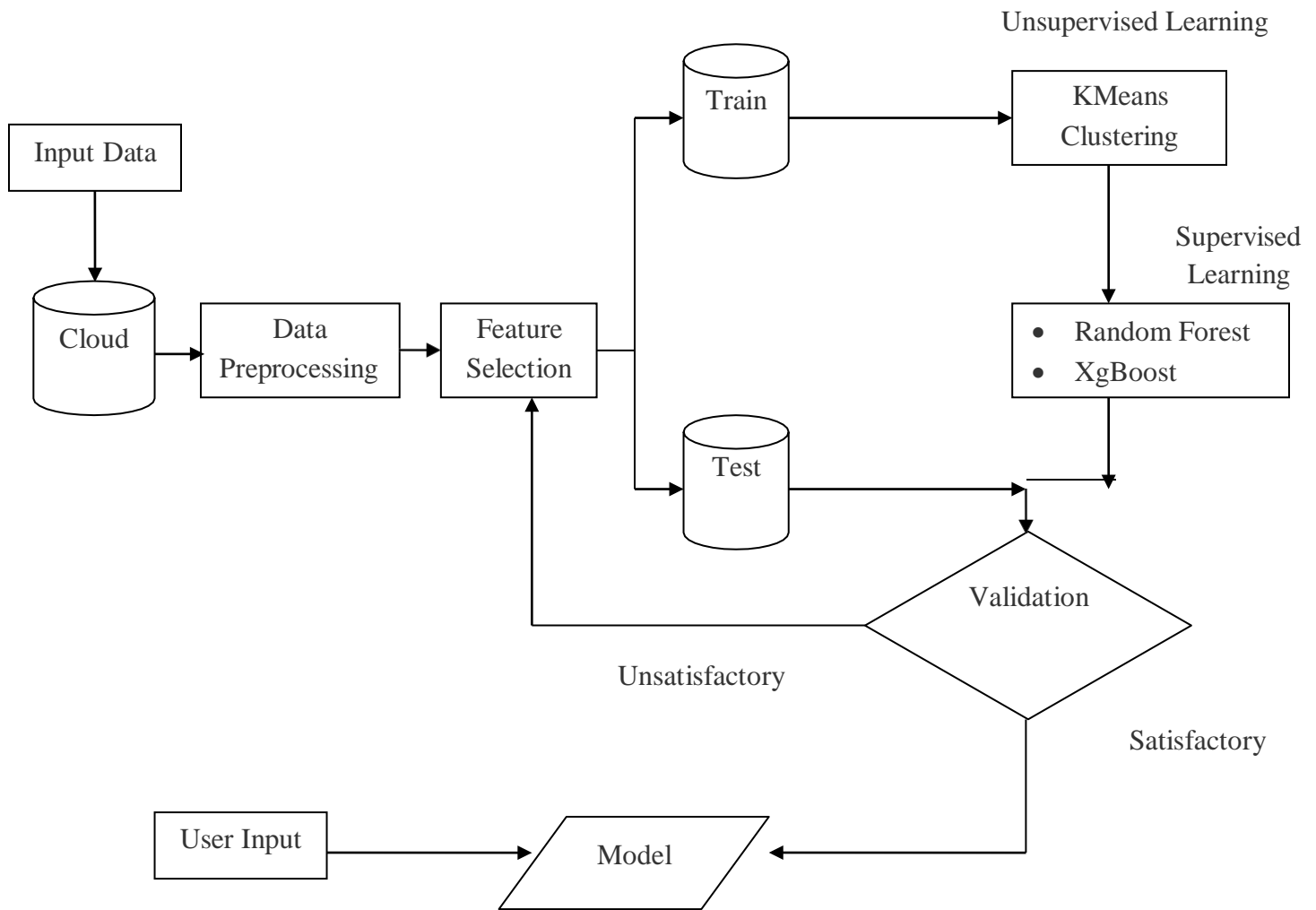


Fig2: System Architecture



## **7. SYSYTEM REQUIREMENTS**

### **HARDWARE & SOFTWARE REQUIREMENTS**

#### **H/W CONFIGURATION:**

- Processor - I3/Intel Processor
- RAM - 4GB (min)
- Hard Disk - 128 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - Any

#### **S/W CONFIGURATION:**

- Operating System : Windows 7+
- Server side Script : Python 3.6+
- IDE : PyCharm IDE
- Libraries Used : Pandas, Numpy, Sci-Kit Learn, Matplotlib, Seaborn, Flask, Pickle.
- Dataset : Students' Academic Performance Dataset.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## 8. SOFTWARE ENVIRONMENT

Installing Python:

1. To download and install Python visit the official website of Python <https://www.python.org/downloads/> and choose your version.



2. Once the download is complete, run the exe for install Python. Now click on Install Now.
3. You can see Python installing at this point.
4. When it finishes, you can see a screen that says the Setup was successful. Now click on "Close".

Installing PyCharm:

1. To download PyCharm visit the website <https://www.jetbrains.com/pycharm/download/> and Click the "DOWNLOAD" link under the Community Section.

## Download PyCharm

[Windows](#)

[Mac](#)

[Linux](#)

### Professional

For both Scientific and Web Python development. With HTML, JS, and SQL support.

Download

Free trial

### Community

For pure Python development

Download

Free, open-source

2. Once the download is complete, run the exe for install PyCharm. The setup wizard should have started. Click “Next”.
3. On the next screen, Change the installation path if required. Click “Next”.
4. On the next screen, you can create a desktop shortcut if you want and click on “Next”.
5. Choose the start menu folder. Keep selected JetBrains and click on “Install”.
6. Wait for the installation to finish.
7. Once installation finished, you should receive a message screen that PyCharm is installed. If you want to go ahead and run it, click the “Run PyCharm Community Edition” box first and click “Finish”.
8. After you click on "Finish," the Following screen will appear.

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---



9. You need to install some packages to execute your project in a proper way.
10. Open the command prompt/ anaconda prompt or terminal as administrator.
11. The prompt will get open, with specified path, type “pip install package name” which you want to install (like numpy, pandas, seaborn, scikit-learn, matplotlib.pyplot)

Ex: pip installnumpy

## **9. SYSTEM DESIGN**

### **UML DIAGRAMS**

UML stands for Unified Modeling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group.

The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artifacts of software system, as well as for business modeling and other non-software systems.

The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems.

The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

### **GOALS:**

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.
7. Integrate best practices.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

## 9.1. USECASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

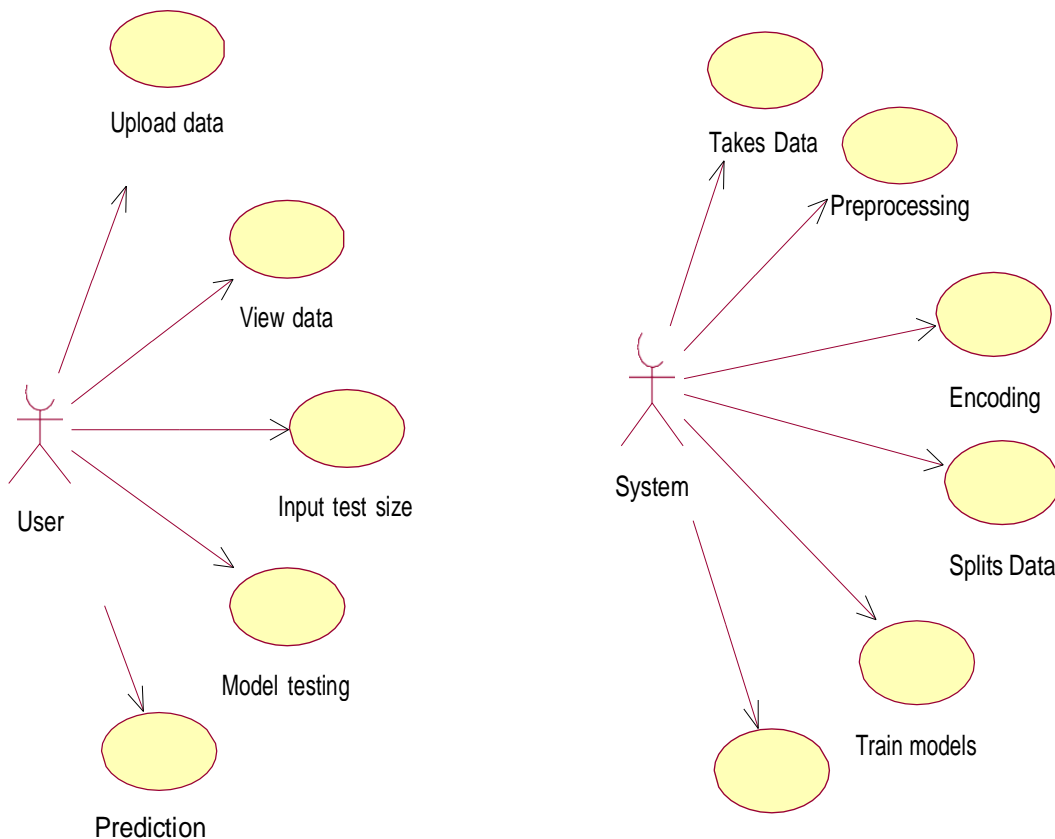


Fig 9.1.Usecase

## 9.2. CLASS DIAGRAM

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.



Fig9.2.Class diagram

## 9.3. SEQUENCE DIAGRAM

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

**ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

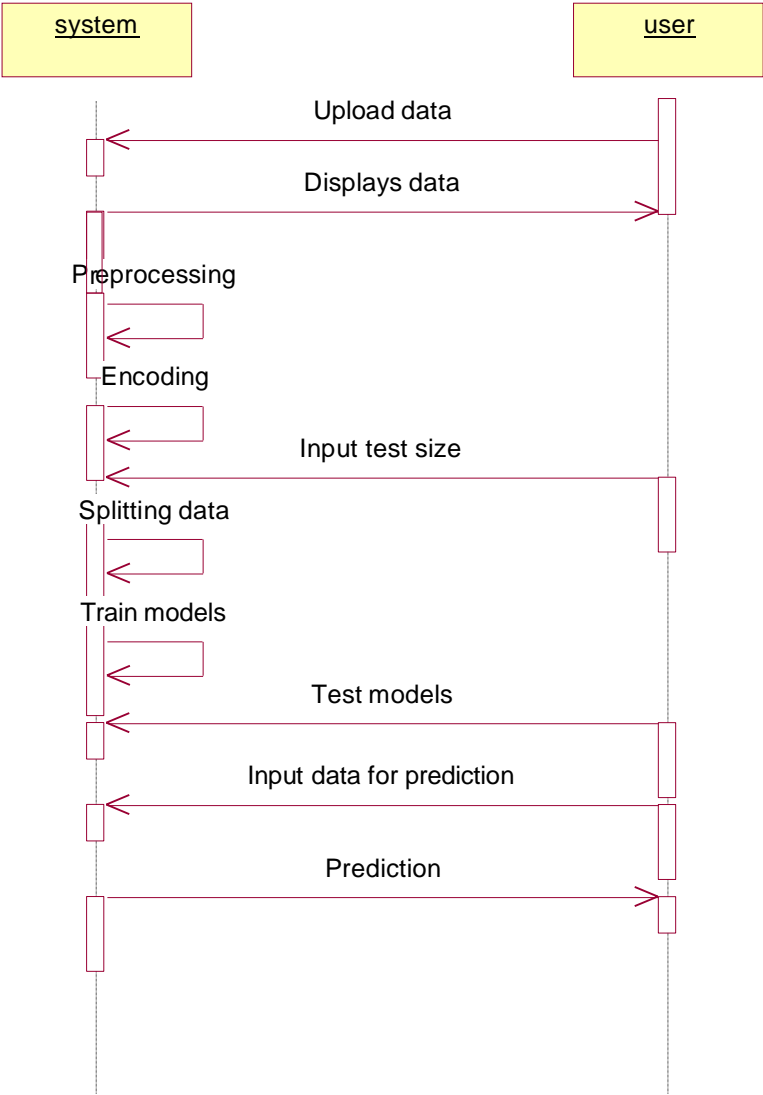


Fig9.3.Sequence diagram



### 9.4. COLLABORATION DIAGRAM

In collaboration diagram the method call sequence is indicated by some numbering technique as shown below. The number indicates how the methods are called one after another. We have taken the same order management system to describe the collaboration diagram. The method calls are similar to that of a sequence diagram. But the difference is that the sequence diagram does not describe the object organization where as the collaboration diagram shows the object organization.

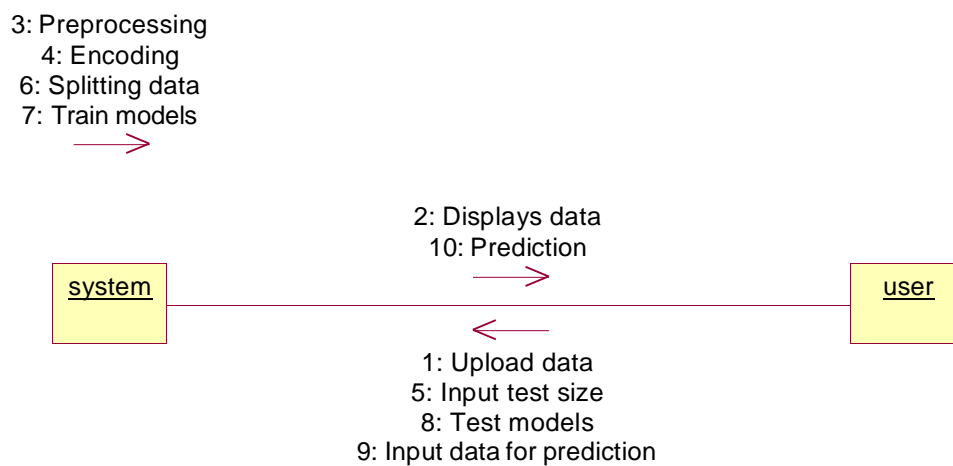


Fig9.4.Collaboration diagram

### 9.5.DEPLOYMENT DIAGRAM

Deployment diagram represents the deployment view of a system. It is related to the component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical hardware used to deploy the application.

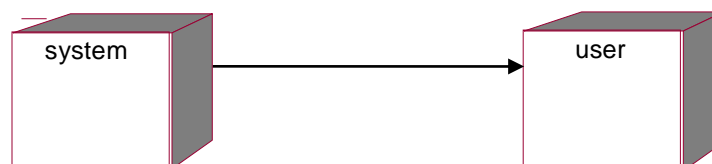


Fig9.5. Deployment diagram

9.6. ACTIVITY DIAGRAM

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

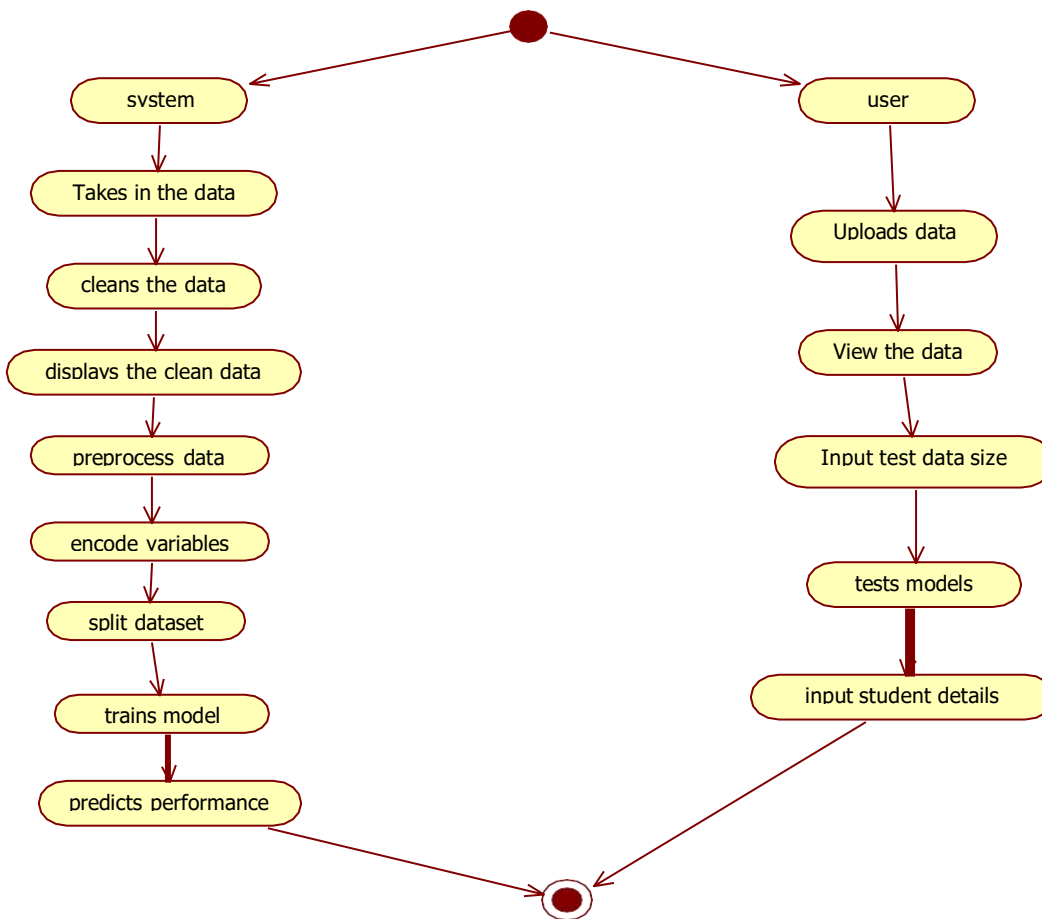


Fig9.6.Activity diagram

## **9.7. COMPONENT DIAGRAM**

A component diagram, also known as a UML component diagram, describes the organization and wiring of the physical components in a system. Component diagrams are often drawn to help model implementation details and double-check that every aspect of the system's required functions is covered by planned development.

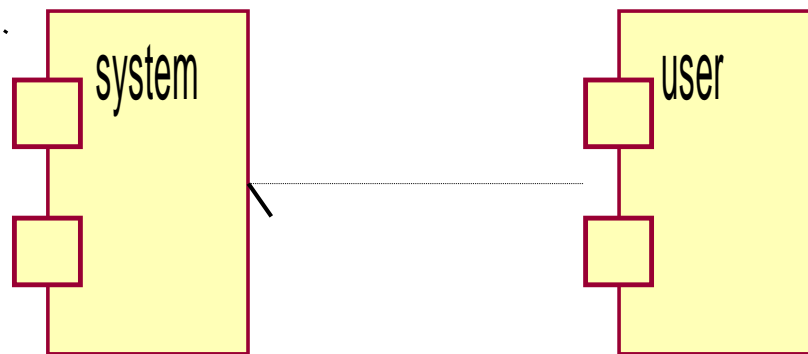


Fig9.7.Component diagram

## **9.8. ER DIAGRAM**

An Entity–relationship model (ER model) describes the structure of a database with the help of a diagram, which is known as Entity Relationship Diagram (ER Diagram). An ER model is a design or blueprint of a database that can later be implemented as a database. The main components of E-R model are: entity set and relationship set.

An ER diagram shows the relationship among entity sets. An entity set is a group of similar entities and these entities can have attributes. In terms of DBMS, an entity is a table or attribute of a table in database, so by showing relationship among tables and their attributes, ER diagram shows the complete logical structure of a database. Let's have a look at a simple ER diagram to understand this concept.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

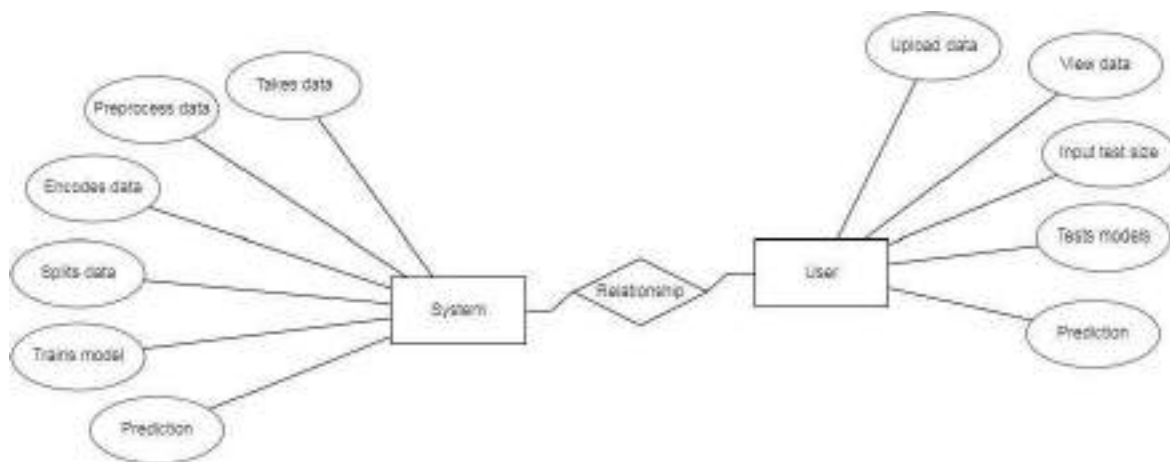


Fig9.8. ER diagram

## 9.9. DFD DIAGRAM

A Data Flow Diagram (DFD) is a traditional way to visualize the information flows within a system. A neat and clear DFD can depict a good amount of the system requirements graphically. It can be manual, automated, or a combination of both. It shows how information enters and leaves the system, what changes the information and where information is stored. The purpose of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communications tool between a systems analyst and any person who plays a part in the system that acts as the starting point for redesigning a system.

**ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

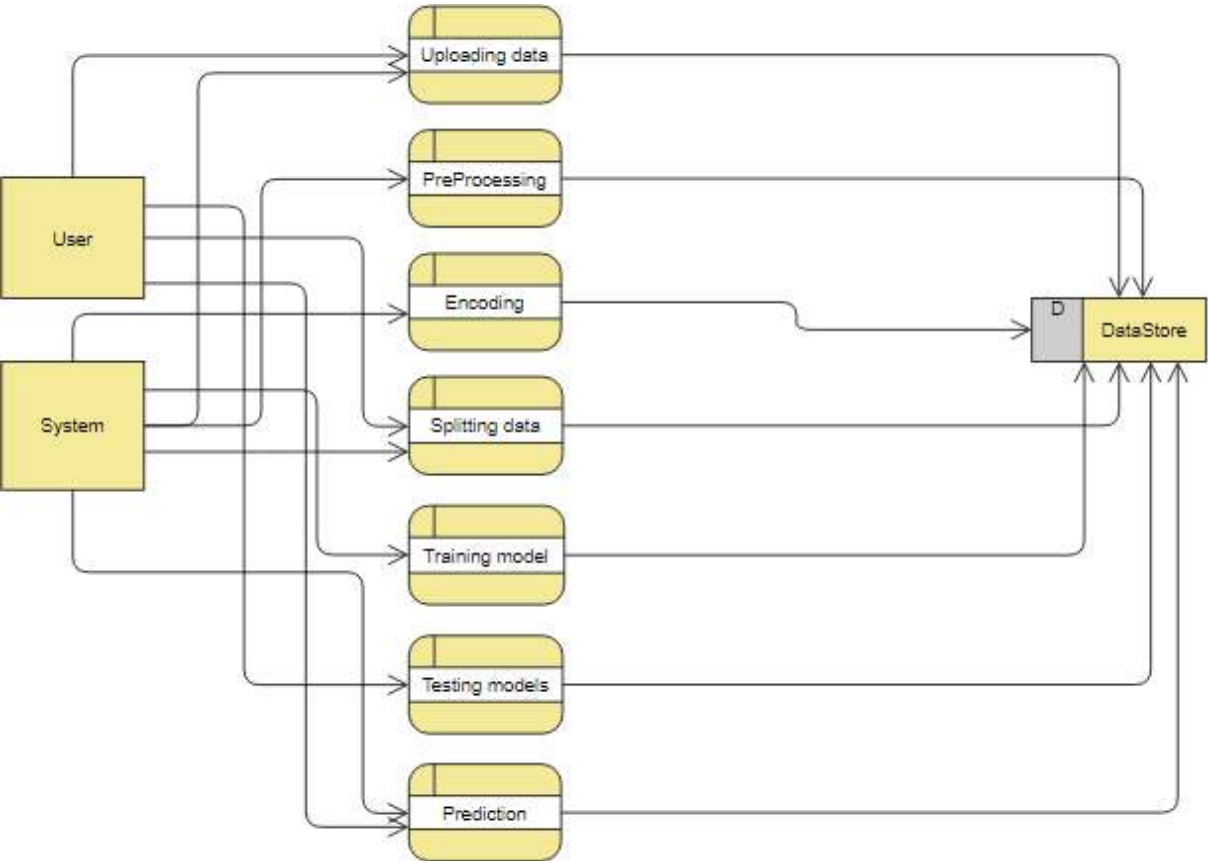


Fig9.9. DFD diagram

**ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

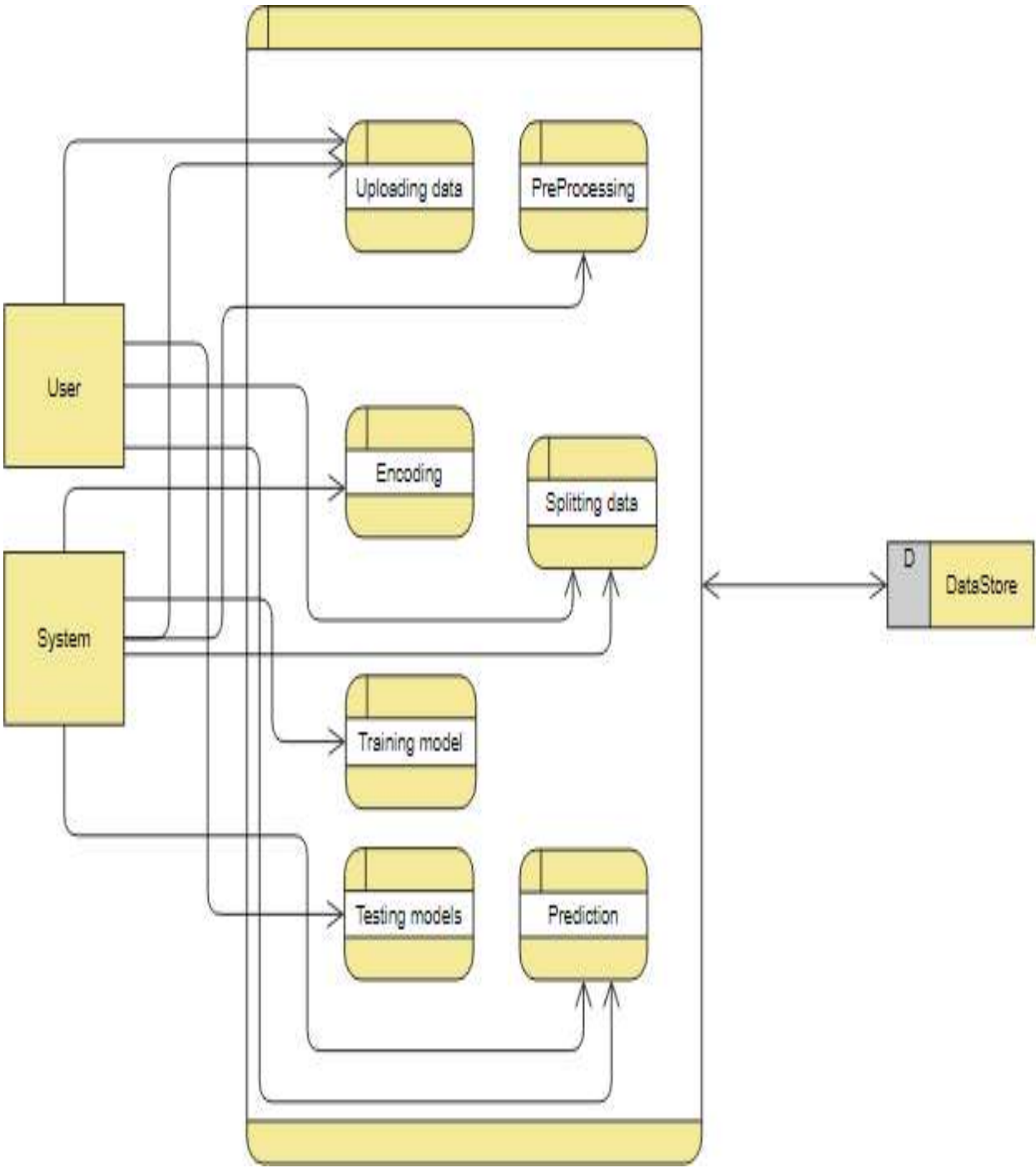


Fig9.10. DFD diagram

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## 10.SOURCE CODE

### main.py.

```
from flask import Flask, render_template, request,
url_for, flash, redirect
from werkzeug.utils import secure_filename
import os
import pandas as pd
from sklearn.preprocessing import LabelEncoder,
OrdinalEncoder
from sklearn.model_selection import train_test_split,
GridSearchCV

from sklearn.cluster import KMeans,
AgglomerativeClustering
from scipy import stats
from sklearn.metrics import accuracy_score from
sklearn.naive_bayes import GaussianNB from
sklearn.tree import DecisionTreeClassifierimport
pickle
import shutil

app=Flask(__name__)
app.config['UPLOAD_FOLDER']="D:\\YMTS0297\\IEEE\\Student
Performance Prediction using ML\\Uploaded_data"
app.config['SECRET_KEY']='b0b4fbefdc48be27a6123605f02b6b86'

full_data=None; df_encoded=None
X_train=None; X_test=None; y_train=None; y_test=NoneX=None;
y=None
y_train2=None; y_test2=None
#KMeans Training clusters
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
df1=None; df2=None; df3=None
#KMeans Testing clusters
df1_train=None; df2_train=None; df3_train=None;
#All Accuracies#
accuracy=[]

oe = OrdinalEncoder() #Contains features encoding
le = LabelEncoder() #Contains target encoding only

def clean_data(file):
 file.drop(['StageID'], axis=1, inplace=True)
 file.PlaceofBirth =
file.PlaceofBirth.replace(to_replace='KuwaIT',value='Kuwait')
 file.NationalITY =
file.NationalITY.replace(to_replace='KW',
value='Kuwait')
 file.columns = [x.capitalize() for x in
file.columns]
 file.Nationality = [x.capitalize() for x in
file.Nationality]
 file.Placeofbirth = [x.capitalize() for x in
file.Placeofbirth]
 return file

###Preprocessing
def preprocessing(file):
 #Null values removal
 file.dropna(axis=0, how='any', inplace=True)
 #Seperating objects
df_obj=file.select_dtypes(include=['object'])
df_obj.drop(['Class'], axis=1, inplace=True)
```



## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
#Label encoding (for features) df_new=oe.fit_transform(df_obj)
df_new=pd.DataFrame(df_new,
columns=df_obj.columns)
#Combining
file_new=file.copy()
for col in file_new.columns.values:
 try:
 file_new[col]=df_new[col]
 except:
 pass
return file_new

###Splitting dataset
def split_data(file):
 X = file.iloc[:, :-1]y =
 file.Class
 X_train, X_test, y_train, y_test =
train_test_split(X, y, test_size=0.2, stratify=y,
random_state=4)
 print(X_train)
 return X_train, X_test, y_train, y_test

def kmeans_clustering():
 ##K-Means
 kmeans = KMeans(n_clusters=3)
 kmeans.fit(X_train)

 y_test_pred = kmeans.predict(X_test)

 X_test_cl = pd.concat([X_test,
pd.DataFrame(y_test2, index=X_test.index,
columns=['y_test']),
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
pd.DataFrame(y_test_pred, index=X_test.index,
columns=['y_pred'])), axis=1)
 global df1, df2, df3
 # Cluster 1
 df1 = X_test_cl[X_test_cl.y_pred == 0]
Cluster 2
df2 = X_test_cl[X_test_cl.y_pred == 1]
Cluster 3
df3 = X_test_cl[X_test_cl.y_pred == 2]

global df1_train, df2_train, df3_train
y_train_pred = kmeans.predict(X_train) X_train_cl
= pd.concat([X_train, pd.DataFrame(y_train2,
index=X_train.index, columns=['y_train']),
pd.DataFrame(y_train_pred,
index=X_train.index, columns=['y_pred'])]), axis=1)
Cluster 1
df1_train = X_train_cl[X_train_cl.y_pred == 0]
Cluster 2
df2_train = X_train_cl[X_train_cl.y_pred == 1]
Cluster 3
df3_train = X_train_cl[X_train_cl.y_pred == 2]

m1 = stats.mode(df1.y_test)
m2 = stats.mode(df2.y_test)
m3 = stats.mode(df3.y_test)
mode_vals=[m1[0][0],m2[0][0],m3[0][0]]

Matching predicted clusters with labels of the target
value assuming mode of the clusters to represent the
cluster itself
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
y_test_pred_new = []
 for val in y_test_pred:
 if val == m1[0][0]: y_test_pred_new.append(0)
 elif val == m2[0][0]: y_test_pred_new.append(1)
 else:
 y_test_pred_new.append(2)

 acc_km=accuracy_score(y_test2, y_test_pred_new)
 # global accuracy
 # accuracy.append(acc_km)
 flash("KMeans Clustering performed
Successfully", 'secondary')
 return acc_km, mode_vals

def agg_clustering():
 agg = AgglomerativeClustering(n_clusters=3,
 affinity='euclidean', linkage='ward')
 y_pred = agg.fit_predict(df_encoded.iloc[:, :-1])y_true
 = le.transform(df_encoded.Class)
 acc_agg=accuracy_score(y_true, y_pred)
 flash("Agglomerative Clustering performed
Successfully", 'secondary')
 # accuracy.append(acc_agg)
 return acc_agg

def naive_bayes_classifier(): gnb =
 GaussianNB() gnb.fit(X_train,
 y_train2) y_pred =
 gnb.predict(X_test)
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
acc_gnb = accuracy_score(y_test2, y_pred) flash("Naive
 Bayes model created Successfully",
'secondary')
 # accuracy.append(acc_gnb)
 return acc_gnb

def DT_classifier_untuned():
 dct = DecisionTreeClassifier()
 dct.fit(X_train, y_train2) y_pred
 = dct.predict(X_test)
 acc_dct = accuracy_score(y_test2, y_pred)
 flash("Decision Tree without tuning model created
 Successfully", 'secondary')
 # accuracy.append(acc_dct)
 return acc_dct

def DT_classifier_tuned():
 dct=pickle.load(open("model/dct_76","rb")) #Tuned
 model using GridSearchCV
 y_pred = dct.predict(X_test)
 acc_dct = accuracy_score(y_test2, y_pred)
 flash("Decision Tree with Hyperparameter tuning
 model created Successfully", 'secondary')
 # accuracy.append(acc_dct)
 return acc_dct

def Naive_bayes_kmeans():
 # Modelling On seperate clusters (clustered by
 kmeans)
 # For cluster 1
 gnb1 = GaussianNB()
 gnb1.fit(df1_train.iloc[:, :-2],
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
df1_train.iloc[:, -2])
 y_pred1 = gnb1.predict(df1.iloc[:, :-2])
 acc_1 = accuracy_score(df1.iloc[:, -2], y_pred1)

For cluster 2
gnb2 = GaussianNB()
gnb2.fit(df2_train.iloc[:, :-2], df2_train.iloc[:, -2])
y_pred2 = gnb2.predict(df2_train.iloc[:, :-2])
acc_2 = accuracy_score(df2_train.iloc[:, -2], y_pred2)

For cluster 3
gnb3 = GaussianNB()
gnb3.fit(df3_train.iloc[:, :-2], df3_train.iloc[:, -2])
y_pred3 = gnb3.predict(df3_train.iloc[:, :-2])
acc_3 = accuracy_score(df3_train.iloc[:, -2], y_pred3)

combined accuracy for cluster wise naive bayesmodel
acc_gnb_km = ((acc_1 * df1.shape[0]) + (acc_2 *
df2.shape[0]) + (acc_3 * df3.shape[0])) / (df1.shape[0] +
df2.shape[0] + df3.shape[0]) flash("Naive Bayes + KMeans
clustering combined model created Successfully", 'secondary')
accuracy.append(acc_gnb_km)
dict=pd.DataFrame({'Accuracy':accuracy})
dict.to_csv('run_time_acc.csv', index=False)
return acc_gnb_km

@app.route('/')
def home():
 return render_template('index.html')
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
@app.route('/load', methods=["POST", "GET"])
def load():
 if request.method=="POST":
 myfile=request.files['filename']
 ext=os.path.splitext(myfile.filename)[1]if
 ext.lower() == ".csv":

shutil.rmtree(app.config['UPLOAD_FOLDER'])
 os.mkdir(app.config['UPLOAD_FOLDER'])

myfile.save(os.path.join(app.config['UPLOAD_FOLDER'],
secure_filename(myfile.filename)))
 flash('The data is loaded
successfully, 'success')
 return
render_template('load_dataset.html')
 else:
 flash('Please upload a CSV type document
only, 'warning')
 return
render_template('load_dataset.html')
 return render_template('load_dataset.html')

@app.route('/view')
def view():
 #dataset myfile=os.listdir(app.config['UPLOAD_FOLDER'])
 global full_data

full_data=pd.read_csv(os.path.join(app.config["UPLOAD
_FOLDER"],myfile[0])) full_data=clean_data(full_data)
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
 return render_template('view_dataset.html',
col=full_data.columns.values,
df=list(full_data.values.tolist()))

@app.route('/split', methods=['POST', 'GET'])
def split():
 if request.method=="POST":
 test_size=float(request.form['size'])
 test_size=test_size/100
 global df_encoded
 #preprocessing
 df_encoded=preprocessing(full_data)#split
 global X, y, X_train, X_test, y_train,
y_test, y_train2, y_test2
 X = df_encoded.iloc[:, :-1]y =
 df_encoded.Class
 X_train, X_test, y_train, y_test =
train_test_split(X, y, test_size=test_size,
stratify=y, random_state=2)
 y_train2 = le.fit_transform(y_train)
 y_test2 = le.transform(y_test)
 flash('The dataset is transformed and split
successfully', 'success')
 return redirect(url_for('train_model'))
 return render_template('split_dataset.html')

@app.route('/train_model', methods=['GET', 'POST'])
def train_model():
 if request.method=="POST":
 model_no=int(request.form['algo'])if
 model_no==0:
 print("U have not selected any model")
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
 elif model_no==1:
 acc_km, mode_vals = kmeans_clustering()
 return render_template('train_model.html',
mode_vals=le.inverse_transform(mode_vals),acc=acc_km,
model=model_no)
 elif model_no==2:
 acc_agg=agg_clustering()return
render_template('train_model.html', acc=acc_agg,
model=model_no)
 elif model_no==3:
 acc_gnb=naive_bayes_classifier()return
render_template('train_model.html', acc=acc_gnb,
model=model_no)
 elif model_no==4:
 acc_dct=DT_classifier_untuned()return
render_template('train_model.html', acc=acc_dct,
model=model_no)
 elif model_no==5:
 acc_dct=DT_classifier_tuned()return
render_template('train_model.html', acc=acc_dct,
model=model_no)
 elif model_no==6:
 acc_gnb_km=Naive_bayes_kmeans()
 return render_template('train_model.html',

 acc=acc_gnb_km,model=model_no)
 return render_template('train_model.html')
```



## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
@app.route('/predict', methods=['POST', 'GET'])
def predict():
 if request.method=='POST':
 #Accepts all values
 f1=request.form['f1']
 f2 = request.form['f2']
 f3 = request.form['f3']
 f4 = request.form['f4']
 f5 = request.form['f5']
 f6 = request.form['f6']
 f7 = request.form['f7']
 f8 = request.form['f8']
 f9 = float(request.form['f9'])
 f10 = float(request.form['f10'])f11
 = float(request.form['f11'])
f12 = float(request.form['f12'])
 f13 = request.form['f13']
 f14 = request.form['f14']
 f15 = request.form['f15']

all_obj_vals=[f1,f2,f3,f4,f5,f6,f7,f8,f13,f14,f15]

 all_obj_vals=oe.transform([all_obj_vals])

 all_vals=[]
 for i in all_obj_vals[0][0:8]:
 all_vals.append(i)
 all_vals.extend([f9,f10,f11,f12])
 for i in all_obj_vals[0][-3:]:
 all_vals.append(i)

 #Model
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
 dct = pickle.load(open("model/dct_76", "rb"))
 pred=dct.predict([all_vals])
 pred=le.inverse_transform(pred)[0]
 return render_template('prediction.html',
pred=pred)
 return render_template('prediction.html')

if __name__ == '__main__':
 app.run(debug=True)
```

### student-modeling.py.

```
import pandas as pd
import numpy as np
import matplotlib
matplotlib.use('Agg')
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.preprocessing import LabelEncoder,
OrdinalEncoder
from sklearn.model_selection import train_test_split,
GridSearchCV
from sklearn.cluster import KMeans
from sklearn.metrics import accuracy_score,
confusion_matrix
from scipy import stats
import scipy.cluster.hierarchy as shc
from sklearn.cluster import AgglomerativeClustering
from sklearn.naive_bayes import GaussianNB from
sklearn.tree import DecisionTreeClassifierimport
pickle
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
def load_data(path):
 fn=pd.read_csv(path)
 return fn

def clean_data(file):
 file.drop(['StageID'], axis=1, inplace=True)
 file.PlaceofBirth =
file.PlaceofBirth.replace(to_replace='KuwaIT',value='Kuwait')
 file.NationalITy =
file.NationalITy.replace(to_replace='KW',
value='Kuwait')
 file.columns = [x.capitalize() for x in
file.columns]
 file.Nationality = [x.capitalize() for x in
file.Nationality]
 file.Placeofbirth = [x.capitalize() for x in
file.Placeofbirth]
 return file
edu_data=load_data(r"Datasets/xAPI-Edu-
Data.csv")
edu_data=clean_data(edu_data)

#Vizualization #Topic
Distribution
sns.countplot(edu_data.Topic, palette='muted')

#Factor Plot Topic wise failed students
edu_data['Failed'] =
np.where(edu_data['Class']=='L',1,0)
sns.factorplot('Topic','Failed', data=edu_data,
size=7)
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
#Check for imbalanced data
sns.countplot(x='Class', data=edu_data)
plt.show()

#Parent school satisfaction
sns.countplot(x='Parentschoolsatisfaction', data =
edu_data, palette='bright')
plt.show()

#Gaurdian relation effects in performance
sns.factorplot('Relation', 'Failed', data=edu_data)

#Gender of students effects in performance
sns.factorplot("Gender", "Failed", data=edu_data)#imp

#Hand raising effect on performance
fg=sns.FacetGrid(edu_data, hue='Failed', size=5,
legend_out=False)
fg.map(sns.kdeplot, 'Raisedhands', shade=True)
fg.set(xlim=(0,edu_data['Raisedhands'].max()))
fg.add_legend()

#Discussion effect on performance
fg=sns.FacetGrid(edu_data, hue='Failed', size=5,
legend_out=False)
fg.map(sns.kdeplot, 'Discussion', shade=True)
fg.set(xlim=(0,edu_data['Discussion'].max()))
fg.add_legend()

#Visited Resources effect on performance
fg=sns.FacetGrid(edu_data, hue='Failed', size=5,
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
legend_out=False)
fg.map(sns.kdeplot, 'Visitedresources', shade=True)#imp
fg.set(xlim=(0,edu_data['Visitedresources'].max()))
fg.add_legend()

#Announcements Views effect on performance
fg=sns.FacetGrid(edu_data, hue='Failed', size=5,
legend_out=False)
fg.map(sns.kdeplot, 'Announcementsview', shade=True)
fg.set(xlim=(0,edu_data['Announcementsview'].max()))
fg.add_legend()

edu_data.groupby('Topic').median()

edu_data['Absboolean'] = edu_data['Studentabsencedays']
edu_data['Absboolean'] = np.where(edu_data['Absboolean'] ==
'Under-7',0,1)
edu_data['Absboolean'].groupby(edu_data['Topic']).mean()

###Preprocessing
def preprocessing(file):
 file.drop(['Absboolean','Failed'], axis=1,
inplace=True)

 #Null values removal
 file.dropna(axis=0, how='any', inplace=True)
 #Seperating objects
 df_obj=file.select_dtypes(include=['object'])
 df_obj.drop(['Class'], axis=1, inplace=True)#Label
encoding (for features) oe=OrdinalEncoder()
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
df_new=oe.fit_transform(df_obj)df_new=pd.DataFrame(df_new,
columns=df_obj.columns)
#Combining
file_new=file.copy()
for col in file_new.columns.values:
 try:
 file_new[col]=df_new[col]
 except:
 pass
return file_new
```

```
edu_adj=preprocessing(edu_data)
pd.plotting.radviz(edu_adj, 'Class')
```

```
###Splitting dataset
```

```
def split_data(file):
 X = file.iloc[:, :-1]y =
 file.Class
 X_train, X_test, y_train, y_test =
train_test_split(X, y, test_size=0.2, stratify=y,
random_state=2)
 return X_train, X_test, y_train, y_test
```

```
X_train, X_test, y_train, y_test =
split_data(edu_adj)
```

```
le=LabelEncoder() y_train2=le.fit_transform(y_train)
y_test2=le.transform(y_test)
```

```
###Clustering
```

```
##K-Means
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
kmeans=KMeans(n_clusters=3)
kmeans.fit(X_train)

y_test_pred=kmeans.predict(X_test)
acc_km=accuracy_score(y_test2, y_test_pred)
confusion_matrix(y_test2, y_test_pred)

#pickle.dump(kmeans, open('km_58', 'wb')) #Cluster

wise data (only contains test rows)
X_test_cl=pd.concat([X_test, pd.DataFrame(y_test2,
index=X_test.index, columns=['y_test']),
pd.DataFrame(y_test_pred, index=X_test.index,
columns=['y_pred'])], axis=1)
df1=X_test_cl[X_test_cl.y_pred==0]
df2=X_test_cl[X_test_cl.y_pred==1]
df3=X_test_cl[X_test_cl.y_pred==2]

#Cluster wise data (only contains train rows)
y_train_pred=kmeans.predict(X_train)
X_train_cl=pd.concat([X_train, pd.DataFrame(y_train2,
index=X_train.index, columns=['y_train']),
pd.DataFrame(y_train_pred, index=X_train.index,
columns=['y_pred'])], axis=1)
df1_train=X_train_cl[X_train_cl.y_pred==0]
df2_train=X_train_cl[X_train_cl.y_pred==1]
df3_train=X_train_cl[X_train_cl.y_pred==2]

#Mode of the clusters m1=stats.mode(df1.y_test)
m2=stats.mode(df2.y_test)
m3=stats.mode(df3.y_test)
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
#Matching predicted clusters with labels of the target value assuming mode of the clusters to represent the cluster itself

y_test_pred_new=[]
for val in y_test_pred:
 if val==m1[0][0]: y_test_pred_new.append(0)
 elif val==m2[0][0]: y_test_pred_new.append(1)
 else:
 y_test_pred_new.append(2)

acc_km=accuracy_score(y_test2, y_test_pred_new)
confusion_matrix(y_test2, y_test_pred_new)

dict=pd.DataFrame({'Clusters':['Cluster1', 'Cluster2', 'Cluster3'], 'Modal Class Value':le.inverse_transform([m1[0][0],m2[0][0],m3[0][0])])})
dict.to_csv('mode_values_kmeans.csv', index=False)

##Agglomerative Clustering
plt.figure(figsize=(10, 7))
plt.title("Dendrograms")
dend = shc.dendrogram(shc.linkage(X_test, method='ward'))
plt.axhline(y=280, color='r', linestyle='--')
plt.savefig('dendo.png')

agg = AgglomerativeClustering(n_clusters=3, affinity='euclidean', linkage='ward')
y_pred=agg.fit_predict(edu_adj.iloc[:, :-1])
```



## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
plt.figure(figsize=(10, 7))
plt.scatter(edu_adj['Discussion'],
edu_adj['Visitedresources'], c=agg.labels_)

y_true=le.transform(edu_adj.Class)
acc_agg=accuracy_score(y_true,y_pred)

#pickle.dump(agg, open('agg_48', 'wb'))

###Classification
##Naive Bayes
#On full dataset
gnb=GaussianNB()
gnb.fit(X_train, y_train2)
y_pred=gnb.predict(X_test)
acc_gnb=accuracy_score(y_test2, y_pred)

#pickle.dump(gnb, open('gnb_76', 'wb'))
#0.7604166666666666

#On seperate clusters (clustered by kmeans)#For
cluster 1
gnb1=GaussianNB()
gnb1.fit(df1_train.iloc[:, :-2], df1_train.iloc[:, -2])
y_pred1=gnb1.predict(df1_train.iloc[:, :-2])
acc_1=accuracy_score(df1_train.iloc[:, -2],y_pred1)
#pickle.dump(gnb1, open('gnb_1_66', 'wb')) #0.6666666666666666

#For cluster 2
gnb2=GaussianNB()
gnb2.fit(df2_train.iloc[:, :-2], df2_train.iloc[:, -2])
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
y_pred2=gnb2.predict(df2.iloc[:, :-2])
acc_2=accuracy_score(df2.iloc[:, -2], y_pred2)
#pickle.dump(gnb2, open('gnb_2_55', 'wb'))
#0.5581395348837209

#For cluster 3
gnb3=GaussianNB()
gnb3.fit(df3_train.iloc[:, :-2], df3_train.iloc[:, -2])
y_pred3=gnb1.predict(df3.iloc[:, :-2])
acc_3=accuracy_score(df3.iloc[:, -2], y_pred3)
#pickle.dump(gnb3, open('gnb_3_86', 'wb'))
#0.8695652173913043

#combined accuracy for cluster wise naive bayes model
acc_gnb_km=((acc_1*df1.shape[0])+(acc_2*df2.shape[0])
+(acc_3*df3.shape[0]))/(df1.shape[0]+df2.shape[0]+df3
.shape[0]) #0.6666666666666666 #0.67708333333333334
#0.71875

##Decision Tree
#On full dataset
#Tuning
dct=DecisionTreeClassifier(params={
 'criterion':['gini', 'entropy'],
 'max_depth':[*range(1, 25)],
 'min_samples_split':[*range(2, 10)],
 'min_samples_leaf':[*range(1, 5)]
})
grid=GridSearchCV(dct, params, n_jobs=4,
scoring='accuracy', cv=5, verbose=1)
grid_res=grid.fit(X_train, y_train2)
g=grid_res.best_params_
```

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

```
dct=DecisionTreeClassifier(criterion=list(g.values())[0],
max_depth=list(g.values())[1],
min_samples_leaf=list(g.values())[2],
min_samples_split=list(g.values())[3]) dct.fit(X_train,
y_train2)
y_pred=dct.predict(X_test)
acc_dct=accuracy_score(y_test2, y_pred)
pickle.dump(dct, open('model/dct_76', 'wb'))
```

## **11. SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the

Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### ***TYPES OF TESTS***

#### ***Unit testing***

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### ***Integration testing***

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration

## **ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

testing is specifically aimed at exposing the problems that arise from the combination of components.

### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **SYSTEM TEST**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is used to test areas that cannot be reached from a black box level.

## **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## **Unit Testing:**

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

## **Test strategy and approach**

Field testing will be performed manually and functional tests will be written in detail.

## **Test objectives**

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

## **Features to be tested**

## ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

### **Integration Testing**

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

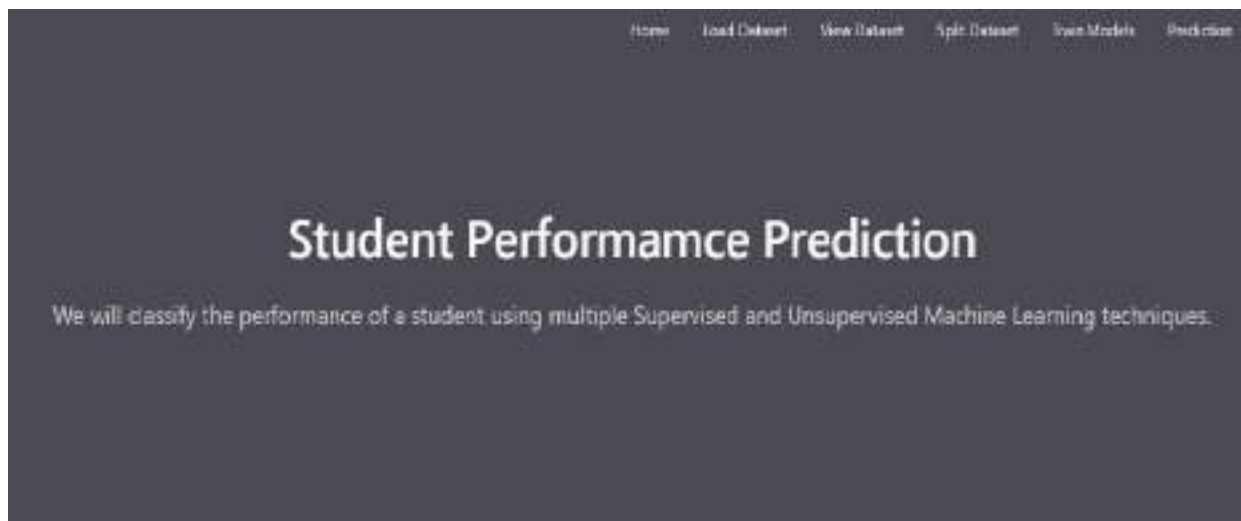
### ***Acceptance Testing***

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## **12. OUTPUT SCREENS**

### **Screen 1: Home Page:**

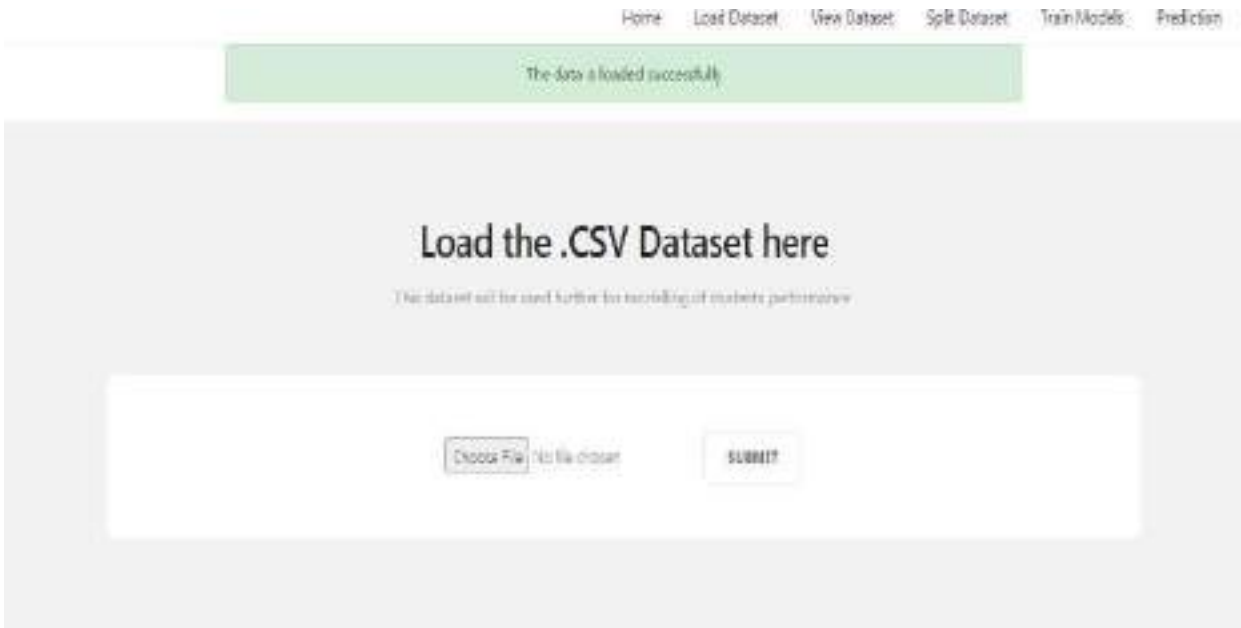


### **Screen 2: Load Dataset Page:**





# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES



**Screen 3: View Dataset page:**

Showing 10 entries

Search:

ID	Gender	Nationality	Placeofbirth	GradeId	SectionId	Topic	Semester	Relation	Rollnoexam	VBbednoexam	Score
1	M	Kuwait	Kuwait	G-04	A	IT	F	Father	15	15	21
2	M	Kuwait	Kuwait	G-04	A	IT	F	Father	20	20	31
3	M	Kuwait	Kuwait	G-04	A	IT	F	Father	10	7	0
4	M	Kuwait	Kuwait	G-04	A	IT	F	Father	30	25	5
5	M	Kuwait	Kuwait	G-04	A	IT	F	Father	40	30	11
6	F	Kuwait	Kuwait	G-04	A	IT	F	Father	42	30	11
7	M	Kuwait	Kuwait	G-04	A	Math	F	Father	35	12	8
8	M	Kuwait	Kuwait	G-04	A	Math	F	Father	30	10	11
9	F	Kuwait	Kuwait	G-04	A	Math	F	Father	12	21	14
10	F	Kuwait	Kuwait	G-04	B	IT	F	Father	70	30	21

Showing 1 to 10 of 480 entries

First Previous 1 2 3 4 5 ... 48 Next Last

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## Screen 4: Split Dataset Page

Home Load Dataset View Dataset Split Dataset Train Models Prediction

### Splitting Data

This dataset is processed and splitted into train and test datasets.

Enter the desired test dataset size anywhere between: 10-30%

SUBMIT

## Screen 5: Split Dataset Page:

Home Load Dataset View Dataset Split Dataset Train Models Prediction

### Splitting Data

This dataset is processed and splitted into train and test datasets.

Enter the desired test dataset size anywhere between: 10-30%

SUBMIT

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## Screen 6: Training dataset pages

KMeans Clustering performed Successfully

### Training models

The Accuracy of K Means Clustering in Clustering the samples is 0.5833333333333334

The Mode of Cluster 1 is L  
The Mode of Cluster 2 is H  
The Mode of Cluster 3 is M

Select a Model:

Select Model

SUBMIT

Agglomerative Clustering performed Successfully

### Training models

The Accuracy of Agglomerative Clustering in Clustering the samples is 0.48541666666666666

Select a Model:

Select Model

SUBMIT

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

Naive Bayes model created Successfully

## Training models

The Accuracy of Naive Bayes is 0.7638888888888888

Select a Model:

Select Model

SUBMIT

Decision Tree without tuning model created Successfully

## Training models

The Accuracy of Decision Tree without any tuning is 0.7083333333333334

Select a Model:

Select Model

SUBMIT

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

Decision Tree with Hyperparameter tuning model created Successfully

## Training models

The Accuracy of Decision Tree with Hyperparameters tuning is 0.7777777777777778

Select a Model

Select Model

SUBMIT

Naive Bayes + KMeans clustering combined model created successfully

## Training models

The Accuracy of Combined Naive Bayes and KMeans Clustering model is 0.7083333333333334

Select a Model

Select Model

SUBMIT

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## Screen 7: Prediction Page:

### Prediction

Please enter the values in the following form and the prediction will be done by the best performing model.

Gender :	Male
Nationality :	Saudi Arabia
Place of Birth :	Saudi Arabia
Grade ID :	G-11
Section ID :	B
Topic :	Quint
Semester :	Summer
Relation :	Father
# Hand Rates :	# Hand Rates
Semester :	Summer
Relation :	Father
# Hand Rates :	# Hand Rates
# Visited Resources :	# Visited Resource
# Announcement Views :	# Announcement
# Discoscore :	# Discussions
Has Parent Answered Survey?	No
Parent's School Satisfaction?	Bad
Student Absence Days :	Under 7

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

[Home](#) [Load Dataset](#) [View Dataset](#) [Split Dataset](#) [Train Models](#) [Prediction](#)

## Prediction

Please enter the values in the following form and the prediction will be done by the best performing model.

The Predicted Academic Performance of the Student is Medium.

PREDICT AGAIN

# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## CONCLUSION

In this application, we have pre processed the data by removing the null values and encoding all the variables. We used 2 unsupervised and 2 supervised learning methods.

KMeans clustering and Agglomerative clustering are the 2 clustering algorithms which we have used here. Naïve Bayes and Decision Tree are the 2 supervised algorithms used for actual classification of the students performance.

The best model was the Decision Tree model with Hyper parameters tuning. Clustering algorithms cannot be explicitly used for classification. But, we can use them in conjunction with supervised techniques to be used for prediction. The dataset used was the Students' Academic Performance data on kaggle.

The accuracies for all models are shown below:

Model	Accuracy
KMeans Clustering	0.583333333
Agglomerative Clustering	0.485416667
Naïve Bayes	0.763888889
Decision Tree (untuned)	0.666666667
decision Tree (tuned)	0.777777778
Naïve Bayes + Kmeans Clustering	0.666666667

## FUTURE SCOPE

We should consider students performance prediction using ensemble techniques like random forest and other boosting and bagging techniques. We may also model a neural network which are high in complexities but offers high accuracy and automation of feature selection.



# ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES

---

## REFERENCES

- [1] Vairachilai S, Vamshidharreddy, “Student’s Academic Performance Prediction Using Machine Learning Approach”, IJAST, vol. 29, no. 9s, pp. 6731 - 6737, Jun. 2020.
- [2] Kaviani, Pouria & Dhotre, Sunita. (2017). Short Survey on Naive Bayes Algorithm. International Journal of Advance Research in Computer Science and Management. 04.
- [3] Sharma, Himani & Kumar, Sunil. (2016). A Survey on Decision Tree Algorithms of Classification in Data Mining. International Journal of Science and Research (IJSR). 5
- [4] Altaher A, BaRukab O (2017) Prediction of student's academic performance based on adaptive Neuro-fuzzy inference. IJCSNS 17: 165-169.
- [5] Kaushik, Manju & Mathur, Bhawana. (2014). Comparative Study of K-Means and Hierarchical Clustering Techniques. International journal of Software and Hardware Research in Engineering. 2. 93-98.
- [6] Kabakchieva D (2012) Student performance prediction by using data mining classification algorithms. IJCSMR 1: 686-690.
- [7] Baker, Ryan SJD, Yacef K (2009) The state of educational data mining in 2009: A review and future visions. JEDM 1: 3-16.
- [8]. Ramesh V, Parkavi P, Ramar K (2013) Predicting student performance: A statistical and data mining approach. IJCA 63: 35-39
- [9] R. R. Kabra,R. S. Bichkar, “Performance Prediction of Engineering Students using Decision Trees”, International Journal of Computer Applications (0975 – 8887), Volume 36– No.11, December 2011
- [10] Ajay Kumar Pal, Saurabh Pal, “Data Mining Techniques in EDM for Predicting the Performance of Students”, International Journal of Computer and

## **ADVANCED PREDICTION OF PERFORMANCE OF A STUDENT IN AN UNIVERSITY USING MACHINE LEARNING TECHNIQUES**

---

Information Technology (ISSN: 2279 – 0764), Volume 02– Issue 06, November 2013

[11] Agavanakis, Kyriakos & Karpetas, George & Taylor, Michael & Pappa, Evangelia & Michail, Christos & Filos, John & Trachana, Varvara & Kontopoulou, Lamprini. (2019). Practical machine learning based on cloud computing resources.

[12] Santhanam, Ramraj & Uzir, Nishant & Raman, Sunil & Banerjee, Shatadeep. (2017). Experimenting XGBoost Algorithm for Prediction and Classification of Different Datasets.

A

**Project Report**

on

**UNDERSTANDING THE USER BEHAVIOR OF FOURSQUARE A DATA  
DRIVEN STUDY ON A GLOBAL SCALE**

*Submitted in partial fulfilment for the award of the degree*

of

**Master of Computer Applications**

*Submitted by*

**VENKATESH BHARATH**  
**(Reg. No. 19F65F0004)**

*Under the esteemed guidance of*

**Mrs. P. SUKANYA, MCA.**  
**Assistant Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**  
**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**  
**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**(2020-2021)**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled “UNDERSTANDING THE USER BEHAVIOR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE” that is being submitted by VENKATESH BHARATH (Reg. No. 19F65F0004) in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **VENKATESH BHARATH** hereby declare that the project report entitled **“UNDERSTANDING THE USER BEHAVIOR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE”** is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mrs. P. SUKANYA**, MCA, Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**VENKATESH BHARATH**

**Reg. No: 19F65F0004**

## **ACKNOWLEDGEMENT**

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mrs. P. SUKANYA, MCA**, Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for her valuable guidance and suggestions in analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.**, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

**(VENKATESH BHARATH)**

# CONTENTS

<b>S. No</b>	<b>CHAPTERS</b>	<b>PAGE No.</b>
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1 – 3
2	SYSTEM STUDY	4
3	SYSTEM ANALYSIS	5 - 6
	3.1 EXISTING SYSTEM	5
	3.2 DISADVANTAGES	5
	3.3 PROPOSED SYSTEM	5
	3.4 ADVANTAGES	6
4	SOFTWARE MODULES	7
5	SYSTEM ARCHITECTURE	8 - 9
6	SOFTWARE ENVIRONMENT	10 - 22
7	SYSTEM REQUIREMENTS	23
8	SYSTEM DESIGN	24 - 34
9	IMPLEMENTATION	35 - 66
10	SYSTEM TESTING	67 - 69
11	SCREEN SHOTS	70 - 96
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

## ABSTRACT

Being a leading online service providing both local search and social networking functions, Foursquare has attracted tens of millions of users all over the world. Understanding the user behavior of Foursquare is helpful to gain insights for location-based social networks (LBSNs). Most of the existing studies focus on a biased subset of users, which cannot give a representative view of the global user base. Meanwhile, although the user-generated content (UGC) is very important to reflect user behavior, most of the existing UGC studies of Foursquare are based on the check-ins. There is a lack of a thorough study on tips, the primary type of UGC on Foursquare. In this article, by crawling and analyzing the global social graph and all published tips, we conduct the first comprehensive user behavior study of all 60+ million Foursquare users around the world. We have made the following three main contributions. First, we have found several unique and undiscovered features of the Foursquare social graph on a global scale, including a moderate level of reciprocity, a small average clustering coefficient, a giant strongly connected component, and a significant community structure. Besides the singletons, most of the Foursquare users are weakly connected with each other. Second, we undertake a thorough investigation according to all published tips on Foursquare. We start from counting the numbers of tips published by different users and then look into the tip contents from the perspectives of tip venues, temporal patterns, and sentiment. Our results provide an informative picture of the tip publishing patterns of Foursquare users. Last but not least, as a practical scenario to help third-party application providers, we propose a supervised machine learning-based approach to predict whether a user is an influential by referring to the profile and UGC, instead of relying on the social connectivity information. Our data-driven evaluation demonstrates that our approach can reach a good prediction performance with an F1-score of 0.87 and an AUC value of 0.88. Our findings provide a systematic view of the behavior of Foursquare users and are constructive for different relevant entities, including LBSN service providers, Internet service providers, and third-party application providers.

**Index Terms** — Data-driven study, location-based social networks (LBSNs), machine learning, social graph analysis, social influence, tips.



## LIST OF FIGURES

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1	5.1. System Architecture	09
2	6.1. Compilation & Interpretation	11
3	6.2. Execution for different platforms	11
4	6.3. Java Platform	12
5	6.4. Java IDE	14
6	6.7. General J2ME Architecture	20
7	8.1. Data Flow Diagram	25
8	8.2.1.1 Activity Diagram for CSP	26
9	8.2.1.2 Activity Diagram for End User	27
10	8.2.2.1 Use case Diagram for Admin	28
11	8.2.2.2 Use case Diagram For End User	29
12	8.4. Sequence Diagram	30
13	8.5. Collaboration Diagram	31
14	8.2.5 Deployment diagram	32
15	8.2.6 Class Diagram	33
16	8.6. E-R Notations	34
17	Screen Shots	70 -96

## LIST OF ABBREVIATIONS

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	SMS	Smart Meter System
11	ABSI	Adaptive Binary Splitting Inspection
12	DBMS	Database Management System
13	RMI	Remote Method Invocation
14	JVM	Java Virtual Machine
15	SQL	Structure Query Language

## **1. INTRODUCTION**

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called Knowledge Discovery in Database (KDD). The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation. Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

### **1.1 What is Data Mining?**

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining. In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information.

Data Mining is similar to Data Science carried out by a person, in a specific situation, on a particular data set, with an objective. This process includes various types of services such as text mining, web mining, audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tonnes of information available on various platforms, but

very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

## **1.2 Types of Data Mining**

Data mining can be performed on the following types of data:

### **Relational Database:**

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data searchability, reporting, and organization.

### **Data Repositories:**

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

### **Object-Relational Database:**

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance, etc.

## **1.3 Advantages of Data Mining**

- The Data Mining technique enables organizations to obtain knowledge-based data.
- Data mining enables organizations to make lucrative modifications in operation and production.
- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.
- It facilitates the automated discovery of hidden patterns as well as the prediction of trends and behaviors.
- It can be induced in the new system as well as the existing platforms.

- It is a quick process that makes it easy for new users to analyze enormous amounts of data in a short time.

## **1.4 Applications of Data Mining**

### **Data mining in Education:**

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

### **Data Mining in Manufacturing Engineering:**

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.

### **Data Mining Financial Banking:**

The Digitalization of the banking system is supposed to generate an enormous amount of data with every new transaction. The data mining technique can help bankers by solving business-related problems in banking and finance by identifying trends, casualties, and correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by experts. The manager may find these data for better targeting, acquiring, retaining, segmenting, and maintain a profitable customer.

## **2. SYSTEM STUDY**

### **2.1 FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

#### **2.1.1 ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact of that the system will have on this organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased

#### **2.1.2 TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirement of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demand on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or no changes are required for implementing this system.

#### **2.1.3 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcome, as he is the final user of the system.

### 3. SYSTEM ANALYSIS

#### 3.1 EXISTING SYSTEM

Rapid development of mobile computing technologies and social networking services drive significant growth of location-based social networks (LBSNs), such as Foursquare, Yelp, and Dianping. These networks not only help users interact with each other but also offer them location-centric functions. This service records a rich set of user information, including social connections between users, spatial and temporal information of user activities, and opinions expressed by users. The comprehensive LBSN data can be used to predict the movement of a massive number of users.

Being the most popular LBSN, however, a number of important characteristics of Foursquare are still unknown, for example, how the users link with each other on a global scale. In addition, most of the existing studies rely on the data of a biased subset of Foursquare users, and accordingly the analytical results cannot represent the entire Foursquare user base. As researchers obtained the Foursquare data via Twitter, since some Foursquare users have chosen to automatically republish their posts on Twitter.

Unfortunately, as shown by Gong, Foursquare users who have linked their accounts to Twitter are more active than the other Foursquare users. In detail, the users who have linked their accounts to Twitter have more followers and followings in general, and tend to publish more tips/check-ins. As a result, if we collect the Foursquare data solely from Twitter, we can only obtain the user activity data of a set of Foursquare users who are more active, and the corresponding data set cannot reflect the user activities of the entire Foursquare population.

#### 3.2 DISADVANTAGES OF EXISTING SYSTEM

- Inefficient
- Non-Scalable
- Non-Robust
- Inaccurate

#### 3.3 PROPOSED SYSTEM

Our project presents a systematic understanding of Foursquare, the representative LBSN service, including global social connectivity, content publishing behavior, and the prediction of social influence. The analytical results are constructive for different relevant entities:

1. For Foursquare itself, or similar LBSN service providers, we get a comprehensive understanding of the social connections from a global view. In other words, we construct and

analyze the global Foursquare social graph of 60+ million users. This graph is helpful to study the information diffusion and social interactions of Foursquare. Meanwhile, by referring to user profiles and published tips, we know the geographic distributions of users and venues around the world. We also study the evolution of user activities. All these information are useful for LBSN service providers to schedule the resource provisioning to serve millions of users in a scalable and cost-effective way. In addition, by referring to the published tips, they can extract the opinions and movements of users. The tip information can be further applied for venue recommendations and user profiling;

2. For Internet service providers (ISPs), the understanding of the geographic distribution, content generation behavior, and interaction patterns of users from an evolutionary view can be used to characterize the traffic patterns of LBSNs. Therefore, the ISPs would be able to adjust the network resources flexibly to enhance the network performance of LBSN services;
3. For third-party application providers, the massive spatiotemporal information of Foursquare users can reflect the real-time geographic distribution of users from time to time. Such information is important for urban computing-related applications. Also, we provide a supervised machine learning-based approach to uncover influentials conveniently for third-party application providers, without the need of referring to the social connectivity information.

### **3.4 ADVANTAGES OF PROPOSED SYSTEM**

- Efficient
- Scalability
- Robust
- Accurate



## 4. SOFTWARE MODULES

### 4.1 MODULES

- Admin
- End User

### 4.2 MODULES DESCRIPTION

#### Admin

In this module, the Admin has to login by using valid user name and password. After login successful he can perform some operations such as View All Users, Add Filter, View All Friend Request and Response, View All Users Tweets, View Tweets All Topic & Comments, View All User Behaviours on Tweet Comments, View All User Behaviours on Tweet, View Tweet Topics Rank Results.

#### End User

In this module, End User should register before performing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password. Once Login is successful user can perform some operations like View My Profile, Search Friends and Request, Friend Requests by Me, Friend Requests by Others, All My Friends, View My Friends Tweets and Comment, Create Tweets, All My Tweets with Ranks

## **5. SYSTEM ARCHITECTURE**

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

### 5.1 SYSTEM ARCHITECTURE

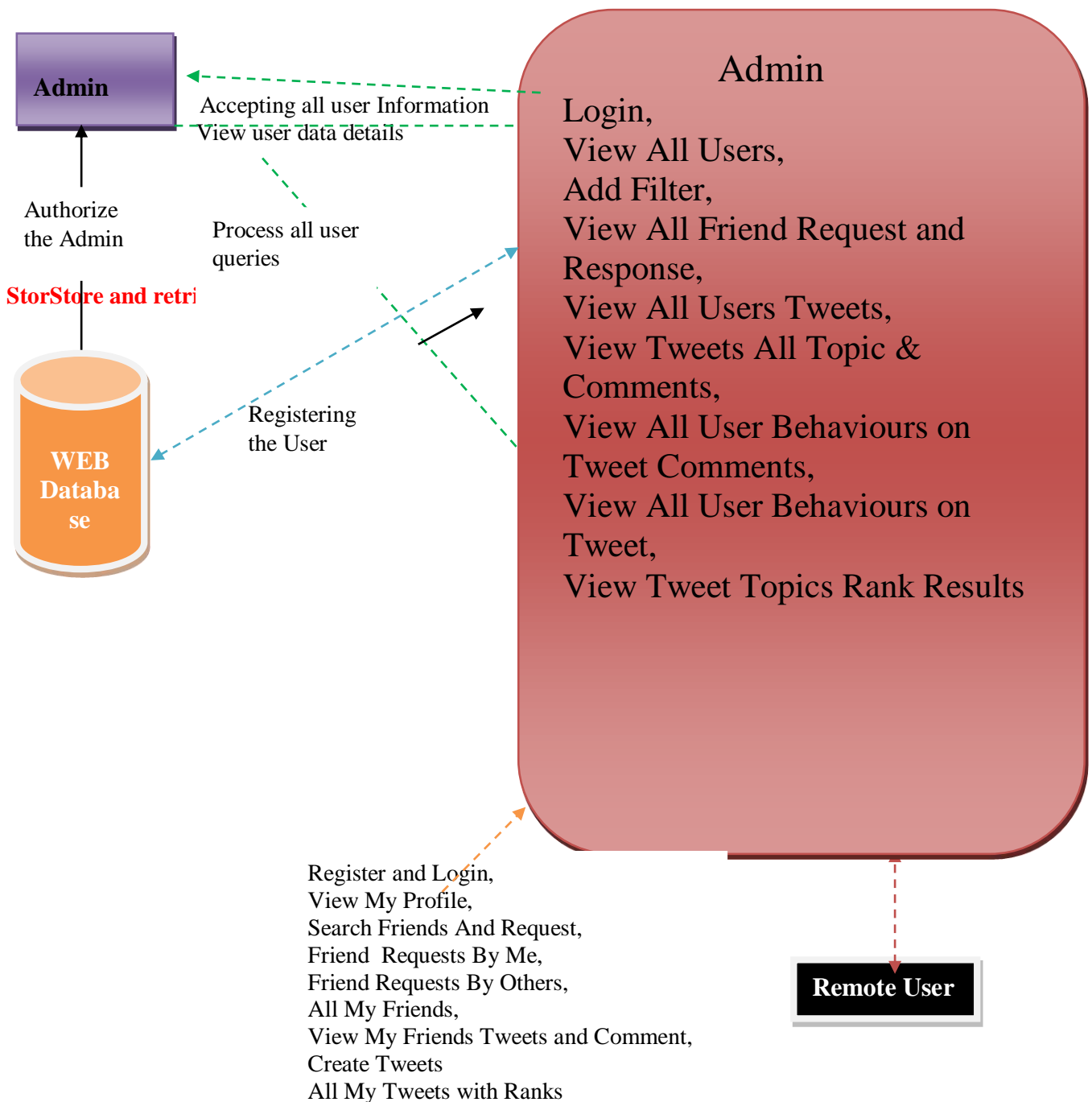


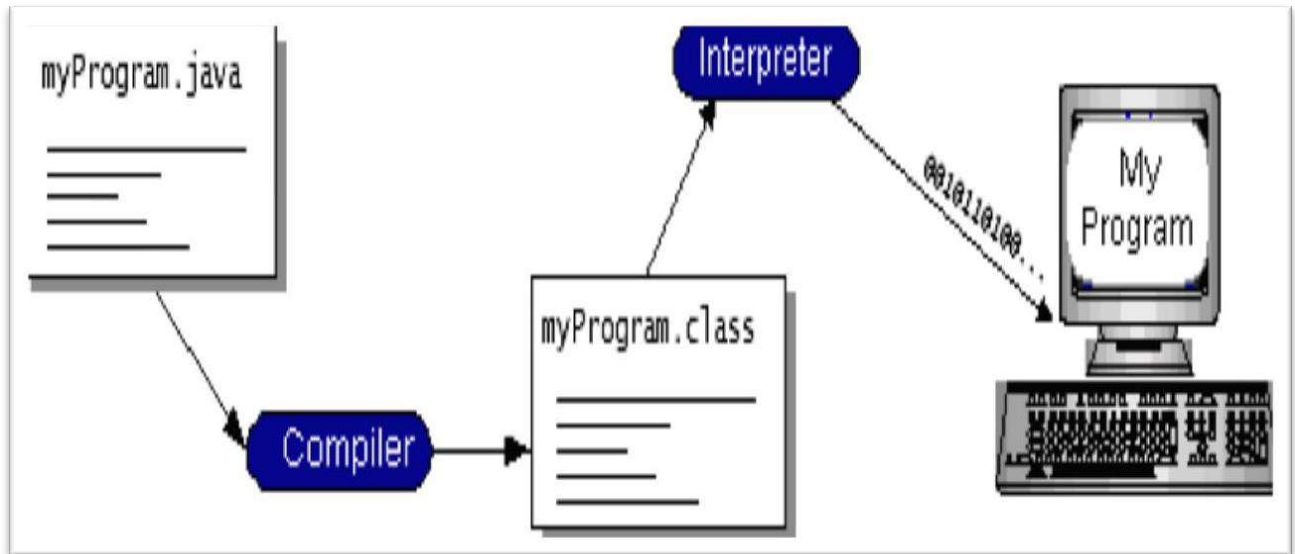
Fig 5.1 System Architecture

## 6. SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

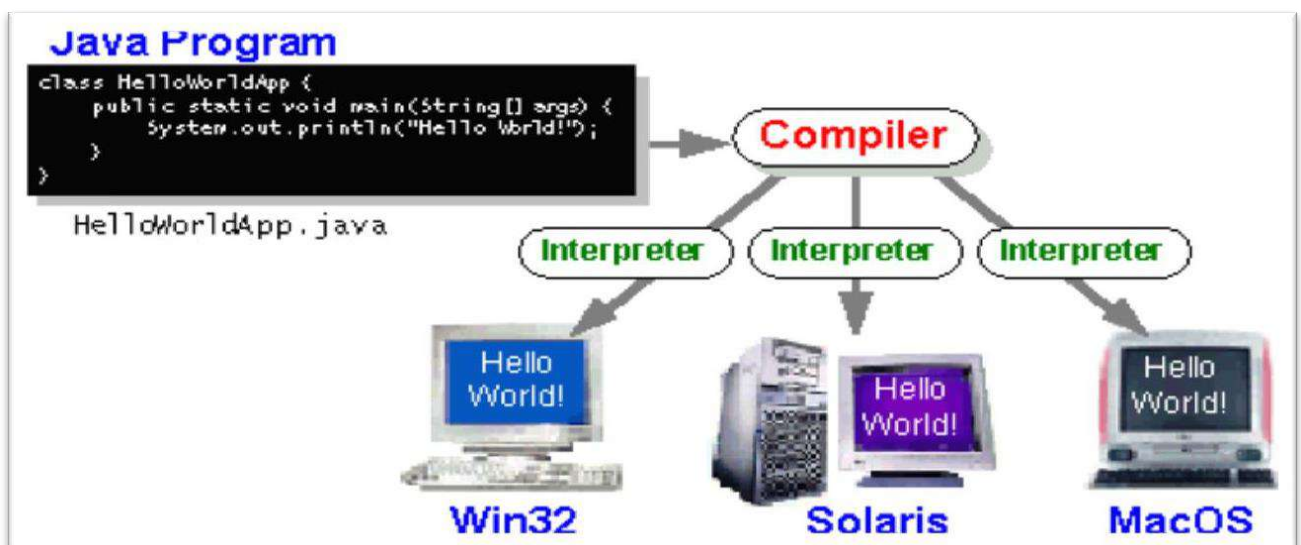
- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program in to an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.



**Fig 6.1: Program Compilation and Interpretation**

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make "write once, run anywhere" possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.



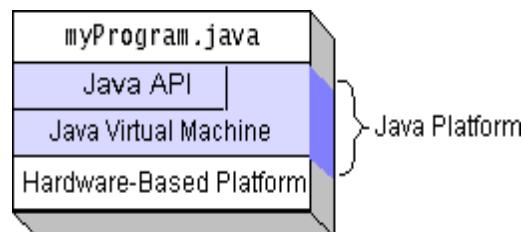
**Fig 6.2: Execution for different platforms**

## 6.2 The Java Platform

A platform is the hardware or software environment in which a program runs. We have already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms are described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (JavaVM)
- The Java Application Programming Interface (JavaAPI)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as packages. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.



**Fig 6.3: Java Platform**

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compiler can bring performance close to that of native code without threatening portability.

### 6.3 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are run time extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (TransmissionControlProtocol), UDP (UserDatagramProtocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for user's world wide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.
- **Security:** Both low level and high level, including electronic signatures, public and privatekey management, access control, and certificates.
- **Software components:** Known as JavaBeans™, can plug into existing component architectures.

- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provide suni form access to a wide range of relational databases.

The Javaplatform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is in cluded in the Java2 SDK.

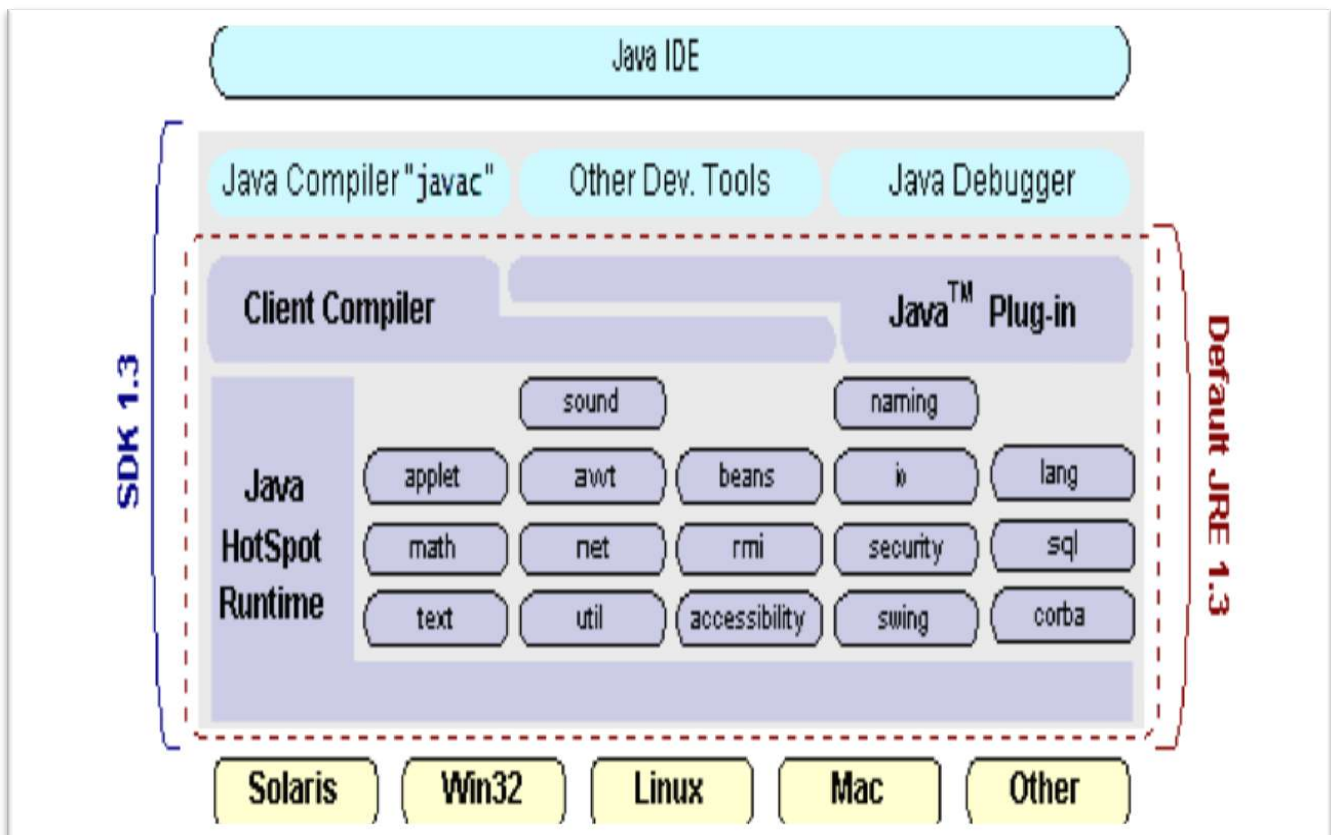


Fig 6.4: Java IDE

## 6.2 How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.



- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded "on the fly," without recompiling the entire program.

### 6.3 ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales

Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

### **6.3 JDBC**

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or drivers. If a database vendor wishes to have

JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

## **6.4 JDB**

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to "generate" JDBC code and to hide many of JDBC's complexities from the end user.

### **SQL Conformance**

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

### **JDBC must be implemental on top of common database interfaces**

The JDBC SQL API must "sit" on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

**Provide a Java interface that is consistent with the rest of the Java system**

Because of Java's acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

**Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

**Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT's, INSERT's, DELETE's and UPDATE's, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

## **6.2 SOCKETS**

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call socket. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include <sys/types.h> #include <sys/socket.h>
int socket(int family, int type, int protocol);
```

Here "family" will be AF\_INET for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

## **6.2 JFREE CHART**

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes:

A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

### **Map Visualizations**

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting somemore.

### **Time Series Chart Interactivity**

Implement a new (to JFreeChart) feature for interactive time series charts --- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

### **Dashboards**

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

### **Property Editors**

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

### 6.3 J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the JavaOne Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

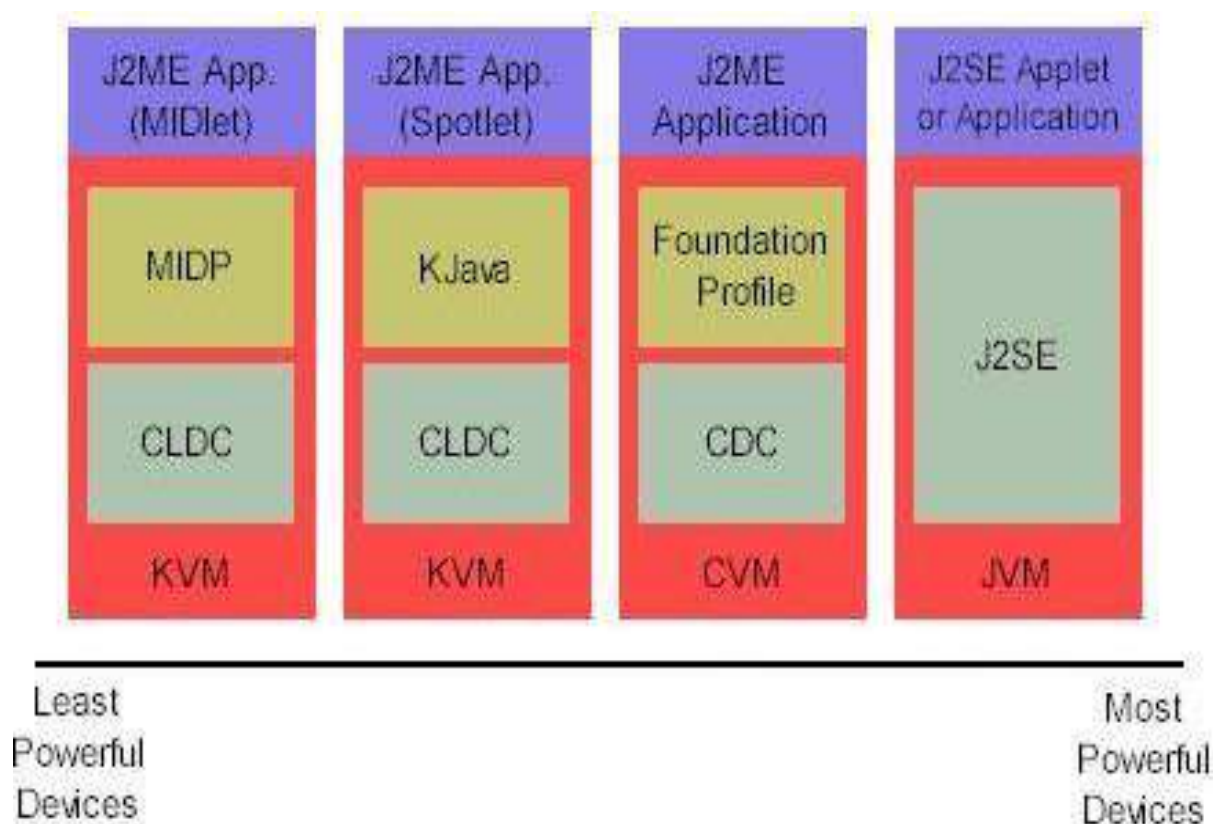


Fig 6.7: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the

relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

### **Developing J2ME applications**

**Introduction** In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

### **Configurations Overview**

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:



- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
  
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.



## **7. SYSTEM REQUIREMENTS**

### **7.1 HARDWARE REQUIREMENTS**

- Processor - Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM - 4 GB
- Hard Disk - 40 GB.

### **7.2 SOFTWARE REQUIREMENTS**

- Operating System - Windows 7 / 8.1 / 10
- Server - Apache Tomcat
- Database - MYSQL Server 5.0
- Frontend - HTML, CSS, JS
- Backend - JSP

## **8. SYSTEM DESIGN**

### **8.1 DATAFLOW DIAGRAM:**

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

8.1 DATAFLOW DIAGRAM

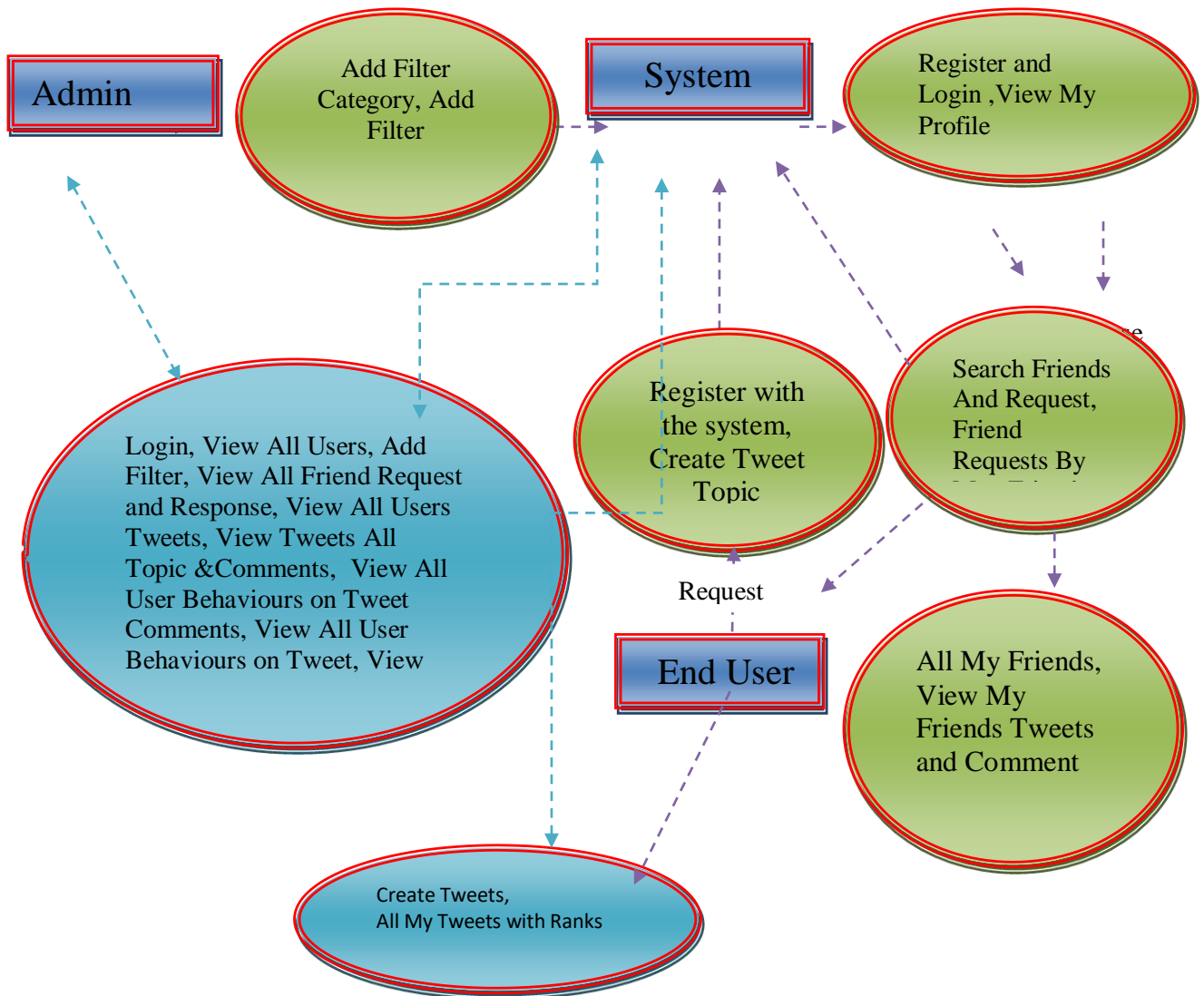


Fig 8.1 Dataflow Diagram

## 8.2 UML DIAGRAMS

### 8.2.1 Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language, activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

#### 8.2.1.1 Activity Diagram for Admin

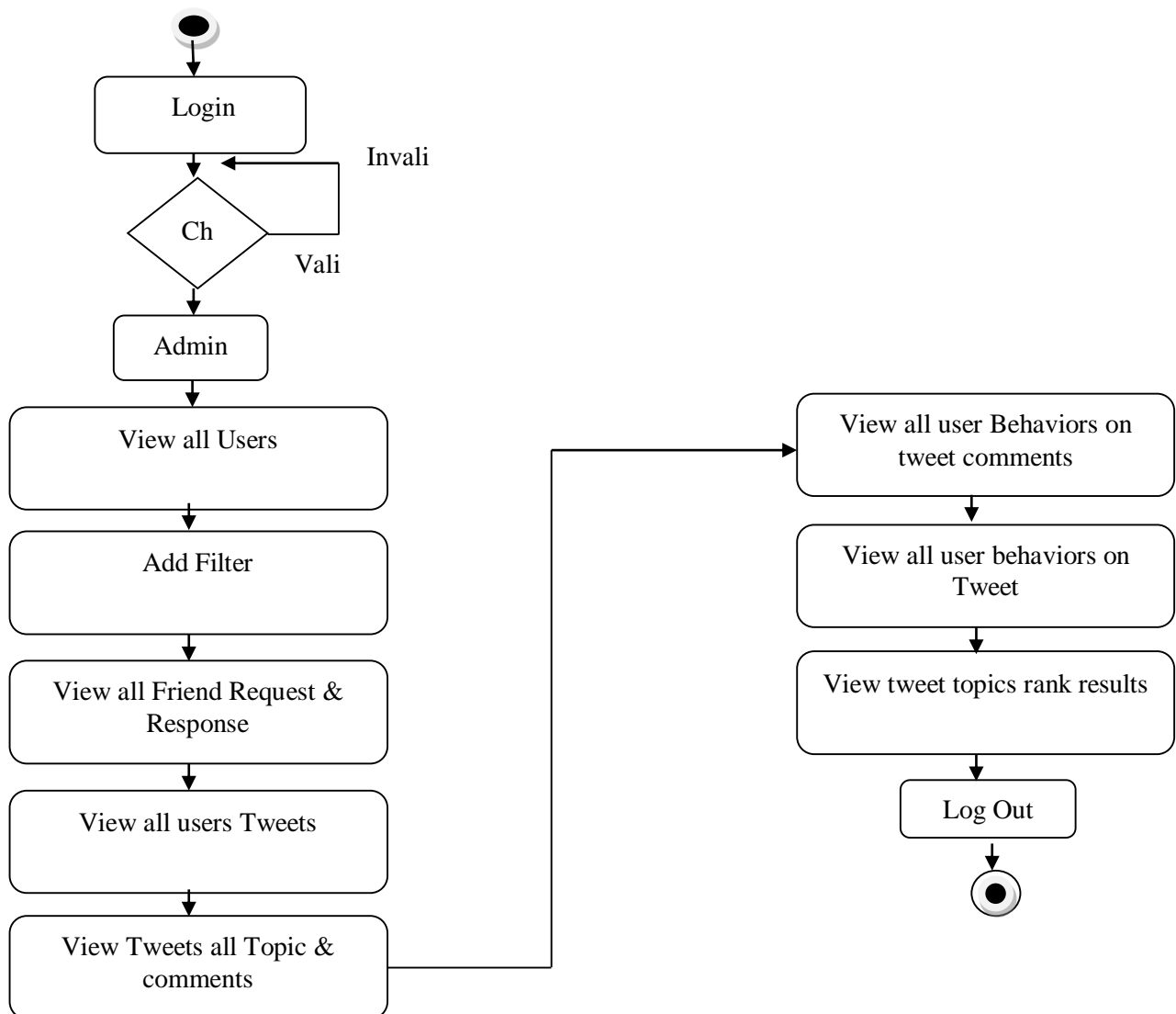


Fig 8.2.1.1 Activity Diagram for CSP

8.2.1.2 Activity Diagram for End User

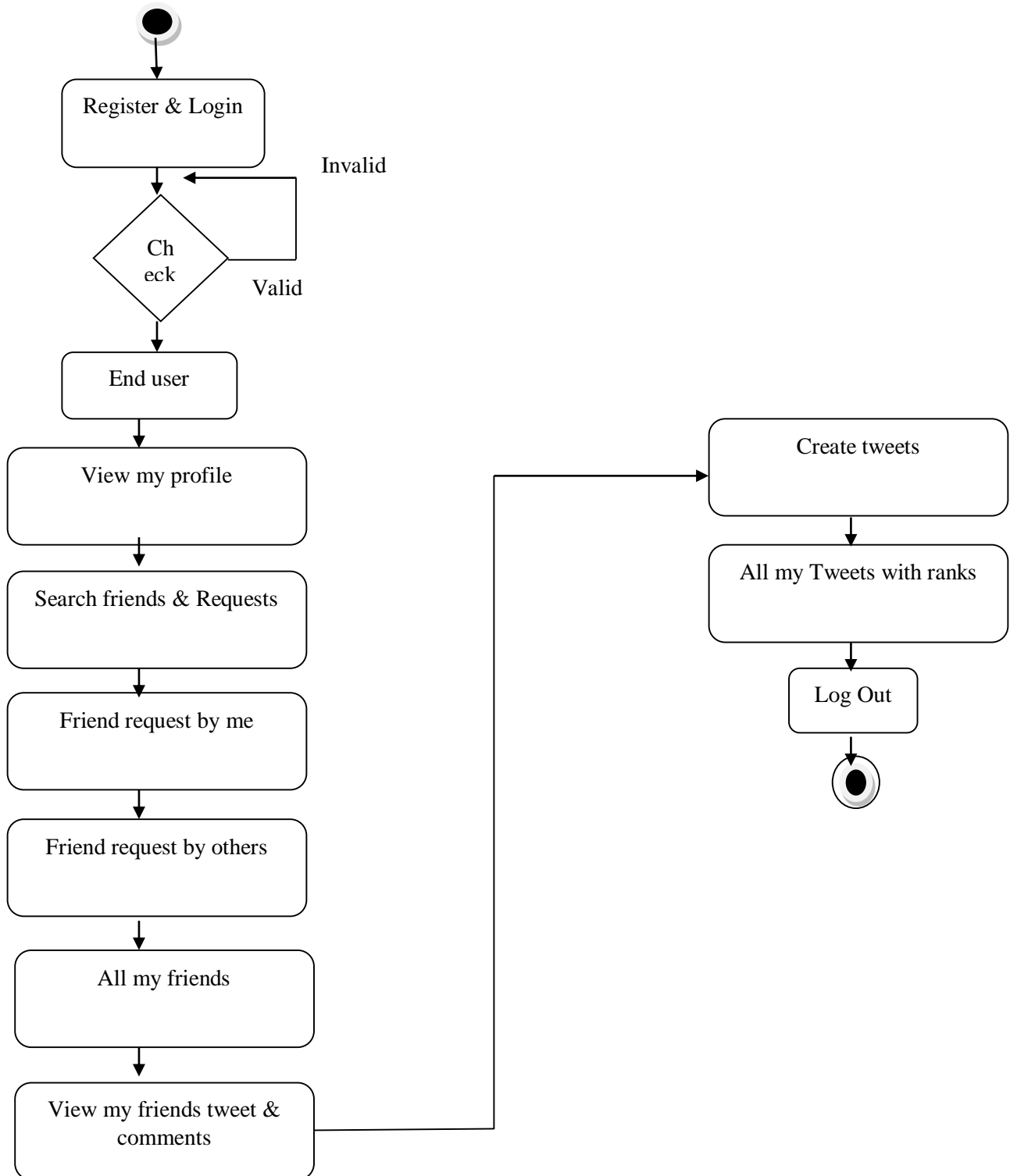


Fig 8.2.1.2 Activity Diagram for End User

### 8.2.2 Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

#### 8.2.2.1 Use case Diagram for Admin

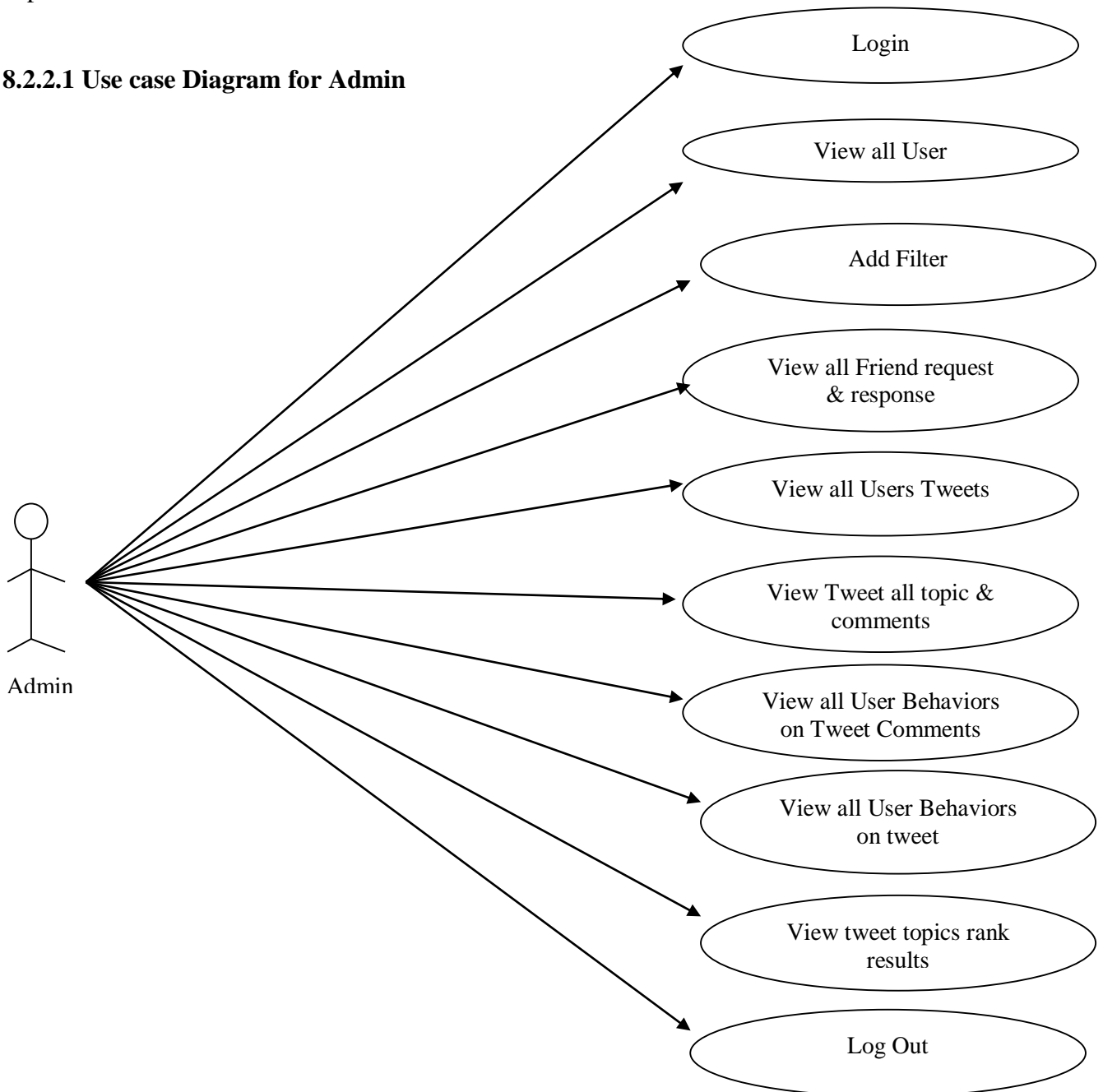


Fig 8.2.2.1 Use case Diagram for Admin

8.2.2.2 Use case Diagram for End User

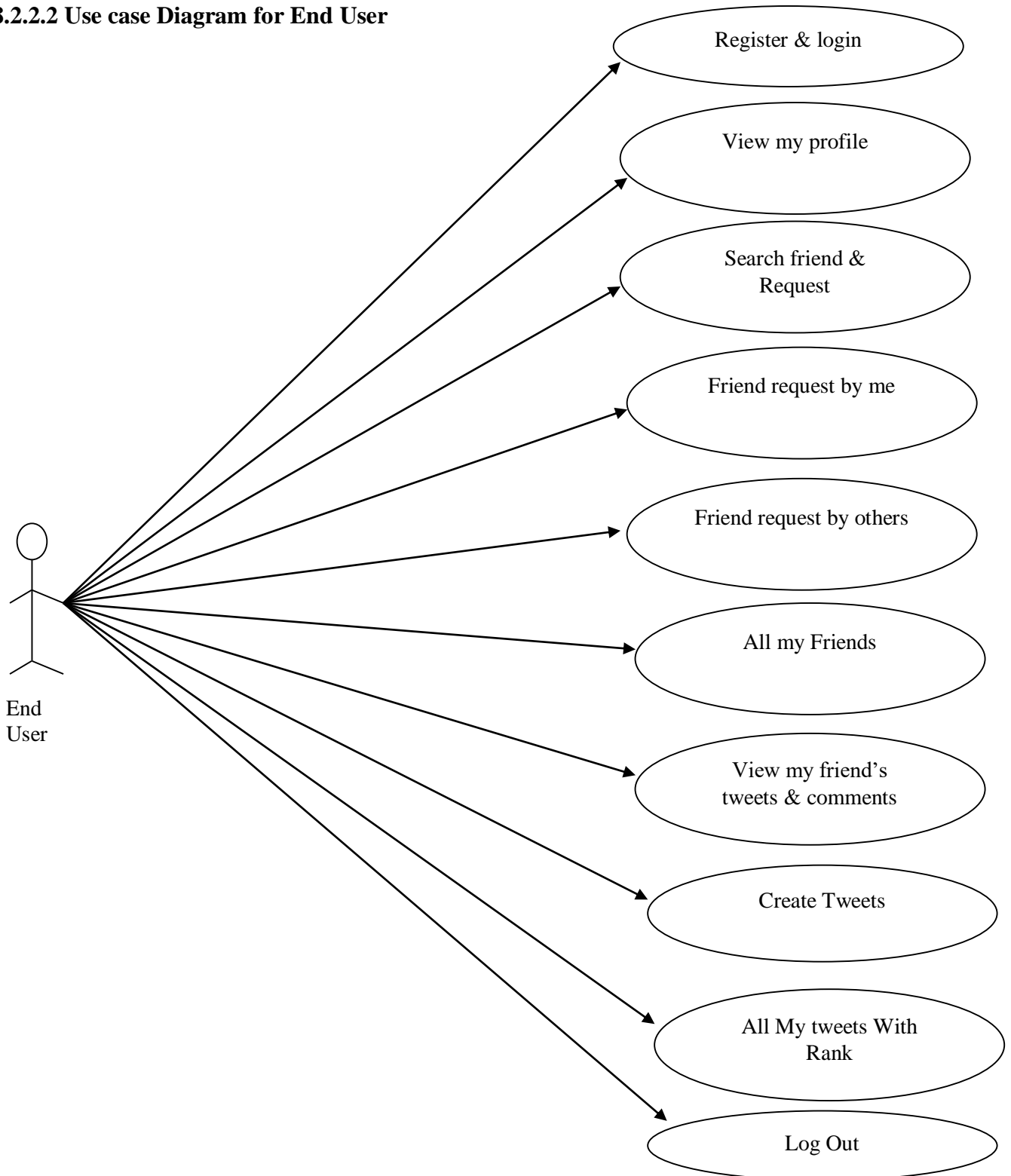


Fig 8.2.2.2 Use Case Diagram for End User

### 8.2.3 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

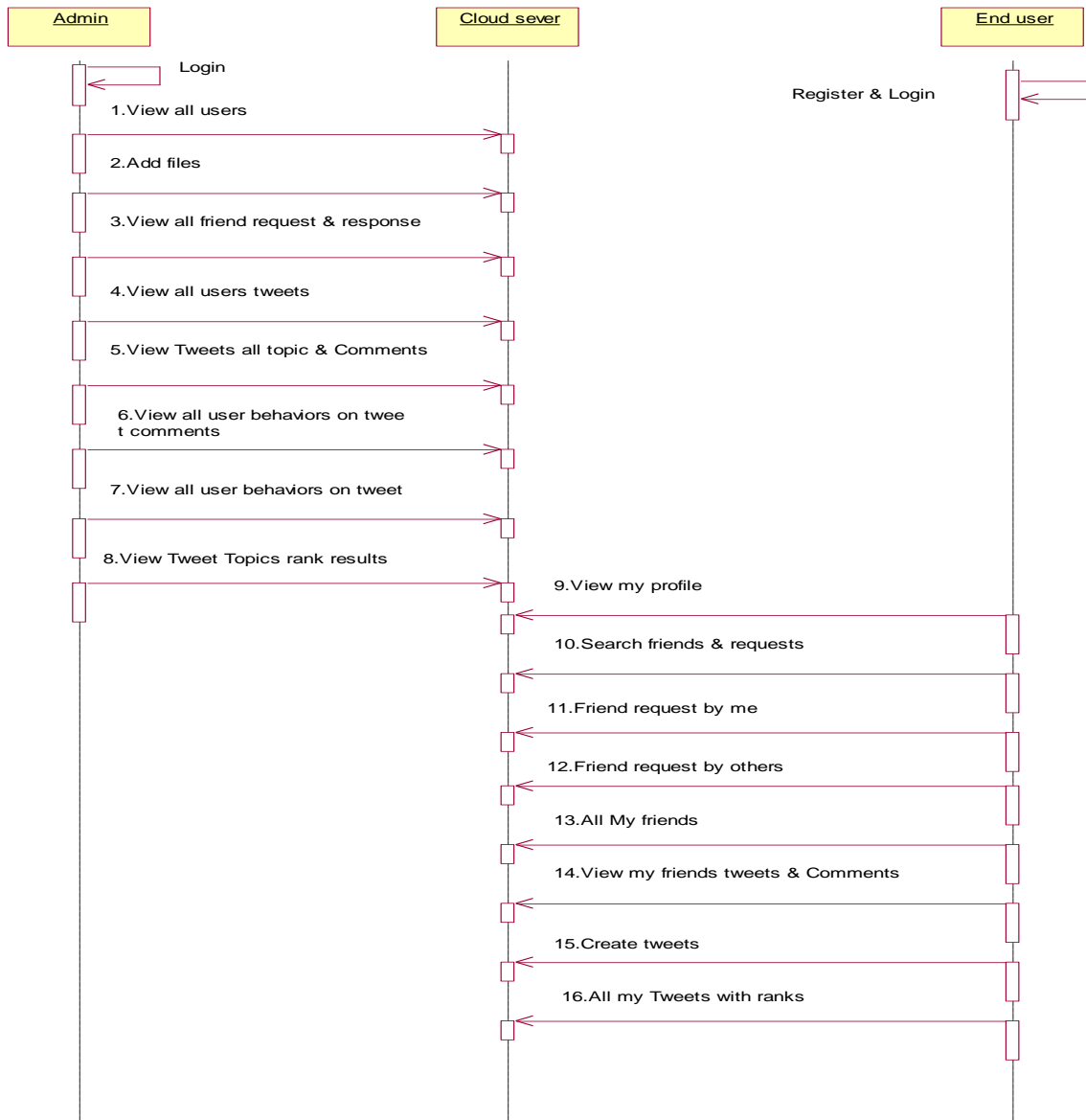
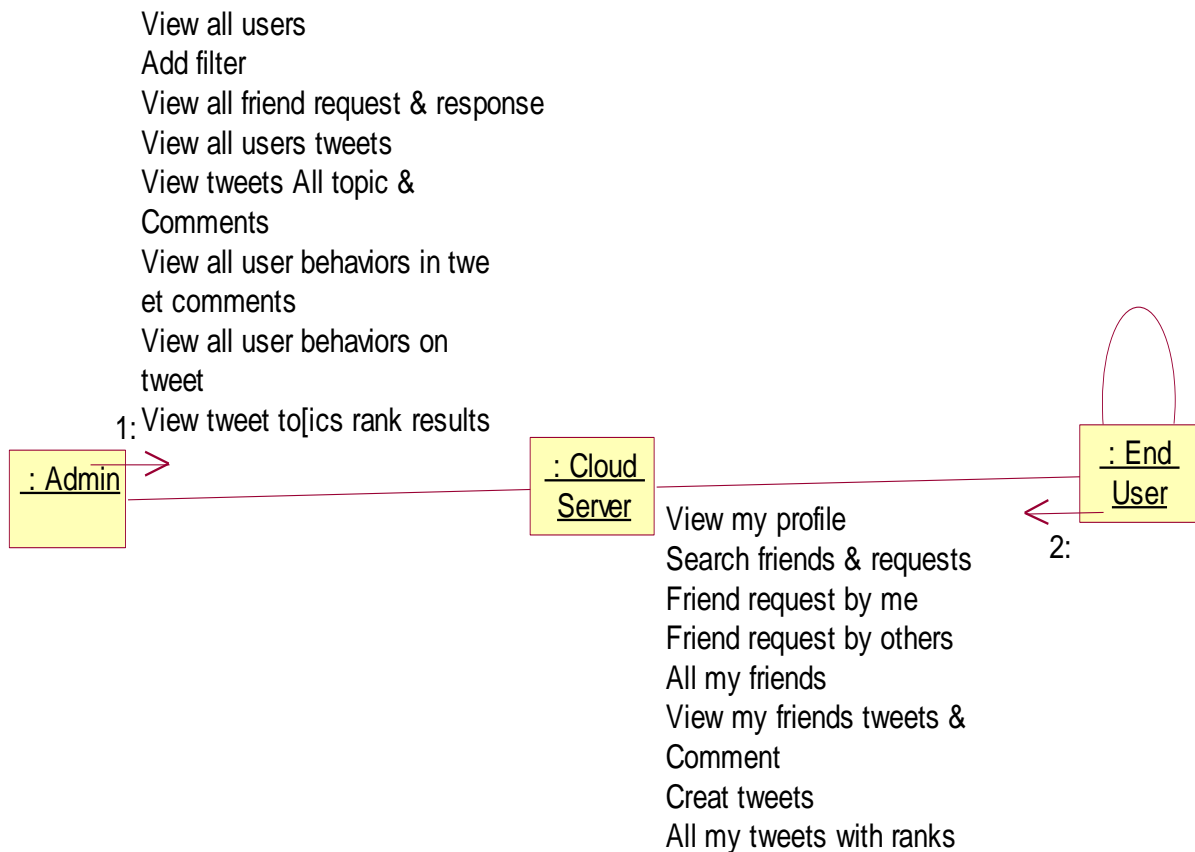


Fig 8.2.3 Sequence Diagram



### 8.2.4 Collaboration Diagram

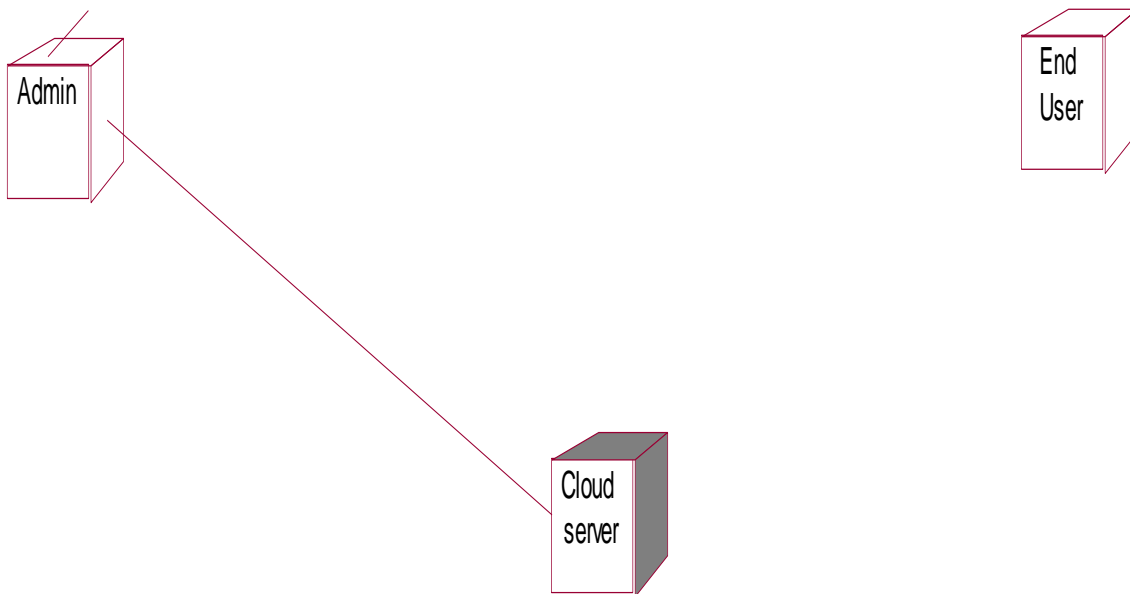
A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.



**Fig 8.2.4 Collaboration Diagram**

### 8.2.5 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.



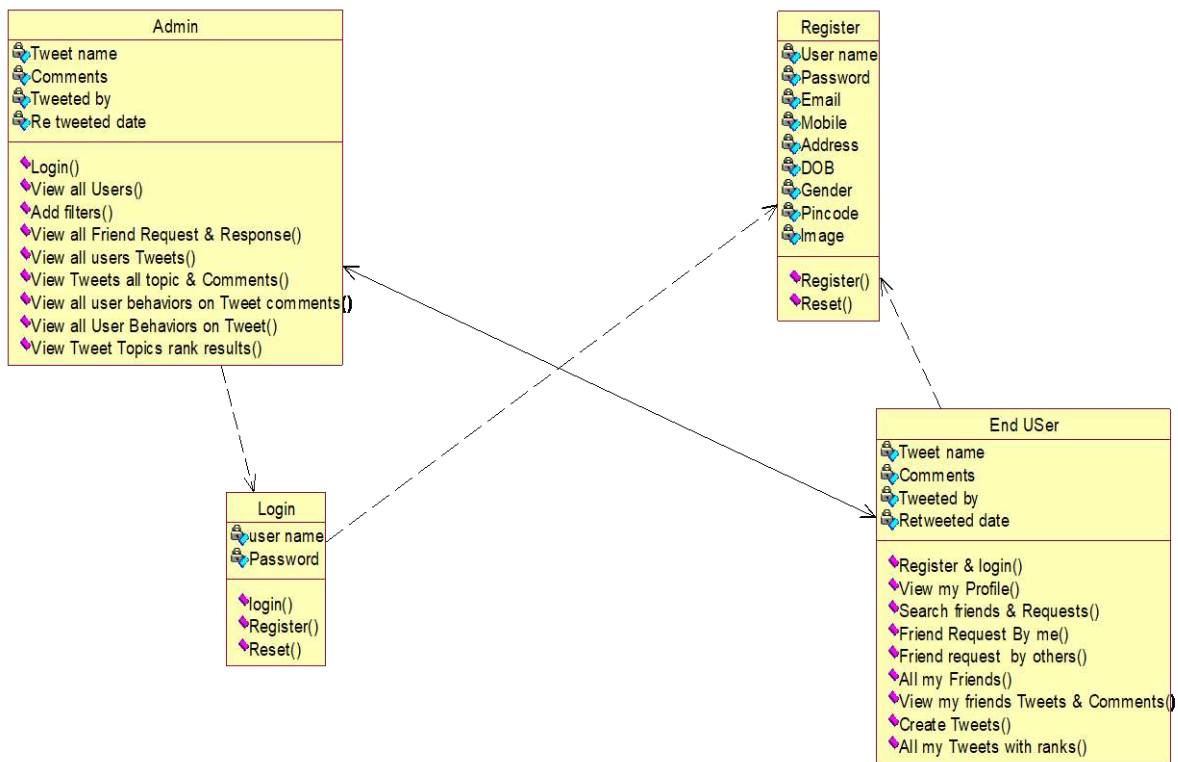
**Fig 8.2.5 Deployment diagram**

### 8.2.6 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

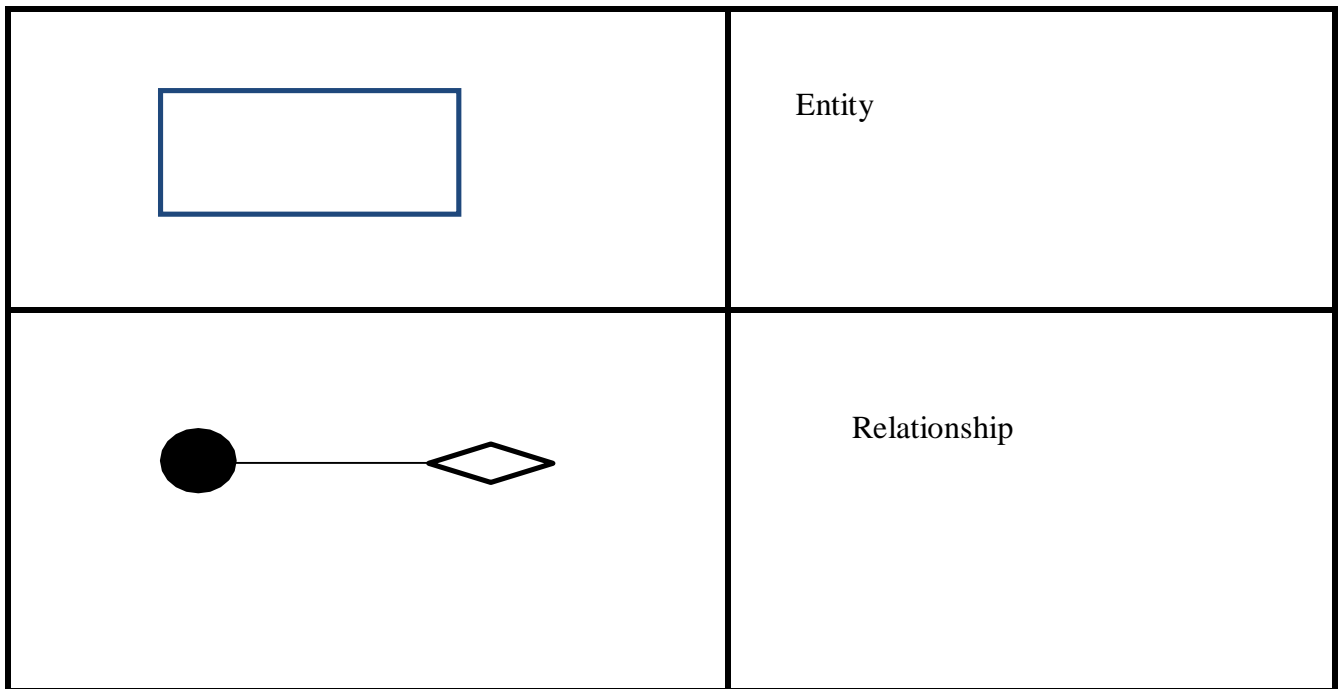
1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes, Responsibilities and Collaborators approach.



**Fig 8.2.6 Class Diagram**

### 8.3 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram



**Fig 8.3.1: E-R Notations**

## 9. IMPLEMENTATION

### 9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.
4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### **9.3 OUTPUT DESIGN**

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections of the Future.
  - Signal important events, opportunities, problems, or warnings.

## 9.4 CODING

### Index.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>HOME PAGE</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 26px }
.style2 {
 font-size: 26px;
 font-weight: bold;
 font-family: Arial, Helvetica, sans-serif;
}
.style4 {
 font-size: 26px;
 font-weight: bold;
}
.style5 { font-size: 14px }
.style6 { font-weight: bold }
.style7 { font-size: 14px; font-weight: bold; }
.style9 { color: #FFFFFF; font-weight: bold; }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="text">
<h1>Understanding the User Behavior of Foursquare A Data
Driven Study on a Global Scale</h1>
</div>
<div class="menu_nav">

<li class="active style5">Home
<li class="style6">User
Tweet Admin


```

```
</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider">
 </div>
 <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 class="style2">User Behavior of Foursquare</h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify" class="style9">Suicidal ideation detection in online social networks is an
emerging research area with major challenges. Recent research has shown that the publicly available
information, spread across social media platforms, holds valuable indicators for effectively detecting
individuals with suicidal intentions. The key challenge of suicide prevention is understanding and
detecting the complex risk factors and warning signs that may precipitate the event. In this paper, we
present a new approach that uses the social media platform Twitter to quantify suicide warning signs
for individuals and to detect posts containing suicide-related content. The main originality of this
approach is the automatic identification of sudden changes in a user's online behavior.</p>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 </div>
 <div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="80"
value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search" type="image"
/>
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 User

 </div>
 </div>
</div>
```



```
Tweet Admin

</div>
<div class="gadget">
 <h2 class="star">Concepts</h2>
 <div class="clr"></div>
 <p>Data-driven study, location-based social networks (LBSNs), machine learning, social
graph analysis, social influence, tips.</p>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

### UserLogin.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Login</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 26px }
.style2 {
 font-size: 26px;
 font-weight: bold;
 font-family: Arial, Helvetica, sans-serif;
```

## UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

```
}
.style5 {color: #FF0000}
.style7 {color: #FF0000; font-weight: bold; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="text">
 <h1>Understanding the User Behavior of Foursquare A Data
Driven Study on a Global Scale</h1>
 </div>
 <div class="menu_nav">

 Home
 <li class="active">User
 Tweet Admin

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider">
 </div>
 <div class="clr"></div>
 </div>
 <div class="clr"></div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 class="style2">Welcome To User Login </h2>
 <p class="infopost"></p>
 <form action="UserAuthentication.jsp" method="post" id="leavereply">

 <li class="style7">
 <label for="name">Name (required)</label>
 <input id="name" name="userid" class="text" />

 <label for="email">Password (required)</label>

 <label for="email"></label>
 <input type="password" id="pass" name="pass" class="text" />

 </form>
 </div>
 </div>
 </div>
 </div>
</div>
</body>
</html>
```

```


 REGISTER
 <input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Submit" />

<p> </p>
</form>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="80"
value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search" type="image"
/>
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home Page
 User
 Tweet Admin

 </div>
 <div class="gadget">
 <h2 class="star"> </h2>
 </div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
```

```
</body>
</html>
```

### UserMain.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Main Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 {
 font-size: 26px;
 font-weight: bold;
 font-family: Arial, Helvetica, sans-serif;
}
.style7 {color: #0000FF;
 font-weight: bold;
}
.style9 {color: #636363}
.style10 {color: #c4c3c3}
.style11 {font-size: 26px}
.style12 {
 color: #33CC00;
 font-weight: bold;
}
.style15 { color: #FFFFFF;
 font-weight: bold;
}
.style16 {font-size: 26px; font-weight: bold; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="text">
 <h1>Understanding the User Behavior of Foursquare A Data
Driven Study on a Global Scale</h1>
 </div>
```

```
<div class="menu_nav">

 Home
 <li class="active">User
 Tweet Admin

</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider">
 </div>
 <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 class="style2">WELCOME TO
USER ::
<%=application.getAttribute("uname") %></h2>
 <div class="clr"></div>
</div>
 <div class="article">
 <h2 class="style16">Understanding the User Behavior of Foursquare A Data Driven Study on
a Global Scale</h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify">First, we have found several unique and
undiscovered features of the Foursquare social graph on a global scale, including a moderate level of
reciprocity, a small average clustering coefficient, a giant strongly connected component, and a
significant community structure. Besides the singletons, most of the Foursquare users are weakly
connected with each other. Second, we undertake a thorough investigation according to all published
tips on Foursquare. We start from counting the numbers of tips published by different users and then
look into the tip contents from the perspectives of tip venues, temporal patterns, and sentiment. Our
results provide an informative picture of the tip publishing patterns of Foursquare users. Last but not
least, as a practical scenario to help third-party application providers, we propose a supervised
machine learning-based approach to predict whether a user is an influential by referring to the profile
and UGC, instead of relying on the social connectivity information..</p>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 </div>
 </div>
</div>
<div class="sidebar">
```

```
<div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="80"
value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search" type="image"
/>
 </form>
</div>
<div class="clr"></div>
<div class="gadget">
 <h2 class="star">User Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 View My Profile
 Search Friends And Request
 Friend Requests By Me
 Friend Requests By Others

 All My Friends
 View My Friends Tweets and
Comment
 Create Tweets

 All My Tweets with Ranks
 Log Out

</div>
<div class="gadget">
 <h2 class="star"> </h2>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
```

</html>

### UserRegister.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>User Registration</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 26px}
.style2 {
 font-size: 26px;
 font-weight: bold;
 font-family: Arial, Helvetica, sans-serif;
 color: #FFFFFF;
}
.style4 {
 font-size: 26px;
 font-weight: bold;
}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="text">
<h1>Understanding the User Behavior of Foursquare A Data
Driven Study on a Global Scale</h1>
</div>
<div class="menu_nav">

Home
<li class="active">User
Tweet Admin

</div>
<div class="clr"></div>
<div class="slider">
```

```
<div id="coin-slider"> </div>
 <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 class="style2">WELCOME TO USER REGISTRATION </h2>
 <p class="infopost"></p>
 <form action="UserRegisterAuthentication.jsp" method="post" id=""
enctype="multipart/form-data">

 <label for="name">User Name (required)</label>
 <input id="name" name="userid" class="text" />

 <label for="password">Password (required)</label>
 <input type="password" id="password" name="pass" class="text" />

 <label for="email">Email Address (required)</label>
 <input id="email" name="email" class="text" />

 <label for="mobile">Mobile Number (required)</label>
 <input id="mobile" name="mobile" class="text" />

 <label for="address">Your Address</label>
 <textarea id="address" name="address" rows="3" cols="50"></textarea>

 <label for="dob">Date of Birth (required)</label>
 <input id="dob" name="dob" class="text" />

 <label for="gender">Select Gender (required)</label>
 <select id="s1" name="gender" style="width:480px;" class="text">
 <option>--Select--</option>
 <option>MALE</option>
 <option>FEMALE</option>
 </select>

</div>
```



```
<label for="pic">Select Profile Picture (required)</label>
<input type="file" id="pic" name="pic" class="text" />

 <input name="submit" type="submit" value="REGISTER" />

 <p> </p>

</form>
<div class="clr"></div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="80"
value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search" type="image"
/>
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 User
 Tweet Server

 </div>
 <div class="gadget">
 <h2 class="star"> </h2>
 </div>
</div>
<div class="clr"></div>
</div>
<div class="fbg">
 <div class="fbg_resize">
```

```
<div class="clr"></div>
</div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

### admin Status.jsp

```
<% @ include file="connect.jsp" %>
<%

try {

 String id=request.getParameter("id");
 String str = "Authorized";
 Statement st1 = connection.createStatement();
 String query1 ="update user set status='"+str+"' where id="+id+" ";
 st1.executeUpdate (query1);
 connection.close();
 response.sendRedirect("A_ViewAllUsers.jsp");

 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }

%>
```

### TSMain.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Tweet Admin Main</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
```

```
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 26px}
.style7 { font-family: Arial, Helvetica, sans-serif; color: #00CCFF; font-size: 26px;}
.style15 {
 color: #FFFFFF;
 font-weight: bold;
}
.style16 { font-size: 26px; font-weight: bold; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="text">
 <h1>Understanding the User Behavior of Foursquare A Data
Driven Study on a Global Scale</h1>
 </div>
 <div class="menu_nav">

 Home
 User
 <li class="active">Tweet Admin

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider">
 </div>
 <div class="clr"></div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <pre class="style7">Welcome To Tweeter Administrator </pre>
 </div>
 <div class="article">
 <h2 class="style16">Understanding the User Behavior of Foursquare A Data Driven Study on
a Global Scale</h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 </div>
 </div>
 </div>
 </div>
</div>
</body>
</html>
```

## UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

```
<div class="img"></div>
<div class="post_content">
 <p align="justify" class="style15">First, we have found several unique and undiscovered
features of the Foursquare social graph on a global scale, including a moderate level of reciprocity, a
small average clustering coefficient, a giant strongly connected component, and a significant
community structure. Besides the singletons, most of the Foursquare users are weakly connected
with each other. Second, we undertake a thorough investigation according to all published tips on
Foursquare. We start from counting the numbers of tips published by different users and then look
into the tip contents from the perspectives of tip venues, temporal patterns, and sentiment. Our
results provide an informative picture of the tip publishing patterns of Foursquare users. Last but not
least, as a practical scenario to help third-party application providers, we propose a supervised
machine learning-based approach to predict whether a user is an influential by referring to the profile
and UGC, instead of relying on the social connectivity information...</p>
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="80"
value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search" type="image"
/>
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Tweet Admin Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 View All Users
 Add Filter
 View All Friend Request and Response
 View All Users Tweets
 View Tweets All Topic & Comments

 View All User Behaviours
on Tweet Comments
 View All User
Behaviours on Tweet
 View Tweet Topics Rank Results

 </div>
 <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 26px}
.style7 { font-family: Arial, Helvetica, sans-serif; color: #00CCFF; font-size: 26px;}
.style15 {
 color: #FFFFFFF;
 font-weight: bold;
}
.style16 { font-size: 26px; font-weight: bold; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="text">
 <h1>Understanding the User Behavior of Foursquare A Data
Driven Study on a Global Scale</h1>
 </div>
 <div class="menu_nav">

 Home
 User
 <li class="active">Tweet Admin

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider">
 </div>
 <div class="clr"></div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <pre class="style7">Welcome To Tweeter Administrator </pre>
 </div>
 </div>
 </div>
 </div>
</div>
</body>
</html>
```

```
<div class="article">
 <h2 class="style16">Understanding the User Behavior of Foursquare A Data Driven Study on
a Global Scale</h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify" class="style15">First, we have found several unique and undiscovered
features of the Foursquare social graph on a global scale, including a moderate level of reciprocity, a
small average clustering coefficient, a giant strongly connected component, and a significant
community structure. Besides the singletons, most of the Foursquare users are weakly connected
with each other. Second, we undertake a thorough investigation according to all published tips on
Foursquare. We start from counting the numbers of tips published by different users and then look
into the tip contents from the perspectives of tip venues, temporal patterns, and sentiment. Our
results provide an informative picture of the tip publishing patterns of Foursquare users. Last but not
least, as a practical scenario to help third-party application providers, we propose a supervised
machine learning-based approach to predict whether a user is an influential by referring to the profile
and UGC, instead of relying on the social connectivity information...</p>
 </div>
 <div class="clr"></div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="80"
value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search" type="image"
/>
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Tweet Admin Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 View All Users
 Add Filter
 View All Friend Request and Response
 View All Users Tweets
 View Tweets All Topic & Comments

 View All User Behaviours
on Tweet Comments
 View All User
Behaviours on Tweet

 </div>
</div>
```

```

 View Tweet Topics Rank Results

 Log Out

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>Log Out

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg">
 <div class="fbg_resize">
 <div class="clr"></div>
 </div>
</div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>

```

### TSLogin.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Tweet Server Login</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

```

```
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 { font-size: 26px}
.style21 { font-size: 14px}
.style22 { font-size: 14}
.style23 { padding:0; margin:0; width:100%; line-height:0; clear: both;}
.style24 {
 font-family: Arial, Helvetica, sans-serif;
 font-weight: bold;
 color: #66CCFF;
}
.style25 { color: #FF0000}
.style27 { color: #FF0000; font-weight: bold; }
.style28 { color: #FFFFFF}
.style31 { color: #FFFFFF; font-weight: bold; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="text">
 <h1>Understanding the User Behavior of Foursquare A Data
Driven Study on a Global Scale</h1>
 </div>
 <div class="menu_nav">

 Home
 User
 <li class="active style21">Tweet Admin

 </div>
 <div class="clr style22"></div>
 <div class="slider style22">
 <div id="coin-slider">
 </div>
 <div class="style23"></div>
 </div>
 <div class="clr style22"></div>
 </div>
 </div>
</div>
```



```
<div class="content style22">
<div class="content_resize">
<div class="mainbar">
<div class="article">
<h2 class="style24">Welcome To Server Login.</h2>
<p class="infopost"></p>
<form action="TSAuthen.jsp" method="post" id="leavereply">

<li class="style28">
<label for="name">Name (required)</label>

<input id="name" name="userid" class="text" />

<label for="email">Password (required)</label>

<label for="email"></label>
<input type="password" id="pass" name="pass" class="text" />

<p></p>
<p>
<input name="imageField" type="submit" class="LOGIN" id="imageField" value="Login"
/>
</p>
<p> </p>
</form>
<div class="style23"></div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">

<input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="80"
value="Search our ste:" type="text" />

<input name="button_search" src="images/search.gif" class="button_search" type="image"
/>
</form>
</div>
<div class="style23"></div>
<div class="gadget">
<h2 class="star">Sidebar Menu</h2>
<div class="style23"></div>
<ul class="sb_menu">
Home Page
 User
Tweet Admin
```

```

</div>
<div class="gadget">
 <h2 class="star"> </h2>
</div>
</div>
<div class="style23"></div>
</div>
<div class="fbg style22">
 <div class="fbg_resize">
 <div class="style23"></div>
 </div>
</div>
<div class="footer style22">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center class="style22"></div>
</body>
</html>
```

### **TSAuthen.jsp**

```
<title>Invalid Login Details</title>
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
 pageEncoding="ISO-8859-1"% >
<% @page import="java.util.*"% >
<% @ include file="connect.jsp"% >
<% @page
 import="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec
.SecretKeySpec,org.bouncycastle.util.encoders.Base64"% >
<% @ page
 import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io.Fil
eInputStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDigest,jav
a.io.BufferedInputStream"% >
<% @ page
 import="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto
.Cipher"% >
<% @page
 import="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java.io
.FileOutputStream,java.io.PrintStream"% >

<%
 String name = request.getParameter("userid");
 String pass = request.getParameter("pass");

 try {
```

```
application.setAttribute("tname", name);

String sql = "SELECT * FROM tserver where name=" + name
 + " and pass=" + pass + " ";
Statement stmt = connection.createStatement();
ResultSet rs = stmt.executeQuery(sql);

if (rs.next()) {
```

```
 response.sendRedirect("TSMain.jsp");
```

```
 } else {
```

```
 %>
```

<p>Invalid Login Details, Please

Try Again </p><br/><br/><a href="TSLogin.jsp">Back</a>

<%

```
 }
```

```
 } catch (Exception e) {
```

```
 out.print(e);
```

```
 e.printStackTrace();
```

```
 }
```

```
%>
```

### **TSimages.jsp**

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
```

```
 pageEncoding="ISO-8859-1"%>
```

```
<% @include file="connect.jsp"%>
```

```
<% @ page import="java.sql.*,java.io.*,java.util.*" %>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
```

```
"http://www.w3.org/TR/html4/loose.dtd">
```

```
<html>
```

```
<head>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
```

```
<title>Insert title here</title>
```

```
</head>
```

```
<body>
```

```
<%
```

```
int id = Integer.parseInt(request.getParameter("imgid"));
```

```
try{
```

```
 Statement st=connection.createStatement();
```

```
 String strQuery = "select imagess from ttopic where id="+id ;
```

```
 ResultSet rs = st.executeQuery(strQuery);
```

```
String imgLen="";
if(rs.next()){
 imgLen = rs.getString(1);
}
rs = st.executeQuery(strQuery);
if(rs.next()){
 int len = imgLen.length();
 byte [] rb = new byte[len];
 InputStream readImg = rs.getBinaryStream(1);
 int index=readImg.read(rb, 0, len);
 st.close();
 response.reset();
 response.getOutputStream().write(rb,0,len);
 response.getOutputStream().flush();
}
}
catch (Exception e){
 e.printStackTrace();
}
%>

</body>
</html>
```

### **uProfilePic.jsp**

```
<% @ include file="connect.jsp" %>
<% @ page import="java.sql.*,java.io.*,java.util.*" %>

<%
 int id = Integer.parseInt(request.getParameter("id"));
 try{

 Statement st=connection.createStatement();
 String strQuery = "select imagess from user where id="+id+"";
 ResultSet rs = st.executeQuery(strQuery);
 String imgLen="";
 if(rs.next())
 {
 imgLen = rs.getString(1);
 }

 rs = st.executeQuery(strQuery);
 if(rs.next())
 {
 int len = imgLen.length();
 byte [] rb = new byte[len];
```

```

 InputStream readImg = rs.getBinaryStream(1);
 int index=readImg.read(rb, 0, len);
 st.close();
 response.reset();
 response.getOutputStream().write(rb,0,len);
 response.getOutputStream().flush();
 }
}
catch (Exception e){
 e.printStackTrace();
}
%>

</body>
</html>

```

**Positive.jsp**

```

<% @ include file="connect.jsp"%>

<table width="778" border="1">

 <tr>
 <td width="94" height="33" bgcolor="#FFFF00" ><div align="left"
class="style4 style5 style35 style2 style11 style12 style5">
 <div align="center">ID </div>
 </div></td>
 <td width="94" bgcolor="#FFFF00" ><div align="left" class="style4
style5 style35 style2 style11 style12 style5">
 <div align="center">Tweet Name
</div>
 </div></td>
 <td width="127" bgcolor="#FFFF00" ><div align="left"
class="style4 style5 style35 style2 style11 style12 style5">
 <div align="center"> User
Name</div>
 </div></td>
 <td width="168" bgcolor="#FFFF00" ><div align="left"
class="style4 style36 style2 style11 style12 style5">
 <div align="center" class="style13">Commented
Details </div>
 </div></td>
 <td width="197" bgcolor="#FFFF00"><div align="left"
class="style37 style4 style12 style11 style5">
 <div align="center">Date and Time</div>
 </div></td>
 </tr>

<%
 String s1="",s2="",s3="",s4="",s5="",s6="",s7="", pos="Positive",s22="";

```

```
int i=0,poscnt=0,negcnt=0,srcnt=0;
int count1=0;
String ftype="Positive";

try
{
 String sql3="select user,tname from ttopic";
 Statement st3=connection.createStatement();
 ResultSet rs3=st3.executeQuery(sql3);
 while (rs3.next())
 {
 s1=rs3.getString(1);
 s7=rs3.getString(2);
 int count=0;
 }
}
%>
<style type="text/css">
<!--
.style2 {
 font-weight: bold;
 color: #FFFFFF;
}
.style4 { font-weight: bold}
.style5 {color: #FF0000}
-->
</style>

<%

String query="select * from tcomment where tname='"+s7+"' ";
Statement st=connection.createStatement();
ResultSet rs=st.executeQuery(query);
while (rs.next())
{
 i=rs.getInt(1);//id
 s2=rs.getString(2); //tname
 s22=rs.getString(5); //uname
 s3=rs.getString(4).toLowerCase(); // Comments
 s5=rs.getString(6); // Date

 count++;

String sql1="select * from filter where CatType='"+pos+"' ";
Statement st1=connection.createStatement();
ResultSet rs1=st1.executeQuery(sql1);
while (rs1.next())
{
 String t1=rs1.getString(1);
 String t2=rs1.getString(2).toLowerCase();
```

## UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

```
<tr>
 <td width="94" height="33" bgcolor="#FFFF00" ><div align="left"
class="style4 style5 style35 style2 style11 style12 style5">
 <div align="center">ID </div>
</div></td>
 <td width="94" bgcolor="#FFFF00" ><div align="left" class="style4
style5 style35 style2 style11 style12 style5">
 <div align="center">Tweet Name
</div>
</div></td>
 <td width="127" bgcolor="#FFFF00" ><div align="left"
class="style4 style5 style35 style2 style11 style12 style5">
 <div align="center"> User
Name</div>
</div></td>
 <td width="168" bgcolor="#FFFF00" ><div align="left"
class="style4 style36 style2 style11 style12 style5">
 <div align="center" class="style13">Commented
Details </div>
</div></td>
 <td width="197" bgcolor="#FFFF00"><div align="left"
class="style37 style4 style12 style11 style5">
 <div align="center">Date and Time</div>
</div></td>
</tr>
```

<%

```
String s1="",s2="",s3="",s4="",s5="",s6="",s7="", pos="Positive",s22="";
int i=0,poscnt=0,negcnt=0,srcnt=0;
int count1=0;
String ftype="Positive";
```

```
try
{
```

```
String sql3="select user,tname from ttopic";
Statement st3=connection.createStatement();
ResultSet rs3=st3.executeQuery(sql3);
while (rs3.next())
{
s1=rs3.getString(1);
s7=rs3.getString(2);
int count=0;
%>
```

```
<style type="text/css">
```

```
<!--
```

```
.style2 {
font-weight: bold;
color: #FFFFFF;
}
```

## UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

```
.style4 { font-weight: bold}
.style5 { color: #FF0000}
-->
</style>
```

```
 <%
 String query="select * from tcomment where tname='"+s7+"' ";
 Statement st=connection.createStatement();
 ResultSet rs=st.executeQuery(query);
 while (rs.next())
 {
 i=rs.getInt(1);//id
 s2=rs.getString(2); //tname
 s22=rs.getString(5); //uname
 s3=rs.getString(4).toLowerCase(); // Comments
 s5=rs.getString(6); // Date

 count++;

 String sql1="select * from filter where CatType='"+pos+"' ";
 Statement st1=connection.createStatement();
 ResultSet rs1=st1.executeQuery(sql1);
 while (rs1.next())
 {
 String t1=rs1.getString(1);
 String t2=rs1.getString(2).toLowerCase();

 if ((s3.contains(t2)))
 {

 count1++;

 }
 }
 }
 %>
 <tr>
 <td width="94" height="44"
 bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style5 style11
 style14"><%=i%></div></td>
 <td width="127" height="44"
 bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style11
 style14"> <%=s2%></div></td>
 <td width="127" height="44"
 bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style11
 style14"> <%=s22%></div></td>
 <td width="168" height="44"
 bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style5 style11
 style14"><%=s3%></div></td>
 <td width="197" height="44"
```



## UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

```
bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style5 style11 style14"><%=s5%></div></td>
</tr>
```

```
<%
```

```
 }
}
```

```
}
```

```
String sql11="Update results set No_Count="+count1+" where
stype="" +pos+" ";
```

```
Statement st11=connection.createStatement();
st11.executeUpdate(sql11);
```

```
connection.close();
}
catch(Exception e)
{
 out.println(e.getMessage());
}
%></table>
```

### Negative.jsp

```
<% @ include file="connect.jsp"% >
```

```
<table width="778" border="1">
```

```
<tr>
```

```
<td width="94" height="33" bgcolor="#FFFF00" ><div align="left"
class="style4 style5 style35 style2 style11 style12 style5">
```

```
<div align="center">ID </div>
```

```
</div></td>
```

```
<td width="94" bgcolor="#FFFF00" ><div align="left" class="style4
style5 style35 style2 style11 style12 style5">
```

```
<div align="center">Tweet Name
```

```
</div>
```

```
</div></td>
```

```
<td width="127" bgcolor="#FFFF00" ><div align="left"
class="style4 style5 style35 style2 style11 style12 style5">
```

```
<div align="center">User Name
```

```
</div>
```

```
</div></td>
```

```
<td width="168" bgcolor="#FFFF00" ><div align="left"
class="style4 style36 style2 style11 style12 style5">
```

```
<div align="center" class="style13">Reviwed Details
```

## UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

```
</div>
 </div></td>
 <td width="197" bgcolor="#FFFF00"><div align="left"
class="style37 style4 style12 style11 style5">
 <div align="center">Date and Time</div>
 </div></td>
 </tr>
```

```
<%
```

```
String s1="",s2="",s3="",s4="",s5="",s6="",s7="", pos="Negative",s22="" ;
int i=0,poscnt=0,negcnt=0,srcnt=0;
int count1=0;
String ftype="Negative";
```

```
try
{
```

```
String sql3="select user,tname from ttopic";
Statement st3=connection.createStatement();
ResultSet rs3=st3.executeQuery(sql3);
while (rs3.next())
{
s1=rs3.getString(1);
s7=rs3.getString(2);
int count=0;
```

```
%>
```

```
<style type="text/css">
```

```
<!--
```

```
.style2 {
```

```
font-weight: bold;
```

```
color: #FFFFFF;
```

```
}
```

```
.style4 {font-weight: bold}
```

```
.style5 {color: #FF0000}
```

```
-->
```

```
</style>
```

```
<%
```

```
String query="select * from tcomment where tname="+s7+" ";
Statement st=connection.createStatement();
ResultSet rs=st.executeQuery(query);
while (rs.next())
```

```
{
```

```
i=rs.getInt(1);//id
```

```
s2=rs.getString(2); //tname
```

```
s22=rs.getString(5); //uname
```

```
s3=rs.getString(4).toLowerCase(); // Comments
```

```
s5=rs.getString(6); // Date
```

```

count++;

String sql1="select * from filter where CatType='"+pos+"' ";
Statement st1=connection.createStatement();
ResultSet rs1=st1.executeQuery(sql1);
while (rs1.next())
 {
 String t1=rs1.getString(1);
 String t2=rs1.getString(2).toLowerCase();

 if ((s3.contains(t2)))
 {

count1++;

 %>
 <tr>
 <td width="94" height="44"
bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style5 style11
style14"><%=i%></div></td>
 <td width="127" height="44"
bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style11
style14"> <%=s2%></div></td>
 <td width="127" height="44"
bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style11
style14"> <%=s22%></div></td>
 <td width="168" height="44"
bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style5 style11
style14"><%=s3%></div></td>
 <td width="197" height="44"
bgcolor="#FFFFFF" style="color:#000000;"><div align="center" class="style32 style5 style11
style14"><%=s5%></div></td>
 </tr>

 <%
 }

 }

 }

String sql11="Update results set No_Count="+count1+" where
stype='"+pos+"' ";

Statement st11=connection.createStatement();
st11.executeUpdate(sql11);

connection.close();

```

```
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
 %></table
```

## 10. SYSTEM TESTING

### 10.1 SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### 10.2 TYPES OF TESTING

#### Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

#### Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

### **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## **10.3 TEST STRATEGY AND APPROACH**

Field testing will be performed manually and functional tests will be written in detail.

### **Test objectives**

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

**Features to be tested**

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

**Integration Testing**

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

**Acceptance Testing**

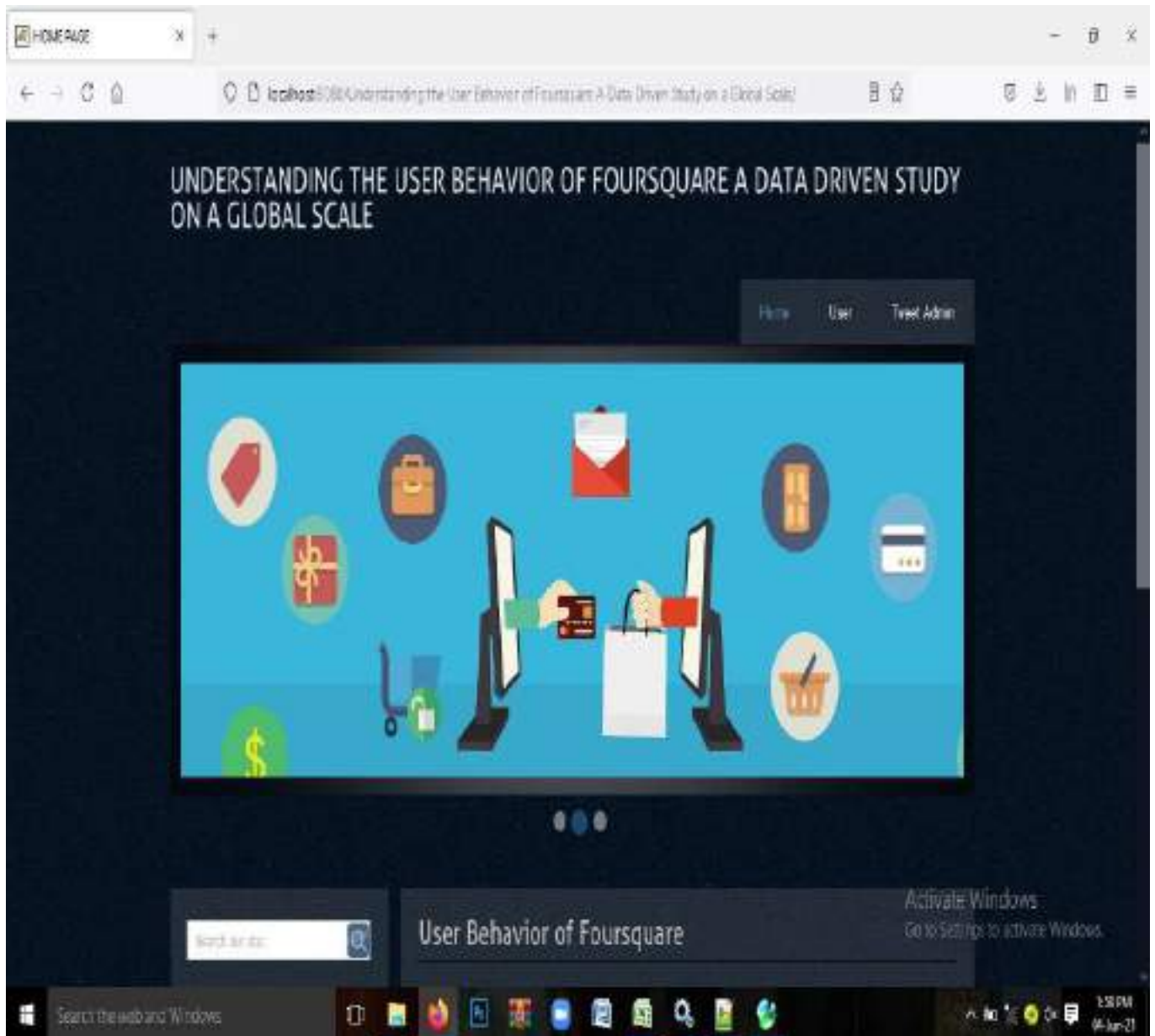
User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## 11. SCREENSHOTS

### Screen 1:

The below screen represents home screen

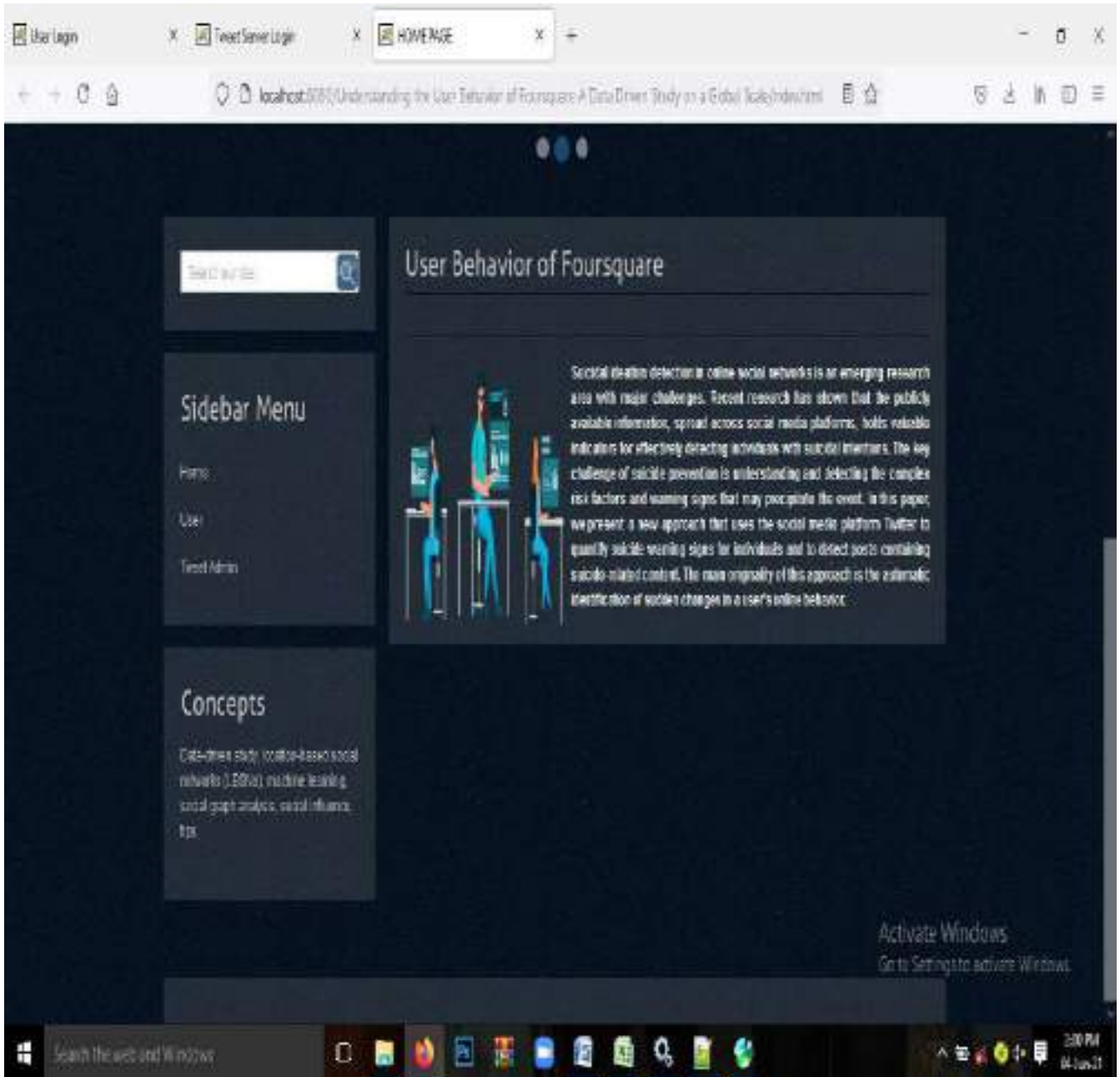


Home Screen



# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 2:



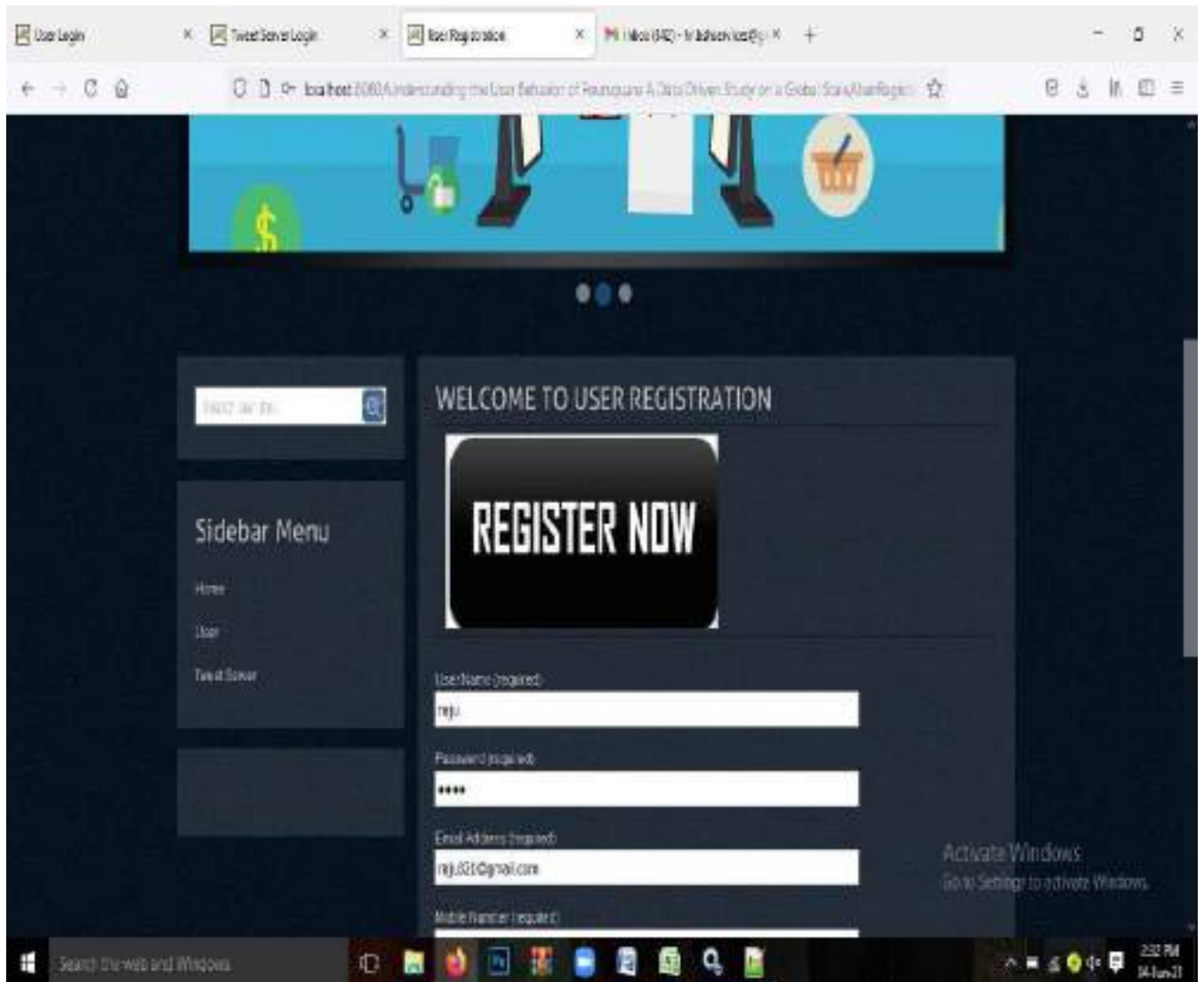
Home Page

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

## Screen 3:

This below screen represents user registration

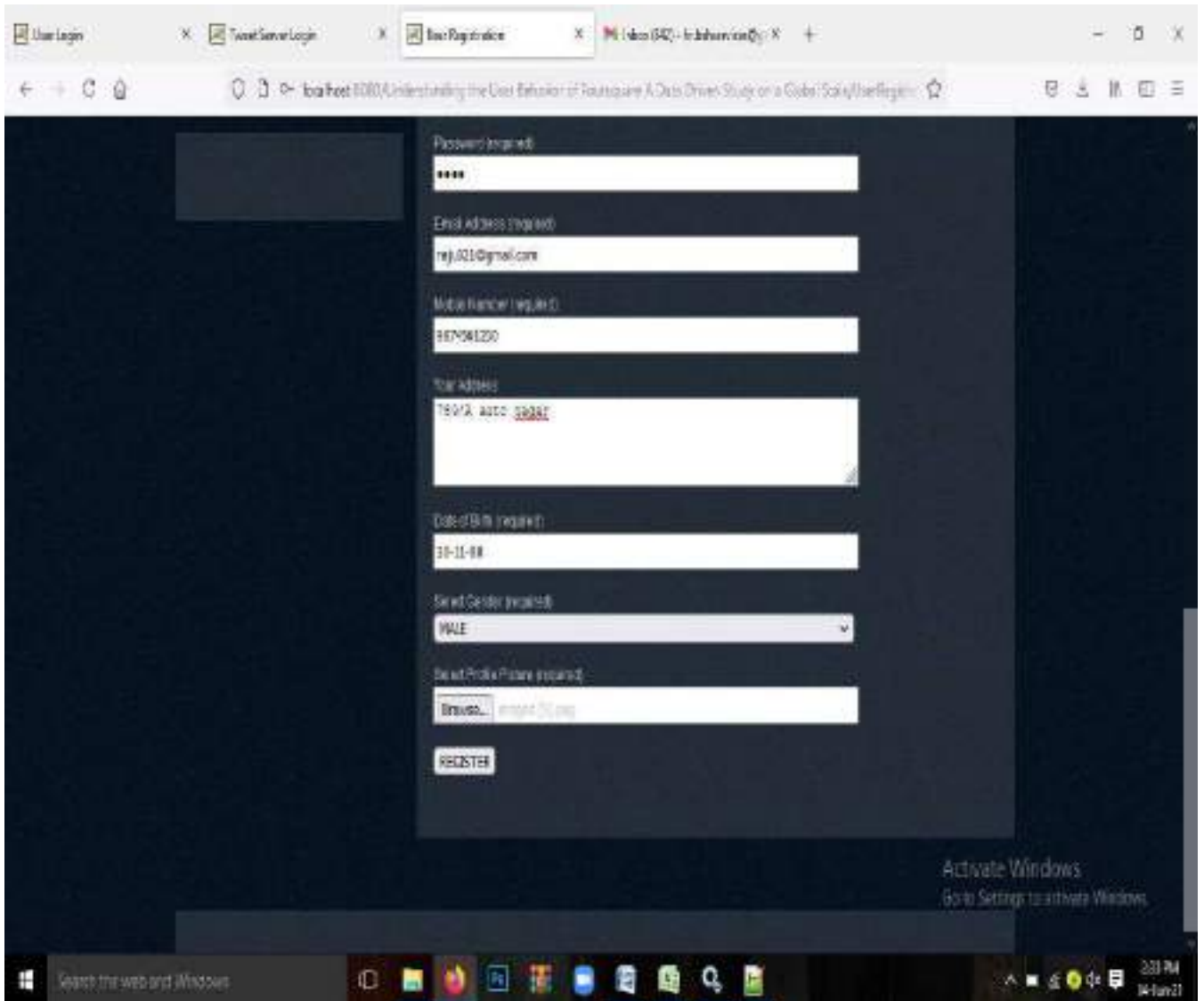


**User Registration**

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

## Screen 4:



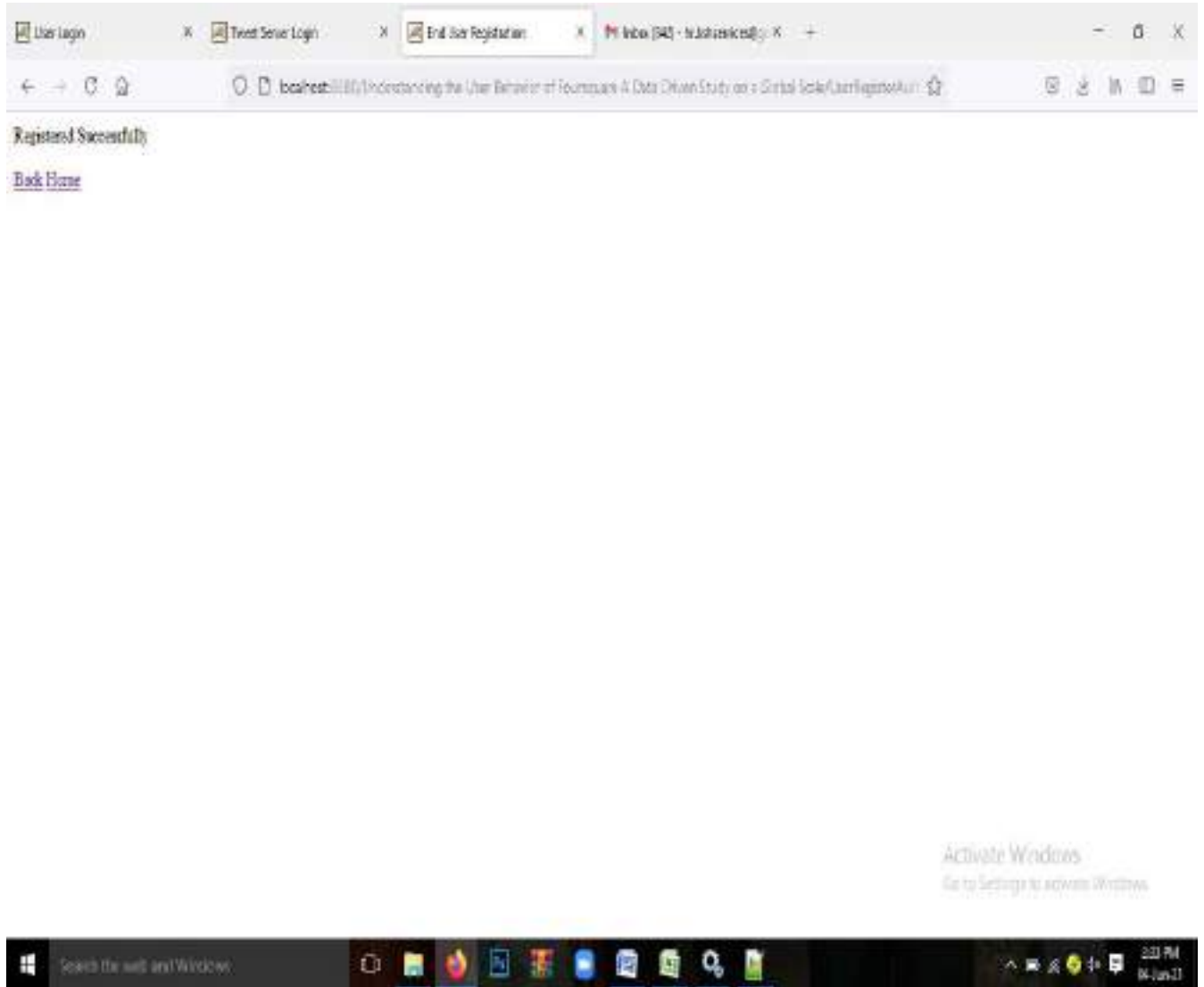
## User Registration

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

## Screen 5:

The below screen represents user registration status.



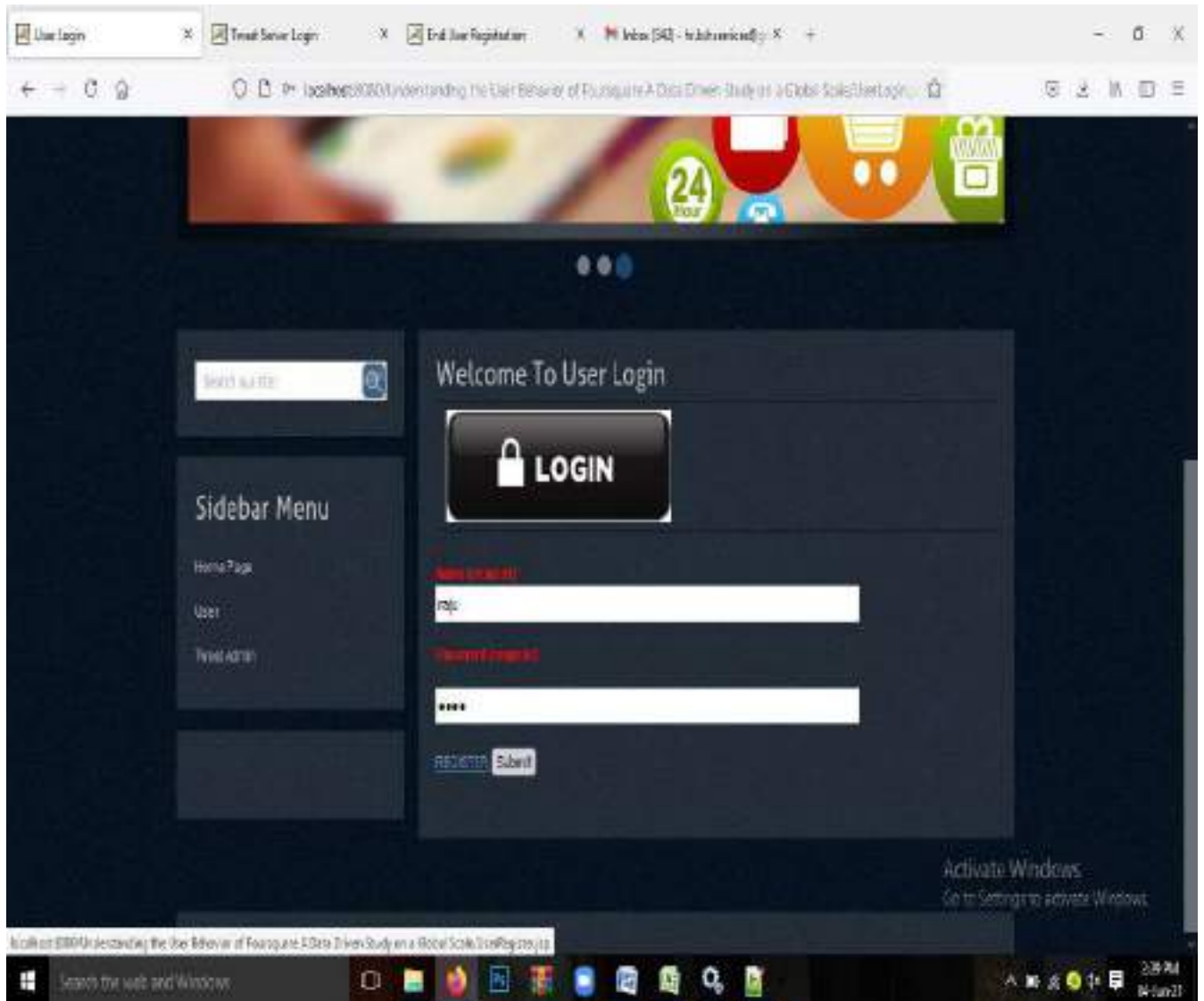
**User Registration Status**

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

## Screen 6:

The below screen represent user login page



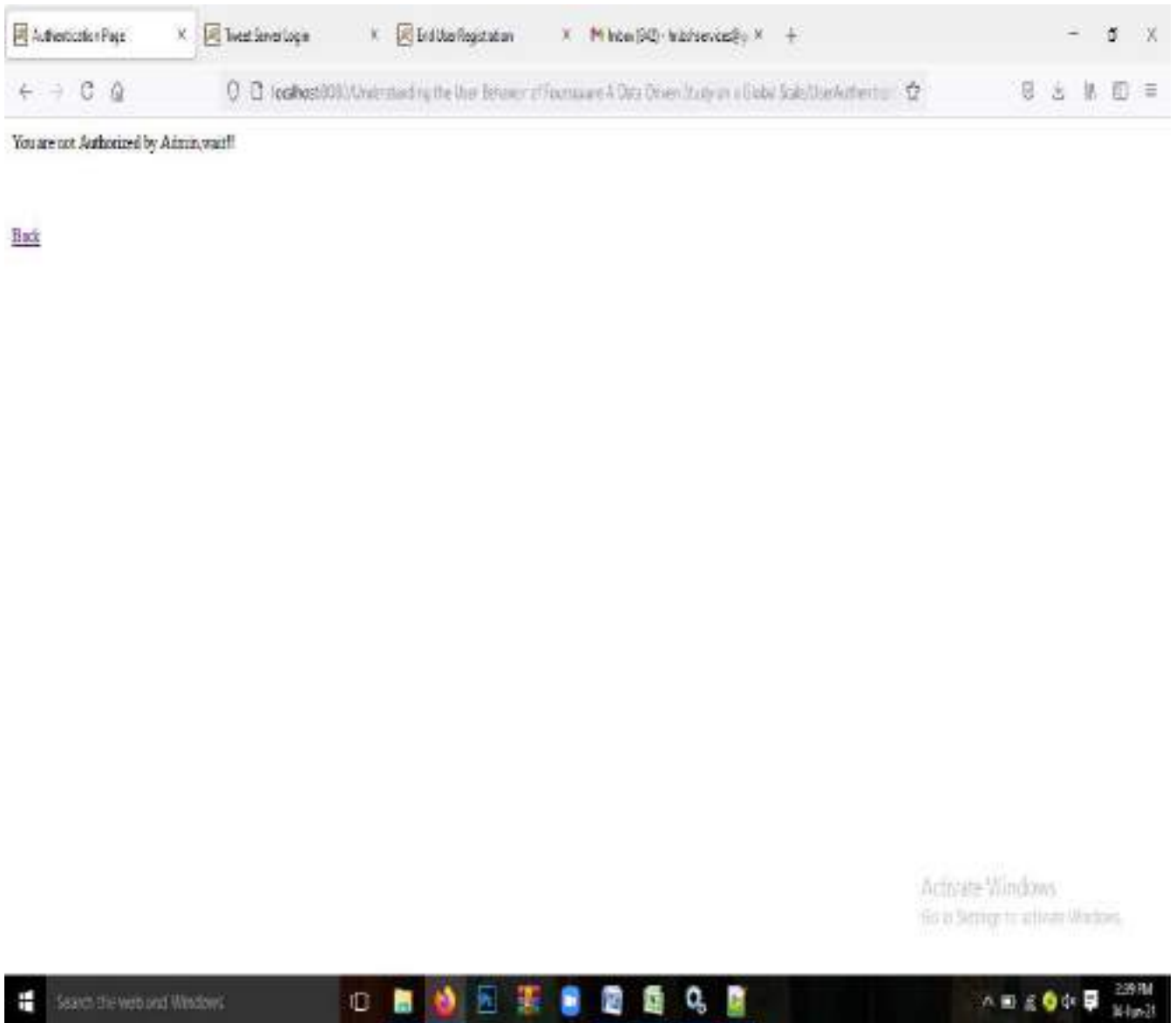
**Login Page**

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

## Screen 7:

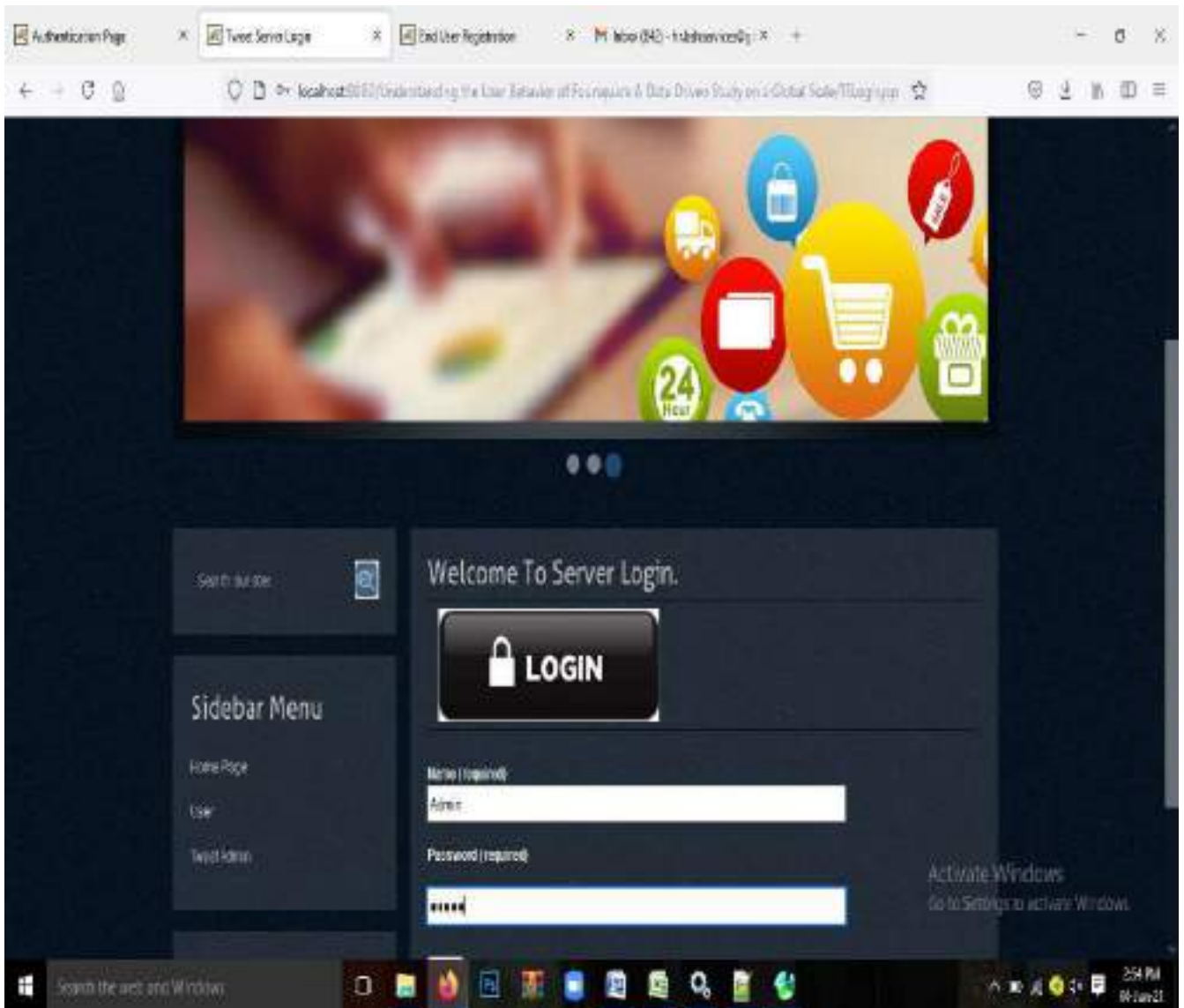
The below screen represents user login status



## User Status

**Screen 8:**

The below screen represents tweet admin server login page



**Tweet Server Login**



# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 9:

The below screen represents home page of tweet admin server



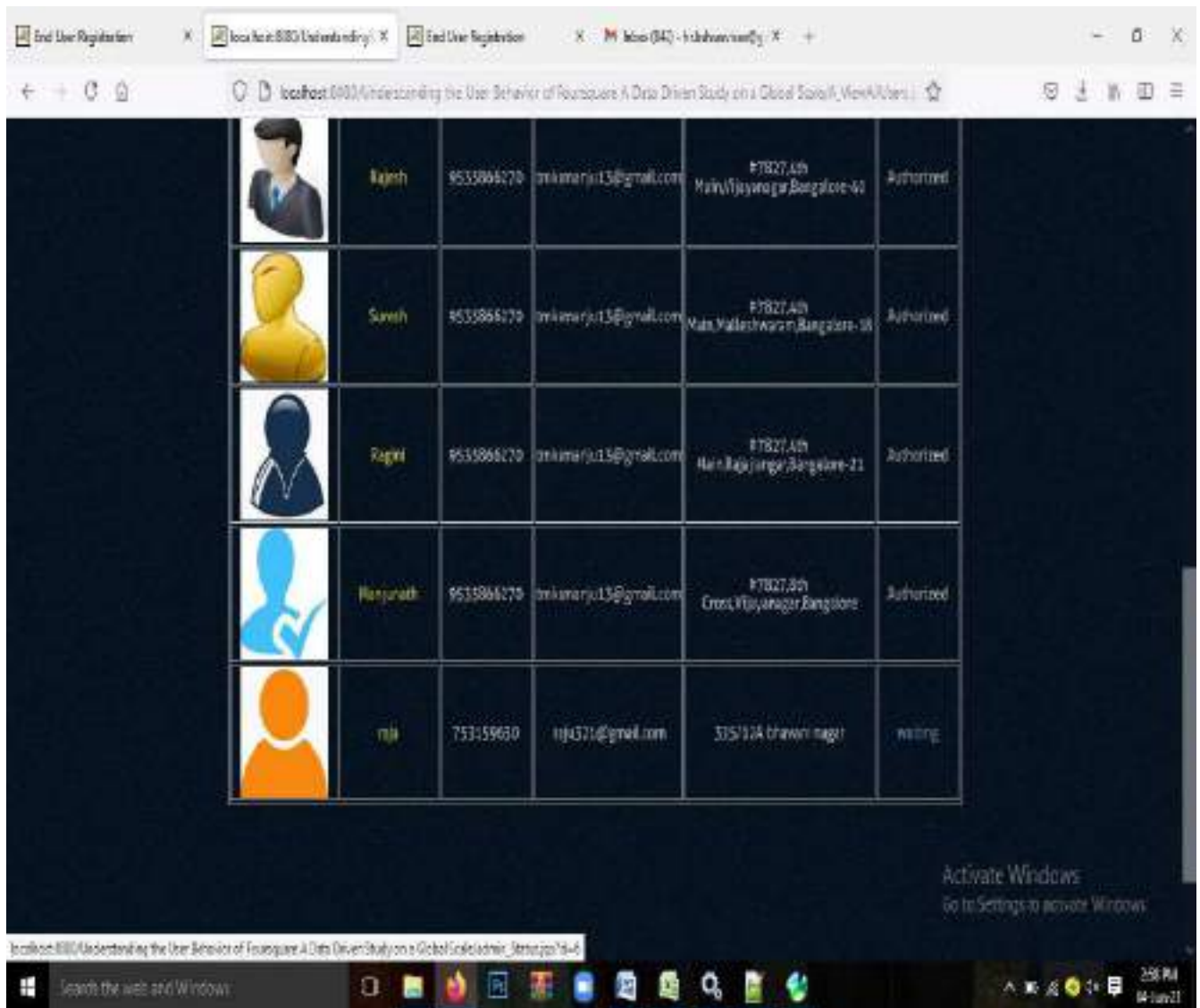
Home Page of Tweet Admin



# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 10:

The below screen represents view all user list

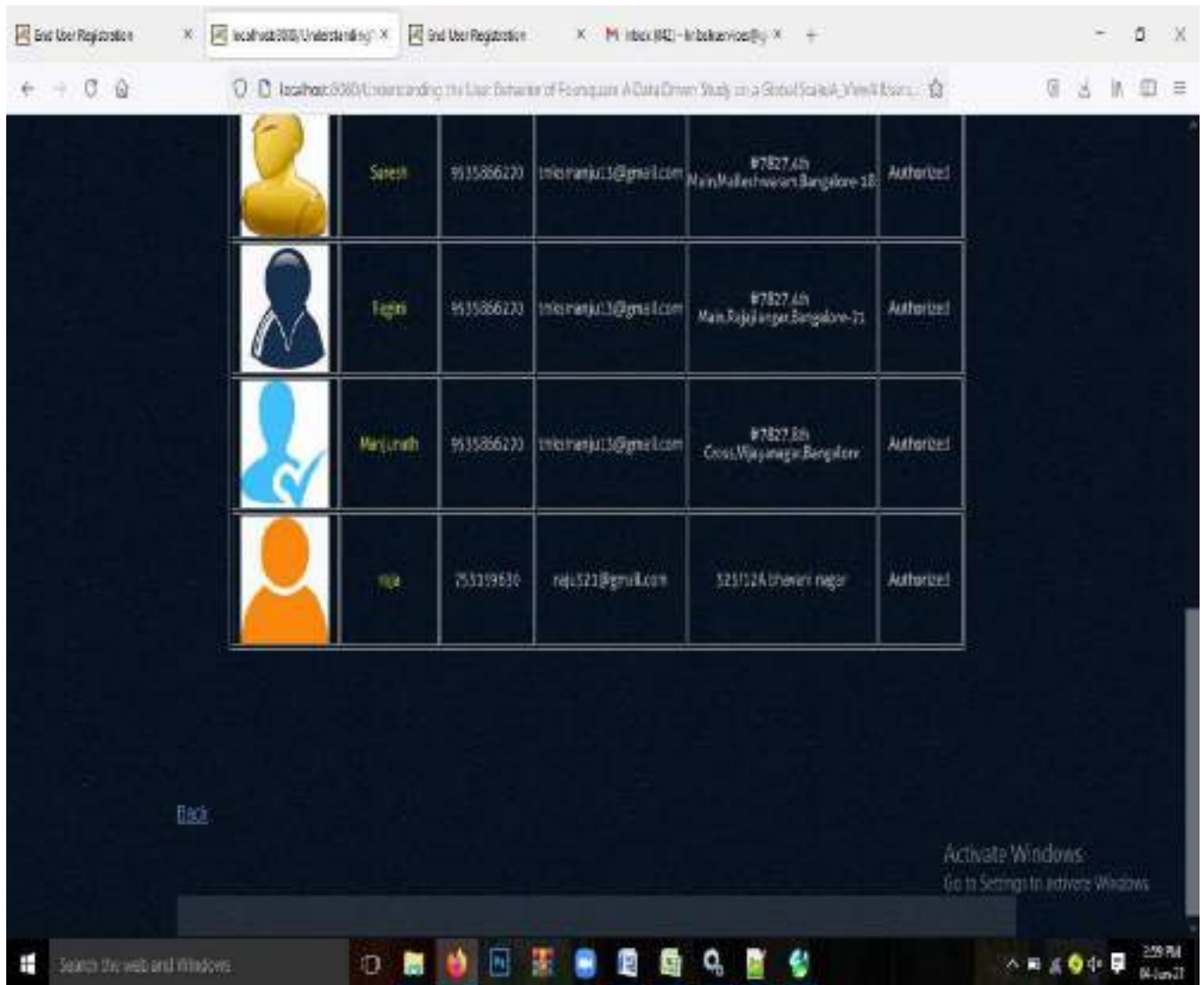


View All User List

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 11:

The below screen represents view all users and authorize

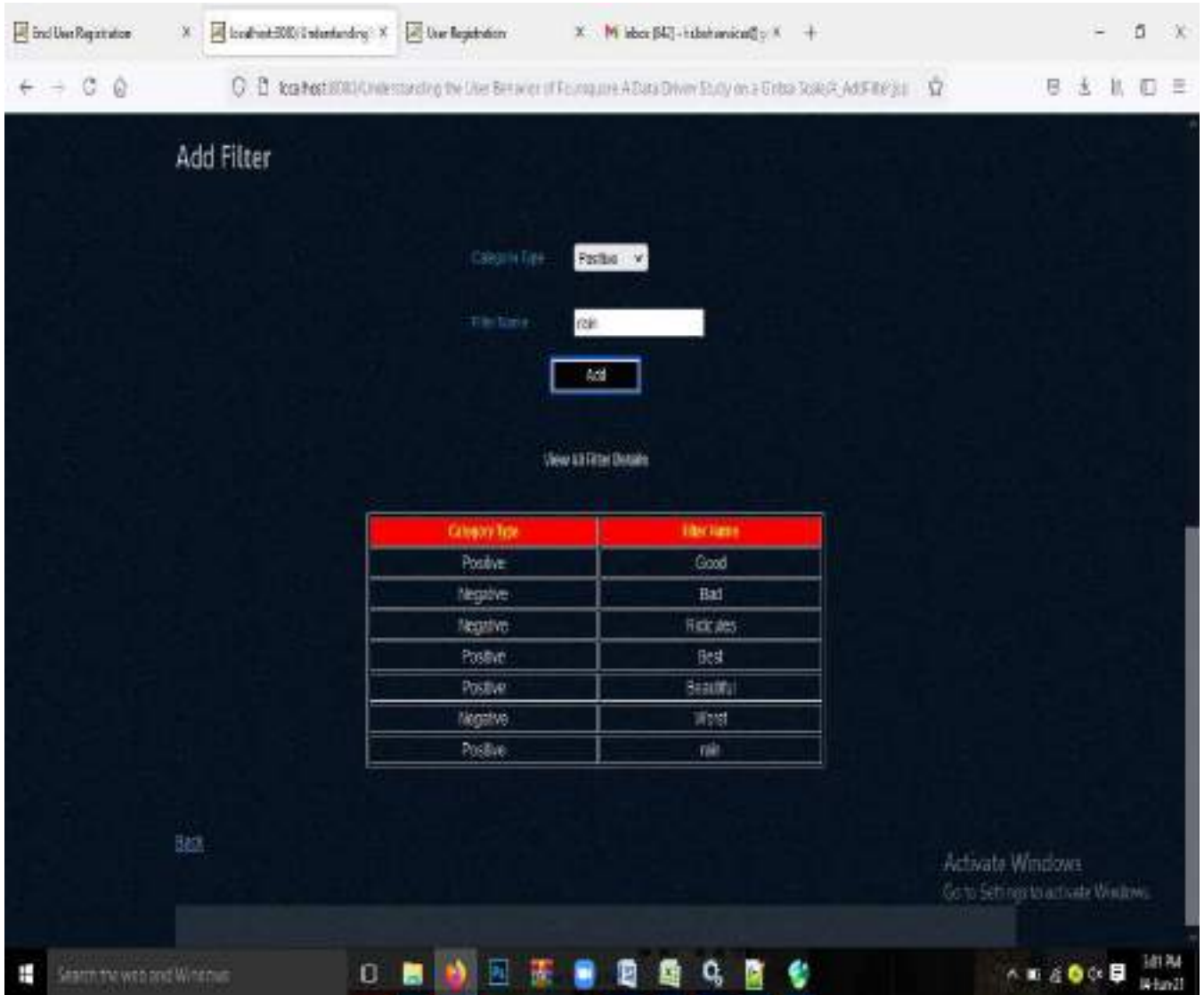


**View All User and Authorize**

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 12:

The below screen represents add filters

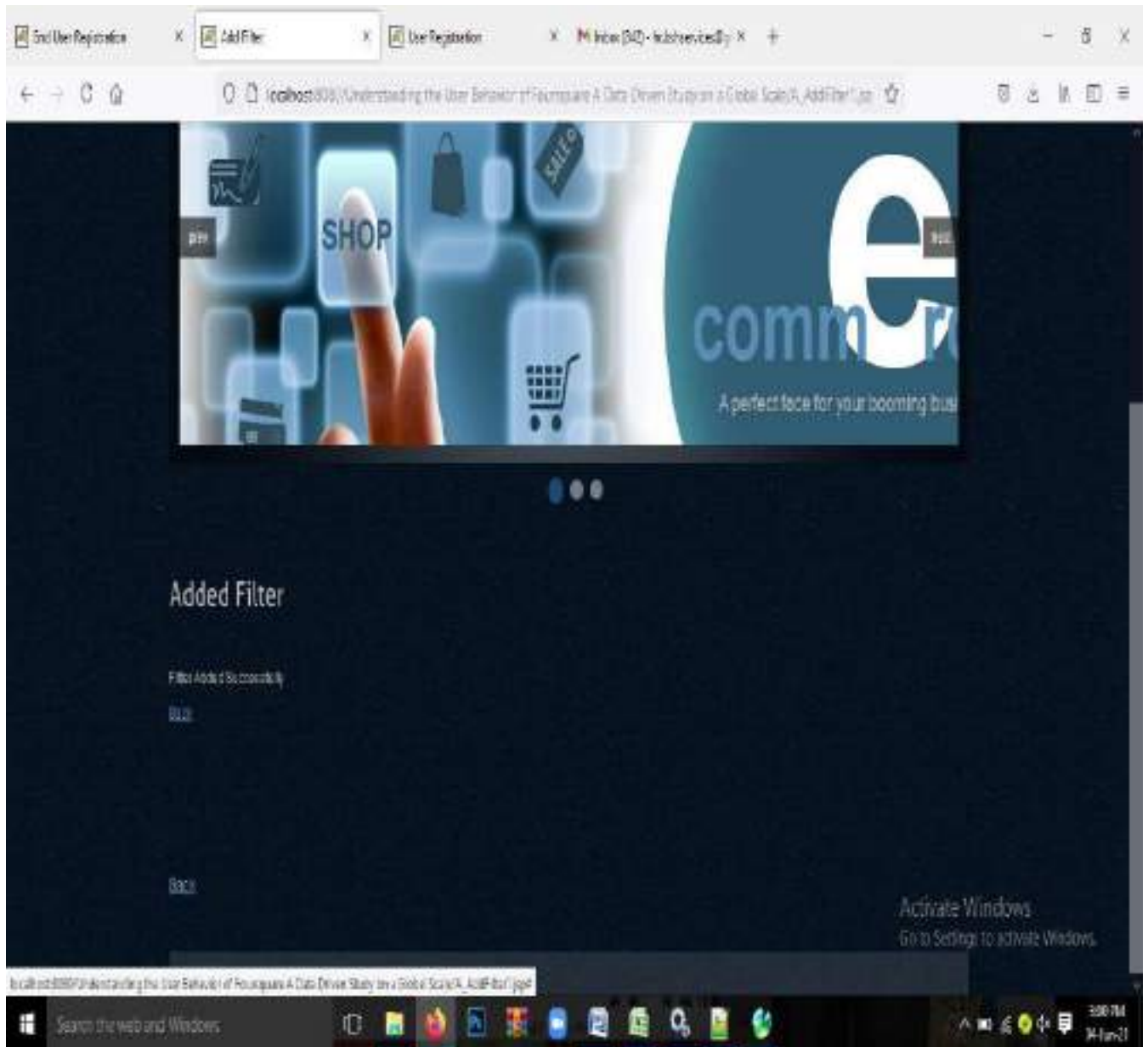


**Add Filters**

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 13:

The below screen represent filter added status

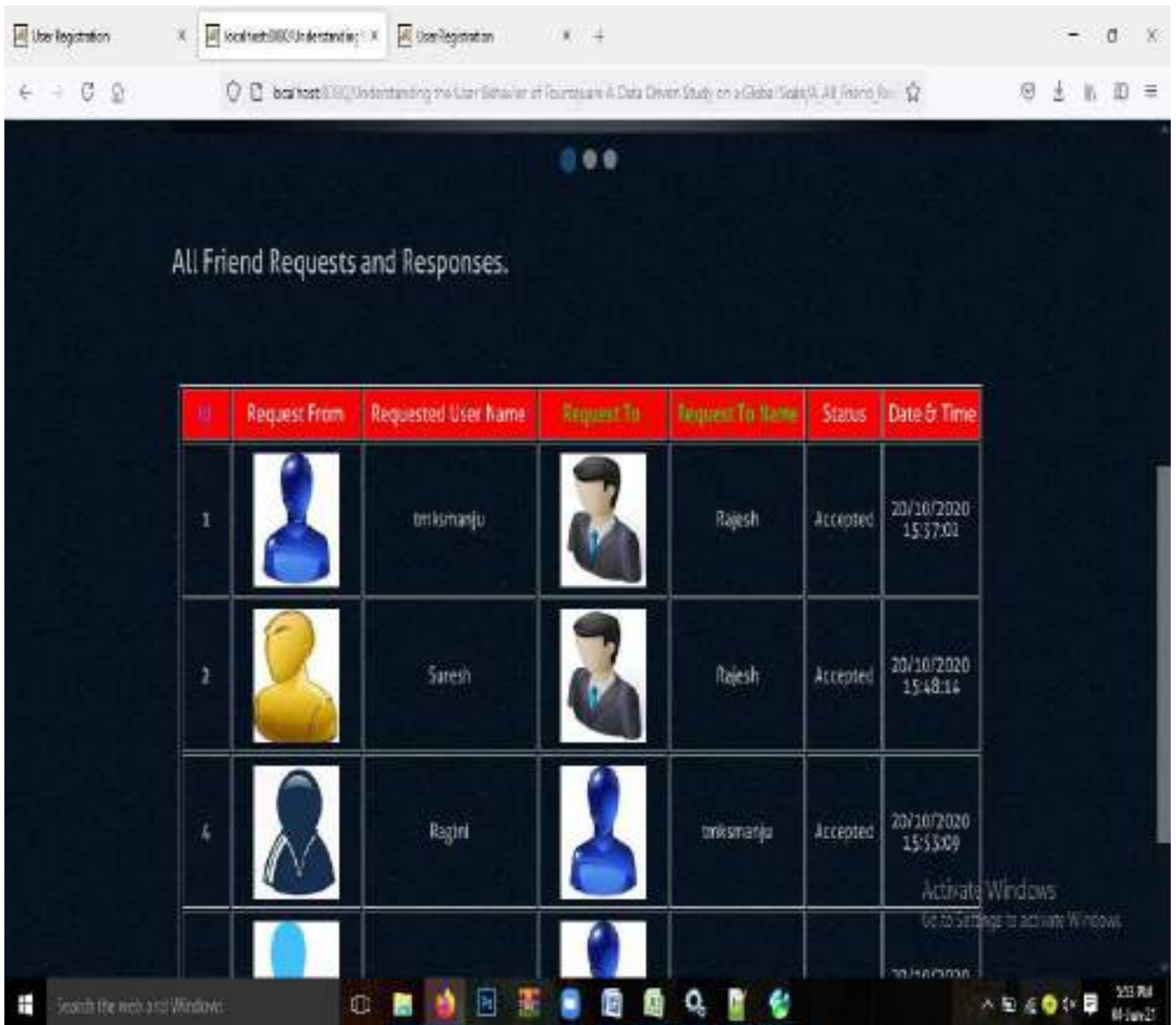


## Add Filters

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 14:

The below screen represent view all friends request and responses



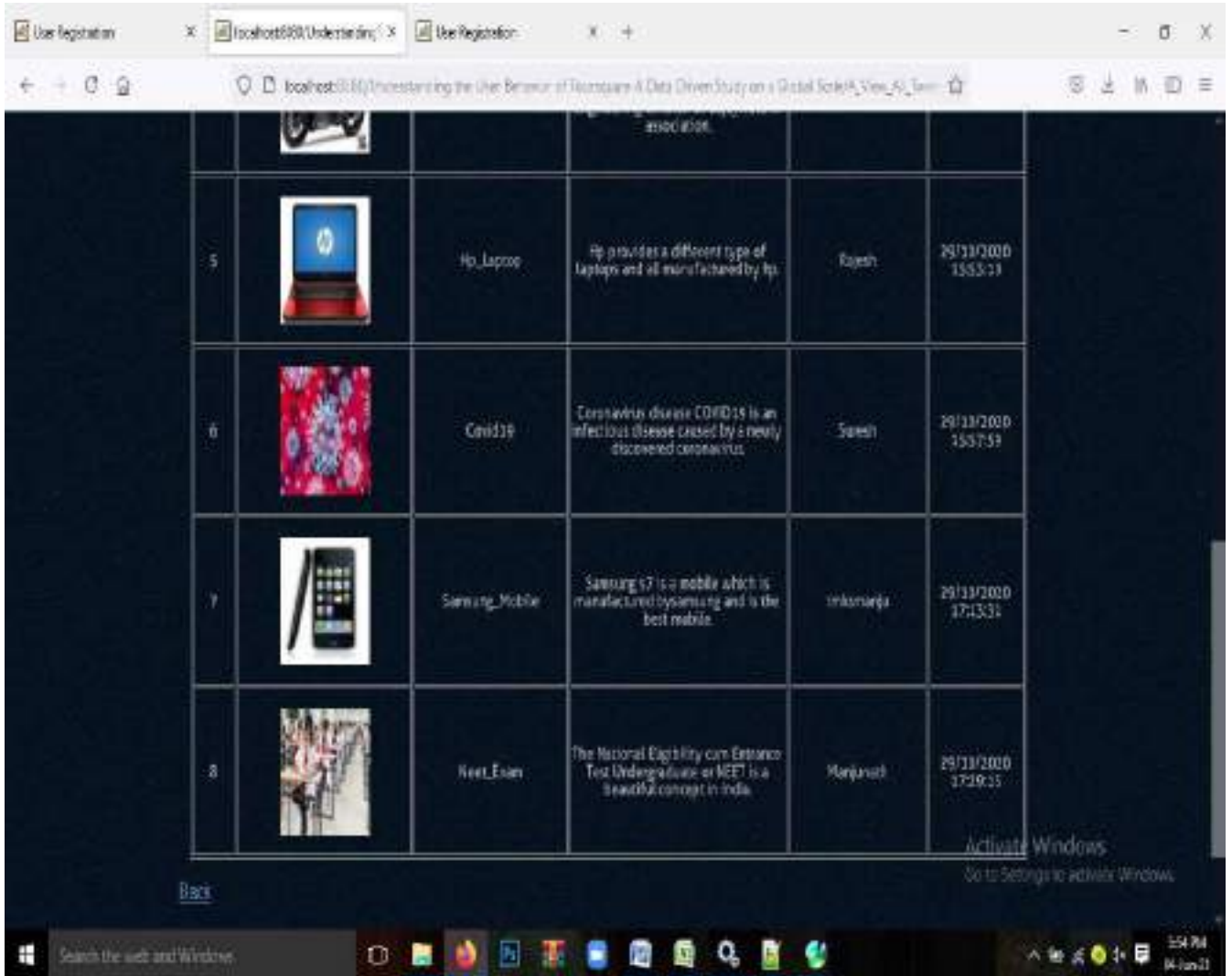
**View All Friends Request and Responses**



# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 15:

The below screen represent all user's tweets

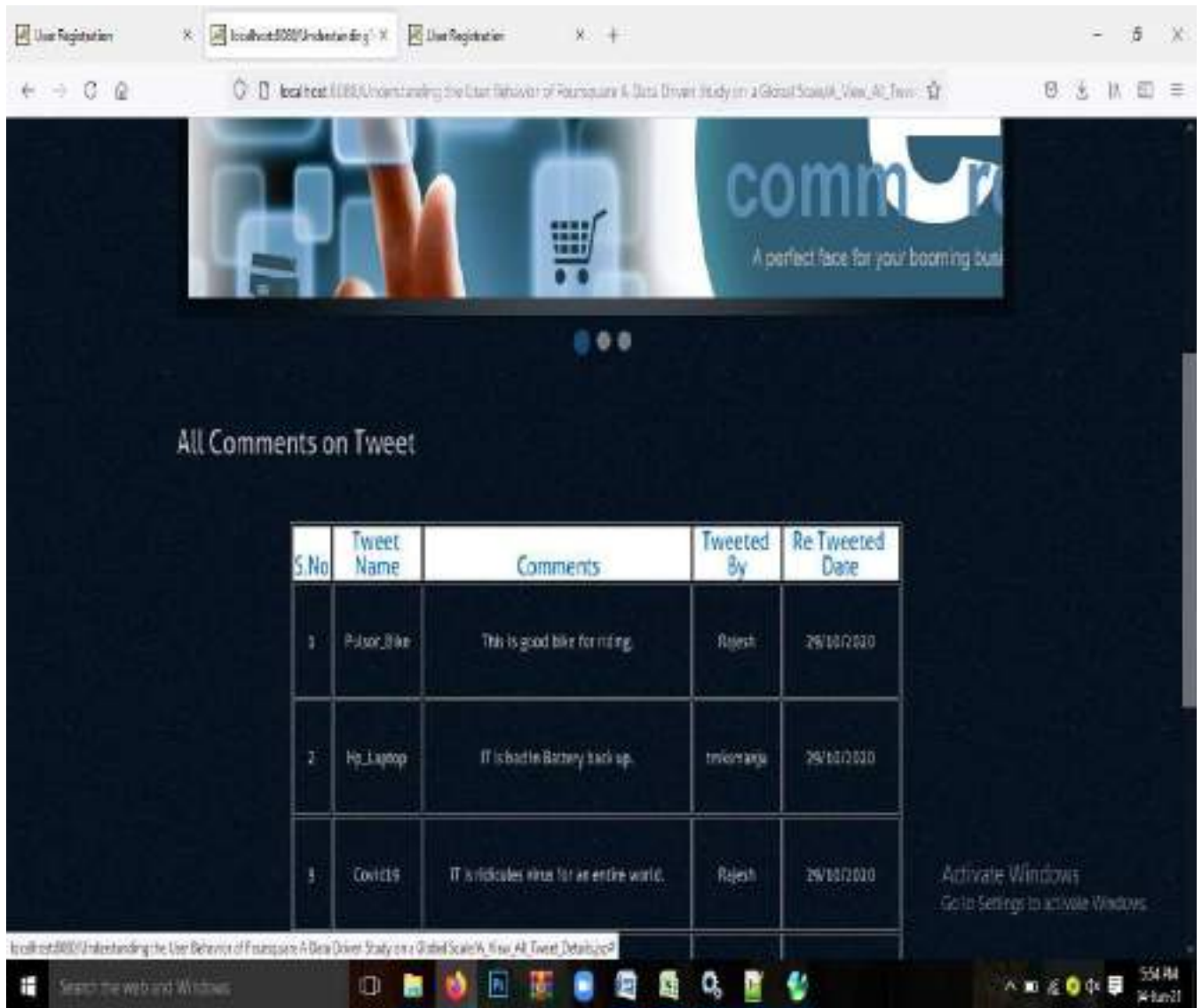


All Users Tweet

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 16:

The below screen represent all user tweet comments



The screenshot shows a web browser window with a dark theme. At the top, there is a navigation bar with the text "All Comments on Tweet". Below this, a table displays the following data:

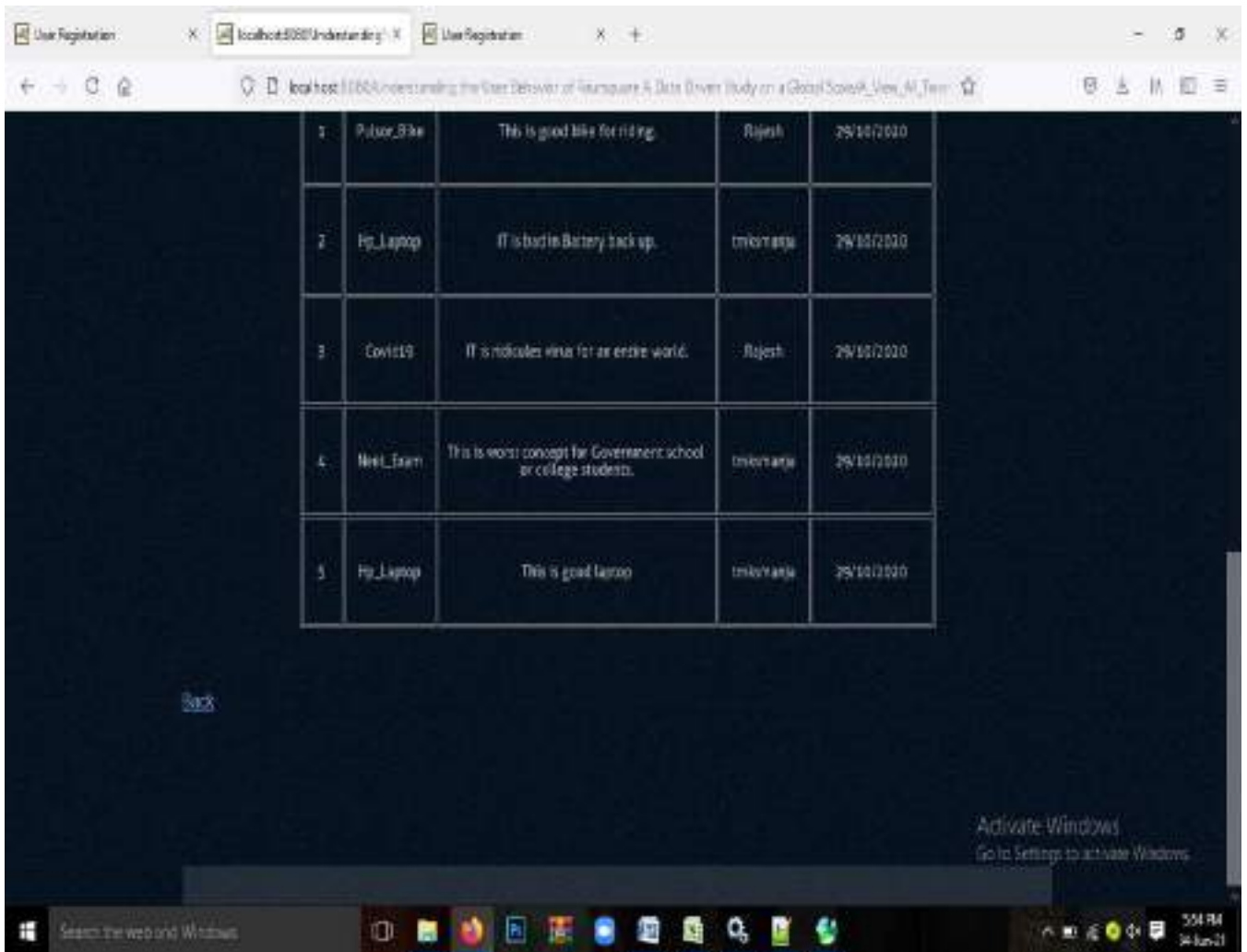
S.No	Tweet Name	Comments	Tweeted By	Re Tweeted Date
1	Pulsor_Bike	This is good bike for riding.	Rajesh	29/10/2020
2	No_Laptop	It is bad in Battery back up.	trivikramj	29/10/2020
3	Covid19	It is ridicules virus for an entire world.	Rajesh	29/10/2020

The browser's address bar shows the URL: localhost:8080/Understanding the User Behavior of Foursquare A Data Driven Study on a Global Scale/View\_All\_Tweet\_Details. The Windows taskbar at the bottom shows the time as 5:54 PM on 10/10/2020.

All User Tweet Comments

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

Screen 17:



1	Pulce_Bike	This is good bike for riding.	Rajesh	29/10/2020
2	Hq_Laptop	It is bad in Battery back up.	imomaga	29/10/2020
3	Covid19	It is nikodes virus for an entire world.	Rajesh	29/10/2020
4	Neel_Farm	This is worst concept for Government school or college students.	imomaga	29/10/2020
5	Hq_Laptop	This is good laptop	imomaga	29/10/2020

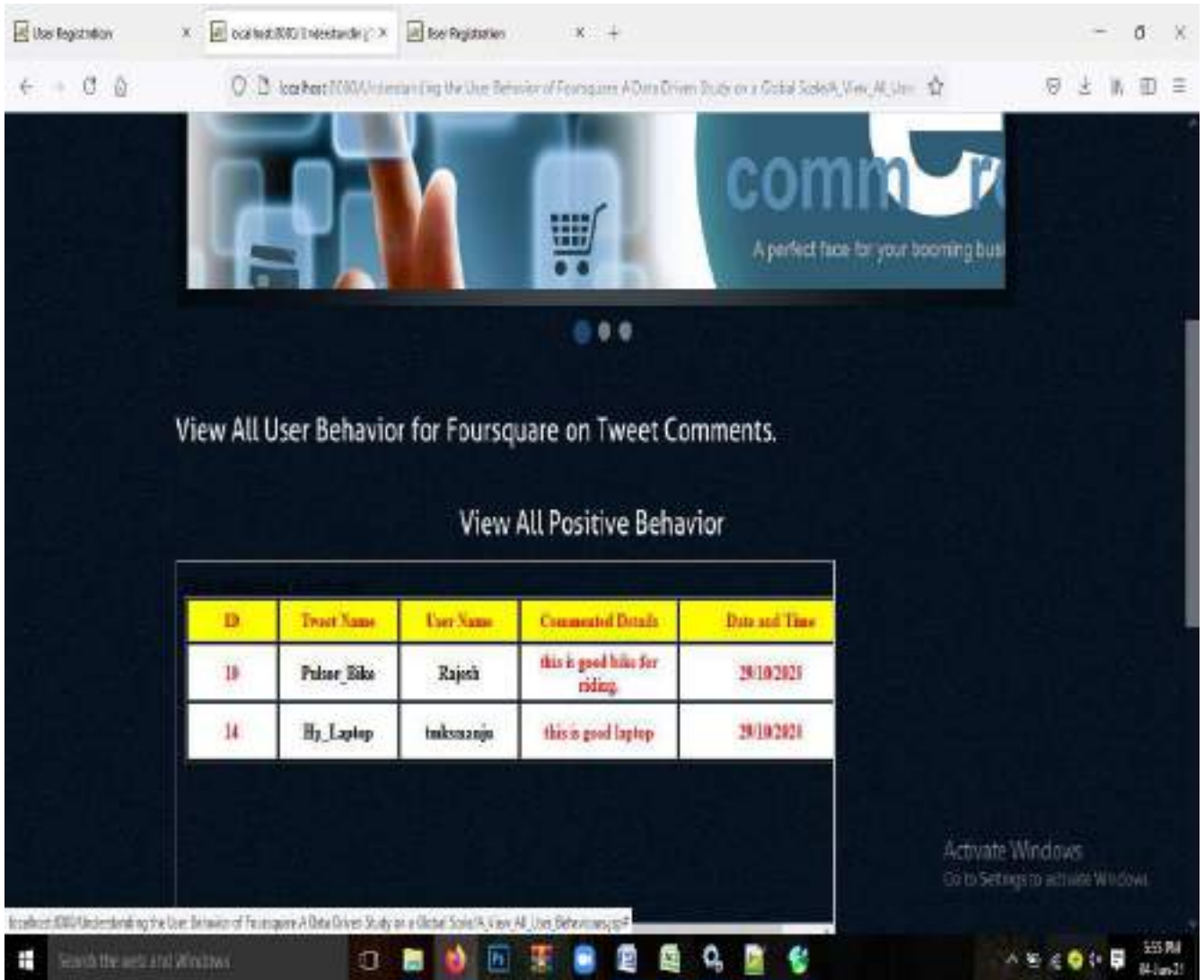
All User Tweet Comments



# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 18:

The below screen represents all positive behaviours

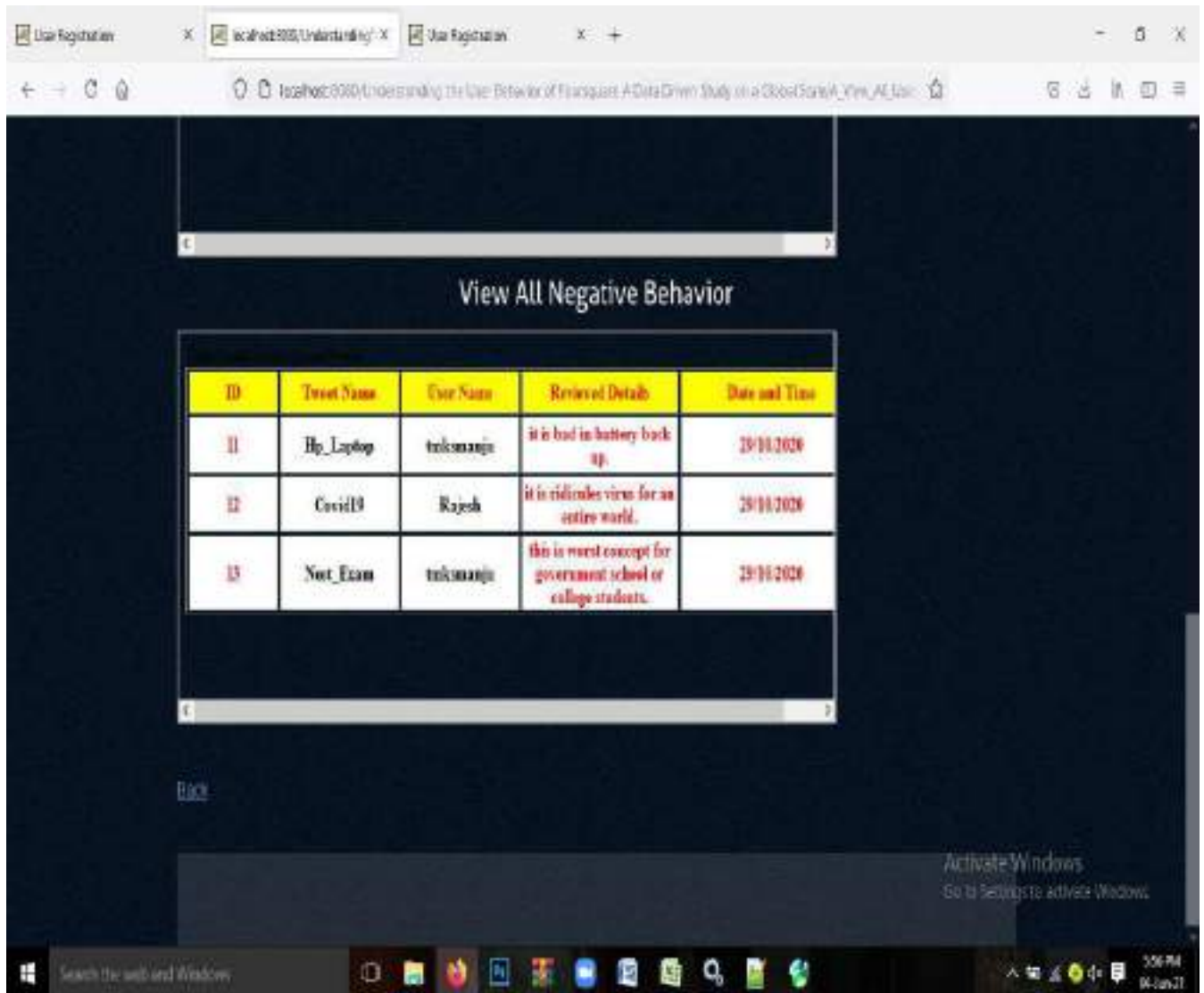


## All Behaviors Users

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 19:

The below screen represents all negative behaviours

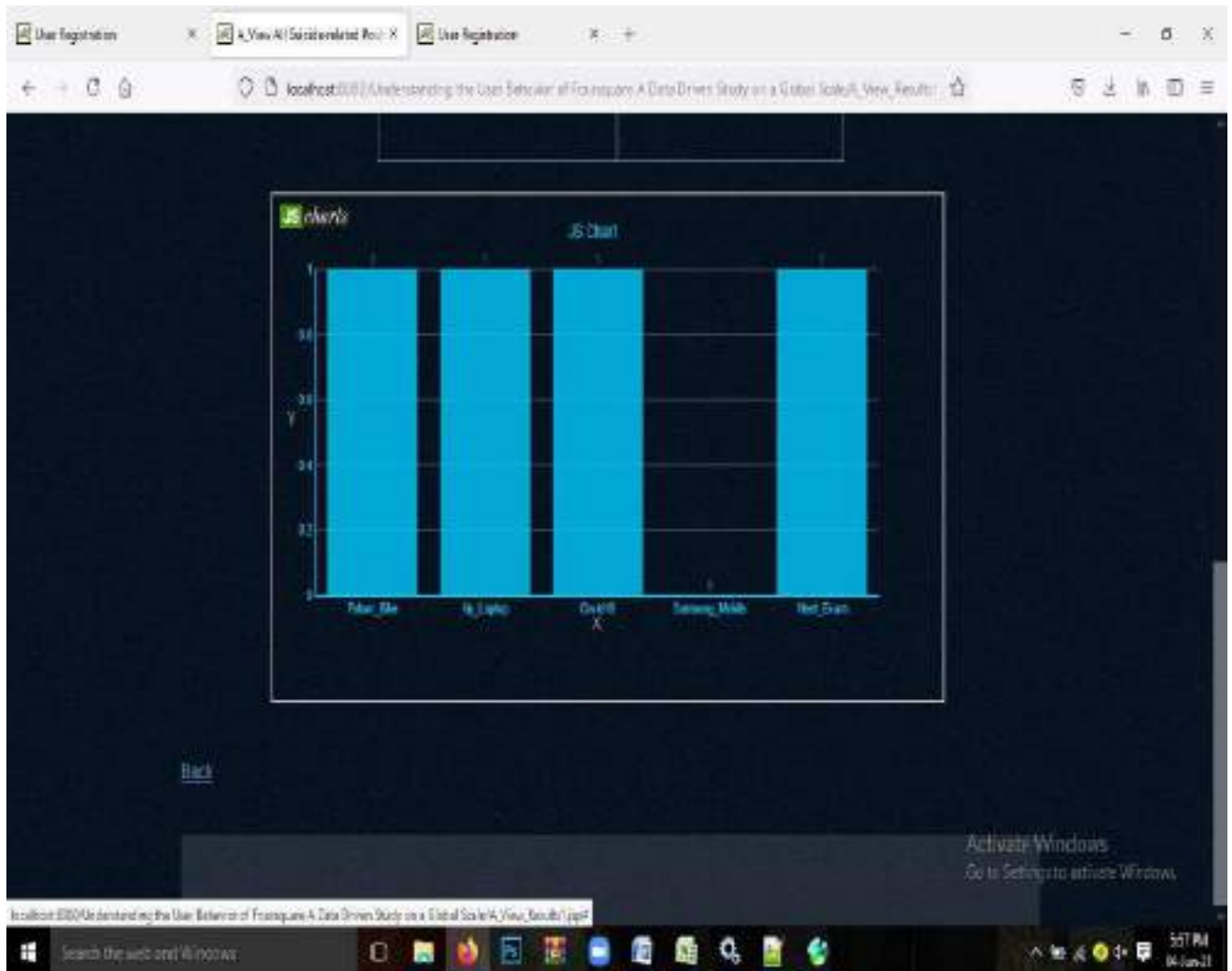


## All Behavior Views

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 20:

This below screen represents all the views charts



**All Views Chart**

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 21:

This below screen represents user profile



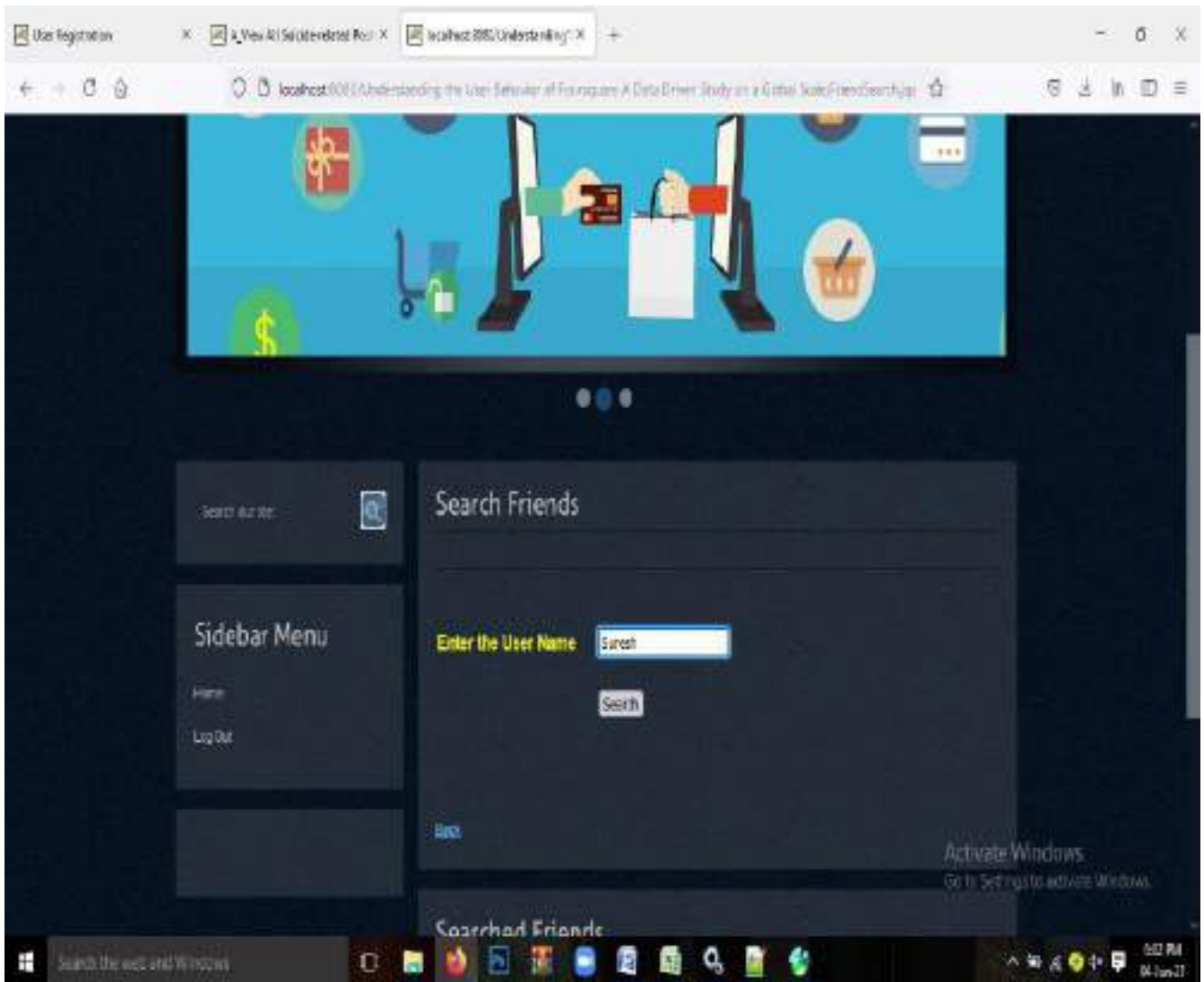
## View Profile

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

---

## Screen 22:

This below screen represents search friends

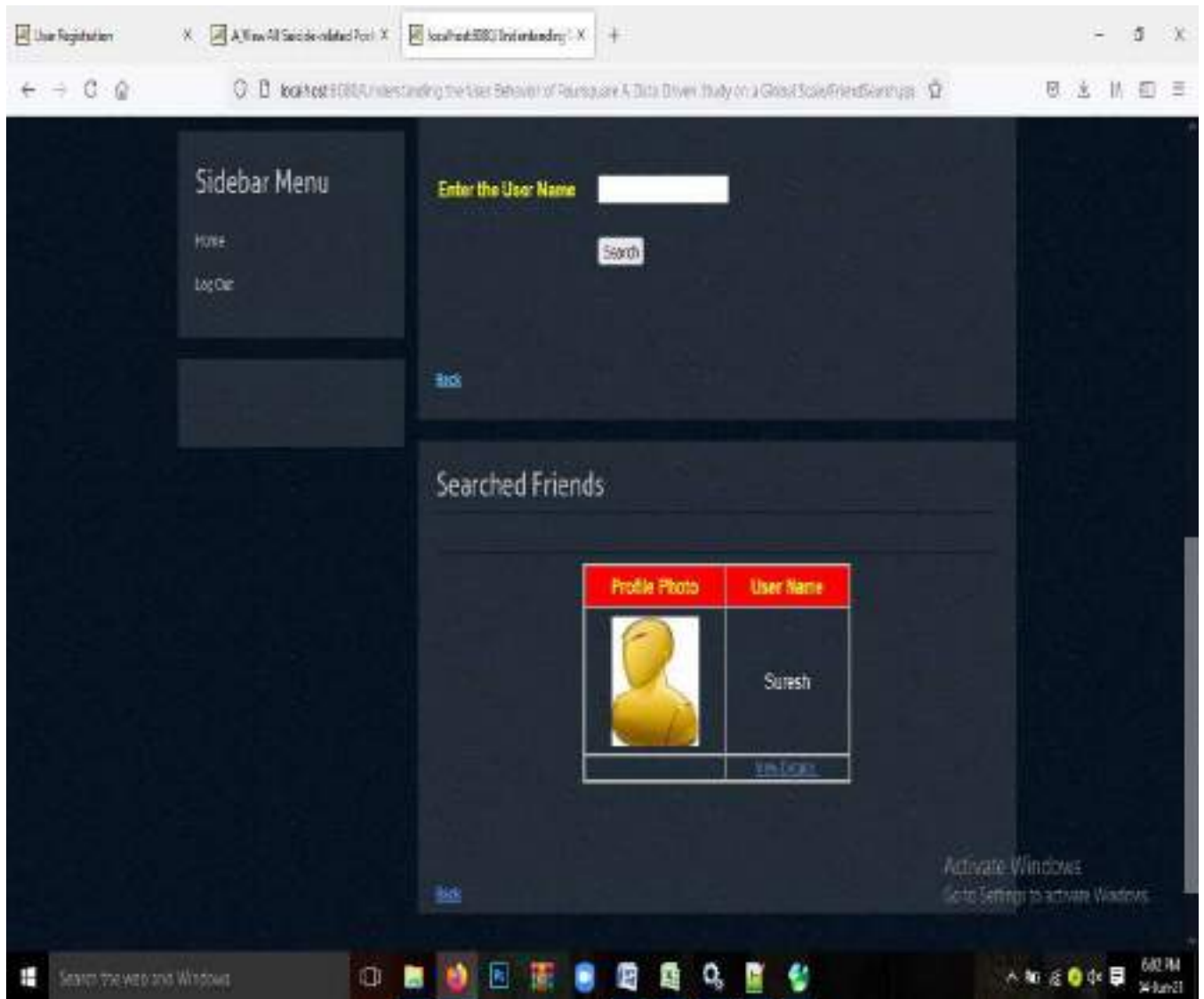


**Search Friends**

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 23:

This below screen represents searched friends list

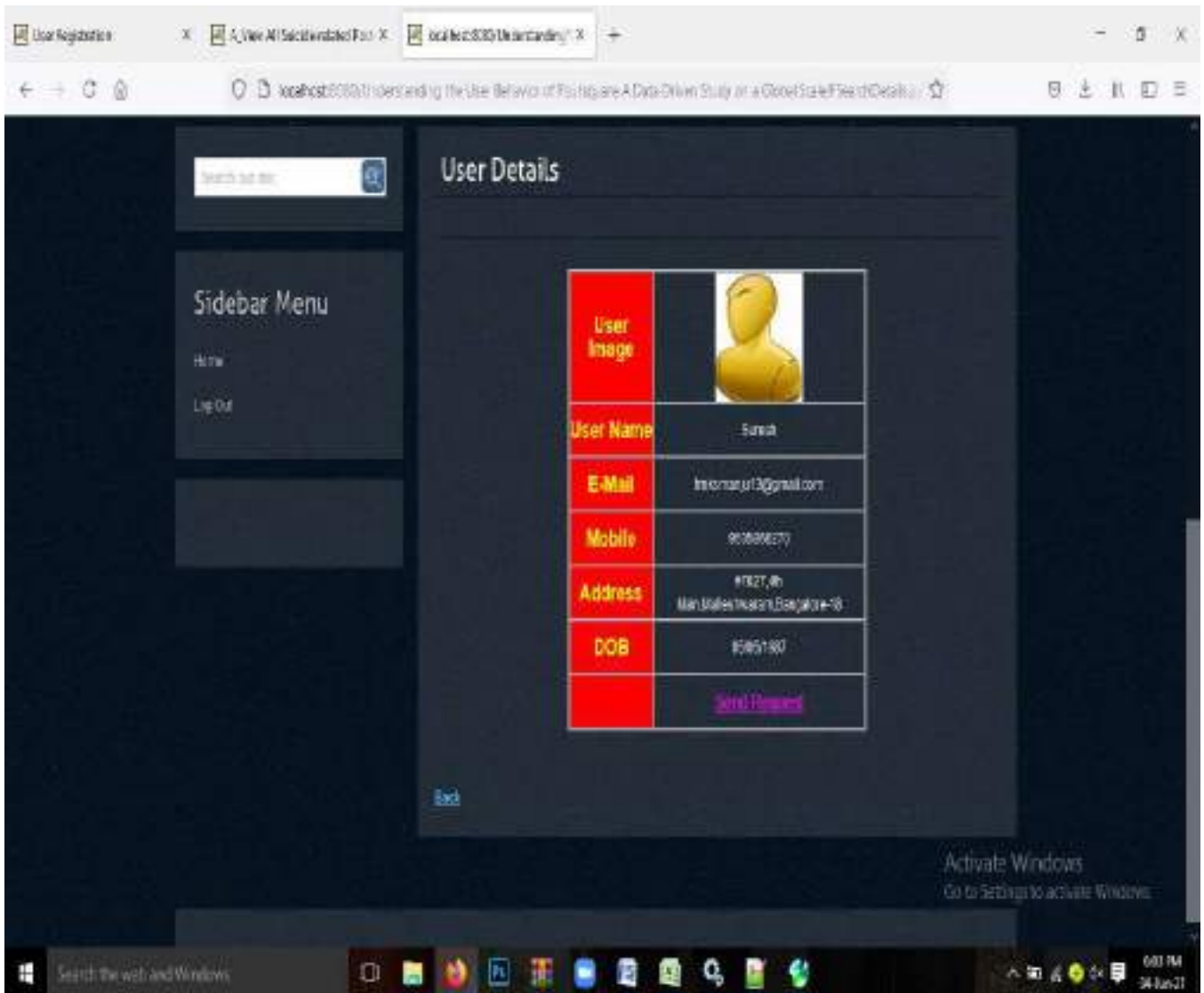


**Friend List Searched**



Screen 24:

This below screen represents details of friend requests

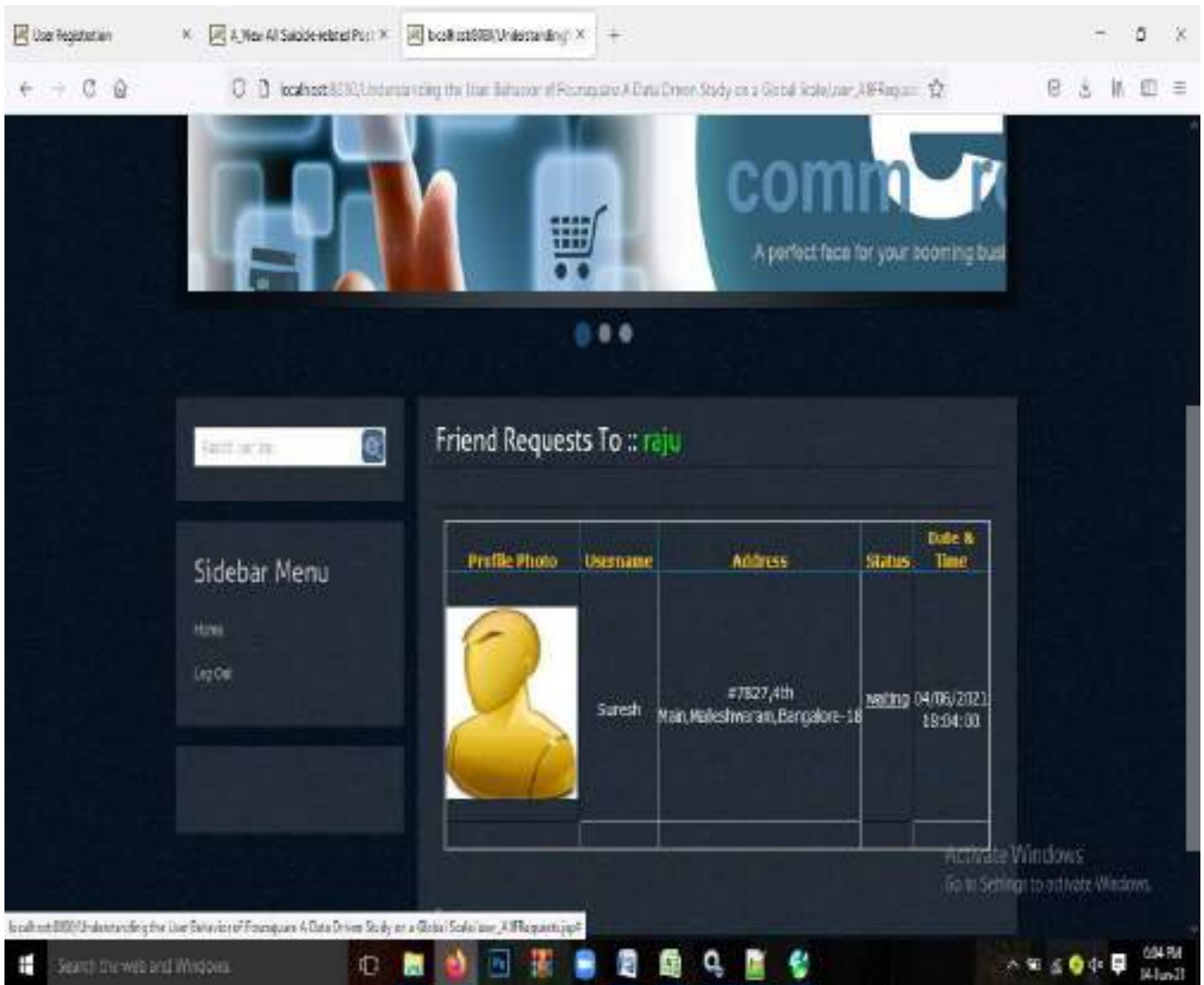


Details of Friend Request

# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 25:

This below screen represents request by users



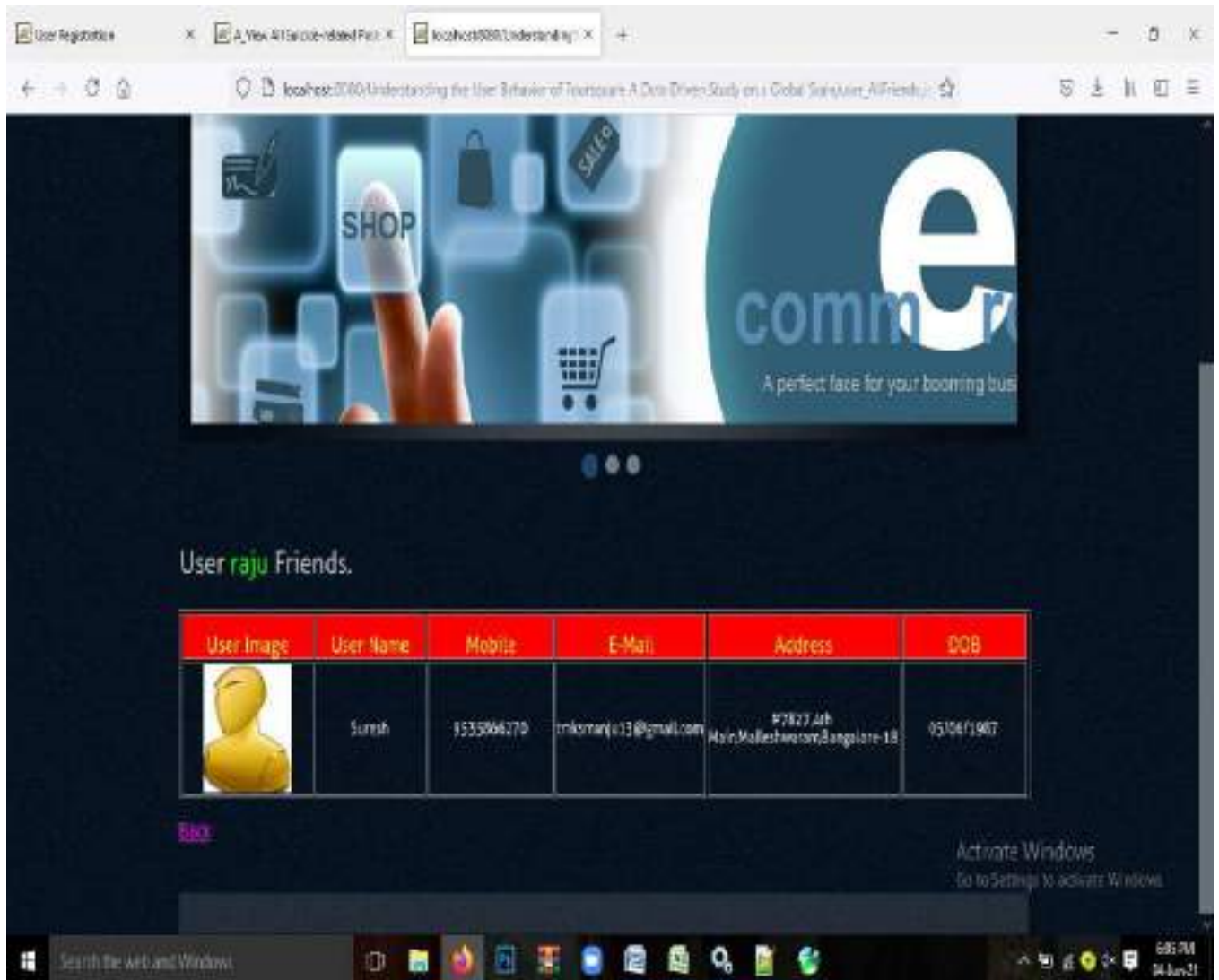
Request by User



# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 26:

This below screen represents view all friends

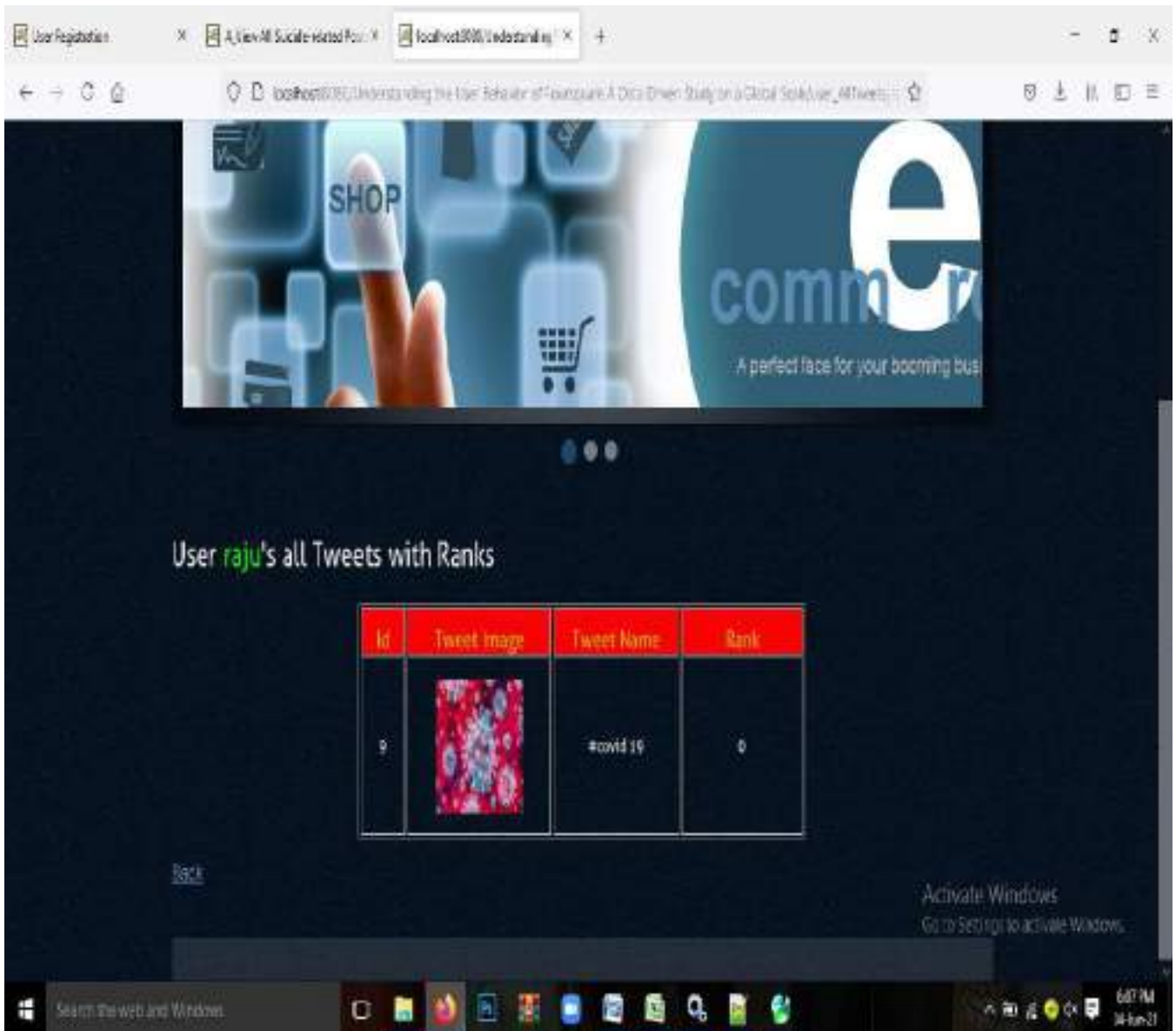


## View All Friends


# UNDERSTANDING THE USER BEHAVIOUR OF FOURSQUARE A DATA DRIVEN STUDY ON A GLOBAL SCALE

## Screen 27:

This below screen represents all tweets with ranks



The screenshot shows a web browser window displaying a page titled "User raju's all Tweets with Ranks". The page features a table with the following data:

Id	Tweet Image	Tweet Name	Rank
9		#covid 19	0

Below the table, there is a "Back" link. The browser's address bar shows the URL: "localhost:8080/Understanding the User Behaviour of Foursquare: A Data Driven Study on a Global Scale/ue\_allTweets...". The Windows taskbar is visible at the bottom, showing the time as 6:07 PM on 14-Jun-21.

**All Tweets with Ranks**

## **CONCLUSION**

we present a comprehensive analysis of Foursquare user behavior based on the crawled data of all 61.43 million Foursquare users. Our study covers two key building blocks of Foursquare, i.e., social connections and tips. We study the global Foursquare social graph and present a set of unique and undiscovered characteristics of this large graph, including a moderate level of reciprocity (0.42), a small average clustering coefficient (0.065), a giant strongly connected components (covering nearly 60% of users), and a significant community structure (Q value 0.6). Besides the singletons, almost all Foursquare users are weakly connected with each other. In addition, we conduct a detailed study on all published tips on Foursquare. On one hand, we analyze the numbers of tips published by different groups of users. On the other hand, we investigate the tips from the perspectives of tip venues, temporal patterns, and sentiment. Our analytical findings provide the first comprehensive view of Foursquare tips. Last but not least, as a practical scenario to help third-party application providers, we propose a supervised machine learning-based approach to predict influentials in LBSNs without referring to the social connectivity information. Our data-driven evaluation shows that our approach can reach a good prediction performance with an F1-score of 0.87 and an AUC value of 0.88. Our findings will be helpful for LBSN service providers, ISPs, and third-party application providers.

## **FUTURE ENHANCEMENT**

In future work, we plan to consider other definitions of influential users, for example, considering other types of social interactions, instead of relying on the social graph only. In, we used the number of received “likes” to evaluate the social influence. Similarly, on Foursquare, users can up vote/down vote a tip to express their opinions. Therefore, a user who receives more up votes could be an influential. We will further study how to uncover influential users according to the up vote/down vote information of the published.

## **REFERENCES**

- [1] N. Alrumayyan, S. Bawazeer, R. AlJurayyad, and M. Al-Razgan, “Analyzing user behaviors: A study of tips in Foursquare,” in Proc.5th Int. Symp. Data Mining Appl., 2018, pp. 153–168.
- [2] S. Bird, “NLTK: The Natural Language Toolkit,” in Proc. COLING/ACL, 2006, pp. 1–8.
- [3] V. D. Blondel, J.-L. Guillaume, R. Lambiotte, and E. Lefebvre, “Fast unfolding of communities In large networks,” J. Stat. Mech., vol. 2008, no.10, Oct. 2008, Art.no. P10008.
- [4] L. Breiman, “Random forests,” Mach. Learn., vol. 45, no. 1, pp. 5–32,2001.
- [5] A. Broder et al., “Graph structure in the Web,” Comput. Net, vol. 33, nos. 1–6, pp. 309–320, Jun. 2000.

**A**

**Project Report**

**on**

**A KEY POLICY ATTRIBUTE BASED TEMPORARY KEYWORD SEARCH  
SCHEME FOR SECURE CLOUD STORAGE**

*Submitted in partial fulfillment for the award of the degree*

**of**

**Master of Computer Applications**

*Submitted by*

**CHEREDDY BHAVYASREE**

**(Reg. No. 19F65F0005)**

*Under the esteemed guidance of*

**Mr. P. KARTHIKEYAN, MCA., M.E.**

**Associate Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583,  
Andhara Pradesh**

**2020 – 2021**

# **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**

**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583,**

**Andhara Pradesh**

## **DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



### **CERTIFICATE**

*This is to certify that this project report titled "A KEY POLICY ATTRIBUTE BASED TEMPORARY KEYWORD SEARCH FOR SECURE CLOUD STORAGE" that is being submitted by **CHEREDDY BHAVYASREE (Reg. No. 19F65F0005)** in partial fulfillment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by her under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **CHEREDDY BHAVYASREE** hereby declare that the project report entitled “**A KEY POLICY ATTRIBUTE BASED TEMPORARY KEYWORD SEARCH FOR SECURE CLOUD STORAGE**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. KARTHIKEYAN**, MCA., M.E. Associate Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur. For the award of the degree of **MASTER OF COMPUTER APPLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**CHEREDDY BHAVYASREE**

**Reg. No.: 19F65F0005**



## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. P. KARTHIKEYAN, MCA., M.E.** Associate Professor, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of projectwork.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E., HOD**, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to project coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

**(CHEREDDY BHAVYASREE)**

# CONTENTS

<b>S. No.</b>	<b>CHAPTERS</b>	<b>Page No.</b>
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1
2	SYSTEMSTUDY	4
3	SYSTEMANALYSIS	
	3.1 EXISTINGSYSTEM	6
	3.2 DISADVANTAGES	6
	3.3 PROPOSEDSYSTEM	7
	3.4 ADVANTAGES	7
4	SOFTWARE MODULES	8
5	SYSTEM ARCHITECTURE	10
6	SOFTWARE ENVIRONMENT	11
7	SYSTEM REQUIREMENTS	23
8	SYSTEM DESIGN	24
9	IMPLEMENTATION	40
10	SYSTEM TESTING	84
11	SCREEN SHOTS	87
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

## ABSTRACT

Temporary keyword search on confidential data in a cloud environment is the main focus of this research. The cloud providers are not fully trusted. So, it is necessary to outsource data in the encrypted form. In the attribute-based keyword search (ABKS) schemes, the authorized users can generate some search tokens and send them to the cloud for running the search operation. These search tokens can be used to extract all the cipher texts which are produced at any time and contain the corresponding keyword. Since this may lead to some information leakage, it is more secure to propose a scheme in which the search tokens can only extract the cipher texts generated in a specified time interval. To this end, in this paper, we introduce a new cryptographic primitive called key-policy attribute-based temporary keyword search (KPABTKS) which provide this property. To evaluate the security of our scheme, we formally prove that our proposed scheme achieves the keyword secrecy property and is secure against selectively chosen keyword attack (SCKA) both in the random oracle model and under the hardness of Decisional Bilinear Diffie-Hellman (DBDH) assumption. Furthermore, we show that the complexity of the encryption algorithm is linear with respect to the number of the involved attributes. Performance evaluation shows our scheme's practicality.

**KEYWORDS:** Cloud Computing, Trusted third party, and SCKA Attack

## LIST OF FIGURES

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1	1.1. Structure of Service models	1
2	5.1. System Architecture	10
3	6.1. Compilation & Interpretation	12
4	6.2. Execution for different platforms	13
5	6.3. Java Platform	14
6	6.4. Java IDE	15
7	6.9. General J2ME Architecture	20
8	8.1. Data Flow Diagram	24
9	8.4. Activity Diagram	30
10	8.9. Use Case Diagram	35
11	8.14. Sequence Diagram	36
12	8.15. Deployment Diagram	37
13	8.17. Class Diagram	38
14	8.18. E-R Diagrams	39
15	ScreenShots	87

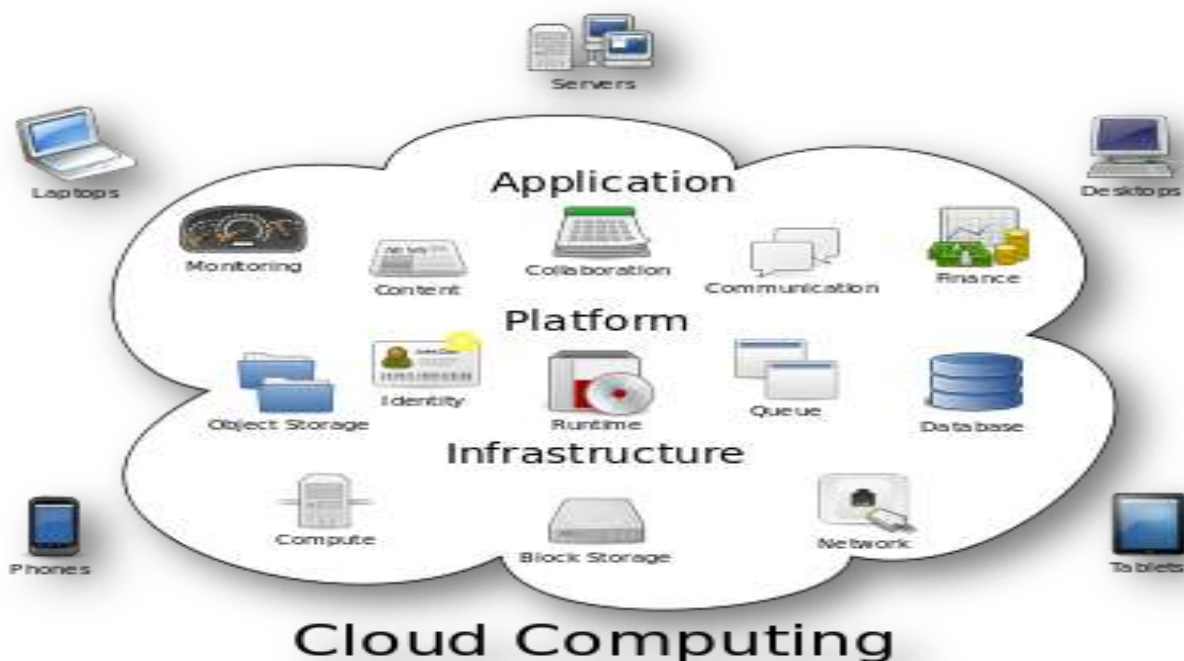
## LIST OF ABBREVIATIONS

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	SMS	Smart Meter System
10	ABSI	Adaptive Binary Splitting Inspection
11	DBMS	Database Management System
12	RMI	Remote Method Invocation
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

# 1. INTRODUCTION

## 1.1 What is cloud computing?

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced.



**Fig: 1.1 Structure of Service models**

## **1.2 How Cloud Computing Works?**

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games. The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

## **1.3 Characteristics and Services Models:**

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

- **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider
- **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).
- **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

- **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time
- **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

## **1.4 Service Models:**

The three service models or layer are completed by an end user layer that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on these sources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.

## **1.6 Advantages**

- **Price:** Pay for only the resources used.
- **Security:** Cloud instances are isolated in the network from other instances for improved security
- **Performance:** Instances can be added instantly for improved performance.
- **Scalability:** Auto-deploy cloud instances when needed.



## **2. SYSTEM STUDY**

### **2.1 FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

### **2.2 ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

### **2.3 TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system. The available technical resources. This will lead to high demands

on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

## **2.4 SOCIAL FEASIBILITY**

The available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system. The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

### **3. SYSTEM ANALYSIS**

#### **3.1 EXISTING SYSTEM**

Attribute-based keyword search (ABKS) to allow a data owner to control the access of data users for searching on his/her outsourced encrypted data. They used attribute-based encryption (ABE) to construct a searchable cryptographic primitive in the multi-sender/multi receiver model. In their work, the legitimate data users can enlist the cloud to run the search operation on behalf of them without requiring any interaction with the data owner. In a secure ABKS scheme, a data owner cannot obtain any information about the keywords which the data users intend to look for.

However, in all of the PEKS and ABKS schemes, once the cloud receives a valid search token to a certain keyword, the cloud can investigate the keyword's presence in the past and any future ciphertext. So, if the adversary realizes the corresponding keyword of the target search token, then she will be able to get some information about the next documents which will be outsourced to the cloud.

Therefore, it will be more secure to limit the time period in which the search token can be used. Motivated by this problem, introduced the notion of public key encryption with temporary keyword search (PETKS) which restricts the validation of the token to a certain time period.

#### **3.2 DIS - ADVANTAGES OF EXISTING SYSTEM**

- Inefficient
- Non-Robust
- Inaccurate

### **3.3 PROPOSED SYSTEM**

We propose a novel notion of Key-Policy Attribute-Based Temporary Keyword Search (KP-ABTKS). In KP-ABTKS schemes, the data owner generates a searchable ciphertext related to a keyword and the time of encrypting according to an intended access control policy, and outsources it to the cloud. After that, each authorized data user selects an arbitrary time interval and generates a search token for the intended keyword to find the ciphertext. the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

### **3.4 ADVANTAGES OF PROPOSED SYSTEM**

- Efficient
- Robust
- Scalability
- Accurate

## 4. SOFTWARE MODULES

### 4.1 MODULES

- Data Owner
- Cloud Server
- Data User
- TTP

### 4.2 MODULES DESCRIPTION

#### **Data owner:**

Is an entity who encrypts its documents under an arbitrary access control policy and outsources them to the cloud. He/She considers the time of encrypting in generating the ciphertexts. We should highlight that the data owner also encrypts his/her documents under his/her arbitrary access control policy. However, in this paper we concentrate on the encryption of the extracted keywords from documents.

#### **Data User**

Is an entity who is looking for documents which contains an intended keyword, and are encrypted in a determined time interval. The time interval is arbitrarily selected by the data user. The data user for searching a keyword in a specific time interval, generates a search token which is valid just for that time interval. The data users can generate the search tokens without interacting with the data owners.

#### **Cloud Server**

Is an entity with powerful computation and storage resources. CS stores a massive amount of encrypted data, and receives the search tokens to look for the required documents on behalf of the data user. The cloud finds the relevant documents, and sends them back to the data user.

**TTP**

In this module the TTP can flow the operations is View Key request and Generate, View all endusers and view all Attackers.

## 5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

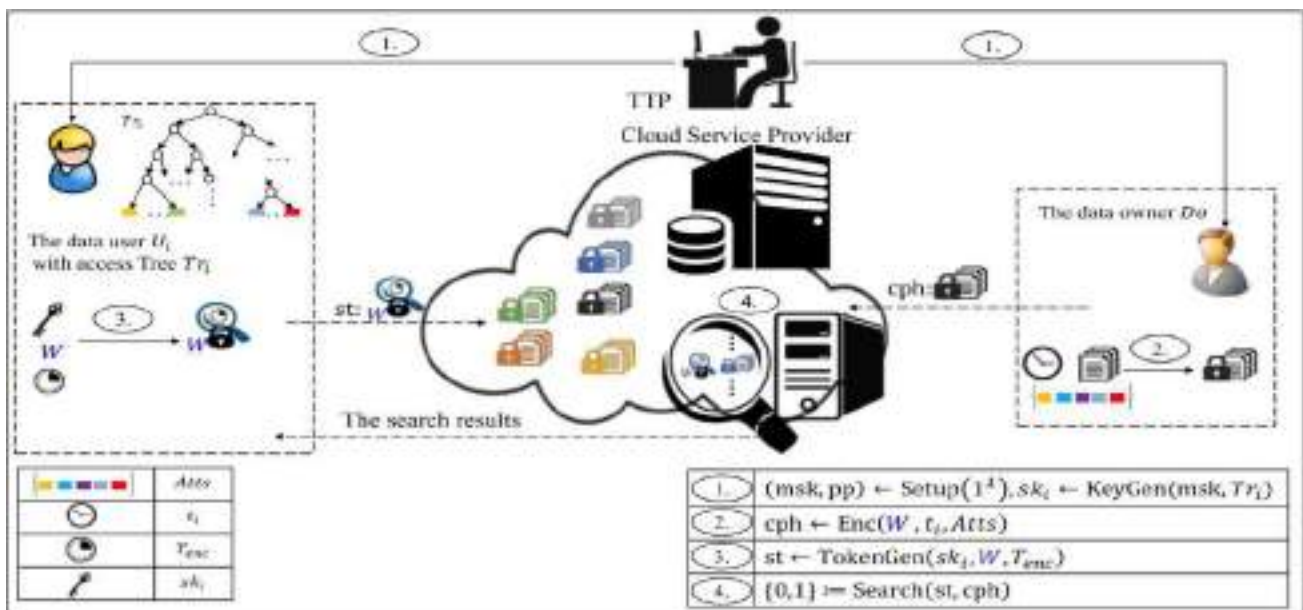


Fig. 5.1 The system architecture of the proposed KP-ABTKS scheme which shows the interactions of the users through the network while using the cloud for conducting the search procedure.

## 6. SOFTWARE ENVIRONMENT

### 6.1 Java Technology

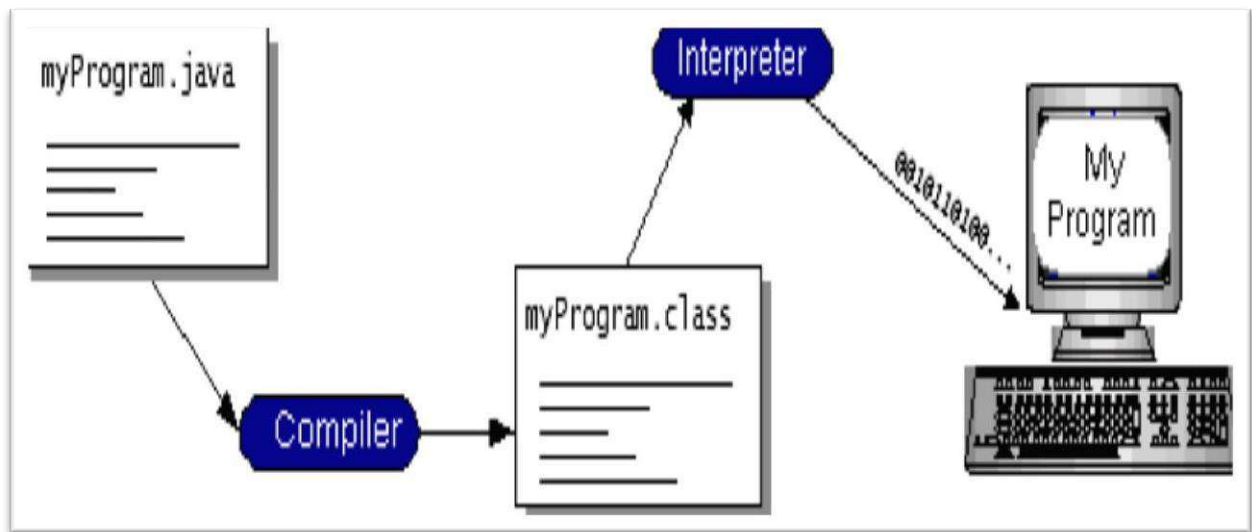
Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architectue
- Neutral
- Object
- Oriented
- Portable
- Distribute
- High
- Perform
- Interprer

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed.



The following figure illustrates how this works.



*Fig 6.1: Program Compilation and Interpretation*

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM.

## 6.2 The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from

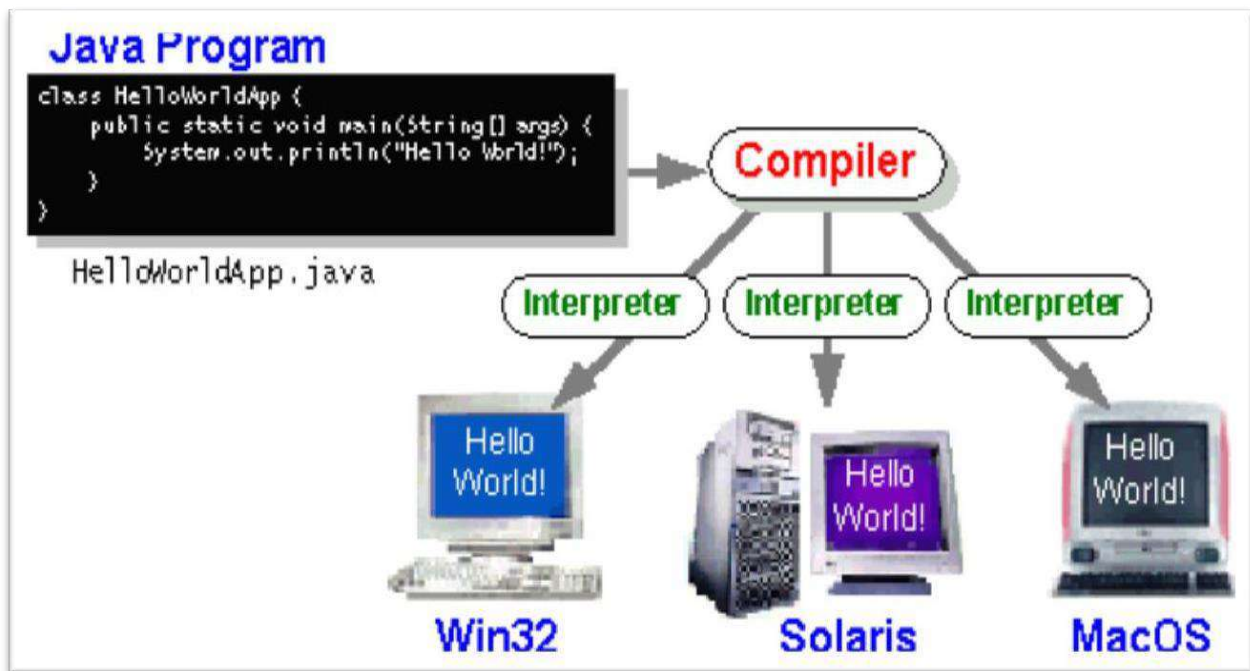


Fig 6.2. Execution for different Platforms

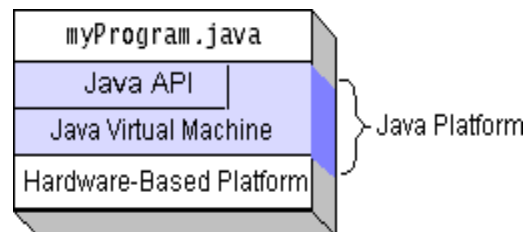
### 6.3 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are

Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server. How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed



**Fig: 6.3 Java Platform**

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

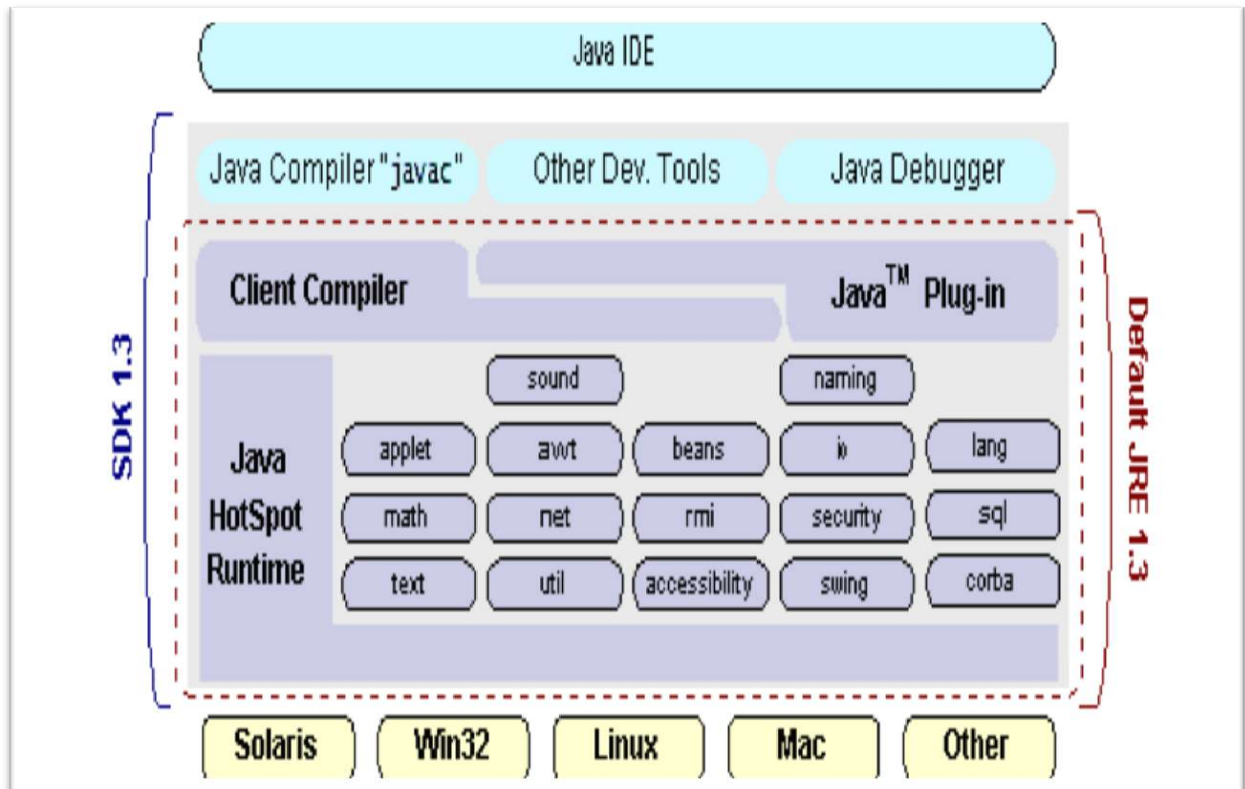


Fig 6.4: Java IDE

### 6.3. HOW WILL JAVA TECHNOLOGY CHANGE MY LIFE?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

**Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.

**Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.

**Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.

**Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.

**Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

**Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.

**Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded "on the fly," without recompiling the entire program.

## 6.4 ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

## 6.5 JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on.

To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDB to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book

The JDBC SQL API must "sit" on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

## 6.5 SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with `Read File` and `Write File` functions.

```
#include
<sys/types.h
> #include
<sys/soc
ket.h>

int socket(int family, int type, int protocol);
```

## 6.8 JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

### Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class .



### 6.9 J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones ,digital set-top boxes and car navigation systems." Announced in June 1999 at the Java One Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

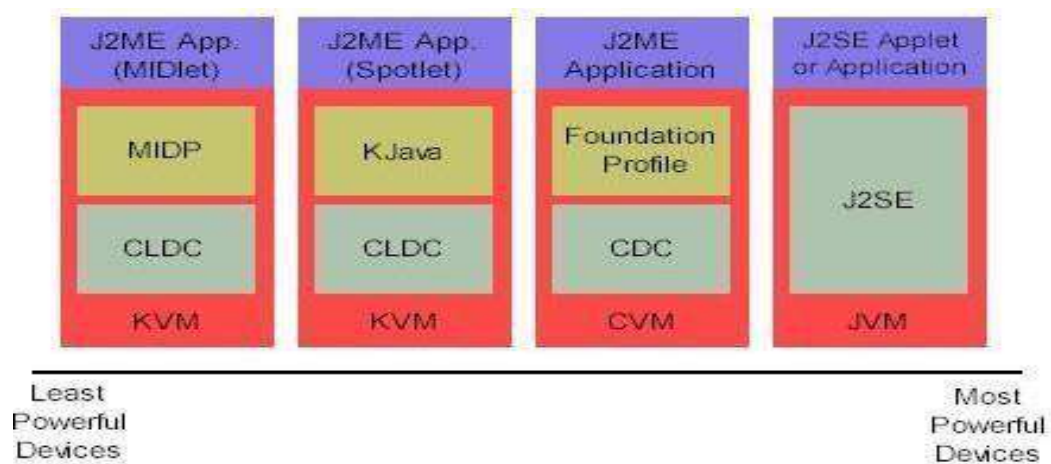


Fig 6.9: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

## Developing J2ME applications

**Introduction** In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:
- Connected Limited Device Configuration (CLDC) is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm handheld computer.
- Connected Device Configuration (CDC) is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

## **Configurations overview**

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

## **7. SYSTEM REQUIREMENTS**

### **7.1 HARDWARE REQUIREMENTS**

- Processor- Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM:4 GB
- Hard Disk: 40 GB.

### **7.2 SOFTWARE REQUIREMENTS**

- Operating System- windows 7 / 8.1 / 10/
- Server: Apache Tomcat
- Database: MYSQL Server 5.0
- Frontend: HTML, CSS, JS
- Backend: JSP

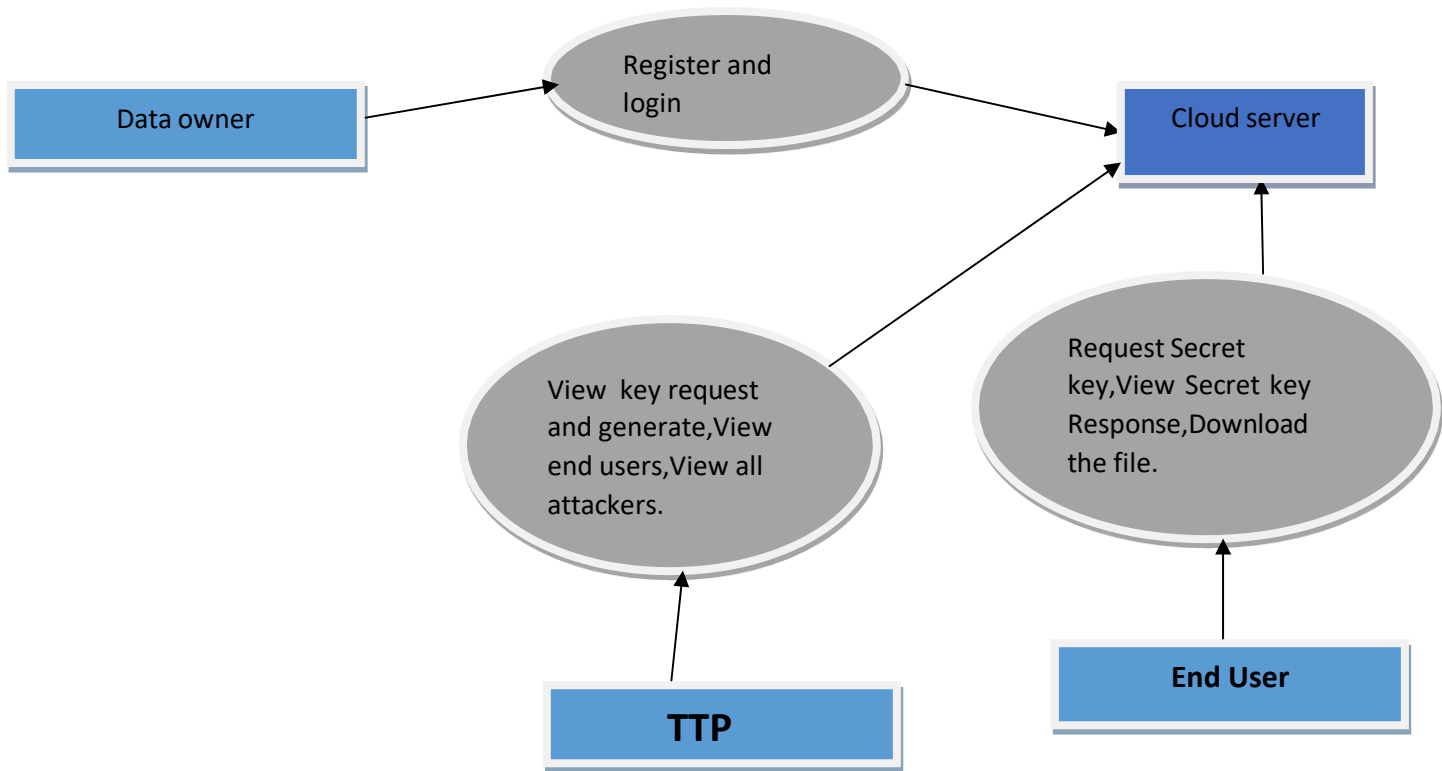
## **8 . SYSTEM DESIGN**

### **8.1 DATA FLOW DIAGRAM**

The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.

1. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used the process, an external entity that interacts with the system and the information flows in the system.
2. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
3. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

**Level 1**



**Fig 8.1 DataFlow Diagram**

## **8.2 UML DIAGRAMS**

UML stands for Unified Modelling Language. UML is a standardized general-purpose modelling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group. The goal is for UML to become a common language for creating models of object-oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML. The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artefacts of software system, as well as for business modeling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems. The UML is a very important part of developing object-oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

## **8.3 Goals**

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.
7. Integrate best practices.

## 8.4. Activity Diagram

Activity diagrams are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components .



### 8.5 Activity Diagram for Cloud Server

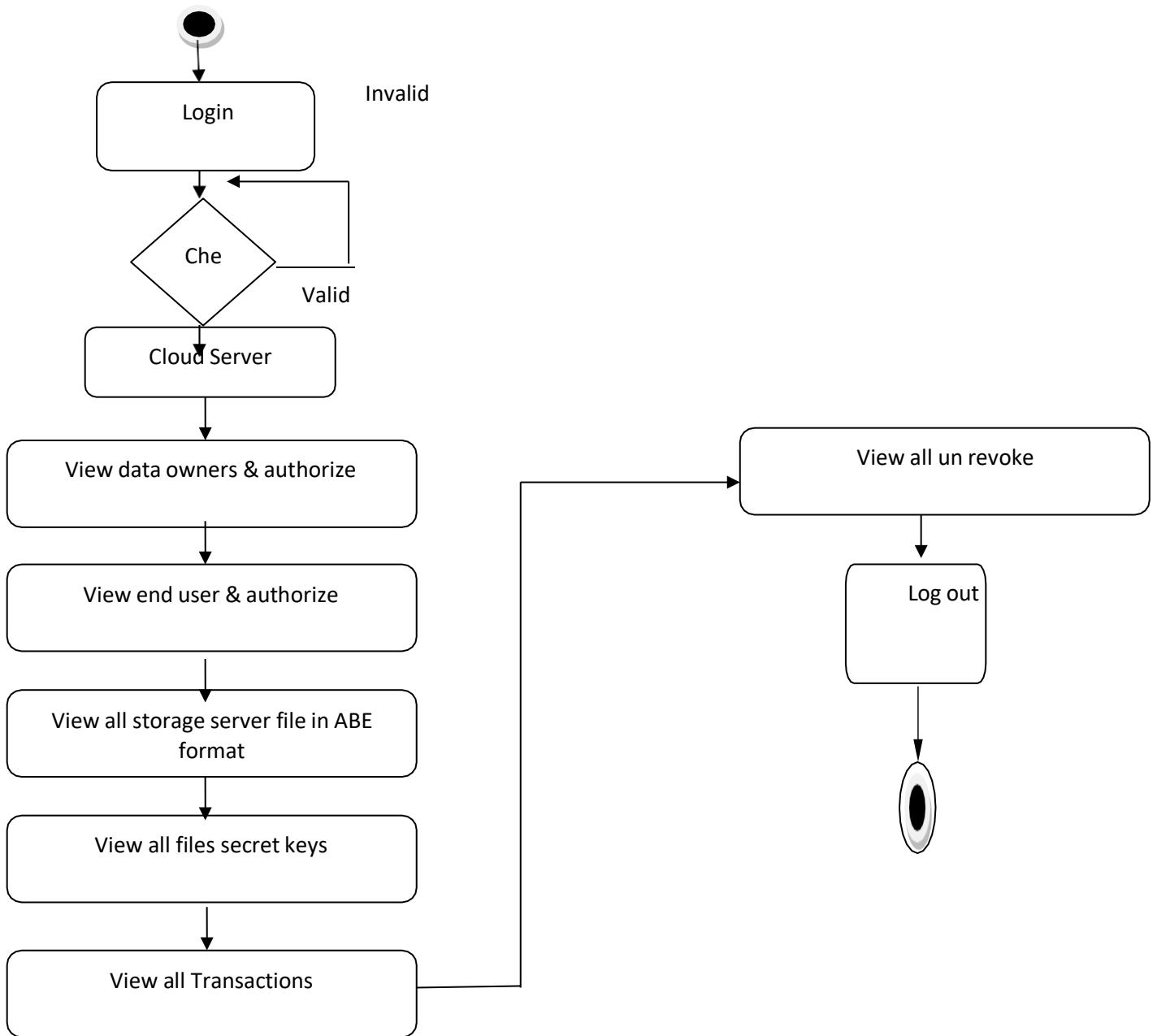


Fig 8.5 Activity Diagram for Cloud Server

### 8.7 Activity Diagram for TTP

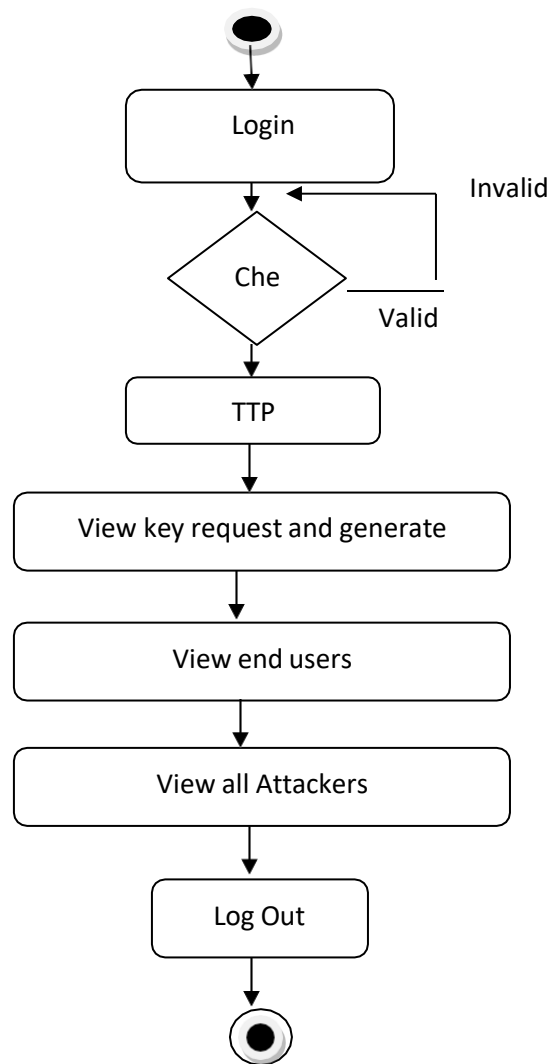


Fig: 8.7 Activity Diagram for TTP

### 8.8 Activity Diagram for End User

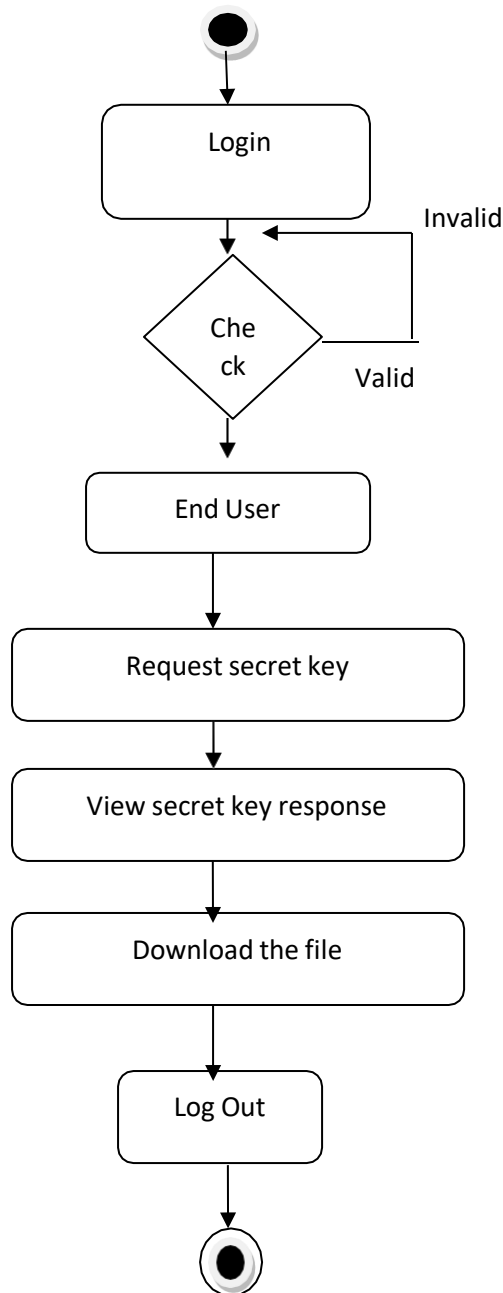
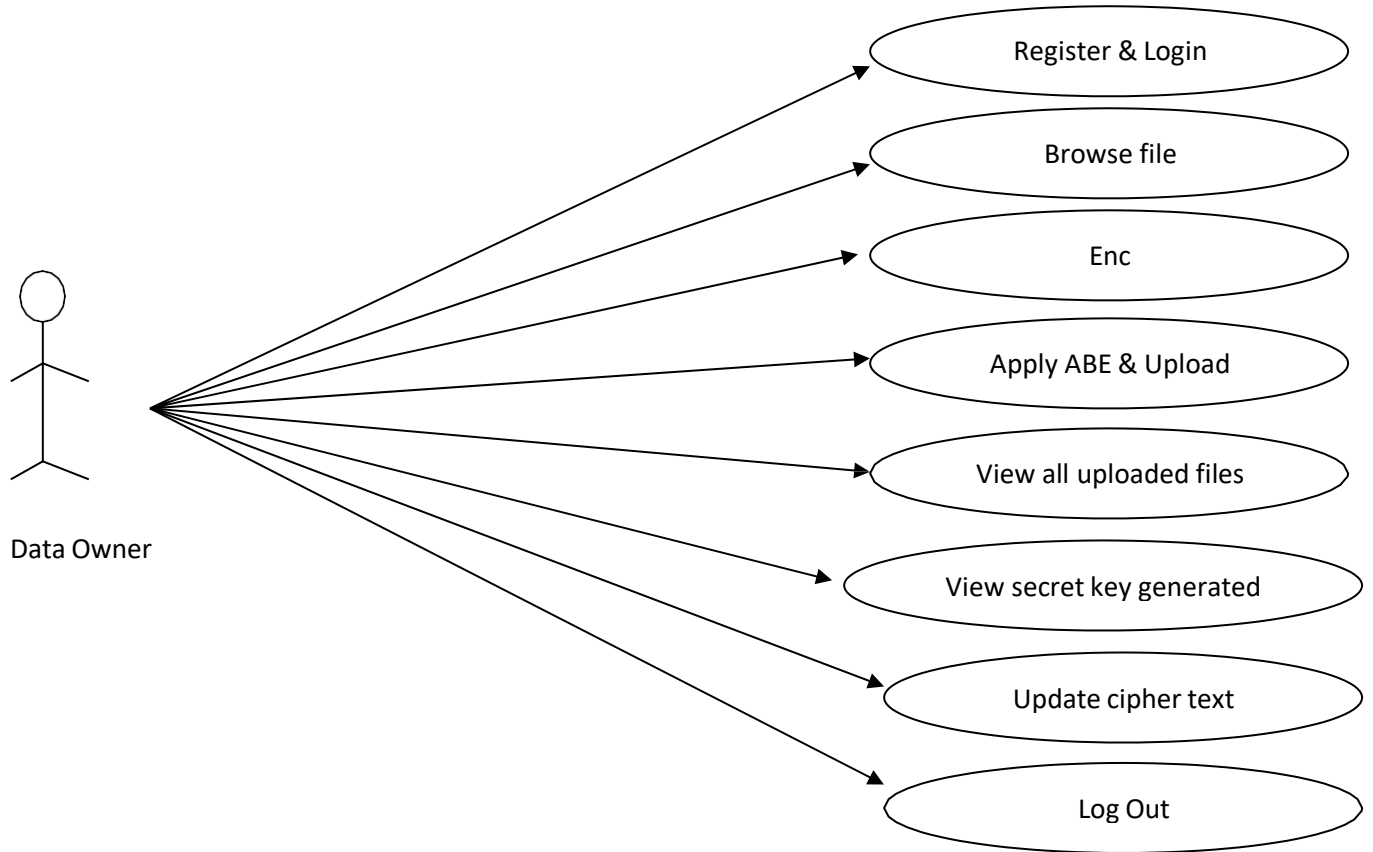


Fig 8. 8 Activity Diagram for End User

## **8.9 Use case Diagram**

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

### 8.10 Use case Diagram for Data Owner



**Fig 8.10 Use case Diagram for Data Owner**

### 8.11 Use case Diagram for End User

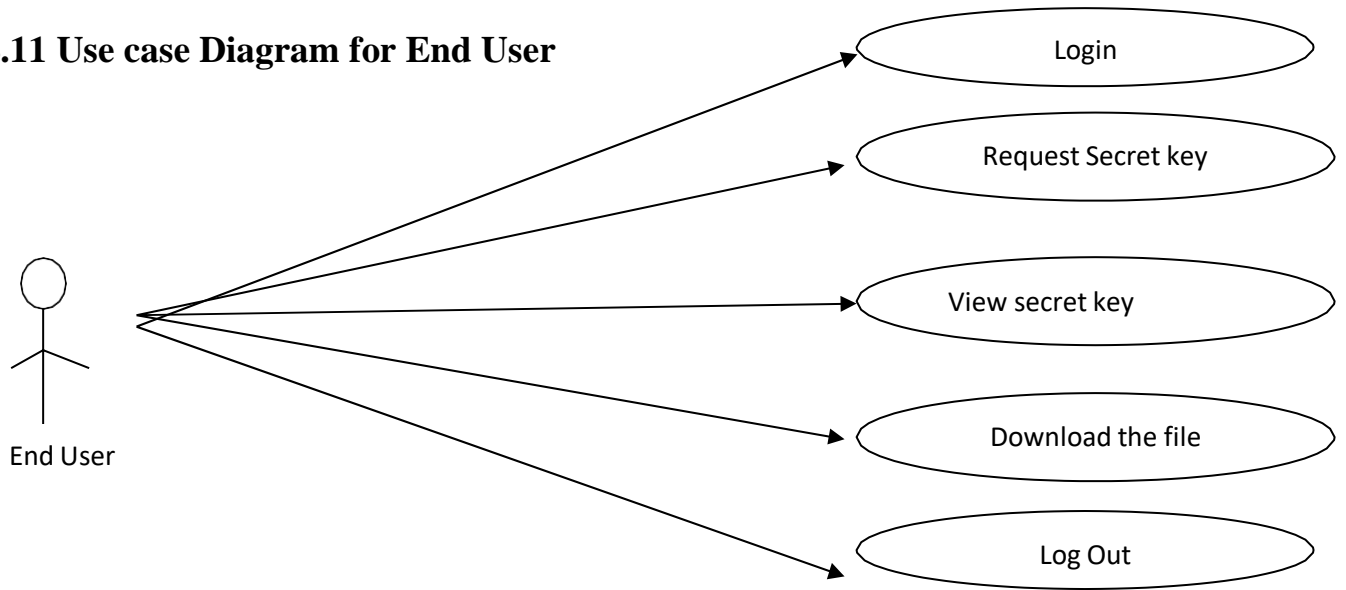


Fig 8.11 Use Case Diagram For End User

### 8.12 Use case Diagram for TTP

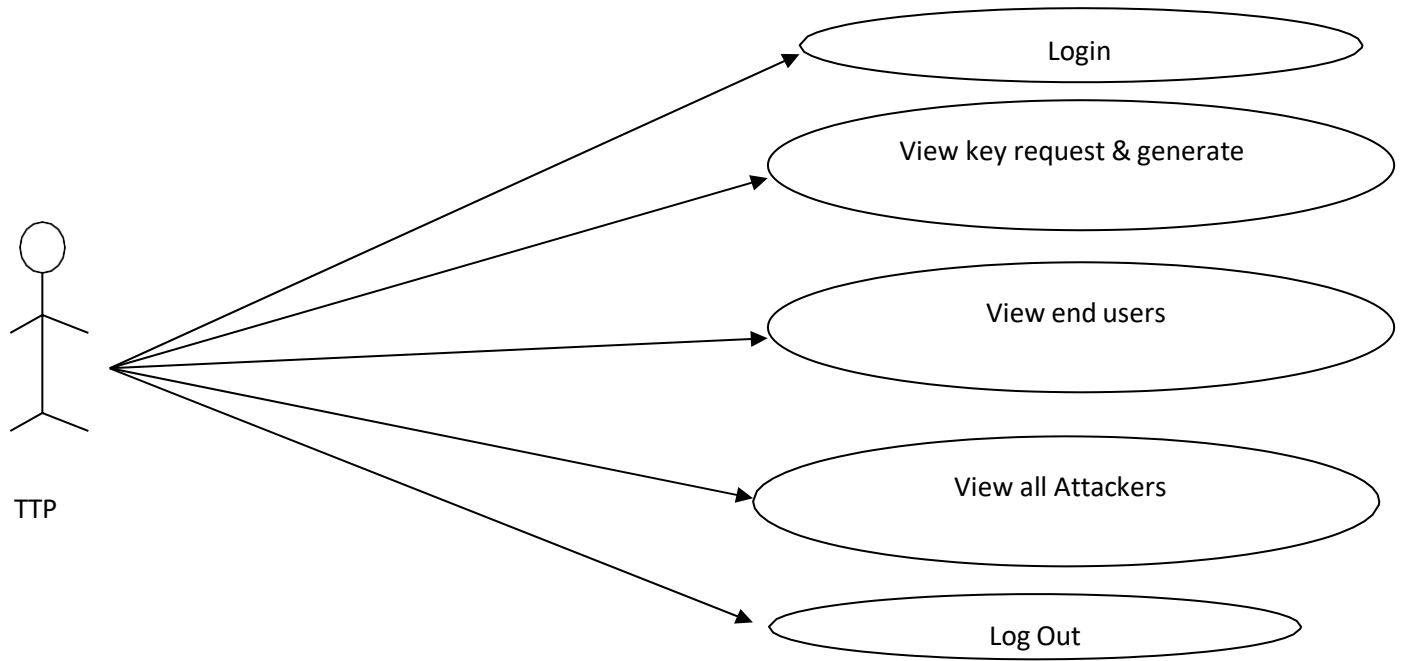
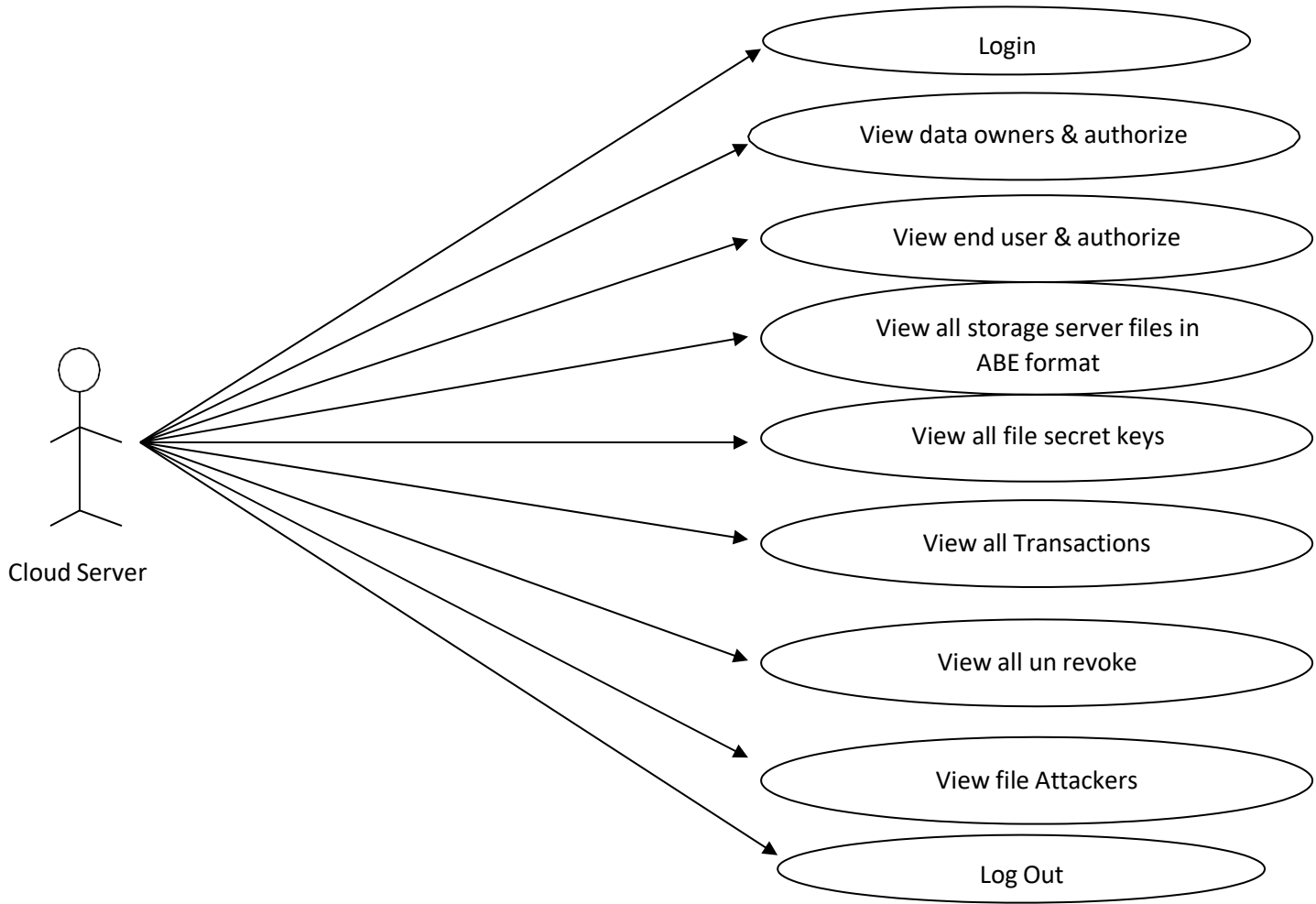


Fig 8.12 Use case Diagram for TTP

### 8.13 Use case Diagram for Cloud server

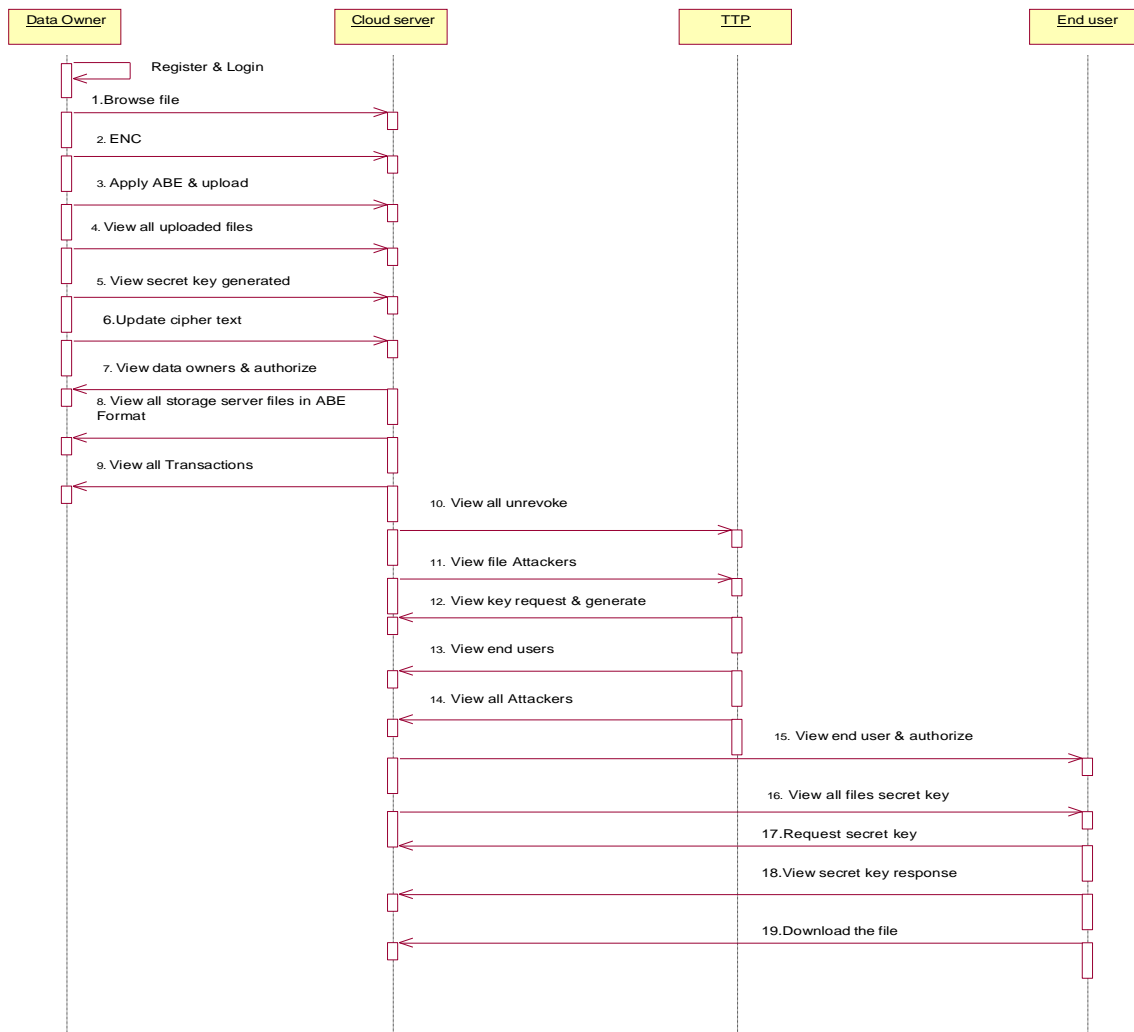


8.13 Use case Diagram for Cloud server



## 8.14 Sequence Diagram

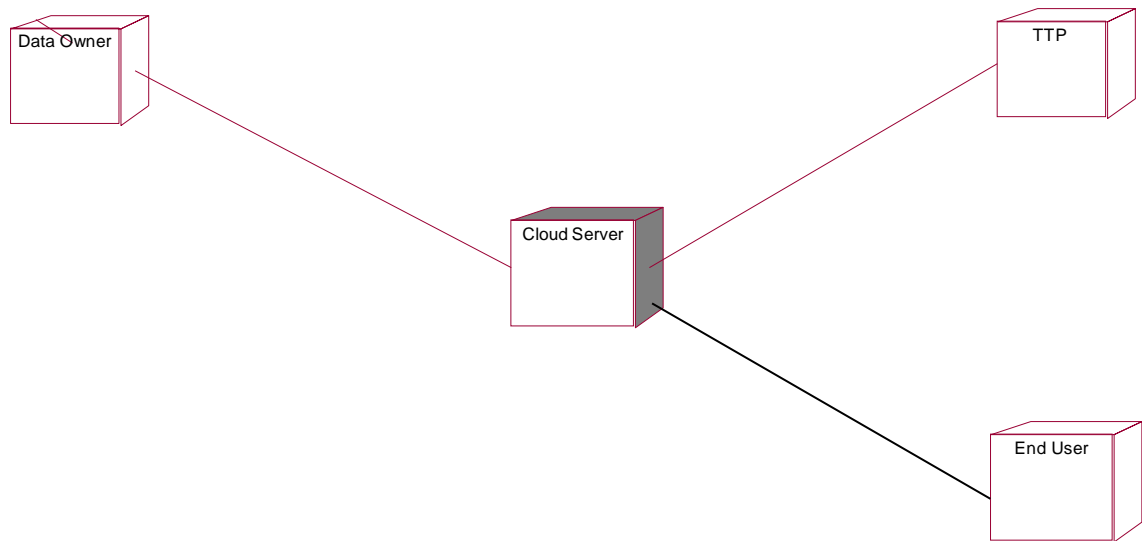
A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.



**Fig 8.14 Sequence Diagram**

### 8.16 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware’s used to deploythe Applications.



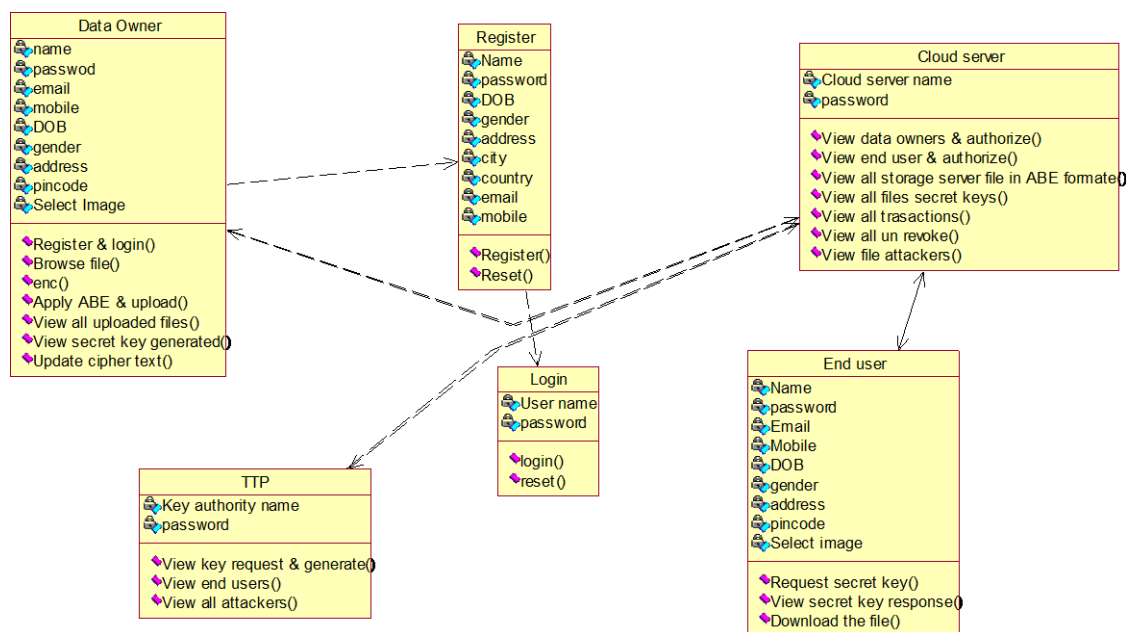
**Fig 8.16 Deployment diagram**

## 8.17 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.



**Fig 8.17 Class Diagram**

### 8.18 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connectionlines. Let us define the symbols used in the E-Rdiagram.

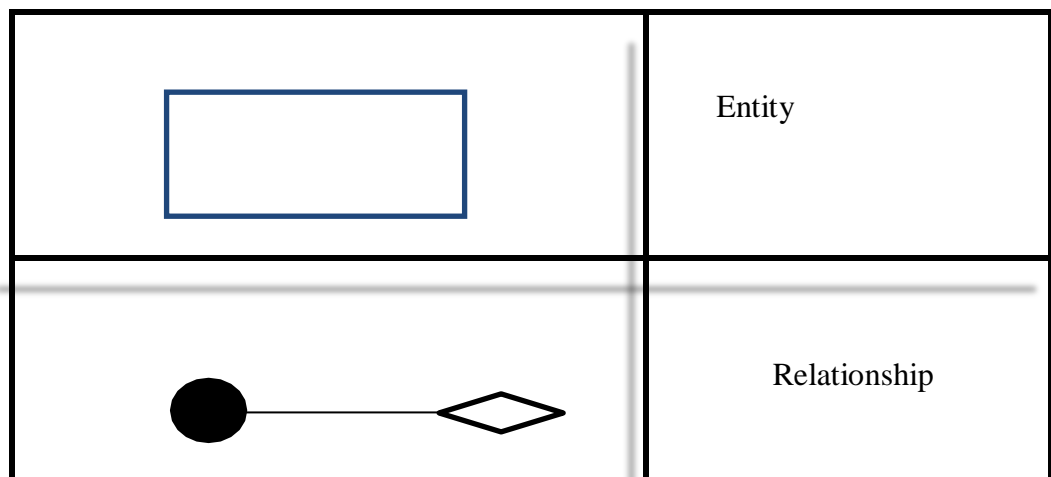


Fig 8.18 E-R Notations

## 9. IMPLEMENTATION

### 9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.1 OBJECTIVES

This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

## **9.2 OUTPUT DESIGN**

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should identify the specific output that is needed to meet the require

- Select methods for presenting information.
- Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
- Convey information about past activities, current status or projections

## 9.4 CODING

### Index.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<title>Home Page:: </title>

<meta name="keywords" content="star, css templates, CSS, HTML" />

<meta name="description" content="Star is a free CSS template from templatemo.com" />

<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<style type="text/css">

 parent" class="current">Home

 Data Owner

 Cloud Server

 TTP

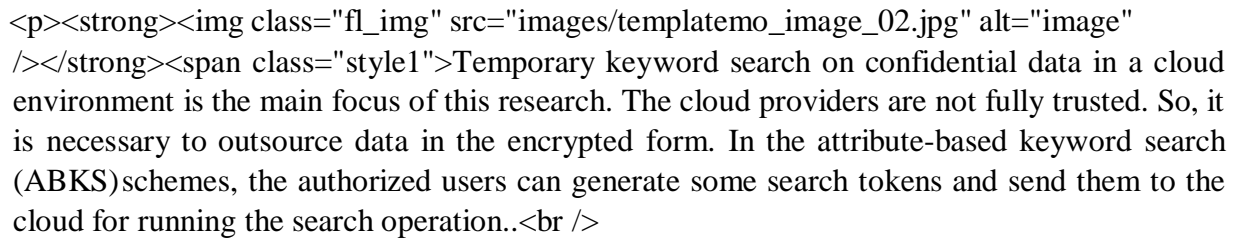
 Users

</div> <!-- end of templatemo_menu -->

<div id="templatemo_content_wrapper">

 <div id="templatemo_content">

 <h2>WELCOME </h2>
```



These search tokens can be used to extract all the ciphertexts which are produced at any time and contain the corresponding keyword. Since this may lead to some information leakage, it is more secure to propose a scheme in which the search tokens can only extract the ciphertexts generated in a specified time interval. To this end, in this paper, we introduce a new cryptographic primitive called key-policy attribute-based temporary keyword search (KPABTKS) which provide this property. To evaluate the security of our scheme, we formally prove that our proposed scheme achieves the keyword secrecy property and is secure against selectively chosen keyword attack (SCKA) both in the random oracle model and under the hardness of Decisional Bilinear Diffie-Hellman (DBDH) assumption. Furthermore, we show that

The complexity of the encryption algorithm is linear with respect to the number of the involved attributes. Performance evaluation shows our scheme's practicality.

```
</p>
</div>
</div>
</div>
</div> <!-- end of templatemo_wrapper -->
```

```
<div id="templatemo_footer_wrapper">
```

```
</body>
```

```
</html>
```

### **DataProviderRegister.html**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```



```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Data Owner
:: </title>
<meta name="keywords" content="star, css templates, CSS, HTML" />
<meta name="description" content="Star is a free CSS template from templatemo.com" />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />
<style type="text/css">
<!--
.style1 {
 color: #FF0000;
 font-weight: bold;
}
.style2 { font-size: 18px}
-->
</style>
</head>
<body>
<div id="templatemo_wrapper">
<div id="templatemo_left_column">
 <div id="site_title">
 <h1>A Key
PolicyAttribute-Based Temporary Keyword Search scheme for Secure Cloud Storage
</h1>
 <p> </p>
 </div> <!-- end of site_title -->

<div id="templatemo_sidebar">

<div class="service_section">

<h2>Menu</h2>
```

</ul>

</div>

</div

>

</div> <!-- end of left column -->

<div id="templatemo\_right\_column">

<div id="templatemo\_menu">

<ul>

<li><a href="index.html" target="\_parent" >Home</a></li>

<li><a href="DataProvider.html" target="\_parent" class="current">Data Owner

</a></li>

>

<li><a href="Storage\_Server.html" target="\_parent" >Cloud Server</a></li>

<li><a href="Key\_Authority.html" >TTP </a></li>

<li><a href="Users.html" target="\_parent" >Users</a></li>

</ul>

</div> <!-- end of templatemo\_menu -->

<div id="templatemo\_content\_wrapper">

<div id="templatemo\_content">

<h2>WELCOME To Register Page </h2>

&nbsp;

Data Owner

Register !!!

```
<form action="insertdata1.jsp" method="post" id="sendemail"
enctype="multipart/form-data">
```

&nbsp;

```
<table width="588" border="1">
```

```
<tr>
```

```
<td width="307" bgcolor="#FF00FF">Data Owner Name
(required)</td>
```

```
<td width="265"><input id="name" name="userid" class="text" /></td>
```

```
</tr>
```

```
<tr>
```

```
<td bgcolor="#FF00FF">
```

```
<label for="email"> Password (required)</label>
```

```
</td>
```

```
<td><input name="pass" type="password" class="text" id="email" /></td>
```

```
</tr>
```

```
<tr>
```

```
<td bgcolor="#FF00FF">E-Mail (required)</td>
```

```
<td><input id="label" name="email" class="text" /></td>
```

```
</tr>
```

```
<tr>
```

```
<td bgcolor="#FF00FF">Mobile No(required) </td>
```

```
<tr>
<td bgcolor="#FF00FF">Address (required)</td>
<td><textarea name="name4" class="address" id="label3"></textarea></td>
</tr>
<tr>
<td bgcolor="#FF00FF">Date Of Birth (required)</td>
<td><input id="label4" name="dob" class="text" /></td>
</tr>
<tr>
<td bgcolor="#FF00FF">Gender (required)</td>
<td><select name="gender" class="text" id="s1" style="width:80px;">
<option>--Select--</option>
<option>MALE</option>
<option>FEMALE</option>
</select></td>
</tr>
<tr>
<td bgcolor="#FF00FF">Country (required)</td>
<td><input id="loc" name="location" class="text" /></td>
</tr>
<tr>
<td bgcolor="#FF00FF">Select Profile Picture (required)</td>
<td><input type="file" id="pic" name="pic" class="text" /></td>
</tr>
<tr>
<td bgcolor="#FF00FF"> </td>
<td><p> </p>
<p>
<input type="submit" name="Submit" value="Register" />
```

```
<input type="reset" name="Submit2" value="Reset" />
</p></td>
</tr>
</table>
<p> </p>
</form>
<h2></h2>

</div>
 </div> <!-- end of
templatemo_content_wrapper --><div
id="templatemo_content_bottom"></div>

</div>

</div> <!-- end of templatemo_wrapper -->

<div id="templatemo_footer_wrapper">

</body>
</html>

DataProvider.isp.
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Data Owner
:: </title>
<meta name="keywords" content="star, css templates, CSS, HTML" />
<meta name="description" content="Star is a free CSS template from templatemo.com" />
```

```
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />
<style type="text/css">
<!--
.style1 {
color: #FF0000;
font-
weight:
bold;
}

</div>

</div> <!-- end of left
column -->

<div
id="templatemo_right_col
umn">

<div id="templatemo_menu">

Home
Data Owner
<
/
a
>
<
/
l
i
```

>

<li><a href="Storage\_Server.html" target="\_parent">Cloud Server</a></li>

<li><a href="Key\_Authority.html">TTP </a></li>

<li><a href="Users.html" target="\_parent">Users</a></li>

</ul>

</div> <!-- end of templatemo\_menu -->

<div id="templatemo\_content\_wrapper">

<div id="templatemo\_content">

<h2>WELCOME Data Owner

```
<input type="submit" name="Submit" value="Login" />
<input type="reset" name="Submit2" value="Reset" />
</p>
</td>
</tr>
</table>
<p>New User ? --- Register </p>
<p> </p>
</form>
<h2></h2>

</div>
</div> <!-- end of
templatemo_content_wrapper --><div
id="templatemo_content_bottom"></div>

</div>

</div> <!-- end of templatemo_wrapper -->

<div id="templatemo_footer_wrapper">

</body>
</html>

EndUserMain.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN""http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>End User</title>
```



```
<meta name="keywords" content="star, css templates, CSS, HTML" />
<meta name="description" content="Star is a free CSS template from templatemo.com" />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />
<style type="text/css">
<!--
.style1 {
 color:
 #FF0000;
 font-style:
 italic; font-
 weight: bold;
}
.style2 { color:
 #FF0000;font-
 weight: bold;
}
-->
</style>
</head>
<body>
<div id="templatemo_wrapper">
 <div id="templatemo_left_column">
 <div id="site_title">
 <h1>A Key
Policy Attribute-Based Temporary Keyword Search scheme for Secure Cloud Storage
</h1>
 <p> </p>
 </div> <!-- end of site_title -->

 <div id="templatemo_sidebar">
```

<h2>End User  
Menu</h2>

<ul class="service\_list">

<li><a href="EndUserMain.jsp">Home</a></li>

<li><a href="Search.jsp">Search Data</a></li>

<li><a href="Request.jsp">Request Secret Key</a></li>

<li><a href="SecretKey.jsp">Find Secret Key</a></li>

<li><a href="Download.jsp">Download </a></li>

<li><a href="index.html">Log Out </a></li>

</ul>

</div>

</div>

</div> <!-- end of left column -->

<div id="templatemo\_right\_column">

<div id="templatemo\_menu">

<ul>

<li><a href="index.html" target="\_parent" >Home</a></li>

<li><a href="DataProvider.html" target="\_parent">Data Owner

</a></li>

<li><a href="Storage\_Server.html" target="\_parent">Cloud Server</a></li>

<li><a href="Key\_Authority.html">TTP </a></li>

```
Users
```

```

```

```
</div> <!-- end of
templatemo_menu -->
```

```
<div
id="templatemo_content_wrappe
r">
```

```
<div id="templatemo_content">
```

```
<h2>END USER MAIN ::
```

```
<% String dp=(String)application.getAttribute("user");
```

```
out.print(dp);
```

```
%></h2> </h2>
```

```
<p> </p>
```

```
<p></p>
```

```
<p>Temporary keyword search on confidential data in a
cloud environment is the main focus of this research. The cloud providers are not
fully trusted. So, it is necessary to outsource data in the encrypted form. In the
attribute-based keyword search (ABKS)schemes, the authorized users can generate
some search tokens and send them to the cloud for running the search operation..<br
</p>
```

```
</style>
</head>
<body>
<div id="templatemo_wrapper">
<div id="templatemo_left_column">
 <div id="site_title">
<h1>A
 KeyPolicy Attribute-Based Temporary Keyword Search scheme for Secure
 Cloud Storage
</h1>
 <p> </p>
</div> <!-- end of site_title -->

<div id="templatemo_sidebar">

<div class="service_section">

 <h2>End User Menu</h2>

<ul class="service_list">
 Home
Data Owner

Cloud Server
TTP
Users


```

</div>

</div> <!-- end of left column -->

<div id="templatemo\_right\_column">

<div id="templatemo\_menu">

<ul>

<li><a href="index.html" target="\_parent" >Home</a></li>

<li><a href="DataProvider.html" target="\_parent" >Data Owner

</a></li>

<li><a href="Storage\_Server.html" target="\_parent">Cloud Server</a></li>

<li><a href="Key\_Authority.html">TTP </a></li>

<li><a href="Users.html" target="\_parent" class="current">Users</a></li>

</ul>

</div> <!-- end of templatemo\_menu -->

<div id="templatemo\_content\_wrapper">

<div id="templatemo\_content">

</p>

```
</tr>
<tr>
<td bgcolor="#00FFFF">Gender</td>
<td><select id="s1" name="gender" style="width:80px;" class="text">
<option>--Select--</option>
<option>MALE</option>
<option>FEMALE</option>
</select></td>
</tr>
<tr>
<td bgcolor="#00FFFF">Country</td>
<td><input id="loc" name="location" class="text" /></td>
</tr>
<tr>
<td bgcolor="#00FFFF">Profile Picture </td>
<td><input type="file" id="pic" name="pic" class="text" /></td>
</tr>
<tr>
<td bgcolor="#00FFFF"> </td>
<td><p> </p>
<p>
<input type="submit" name="Submit" value="Register" />
<input type="reset" name="Submit2" value="Reset" />
</p></td>
</tr>
</table>
<p> </p>
<p> </p>
<p> </p>
```

```
</form>
<p> </p>
</div>

<h2></h2>

</div>

</div> <!-- end of templatemo_content_wrapper --
><div id="templatemo_content_bottom"></div>

</div>

</div> <!-- end of templatemo_wrapper -->

<div id="templatemo_footer_wrapper">

</body>
</html>
```

### **FileContents.jsp**

```
<% @page import = "java.util.*"%>

<% @ include file="connect.jsp" %>
```



```
</head>
<body>
<div id="templatemo_wrapper">
<div id="templatemo_left_column">
 <div id="site_title">
<h1><a href="http://www.tmksinfotech.com/page/1"
 target="_parent">A KeyPolicy Attribute-Based Temporary Keyword
 Search scheme for Secure Cloud Storage
</h1>
 <p> </p>
</div> <!-- end of site_title -->

<div id="templatemo_sidebar">

<div class="service_section">

<h2 align="center">Cloud Server Menu</h2>

<div align="center">
<ul class="service_list">

</div>
<ul class="service_list">
Home

Log Out

</div>
```

</div>

</div> <!-- end of left column -->

<div id="templatemo\_right\_column">

<div id="templatemo\_menu">

<ul>

<li><a href="" target="\_parent" >Home</a></li>

<li><a href="" target="\_parent">Data Owner

</a></li>

<li><a href="" target="\_parent" >Cloud Server</a></li>

<li><a href="" >TTP </a></li>

<li><a href="" target="\_parent">Users</a></li>

</ul>

</div> <!-- end of templatemo\_menu -->

<div id="templatemo\_content\_wrapper">

<div id="templatemo\_content">

<h2> File Content Details </h2>

<p>&nbsp;</p>

<p><br />

<

```

 ResultSet rs1 =
connection.createStatement().executeQuery(strQuery1);
{
if(rs1.next() == true)
{

String ct=rs1.getString(4);

String keys = "ef50a0ef2c3e3a5f"; byte[] keyValue1 =
keys.getBytes();

 c1.init(Cipher.DECRYPT_MODE,
 key1);String decryptedValue = new
String(Base64.decode(ct.getBytes()));

 %>
</h2>
<label>
<div align="center">
 <textarea name="text" id="textarea"
cols="45"
rows="17"><%=decryptedValue%></textarea>

 <td> </td>
</div>
<p align="center">Back</p>
</div>
</div>
```

```
 <%
 }

 } connection.close();
 }

 catch(Exception e)
 {
 out.println(e.getMessage());
 }
%>
```

```
<p> </p>
```

```
</div>
```

```
</div> <!-- end of templatemo_content_wrapper -->
><div id="templatemo_content_bottom"></div>
```

```
</div>
```

```
</div> <!-- end of templatemo_wrapper -->
```

```
<div id="templatemo_footer_wrapper">
```

```
</body>
```

```
</html>
```

### **Images.jsp**

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1" pageEncoding="ISO-8859-1"%>
```

```
<% @ page import="java.sql.*,java.io.*,java.util.*" %>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
```

```
<html>
```

```
<head>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
```

```
<title>Insert title here</title>
```

```
</head>
```

```
<body>
```

```
<%
int id = Integer.parseInt(request.getParameter("imgid"));

try{
 Class.forName("com.mysql.jdbc.Driver").newInstance();
 Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/A_KeyPolicy","root","root");
 Statement st=con.createStatement();
 String strQuery = "select imagess from user where id="+id ;
 // String strQuery = "select imagew from image where id="+id ORDER BY
";ResultSet rs = st.executeQuery(strQuery);

String
imgLen="";
if(rs.next()){
 imgLen = rs.getString(1);
 }
rs =
st.executeQuery(strQuery);
if(rs.next()){
 int len =
 imgLen.length();byte
[] rb = new byte[len];
 InputStream readImg =
 rs.getBinaryStream(1);int
index=readImg.read(rb, 0, len);
 st.close();
 response.res
et();
 response.getOutputStream().write(rb,0,len);
```

```
 response.getOutputStream().flush();
 }
}
catch (Exception e){

 e.printStackTrace();
}
%>
```

```
</body>
```

```
</html>
```

### **StorageServerMain.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Cloud ServerMain: </title>
<meta name="keywords" content="star, css templates, CSS, HTML" />
<meta name="description" content="Star is a free CSS template from templatemo.com" />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />
<style type="text/css">
<!--
.style1 {
 color:
 #FF0000;
 font-weight:
 bold;
}
-->
```

```
</style>
</head>
<body>
<div id="templatemo_wrapper">
 <div id="templatemo_left_column">
 <div id="site_title">

 <h1>A
KeyPolicy Attribute-Based Temporary Keyword Search scheme for Secure Cloud
Storage
</h1>

 <p> </p>
 </div> <!-- end of site_title -->

 <div id="templatemo_sidebar">

 <div class="service_section">

 <h2 align="center">Cloud Server Menu</h2>

 <div align="center">
 <ul class="service_list">

 </div>
 <ul class="service_list">
 Home
 View Cloud ServerFiles
 View Secret Key
 View End Users
 View Data Owners
```



<li><a href="index.html">Log Out </a></li>

</ul>

</div>

</div>

</div> <!-- end of left column -->

<div id="templatemo\_right\_column">

<div id="templatemo\_menu">

<ul>

<li><a href="" target="\_parent" >Home</a></li>

<li><a href="" target="\_parent">Data Owner

</a></li>

<li><a href="" target="\_parent" >Cloud Server</a></li>

<li><a href="KAMAIN.jsp" >TTP </a></li>

<li><a href="" target="\_parent">Users</a></li>

</ul>

</div> <!-- end of templatemo\_menu -->

<div id="templatemo\_content\_wrapper">

</div>

</div>

</div>

</div> <!-- end of templatemo\_wrapper -->

<div id="templatemo\_footer\_wrapper">

</body>

</html>

### **User.html**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
<title>User Login:: </title>
```

```
<meta name="keywords" content="star, css templates, CSS, HTML" />
```

```
<meta name="description" content="Star is a free CSS template from templatemo.com" />
```

```
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />
```

```
<style type="text/css">
```

```
<!--
```

```
.style1 {
```

```
 color:
```

```
 #FF0000;
```

```
 font-style:
```

```
 italic; font-
```

```
 weight: bold;
 }

 .style2 {
 color: #FF0000; font-
 weight: bold;
 }
-->
</style>
</head>
<body>
<div id="templatemo_wrapper">
<div id="templatemo_left_column">
 <div id="site_title">
<h1>A Key
 Policy Attribute-Based Temporary Keyword Search scheme for Secure Cloud
 Storage
</h1>
 <p> </p>
</div> <!-- end of site_title -->

<div id="templatemo_sidebar">

<div class="service_section">

<h2>Menu</h2>

<ul class="service_list">
Home
Data Owner

```

```
Users

</div>

<
/
d
i
v
>

</div> <!-- end of left
column -->

<div
id="templatemo_right_colu
mn">

<div id="templatemo_menu">

Home
Data Owner
<
/
a
>
<
/
l
i
>
Cloud Server
TTP
Users
```

</ul>

</div> <!-- end of  
templatemo\_menu -->

<div id="templatemo\_content\_wrapper">

<div id="templatemo\_content">

<h2>USER LOGIN </h2>

<p></p>

<form action="enduserauth.jsp" method="post" id="sendemail">

<table width="482" border="1">

<tr>

<td height="42"><span class="style1">Username</span></td>

<td><input type="text" name="userid" /></td>

</tr>

<tr>

<td height="40"><span class="style1">Password</span></td>

<td><input type="password" name="pass" /></td>

</tr>

<tr>

<td>&nbsp;</td>

<td><p>&nbsp;</p>

<p>

<input type="submit" name="Submit" value="Login" />

<input type="reset" name="Submit2" value="Reset" />

</p></td>

</tr>

```
</table>
 </form>
 <p> </p>
 <p>New User ::
? Register </p>
 <p> </p>
 </div>
```

</div>

</div>

</div> <!-- end of templatemo\_wrapper -->

<div id="templatemo\_footer\_wrapper">

</body>

</html>

### **Storage Server.html**

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<title>Home Page:: </title>

<meta name="keywords" content="star, css templates, CSS, HTML" />

<meta name="description" content="Star is a free CSS template from templatemo.com" />

<link href="templatemo\_style.css" rel="stylesheet" type="text/css" />

<style  
type="text/css  
>

<!--

.style1 { color:

#FF0000;font-weight:

bold;

}

-->

</style>

</head>

<div id="templatemo\_wrapper">

<div id="templatemo\_left\_column">

<div id="site\_title">

<h1><a href="http://www.templatemo.com/page/1" target="\_parent"><span>A  
KeyPolicy Attribute-Based Temporary Keyword Search scheme for Secure Cloud  
Storage

</span></a></h1>

<p>&nbsp;</p>

</div> <!-- end of site\_title -->

<div id="templatemo\_sidebar">

<div class="service\_section">

<h2>Menu</h2>

<ul class="service\_list">

<li><a href="#">Home</a></li>

<li><a href="#">Data Owner

</a></li>

<li><a href="#">Cloud Server</a></li>

<li><a href="#">TTP </a></li>

<li><a href="#">Users</a></li>

</ul>

</div>

<div id="templatemo\_menu">



```

 Home
 Data Owner

 <a href="Storage_Server.html" target="_parent"
class="current">CloudServer
 TTP
 Users

</div> <!-- end of templatemo_menu -->

<div id="templatemo_content_wrapper">

 <div id="templatemo_content">

 <h2>Cloud ServerLogin </h2>

 <p>

</p>

 <div class="cleaner_h20">
 <p></p>
 <form id="form1" name="form1" method="post" action="cloudauth.jsp">
 <table width="484" border="0">
 <tr>
 <td width="178" height="53">Cloud ServerName
</td>
```

```
<td width="290"><input type="text" name="userid" /></td>
</tr>
<tr>
<td height="56">Password</td>
<td><input type="password" name="pass" /></td>
</tr>
<tr>
<td> </td>
<td><p> </p>
<p>
<input type="submit" name="Submit" value="Login" />
<input type="reset" name="Submit2" value="Reset" />
</p></td>
</tr>
</table>
<p> </p>
<p></p>
<p> </p>
</form>
<p> </p>
<p> </p>
</div>
```

```
<h2> </h2>
<p> </p>
<p> </p>
</div>
</div> <!-- end of templatemo_content_wrapper -->
<div id="templatemo_content_bottom"></div>

</div>

</div> <!-- end of templatemo_wrapper -->

<div id="templatemo_footer_wrapper">

</body>
</html>

Key_Authority.html
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Home Page:: </title>
<meta name="keywords" content="star, css templates, CSS, HTML" />
<meta name="description" content="Star is a free CSS template from templatemo.com" />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />
<style type="text/css">
<!--
.style1 {
```

```
 font-weight: bold;
 }
-->
</style>
</head>
<body>
<div id="templatemo_wrapper">
 <div id="templatemo_left_column">
 <div id="site_title">
 <h1>A
KeyPolicy Attribute-Based Temporary Keyword Search scheme for Secure Cloud
Storage
</h1>
 <p> </p>
 </div> <!-- end of site_title -->

 <div id="templatemo_sidebar">

 <div class="service_section">

 <h2>Menu</h2>

 <ul class="service_list">
 Home
 Data Owner

 Cloud Server
 TTP
 Users
```

</ul>

</div>

</div>

</div> <!-- end of left column -->

<div id="templatemo\_right\_column">

<div id="templatemo\_menu">

<ul>

<li><a href="index.html" target="\_parent" >Home</a></li>

<li><a href="DataProvider.html" target="\_parent" >Data Owner

</a></li>

<li><a href="Storage\_Server.html" target="\_parent">Cloud Server</a></li>

<li><a href="Key\_Authority.html" class="current">TTP </a></li>

<li><a href="Users.html" target="\_parent" >Users</a></li>

```

</div> <!-- end of templatemo_menu -->
<div id="templatemo_content_wrapper">
 <div id="templatemo_content">
 <h2>WELCOME TTP LOGIN

</h2>
```

```
<td width="262"><input type="text" name="userid" /></td>
 </tr>
 <tr>
 <td>Password</td>
 <td><input type="password" name="pass" /></td>
 </tr>
 <tr>
 <td> </td>
 <td><input type="submit" name="Submit" value="Login" />
 <input type="reset" name="Submit2" value="Reset" /></td>
 </tr>
</table>
<p> </p>
</form>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
<p> </p>
</div>
</div>
</div> <!-- end of templatemo_content_wrapper -->
```

```
><divid="templatemo_content_bottom"></div>
 </div>
</div> <!-- end of templatemo_wrapper -->
<div id="templatemo_footer_wrapper">
 </body>
</html>
```



## 10. SYSTEM TESTING

### 10.1 SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

#### TYPES OF TESTING

##### Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

##### Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be

accepted. Invalid Input : identified classes of invalid input must

be rejected. Functions : identified functions must be exercised.

Output : identified classes of application outputs must be

exercised. Systems/Procedures: interfacing systems or procedures must

be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is used to test areas that cannot be reached from a black box level.

## **BLACK BOX TESTING**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## **TEST STRATEGY AND APPROACH**

Field testing will be performed manually and functional tests will be written in detail.

### **Test objectives**

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

### **Features to be tested**

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

### **Integration Testing**

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

### **Acceptance Testing**

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## 11.SCREENSHOTS



Fig 11.1 This Interface Represents Home Screen of a Project



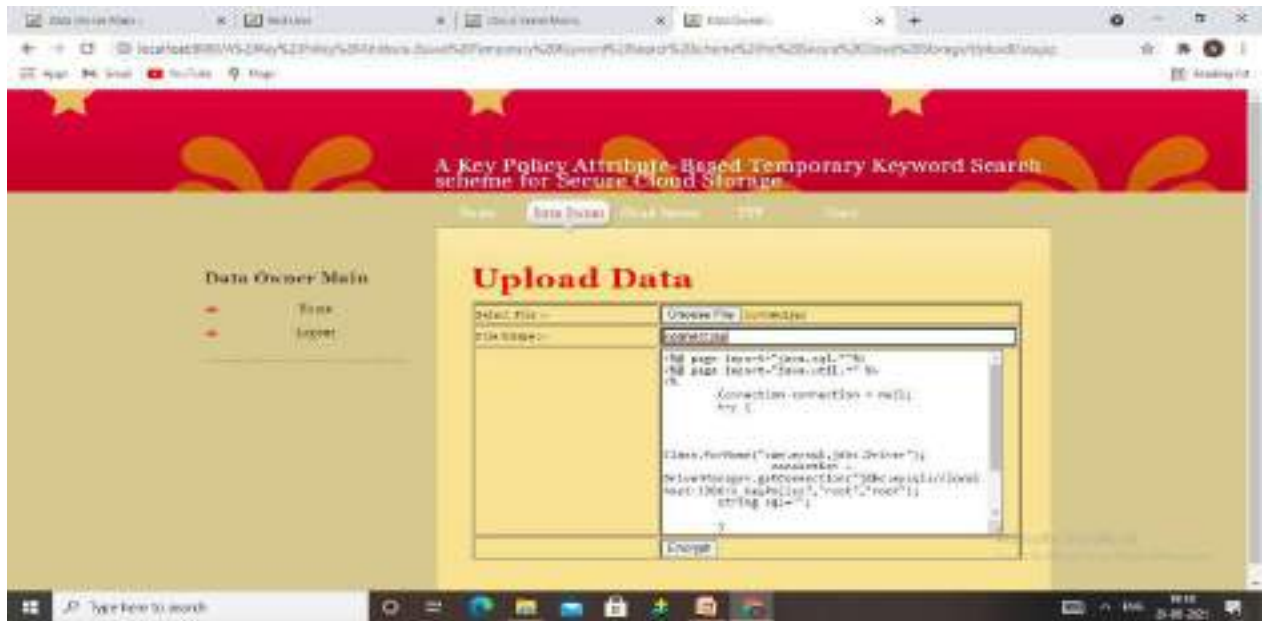
Fig 11.2 This Interface Represents Registration of Data Owner



**Fig 11.3 This Interface Represents Home Page of Data Owner**



**Fig 11.4 This Interface Represents Home Page of Enduser**



**Fig 11.6 This Interface Represents Upload Data**



**Fig 11.7 This Interface Represents Data Uploaded Successfully**





Fig 11.8 This Interface Represents All File Details



Fig 11.9 This Interface Represents Request Send to KA

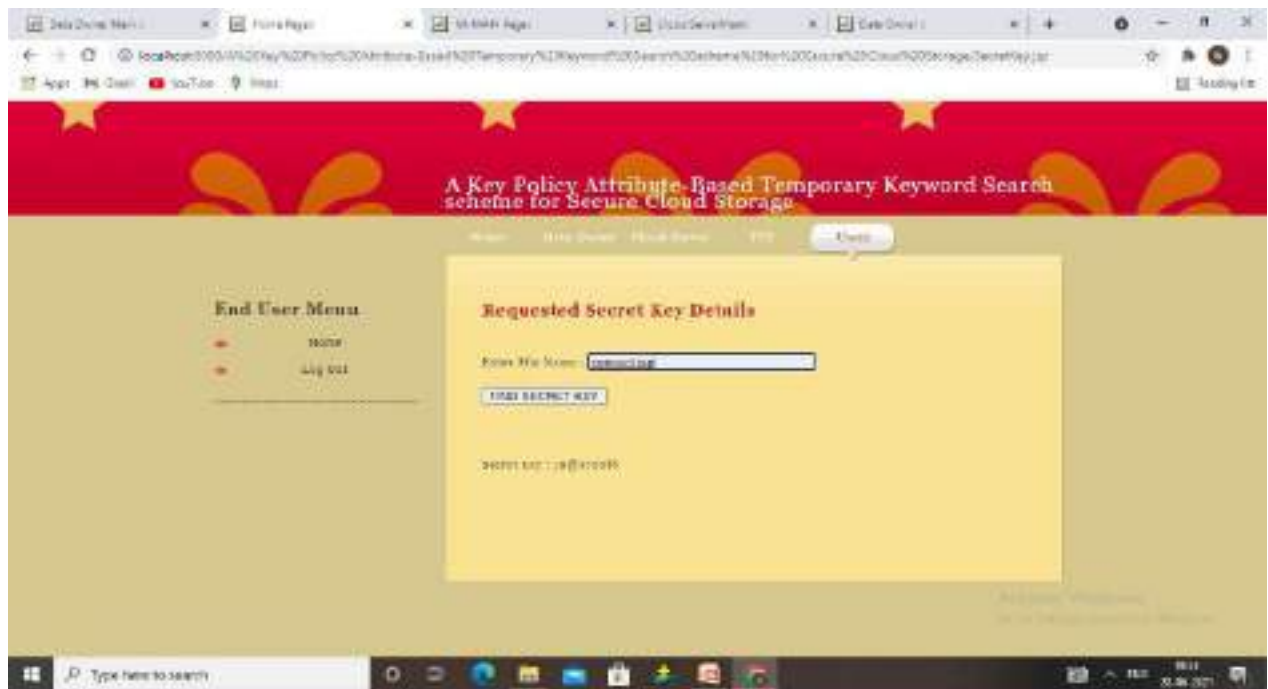


**Fig 11.10 This Interface Represents Key Generation Page**

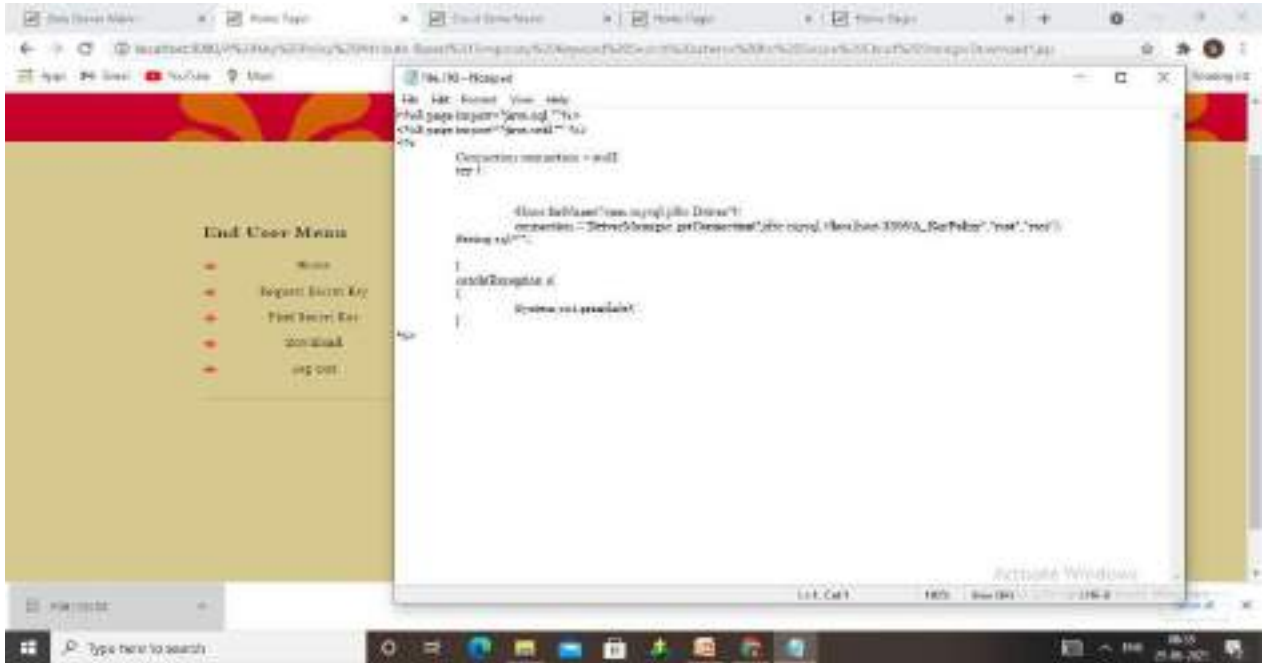


**Fig 11.11 This Interface Represents Data files key**





**Fig 11.12 This Interface Represents Request Secret Key By user**



**Fig 11.14 This Interface Represents Output of a project**

## CONCLUSION

Securing cloud storage is an important problem in cloud computing. We addressed this issue and introduced the notion of key-policy attribute-based temporary keyword search (KPABTKS). According to this notion, each data user can generate a search token which is valid only for a limited time interval. We proposed the first concrete construction for this new cryptographic primitive based on bilinear map. We formally showed that our scheme is provably secure in the random oracle model. The complexity of encryption algorithm of our proposal is linear with respect to the number of the involved attributes.

## **FUTURE ENHANCEMENT**

In addition, the number of required pairing in the search algorithms is independent of the number of the intended time units specified in the search token and it is linear with respect to the number of attributes. Performance evaluation of our scheme in term of both computational cost and execution time shows the practical aspects of the proposed scheme.

## REFERENCES

- [1] D. Boneh, G. Di Crescenzo, R. Ostrovsky, and G. Persiano, "Public key encryption with keyword search," in *Advances in Cryptology-Eurocrypt 2004*. Springer, 2004, pp. 506–522.
- [2] Q. Zheng, S. Xu, and G. Ateniese, "Vabks: Verifiable attribute-based keyword search overoutsourced encrypted data," in *INFOCOM, 2014 Proceedings IEEE*. IEEE, 2014, pp. 522–530.
- [3] A. Sahai and B. Waters, "Fuzzy identity-based encryption," in *Advances in Cryptology–EUROCRYPT 2005*. Springer, 2005, pp. 457–473.
- [4] M. Abdalla, M. Bellare, D. Catalano, E. Kiltz, T. Kohno, T. Lange, J. Malone-Lee, G. Neven, P. Paillier, and H. Shi, "Searchable encryption revisited: Consistency properties, relation to anonymous ibe, and extensions," in *Advances in Cryptology–CRYPTO 2005*. Springer, 2005, pp. 205–222.
- [5] X. Boyen and B. Waters, "Anonymous hierarchical identity-based encryption (without randomoracles)," in *Annual International Cryptology Conference*. Springer, 2006, pp. 290–307.
- [6] Y. Yu, J. Ni, H. Yang, Y. Mu, and W. Susilo, "Efficient public key encryption with revocable keyword search," *Security and Communication Networks*, vol. 7, no. 2, pp. 466–472, 2014.
- [7] D. X. Song, D. Wagner, and A. Perrig, "Practical techniques for searches on encrypted data," in *Security and Privacy, 2000. S&P 2000. Proceedings. 2000 IEEE Symposium on*. IEEE, 2000, pp. 44–55.
- [8] E.-J. Goh et al., "Secure indexes." *IACR Cryptology ePrint Archive*, vol. 2003, p. 216, 2003.



**A**

**Project Report**

**on**

**HEART DISEASE PREDICTION MODEL BASED ON CLINICAL DECISION  
SUPPORT SYSTEM**

*Submitted in partial fulfillment for the award of the degree*

**of**

**Master of Computer Applications**

*Submitted by*

**R CHAITHANYA**

**Reg. No. 19F65F0006**

*Under the esteemed guidance of*

**Mr. P. BALAJI, MCA., M.Tech**  
**Associate Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**  
**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**  
**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**2020 - 2021**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled “HEART DISEASE PREDICTION MODEL BASED ON CLINICAL DECISION SUPPORT SYSTEM” that is being submitted by R CHAITHANYA (Reg. No. 19F65F0006) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by her under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**



## **DECLARATION**

I, **R CHAITHANYA** here by declare that the project report entitled “**HEART DISEASE PREDICTION MODEL BASED ON CLINICAL DECISION SUPPORT SYSTEM** ” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. BALAJI, MCA., M.Tech**, Associate Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**R CHAITHANYA**

**Reg. No.: 19F65F0006**

## **ACKNOWLEDGEMENT**

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. P. BALAJI, MCA., M.Tech**, Associate Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.**, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. CHANDRA SEKHAR REDDY, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. ASHOK RAJU, Ph.D.** and Vice Chairperson **Dr. K. INDRAVENI, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to the project guide and all the staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

**(R CHAITHANYA)**

# CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1 – 3
2	SYSTEM STUDY	4 – 6
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	7
	3.2 DISADVANTAGES	8
	3.3 PROPOSED SYSTEM	8
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9
5	SYSTEM ARCHITECTURE	10– 12
6	SOFTWARE ENVIRONMENT	13 – 54
7	SYSTEM REQUIREMENTS	55
8	SYSTEM DESIGN	56 – 66
9	IMPLEMENTATION	67 – 94
10	SYSTEM TESTING	95 – 97
11	OUT SCREENS	98 – 108
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

## ABSTRACT

Heart disease, one of the major causes of mortality worldwide, can be mitigated by early heart disease diagnosis. A clinical decision support system (CDSS) can be used to diagnose the subjects' heart disease status earlier. This project proposes an effective heart disease prediction model (HDPM) for a CDSS which consists of Density-Based Spatial Clustering of Applications with Noise (DBSCAN) to detect and eliminate the outliers, a hybrid Synthetic Minority Over-sampling Technique-Edited Nearest Neighbor (SMOTE-ENN) to balance the training data distribution and XGBoost to predict heart disease. Two publicly available datasets (Statlog and Cleveland) were used to build the model and compare the results with those of other models (naive bayes (NB), logistic regression (LR), multilayer perceptron (MLP), support vector machine (SVM), decision tree (DT), and random forest (RF)) and of previous study results. The results revealed that the proposed model outperformed other models and previous study results by achieving accuracies of 95.90% and 98.40% for Statlog and Cleveland datasets, respectively. In addition, we designed and developed the prototype of the Heart Disease CDSS (HDCDSS) to help doctors/clinicians diagnose the patients'/subjects' heart disease status based on their current condition. Therefore, early treatment could be conducted to prevent the deaths caused by late heart disease diagnosis.

**KEY WORDS:** SMOTE-ENN, XGBoost, CDSS, Service Provider, Remote User

## LIST OF FIGURES

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1	5.1. System Architecture	11
2	5.2. Block Diagram	12
3	8.2. Data Flow Diagram	57
4	8.3. Activity Diagram For Remote User	58
5	8.4. Activity Diagram For Service Provider	59
6	8.5. Use Case Diagram For Remote User	60
7	8.6. Use Case Diagram For Service Provider	61
8	8.7. Sequence Diagram	62
9	8.8. Collaboration Diagram	63
10	8.9. Deployment Diagram	64
11	8.10. Class Diagram	65
12	8.11. ER Diagrams	66

## **LIST OF ABBREVIATIONS**

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	PY	Python
10	HDP	Heart Disease Prediction
11	DBMS	Database Management System
12	DSS	Decision Support System
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

## 1. INTRODUCTION

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called *Knowledge Discovery in Database (KDD)*. The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation.

Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

### 1.1 What is Data Mining?

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining.

In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information.

Data Mining is similar to Data Science carried out by a person, in a specific situation, on a particular data set, with an objective. This process includes various types of services such as text

mining, web mining, audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tonnes of information available on various platforms, but very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

## 1.2 Types of Data Mining

Data mining can be performed on the following types of data:

### **Relational Database:**

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data searchability, reporting, and organization.

### **Data Repositories:**

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

### **Object-Relational Database:**

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance, etc.

## 1.3 Advantages of Data Mining

- The Data Mining technique enables organizations to obtain knowledge-based data
- Data mining enables organizations to make lucrative modifications in operation.
- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.



# HDPM: An Effective Heart Disease Predict Model

---

- It Facilitates the automated discovery of hidden patterns as well as the prediction oftrends and behaviors.
- It can be induced in the new system as well as the existing platforms.
- It is a quick process that makes it easy for new users to analyze enormous amounts ofdata in a short time.

## 1.4 Applications of Data Mining

### **Data mining in Education:**

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

### **Data Mining in Manufacturing Engineering:**

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.

### **Data Mining Financial Banking:**

The Digitalization of the banking system is supposed to generate an enormous amount of data with every new transaction. The data mining technique can help bankers by solving business-related problems in banking and finance by identifying trends, casualties, and correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by .

## 2. SYSTEM STUDY

### 2.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

### 2.2 ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

## **2.3 TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

## **2.4 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

## 3. SYSTEM ANALYSIS

### 3.1 EXISTING SYSTEM

Several studies have reported the development of heart disease diagnosis based on machine learning models with the aim of providing an HDPM with enhanced performance. Two publicly available heart disease datasets, namely Statlog and Cleveland, have been widely used to compare the performance of prediction models among researchers. For Statlog dataset, a heart disease clinical decision support system based on chaos firefly algorithm and rough sets-based attribute reduction (CFARS-AR) was developed by Long *et al.* (2015) . The rough sets were used to reduce the number of attributes while the chaosfirefly algorithm was used to classify the disease. The developed model was then compared with other models such as NB, SVM and ANN.

The results revealed that the proposed model achieved the highest performance among all the models with accuracy, sensitivity, and specificity of 88.3%, 84.9%, and 93.3%, respectively. The combination of rough sets-based attributes selection and BPNN (RS-BPNN) was proposed by Nahato *et al.* (2015) . With the selected attributes, the proposed RS-BPNN achieved accuracy of up to 90.4%. Dwivedi (2018) compared six machine learning models (ANN, SVM, LR, k-nearest neighbor (kNN), classification tree and NB) with various performance metrics. The results showed that LR performed better than the other models by achieving up to 85%, 89%, 81%, and 85 for the accuracy, sensitivity specificity, and precision, respectively.

Amin *et al.* (2019) performed comparison analysis by identifying significant attributes and applying machine learning models (k-NN, DT, NB, LR, SVM, Neural Network (NN) and a hybrid (voting with NB and LR)). The experiment results revealed that the hybrid model (voting with NB and LR) with selected attributes achieved the highest accuracy (87.41%). Cleveland heart disease dataset has been widely used by researchers to generate predictive models.

## 3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, the system is poor performance due to lack of XGBoost machine learning.
- This system is less performance due to Lack of Heart disease classification Techniques.

## 3.3 PROPOSED SYSTEM

To the best of our knowledge, no study has investigated a heart disease prediction model (HDPM) by utilizing DBSCAN, SMOTE-ENN and XGBoost machine learning. Therefore, we propose an effective HDPM for a CDSS which consists of DBSCAN-based to detect and eliminate the outliers, SMOTE-ENN to balance the training data distribution and XGBoost to predict heart disease. Our challenge is to detect and remove the outlier data and to balance the distribution of the training dataset to improve the performance of the HDPM. Two publicly available datasets (Statlog and Cleveland) were used to build the model and to evaluate their performance compared with that of other models (NB, LR, MLP, SVM, decision tree (DT), and RF) and of previous study results. In addition, we ensured the applicability of the proposed model by designing and implementing the model into a Heart Disease CDSS (HDCDSS) to diagnose the subjects based on their current condition.

The developed HDCDSS is expected to help clinicians diagnose the patients effectively and efficiently and thereby improving heart disease clinical decision making. Therefore, early treatment could be conducted to prevent the deaths caused by late heart disease diagnosis.

## 3.4 ADVANTAGES OF PROPOSED SYSTEM

- The system is fast and reliable due to presence of support vector machine (SVM).
- The system is more effective due to HDPM by integrating DBSCAN outlier detection, SMOTE-ENN, and XGBoost to improve prediction accuracy.

## 4.SOFTWARE MODULES

### 4.1 MODULES

- Service Provider
- Remote User

### 4.2 MODULES DESCRIPTION

#### **Service Provider**

In this module, the Service Provider has to login by using valid user name and password. After login successful he can do some operations such as View All Heart Disease Data Set Details, Search Heart Disease Data Set Details, Diagnose and Identify Heart Disease , View All Remote Users, Diagnose and Identify Normal User , Diagnose and Identify AbNormal User, View Cholesterol Results, View Heart Beat Results,.

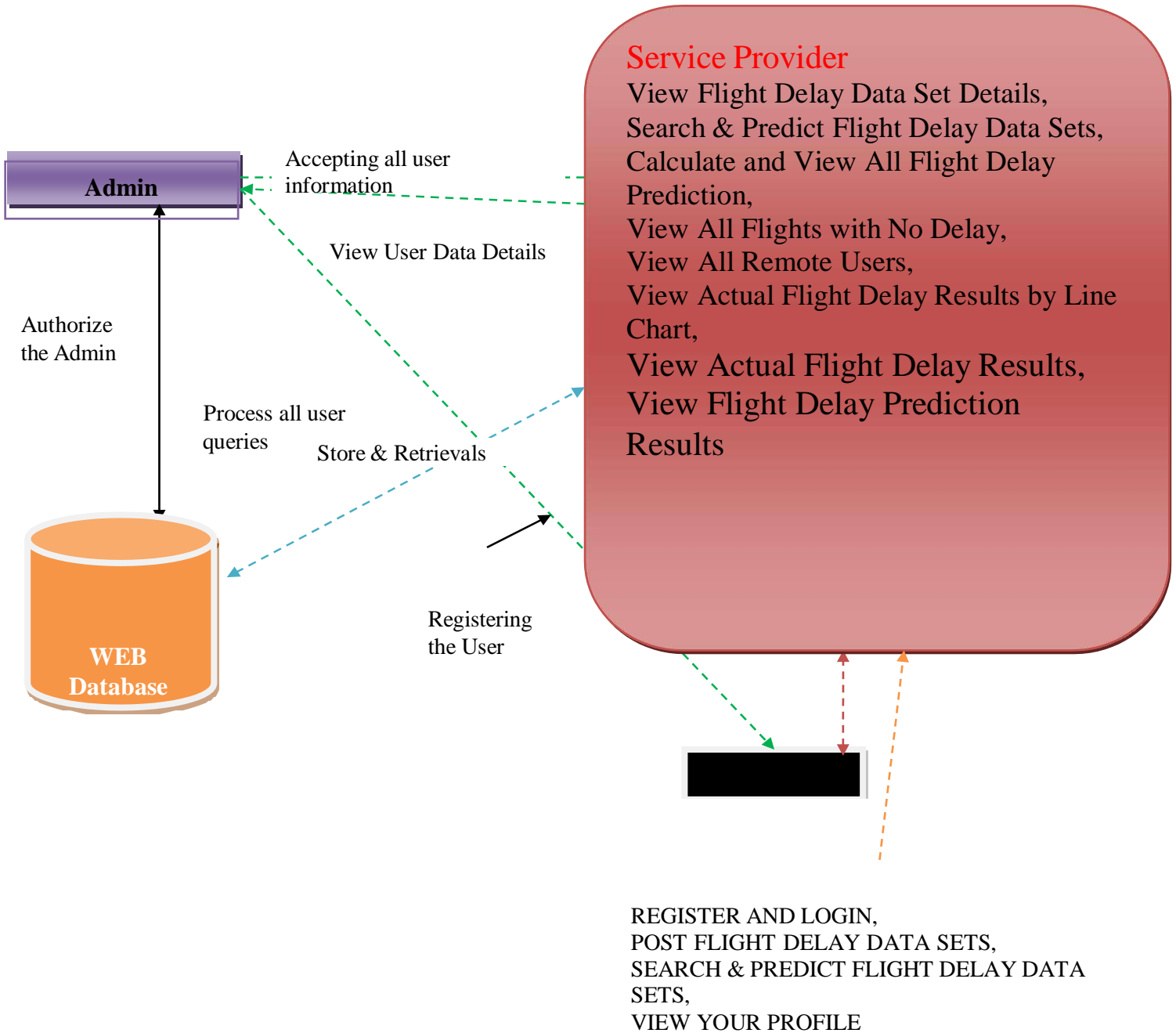
#### **Remote User**

In this module, there are n numbers of users are present. User should register before doing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password. Once Login is successful user will do some operations like “ADD HEART DISEASE DATA SETS, SEARCH ON HEART DISEASE DETAILS, and VIEW YOUR PROFILE.”

## 5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

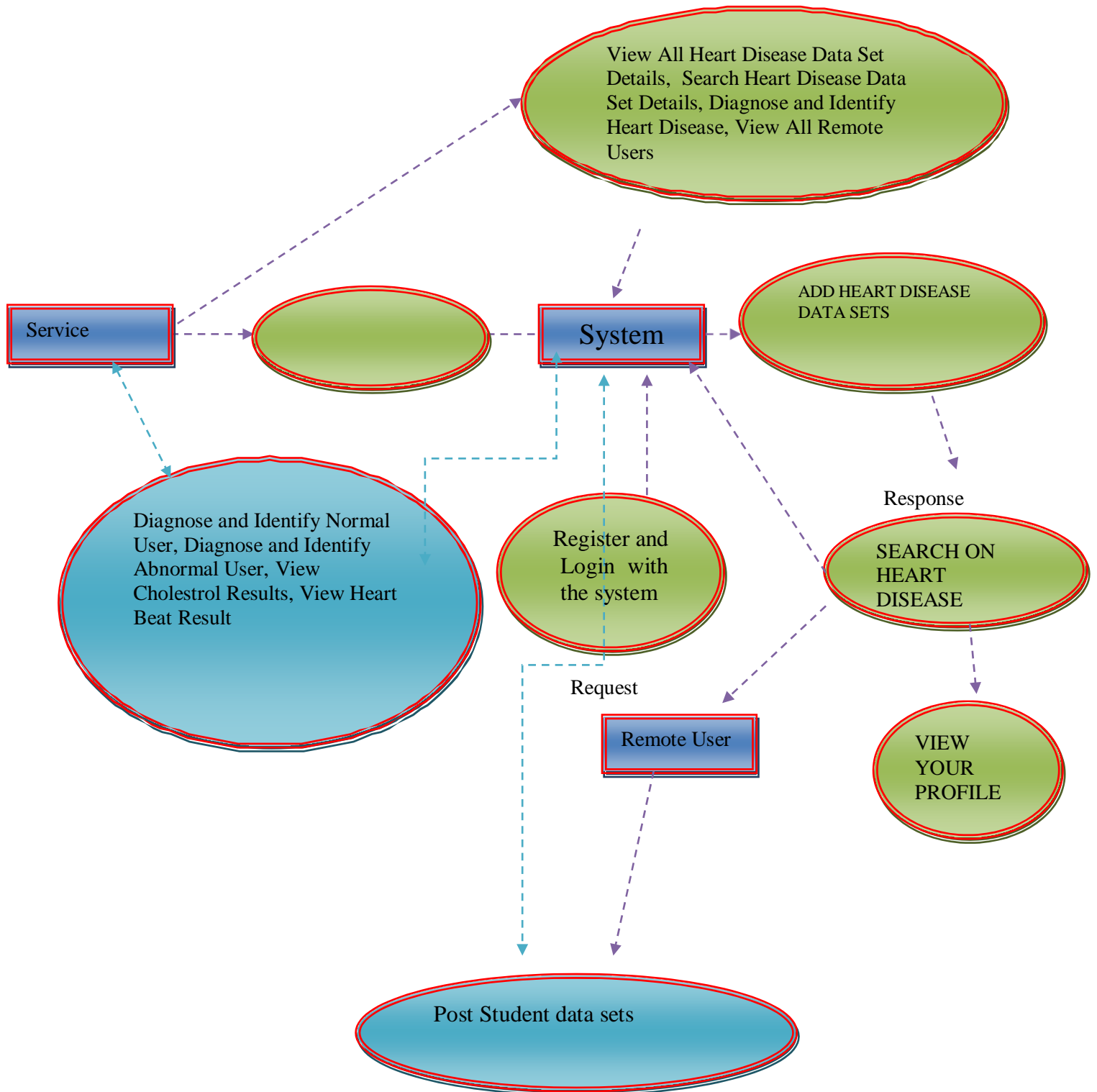
## 5.1 SYSTEM ARCHITECTURE



**Fig 5.1 System Architecture**



## 5.2 DATA FLOW DIAGRAM



**Fig 5.2 Dataflow Diagram**

## 6. SOFTWARE ENVIRONMENT

### 6.1 PYTHON

Python is a **high-level, interpreted, interactive and object-oriented scripting language**. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

- **Python is Interpreted:** Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- **Python is Interactive:** You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- **Python is Object-Oriented:** Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- **Python is a Beginner's Language:** Python is a great language for the beginner-level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

### 6.2 History of Python

Python was developed by Guido van Rossum in the late eighties and early nineties at the National Research Institute for Mathematics and Computer Science in the Netherlands.

Python is derived from many other languages, including ABC, Modula-3, C, C++, Algol-68, SmallTalk, and Unix shell and other scripting languages.

Python is copyrighted. Like Perl, Python source code is now available under the GNU General Public License (GPL).

Python is now maintained by a core development team at the institute, although Guido Rossum still holds a vital role in directing its progress.

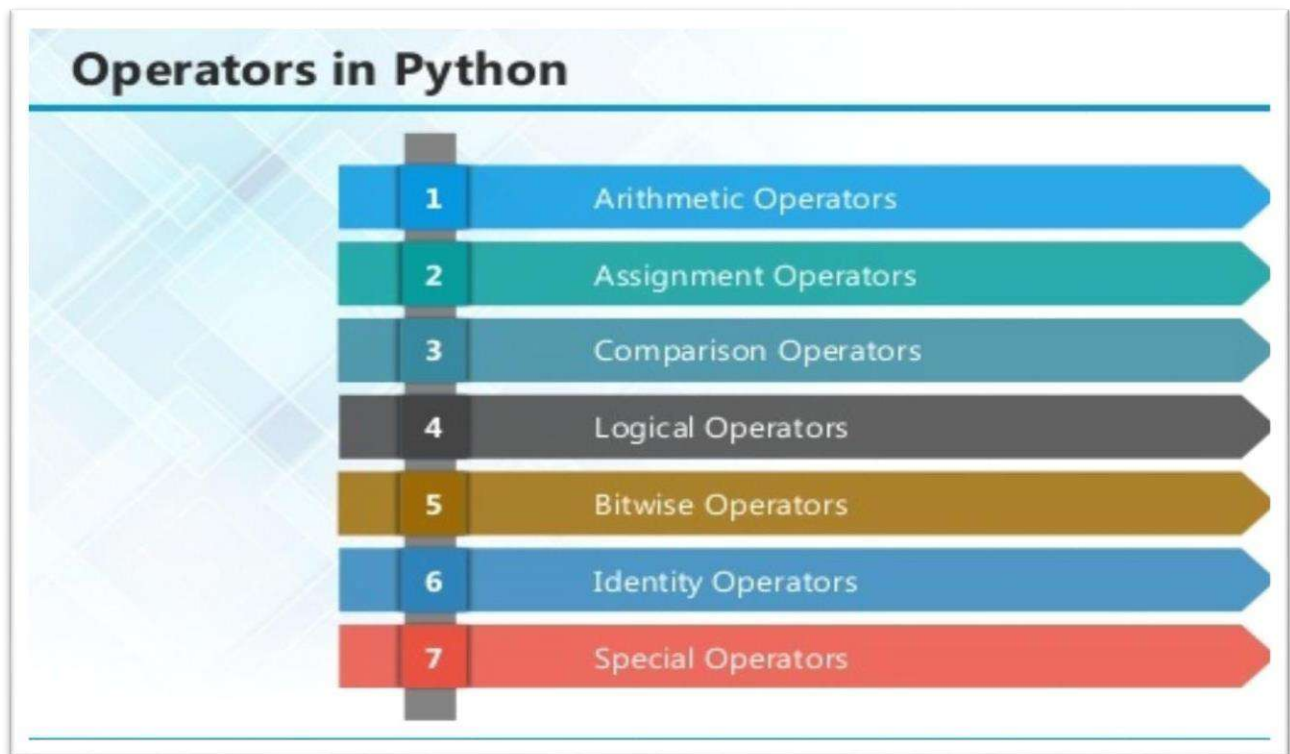
## 6.3 Python Features

Python's features include:

- **Easy-to-learn:** Python has few keywords, simple structure, and a clearly defined syntax. This allows the student to pick up the language quickly.
- **Easy-to-read:** Python code is more clearly defined and visible to the eyes.
- **Easy-to-maintain:** Python's source code is fairly easy-to-maintain.
- **A broad standard library:** Python's bulk of the library is very portable and cross-platform compatible on UNIX, Windows, and Macintosh.
- **Interactive Mode:** Python has support for an interactive mode which allows interactive testing and debugging of snippets of code.
- **Portable:** Python can run on a wide variety of hardware platforms and has the same interface on all platforms.
- **Extendable:** You can add low-level modules to the Python interpreter. These modules enable programmers to add to or customize their tools to be more efficient.
- **Databases:** Python provides interfaces to all major commercial databases.
- **GUI Programming:** Python supports GUI applications that can be created and ported to many system calls, libraries and windows systems, such as Windows MFC, Macintosh, and the X Window system of Unix.
- **Scalable:** Python provides a better structure and support for large programs than shell scripting.

## Python has a big list of good features:

- It supports functional and structured programming methods as well as OOP.
- It can be used as a scripting language or can be compiled to byte-code for building large applications.
- It provides very high-level dynamic data types and supports dynamic type checking.
- IT supports automatic garbage collection.
- It can be easily integrated with C, C++, COM, ActiveX, CORBA, and Java.



## 6.4 ARITHMETIC OPERATORS

Operator	Description	Example
+ Addition	Adds values on either side of the operator.	$a + b = 30$
- Subtraction	Subtracts right hand operand from left hand operand.	$a - b = -10$
* Multiplication	Multiplies values on either side of the operator	$a * b = 200$
/ Division	Divides left hand operand by right hand operand	$b / a = 2$
% Modulus	Divides left hand operand by right hand operand and returns remainder	$b \% a = 0$
** Exponent	Performs exponential (power) calculation on operators	$a ** b = 10$ to the power 20

## 6.5 ASSIGNMENT OPERATOR

Operator	Description	Example
=	Assigns values from right side operands to left side operand	$c = a + b$ assigns value of $a + b$ into $c$
+= Add AND	It adds right operand to the left operand and assign the result to left operand	$c += a$ is equivalent to $c = c + a$
-= Subtract AND	It subtracts right operand from the left operand and assign the result to left operand	$c -= a$ is equivalent to $c = c - a$
*= Multiply AND	It multiplies right operand with the left operand and assign the result to left operand	$c *= a$ is equivalent to $c = c * a$
/= Divide AND	It divides left operand with the right operand and assign the result to left operand	$c /= a$ is equivalent to $c = c / a$ $c /= a$ is

		equivalent to $c = c / a$
Modulus AND	It takes modulus using two operands and assign the result to left operand	$c \% = a$ is equivalent to $c = c \% a$
$** =$ Exponent AND	Performs exponential (power) calculation on operators and assign value to the left operand	$c ** = a$ is equivalent to $c = c ** a$
$// =$ Floor Division	It performs floor division on operators and assign value to the left operand	$c // = a$ is equivalent to $c = c // a$

### 6.6 IDENTITY OPERATOR

Operator	Description	Example
Is	Evaluates to true if the variables on either side of the operator point to the same object and false otherwise.	$x$ is $y$ , here <b>is</b> results in 1 if $id(x)$

## HDPM: An Effective Heart Disease Predict Model

		equals id(y).
is not	Evaluates to false if the variables on either side of the operator point to the same object and true otherwise.	x is not y, here <b>is not</b> results in 1 if id(x) is not equal to id(y)

### 6.7 COMPARISON OPERATOR

Operator	Description	Example
& Binary AND	Operator copies a bit to the result if it exists in both operands	(a & b) (means 0000 1100)
Binary OR	It copies a bit if it exists in either operand.	(a   b) = 61 (means 0011 1101)
^ Binary XOR	It copies the bit if it is set in one operand but not both.	(a ^ b) = 49 (means 0011 0001)
~ Binary Ones	It is unary and has the effect of 'flipping' bits.	(~a) = -61 (means



## HDPM: An Effective Heart Disease Predict Model

Complement		1100 0011 in 2's complement form due to a signed binary number.
<< Binary Left Shift	The left operands value is moved left by the number of bits specified by the right operand.	$a \ll 2 = 240$ (means 1111 0000)
>> Binary Right Shift	The left operands value is moved right by the number of bits specified by the right operand.	$a \gg 2 = 15$ (means 0000 1111)

### 6.8 LOGICAL OPERATOR

Operator	Description	Example
and Logical AND	If both the operands are true then condition becomes true.	(a and b) is true.
or Logical OR	If any of the two operands are non-zero then condition becomes true.	(a or b) is true.
not Logical	Used to reverse the logical state of its operand.	Not(a

NOT		and b) is false.
-----	--	------------------

## 6.9 MEMBERSHIP OPERATORS

Operator	Description	Example
In	Evaluates to true if it finds a variable in the specified sequence and false otherwise.	x in y, here in results in a 1 if x is a member of sequence y.
not in	Evaluates to true if it does not finds a variable in the specified sequence and false otherwise.	x not in y, here not in results in a 1 if x is not a member of sequence y.

## 6.10 LIST

The list is a most versatile data type available in Python which can be written as a list of comma-separated values (items) between square brackets. Important thing about a list is that items in a list need not be of the same type.

Creating a list is as simple as putting different comma-separated values between square brackets.

For example –

```
list1 = ['physics', 'chemistry', 1997, 2000];
```

```
list2 = [1, 2, 3, 4, 5];
```

# HDPM: An Effective Heart Disease Predict Model

```
list3 = ["a", "b", "c", "d"]
```

## Basic List Operations

Lists respond to the + and \* operators much like strings; they mean concatenation and repetition here too, except that the result is a new list, not a string.

Python Expression	Results	Description
len([1, 2, 3])	3	Length
[1, 2, 3] + [4, 5, 6]	[1, 2, 3, 4, 5, 6]	Concatenation
['Hi!'] * 4	['Hi!', 'Hi!', 'Hi!', 'Hi!']	Repetition
3 in [1, 2, 3]	True	Membership
for x in [1, 2, 3]: print x,	1 2 3	Iteration

## Built-in List Functions & Methods:

Python includes the following list functions –

S.NO	Function with Description
1	<u>cmp(list1, list2)</u> Compares elements of both lists.
2	<u>len(list)</u>

## HDPM: An Effective Heart Disease Predict Model

	Gives the total length of the list.
3	<u>max(list)</u> Returns item from the list with max value.
4	<u>min(list)</u> Returns item from the list with min value.
5	<u>list(seq)</u> Converts a tuple into list.

Python includes following list methods

S.No	Methods with Description
1	<u>list.append(obj)</u> Appends object obj to list
2	<u>list.count(obj)</u> Returns count of how many times obj occurs in list
3	<u>list.extend(seq)</u> Appends the contents of seq to list
4	<u>list.index(obj)</u> Returns the lowest index in list that obj appears
5	<u>list.insert(index, obj)</u>

	Inserts object obj into list at offset index
6	<u>list.pop(obj=list[-1])</u> Removes and returns last object or obj from list
7	<u>list.remove(obj)</u> Removes object obj from list
8	<u>list.reverse()</u> Reverses objects of list in place
9	<u>list.sort([func])</u> Sorts objects of list, use compare function if given

### 6.11 TUPLES

A tuple is a sequence of immutable Python objects. Tuples are sequences, just like lists. The differences between tuples and lists are, the tuples cannot be changed unlike lists and tuples use parentheses, whereas lists use square brackets.

Creating a tuple is as simple as putting different comma-separated values. Optionally we can put these comma-separated values between parentheses also. For example –

```
tup1 = ('physics', 'chemistry', 1997, 2000);
tup2 = (1, 2, 3, 4, 5);
tup3 = "a", "b", "c", "d";
```

The empty tuple is written as two parentheses containing nothing –

```
tup1 = ();
```

To write a tuple containing a single value you have to include a comma, even though there is only one value –

```
tup1 = (50,);
```

Like string indices, tuple indices start at 0, and they can be sliced, concatenated, and so on.

- **Accessing Values in Tuples:**

To access values in tuple, use the square brackets for slicing along with the index or indices to obtain value available at that index. For example –

```
tup1 = ('physics', 'chemistry', 1997, 2000);
tup2 = (1, 2, 3, 4, 5, 6, 7);
print "tup1[0]: ", tup1[0]
print "tup2[1:5]: ", tup2[1:5]
```

When the code is executed, it produces the following result –

```
tup1[0]: physics
tup2[1:5]: [2, 3, 4, 5]
```

### Updating Tuples:

```
tup1 = (12, 34.56);
tup2 = ('abc', 'xyz');
tup3 = tup1 + tup2;
print tup3
```

Tuples are immutable which means you cannot update or change the values of tuple elements. We are able to take portions of existing tuples to create new tuples as the following example demonstrates –

When the above code is executed, it produces the following result –

```
(12, 34.56, 'abc', 'xyz')
```

### Delete Tuple Elements

Removing individual tuple elements is not possible. There is, of course, nothing wrong with putting together another tuple with the undesired elements discarded.

To explicitly remove an entire tuple, just use the **del** statement. For example:

```
tup = ('physics', 'chemistry', 1997, 2000);

print tup

del tup;

print "After deleting tup : "

print tup
```

### Basic Tuples Operations:

Python Expression	Results	Description
len((1, 2, 3))	3	Length
(1, 2, 3) + (4, 5, 6)	(1, 2, 3, 4, 5, 6)	Concatenation
('Hi!') * 4	('Hi!', 'Hi!', 'Hi!', 'Hi!')	Repetition
3 in (1, 2, 3)	True	Membership

for x in (1, 2, 3): print x,

1 2 3

Iteration

## Built-in Tuple Functions

SN	Function with Description
1	<b>cmp(tuple1, tuple2)</b> :Compares elements of both tuples.
2	<b>len(tuple)</b> :Gives the total length of the tuple.
3	<b>max(tuple)</b> :Returns item from the tuple with max value.
4	<b>min(tuple)</b> :Returns item from the tuple with min value.
5	<b>tuple(seq)</b> :Converts a list into tuple.



### 6.12 DICTIONARY

Each key is separated from its value by a colon (:), the items are separated by commas, and the whole thing is enclosed in curly braces. An empty dictionary without any items is written with just two curly braces, like this: {}.

Keys are unique within a dictionary while values may not be. The values of a dictionary can be of any type, but the keys must be of an immutable data type such as strings, numbers, or tuples.

#### Accessing Values in Dictionary:

To access dictionary elements, you can use the familiar square brackets along with the key to obtain its value. Following is a simple example –

```
dict = {'Name': 'Zara', 'Age': 7, 'Class': 'First'}
```

```
print "dict['Name']: ", dict['Name']
print "dict['Age']: ", dict['Age']
```

Result –

```
dict['Name']: Zara
dict['Age']: 7
```

### Updating Dictionary

We can update a dictionary by adding a new entry or a key-value pair, modifying an existing entry, or deleting an existing entry as shown below in the simple example –

```
dict = {'Name': 'Zara', 'Age': 7, 'Class': 'First'}

dict['Age'] = 8; # update existing entry
dict['School'] = "DPS School"; # Add new entry
print "dict['Age']: ", dict['Age']
print "dict['School']: ", dict['School']
```

Result –

```
dict['Age']: 8
dict['School']: DPS School
```

### Delete Dictionary Elements

We can either remove individual dictionary elements or clear the entire contents of a dictionary. You can also delete entire dictionary in a single operation.

To explicitly remove an entire dictionary, just use the **del** statement. Following is a simple example –

```
dict = {'Name': 'Zara', 'Age': 7, 'Class': 'First'}

del dict['Name']; # remove entry with key 'Name'

dict.clear(); # remove all entries in dict

del dict ; # delete entire dictionary

print "dict['Age']: ", dict['Age']

print "dict['School']: ", dict['School']
```

### Built-in Dictionary Functions & Methods –

Python includes the following dictionary functions –

S.No	Function with Description
1	<u>cmp(dict1, dict2)</u> Compares elements of both dict.
2	<u>len(dict)</u> Gives the total length of the dictionary. This would be equal to the number of items in the dictionary.
3	<u>str(dict)</u> Produces a printable string representation of a dictionary

## HDPM: An Effective Heart Disease Predict Model

Python includes following dictionary methods –

S.No	Methods with Description
1	<b>dict.clear():</b> Removes all elements of dictionary dict
2	<b>dict. Copy():</b> Returns a shallow copy of dictionary dict
3	<b>dict.fromkeys():</b> Create a new dictionary with keys from seq and values set to value.
4	<b>dict.get(key, default=None):</b> For key key, returns value or default if key not in dictionary
5	<b>dict.has_key(key):</b> Returns true if key in dictionary dict, false otherwise
6	<b>dict.items():</b> Returns a list of dict's (key, value) tuple pairs
7	<b>dict.keys():</b> Returns list of dictionary dict's keys
8	<b>dict.setdefault(key, default=None):</b> Similar to get(), but will set dict[key]=default if key is not already in dict
9	<b>dict.update(dict2):</b> Adds dictionary dict2's key-values pairs to dict
10	<b>dict.values():</b> Returns list of dictionary dict's values

## HDPM: An Effective Heart Disease Predict Model

---

A function is a block of organized, reusable code that is used to perform a single, related action. Functions provide better modularity for your application and a high degree of code reusing. Python gives you many built-in functions like `print()`, etc. but you can also create your own functions. These functions are called user-defined functions.

### Defining a Function

Simple rules to define a function in Python.

- Function blocks begin with the keyword `def` followed by the function name and parentheses `( )`.
- Any input parameters or arguments should be placed within these parentheses. You can also define parameters inside these parentheses.
- The first statement of a function can be an optional statement - the documentation string of the function or docstring.
- The code block within every function starts with a colon `(:)` and is indented.
- The statement `return [expression]` exits a function, optionally passing back an expression to the caller. A return statement with no arguments is the same as `return None`.

```
def functionname(parameters):
 "function_docstring"
 function_suite
 return [expression]
```

## Calling a Function

Defining a function only gives it a name, specifies the parameters that are to be included in the function and structures the blocks of code. Once the basic structure of a function is finalized, you can execute it by calling it from another function or directly from the Python prompt. Following is the example to call `printme()` function –

```
Function definition is here

def printme(str):

 "This prints a passed string into this function"

 print str

 return;

Now you can call printme function

printme("I'm first call to user defined function!")

printme("Again second call to the same function")
```

When the above code is executed, it produces the following result –

```
I'm first call to user defined function!

Again second call to the same function
```

## Function Arguments

You can call a function by using the following types of formal arguments:

- Required arguments
- Keyword arguments
- Default arguments

- Variable-length arguments

### Scope of Variables

All variables in a program may not be accessible at all locations in that program. This depends on where you have declared a variable.

The scope of a variable determines the portion of the program where you can access a particular identifier. There are two basic scopes of variables in Python –

Global variables

Local variables

### Global vs. Local variables

Variables that are defined inside a function body have a local scope, and those defined outside have a global scope.

This means that local variables can be accessed only inside the function in which they are declared, whereas global variables can be accessed throughout the program body by all functions. When you call a function, the variables declared inside it are brought into scope. Following is a simple example –

```
total = 0; # This is global variable.

Function definition is here

def sum(arg1, arg2):
 # Add both the parameters and return them."

 total = arg1 + arg2; # Here total is local variable.

 print "Inside the function local total : ", total

 return total;

sum(10, 20);

print "Outside the function global total : ", total
```

### Result –

```
Inside the function local total : 30
```

```
Outside the function global total : 0
```

A module allows you to logically organize your Python code. Grouping related code into a module makes the code easier to understand and use. A module is a Python object with arbitrarily named attributes that you can bind and reference. Simply, a module is a file consisting of Python code. A module can define functions, classes and variables. A module can also include runnable code.

### Example:

The Python code for a module named a name normally resides in a file named a name.py. Here's an example of a simple module, support.py

```
def print_func(par):
 print "Hello : ", par

 return
```

### The import Statement

The import has the following syntax:

```
import module1[, module2[,... moduleN]
```

When the interpreter encounters an import statement, it imports the module if the module is present in the search path. A search path is a list of directories that the interpreter searches before importing a module. For example, to import the module support.py, you need to put the following command at the top of the script –



A module is loaded only once, regardless of the number of times it is imported. This prevents the module execution from happening over and over again if multiple imports occur.

### Packages in Python

A package is a hierarchical file directory structure that defines a single Python application environment that consists of modules and sub packages and sub-sub packages.

Consider a file Pots.py available in Phone directory. This file has following line of source code

–

```
def Pots():
 print "I'm Pots Phone"
```

Similar way, we have another two files having different functions with the same name as above

–

- Phone/Isdn.py file having function Isdn()
- Phone/G3.py file having function G3()

Now, create one more file `__init__.py` in Phone directory –

- Phone/`__init__.py`

To make all of your functions available when you've imported Phone, to put explicit import statements in `__init__.py` as follows –

```
from Pots import Pots

from Isdn import Isdn

from G3 import G3
```

After you add these lines to `__init__.py`, you have all of these classes available when you import the Phone package.

```
Now import your Phone Package.
```

```
import Phone
```

```
Phone.Pots()
```

```
Phone.Isdn()
```

```
Phone.G3()
```

RESULT:

```
I'm Pots Phone
```

```
I'm 3G Phone
```

```
I'm ISDN Phone
```

In the above example, we have taken example of a single functions in each file, but you can keep multiple functions in your files. You can also define different Python classes in those files and then you can create your packages out of those classes.

This chapter covers all the basic I/O functions available in Python.

### Printing to the Screen

The simplest way to produce output is using the print statement where you can pass zero or more expressions separated by commas. This function converts the expressions you pass into a string and writes the result to standard output as follows –

```
print "Python is really a great language,", "isn't it?"
```

Python is really a great language, isn't it?

### Reading Keyboard Input

Python provides two built-in functions to read a line of text from standard input, which by default comes from the keyboard. These functions are –

- `raw_input`
- `input`

#### The `raw_input` Function

The `raw_input([prompt])` function reads one line from standard input and returns it as a string (removing the trailing newline).

```
str = raw_input("Enter your input: ");

print "Received input is : ", str
```

This prompts you to enter any string and it would display same string on the screen. When I typed "Hello Python!", its output is like this –

```
Enter your input: Hello Python

Received input is : Hello Python
```

#### The `input` Function

The `input([prompt])` function is equivalent to `raw_input`, except that it assumes the input is a valid Python expression and returns the evaluated result to you.

```
str = input("Enter your input: ");

print "Received input is : ", str
```

This would produce the following result against the entered input –

```
Enter your input: [x*5 for x in range(2,10,2)]
```

```
Recieved input is : [10, 20, 30, 40]
```

## Opening and Closing Files

Until now, you have been reading and writing to the standard input and output. Now, we will see how to use actual data files.

Python provides basic functions and methods necessary to manipulate files by default. You can do most of the file manipulation using a **file** object.

## The open Function

Before you can read or write a file, you have to open it using Python's built-in `open()` function. This function creates a **file** object, which would be utilized to call other support methods associated with it.

## Syntax

```
file object = open(file_name [, access_mode][, buffering])
```

Here are parameter details:

- **file\_name:** The `file_name` argument is a string value that contains the name of the file that you want to access.
- **access\_mode:** The `access_mode` determines the mode in which the file has to be opened, i.e., read, write, append, etc. A complete list of possible values is given below in the table. This is optional parameter and the default file access mode is read (r).
- **buffering:** If the buffering value is set to 0, no buffering takes place. If the buffering value is 1, line buffering is performed while accessing a file. If you specify the buffering value as an integer greater than 1, then buffering action is performed with the indicated buffer size. If negative, the buffer size is the system default (default behavior).

## HDPM: An Effective Heart Disease Predict Model

---

Here is a list of the different modes of opening a file –

Modes	Description
R	Opens a file for reading only. The file pointer is placed at the beginning of the file. This is the default mode.
Rb	Opens a file for reading only in binary format. The file pointer is placed at the beginning of the file. This is the default mode.
r+	Opens a file for both reading and writing. The file pointer placed at the beginning of the file.
rb+	Opens a file for both reading and writing in binary format. The file pointer placed at the beginning of the file.
W	Opens a file for writing only. Overwrites the file if the file exists. If the file does not exist, creates a new file for writing.
Wb	Opens a file for writing only in binary format. Overwrites the file if the file exists. If the file does not exist, creates a new file for writing.
w+	Opens a file for both writing and reading. Overwrites the existing file if the file exists. If the file does not exist, creates a new file for reading and writing.

## HDPM: An Effective Heart Disease Predict Model

wb+	Opens a file for both writing and reading in binary format. Overwrites the existing file if the file exists. If the file does not exist, creates a new file for reading and writing.
A	Opens a file for appending. The file pointer is at the end of the file if the file exists. That is, the file is in the append mode. If the file does not exist, it creates a new file for writing.
Ab	Opens a file for appending in binary format. The file pointer is at the end of the file if the file exists. That is, the file is in the append mode. If the file does not exist, it creates a new file for writing.
a+	Opens a file for both appending and reading. The file pointer is at the end of the file if the file exists. The file opens in the append mode. If the file does not exist, it creates a new file for reading and writing.
ab+	Opens a file for both appending and reading in binary format. The file pointer is at the end of the file if the file exists. The file opens in the append mode. If the file does not exist, it creates a new file for reading and writing.

### The file Object Attributes

Once a file is opened and you have one file object, you can get various information related to that file.

Here is a list of all attributes related to file object:

## HDPM: An Effective Heart Disease Predict Model

Attribute	Description
file.closed	Returns true if file is closed, false otherwise.
file.mode	Returns access mode with which file was opened.
file.name	Returns name of the file.
file.softspace	Returns false if space explicitly required with print, true otherwise.

### Example

```
Open a file
fo = open("foo.txt", "wb")
print "Name of the file: ", fo.name
print "Closed or not : ", fo.closed
print "Opening mode : ", fo.mode
print "Softspace flag : ", fo.softspace
```

This produces the following result –

```
Name of the file: foo.txt
Closed or not : False
Opening mode : wb
Softspace flag : 0
```

The close() Method

## HDPM: An Effective Heart Disease Predict Model

---

The `close()` method of a file object flushes any unwritten information and closes the file object, after which no more writing can be done. Python automatically closes a file when the reference object of a file is reassigned to another file. It is a good practice to use the `close()` method to close a file.

### Syntax

```
fileObject.close();
```

### Example

```
Open a file
fo = open("foo.txt", "wb")
print "Name of the file: ", fo.name
Close opened file
fo.close()
```

### Result –

```
Name of the file: foo.txt
```

### Reading and Writing Files

The file object provides a set of access methods to make our lives easier. We would see how to use `read()` and `write()` methods to read and write files.

### The `write()` Method

The `write()` method writes any string to an open file. It is important to note that Python strings can have binary data and not just text. The `write()` method does not add a newline character (`\n`) to the end of the string **Syntax**

```
fileObject.write(string);
```

Here, passed parameter is the content to be written into the opened file. **Example**



```
Open a file

fo = open("foo.txt", "wb")

fo.write("Python is a great language.\nYeah its great!!\n");
```

```
Close opened file

fo.close()
```

The above method would create foo.txt file and would write given content in that file and finally it would close that file. If you would open this file, it would have following content.

```
Python is a great language.
Yeah its great!!
```

### Read() Method

The read() method reads a string from an open file. It is important to note that Python strings can have binary data. apart from text data.

### Syntax

```
fileObject.read([count]);
```

Here, passed parameter is the number of bytes to be read from the opened file. This method starts reading from the beginning of the file and if count is missing, then it tries to read as much as possible, maybe until the end of file.

### Example

Let's take a file foo.txt, which we created above.

```
Open a file

fo = open("foo.txt", "r+")

str = fo.read(10);

print "Read String is : ", str

Close opened file
```

```
fo.close()
```

This produces the following result –

```
Read String is : Python is
```

### File Positions

The `tell()` method tells you the current position within the file; in other words, the next read or write will occur at that many bytes from the beginning of the file.

The `seek(offset[, from])` method changes the current file position. The `offset` argument indicates the number of bytes to be moved. The `from` argument specifies the reference position from where the bytes are to be moved.

If `from` is set to 0, it means use the beginning of the file as the reference position and 1 means use the current position as the reference position and if it is set to 2 then the end of the file would be taken as the reference position.

### Example

Let us take a file `foo.txt`, which we created above.

```
Open a file

fo = open("foo.txt", "r+")

str = fo.read(10);

print "Read String is : ", str

Check current position

position = fo.tell();
```

```
print "Current file position : ", position

Reposition pointer at the beginning once again

position = fo.seek(0, 0);

str = fo.read(10);

print "Again read String is : ", str

Close open file

fo.close()
```

This produces the following result –

```
Read String is : Python is

Current file position : 10

Again read String is : Python is
```

Renaming and Deleting Files

## HDPM: An Effective Heart Disease Predict Model

---

Python `os` module provides methods that help you perform file-processing operations, such as renaming and deleting files.

To use this module you need to import it first and then you can call any related functions.

### The `rename()` Method

The `rename()` method takes two arguments, the current filename and the new filename.

#### Syntax

```
os.rename(current_file_name, new_file_name)
```

#### Example

Following is the example to rename an existing file `test1.txt`:

```
import os

Rename a file from test1.txt to test2.txt

os.rename("test1.txt", "test2.txt")
```

### The `remove()` Method

You can use the `remove()` method to delete files by supplying the name of the file to be deleted as the argument.

#### Syntax

```
os.remove(file_name)
```

#### Example

Following is the example to delete an existing file `test2.txt` –

```
#!/usr/bin/python

import os

Delete file test2.txt

os.remove("text2.txt")
```

### Directories in Python

All files are contained within various directories, and Python has no problem handling these too. The `os` module has several methods that help you create, remove, and change directories.

### The `mkdir()` Method

You can use the `mkdir()` method of the `os` module to create directories in the current directory. You need to supply an argument to this method which contains the name of the directory to be created.

### Syntax

```
os.mkdir("newdir")
```

### Example

Following is the example to create a directory `test` in the current directory –

```
#!/usr/bin/python

import os

Create a directory "test"

os.mkdir("test")
```

### The `chdir()` Method

## HDPM: An Effective Heart Disease Predict Model

---

You can use the `chdir()` method to change the current directory. The `chdir()` method takes an argument, which is the name of the directory that you want to make the current directory.

### Syntax

```
os.chdir("newdir")
```

### Example

Following is the example to go into `"/home/newdir"` directory –

```
#!/usr/bin/python
```

```
import os
```

```
Changing a directory to "/home/newdir"
```

```
os.chdir("/home/newdir")
```

### The `getcwd()` Method

The `getcwd()` method displays the current working directory.

### Syntax

```
os.getcwd()
```

### Example

Following is the example to give current directory –

```
import os
```

```
This would give location of the current directory
```

```
os.getcwd()
```

# HDPM: An Effective Heart Disease Predict Model

---

## Thermdir() Method

The rmdir() method deletes the directory, which is passed as an argument in the method.

Before removing a directory, all the contents in it should be removed.

Syntax:

```
os.rmdir('dirname')
```

## Example

Following is the example to remove "/tmp/test" directory. It is required to give fully qualified name of the directory, otherwise it would search for that directory in the current directory.

```
import os
```

```
This would remove "/tmp/test" directory.
```

```
os.rmdir("/tmp/test")
```

## File & Directory Related Methods

There are three important sources, which provide a wide range of utility methods to handle and manipulate files & directories on Windows and Unix operating systems. They are as follows –

- File Object Methods: The file object provides functions to manipulate files.
- OS Object Methods: This provides methods to process files as well as directories.

Python provides two very important features to handle any unexpected error in your Python programs and to add debugging capabilities in them –

- **Exception Handling**: This would be covered in this tutorial. Here is a list standard Exceptions available in Python: Standard Exceptions.
- **Assertions**: This would be covered in Assertions in Python

## HDPM: An Effective Heart Disease Predict Model

### List of Standard Exceptions –

<b>EXCEPTION NAME</b>	<b>DESCRIPTION</b>
Exception	Base class for all exceptions
StopIteration	Raised when the next() method of an iterator does not point to any object.
SystemExit	Raised by the sys.exit() function.
StandardError	Base class for all built-in exceptions except StopIteration and SystemExit.
ArithmeticError	Base class for all errors that occur for numeric calculation.
OverflowError	Raised when a calculation exceeds maximum limit for a numeric type.
FloatingPointError	Raised when a floating point calculation fails.
ZeroDivisionError	Raised when division or modulo by zero takes place for all numeric types.
AssertionError	Raised in case of failure of the Assert statement.



## HDPM: An Effective Heart Disease Predict Model

AttributeError	Raised in case of failure of attribute reference or assignment.
EOFError	Raised when there is no input from either the raw_input() or input() function and the end of file is reached.
ImportError	Raised when an import statement fails.
KeyboardInterrupt	Raised when the user interrupts program execution, usually by pressing Ctrl+c.
LookupError	Base class for all lookup errors.

IndexError	Raised when an index is not found in a sequence.
KeyError	Raised when the specified key is not found in the dictionary.
NameError	Raised when an identifier is not found in the local or global namespace.
UnboundLocalError	Raised when trying to access a local variable in a function or method but no value has been assigned to it.
EnvironmentError	Base class for all exceptions that occur outside the Python environment.
IOError	Raised when an input/ output operation fails, such as the print statement or the open() function when trying to open a file that does not exist.
IOError	Raised for operating system-related errors.

SyntaxError	Raised when there is an error in Python syntax.
IndentationError	Raised when indentation is not specified properly.
SystemError	Raised when the interpreter finds an internal problem, but when this error is encountered the Python interpreter does not exit.
SystemExit	Raised when Python interpreter is quit by using the sys.exit() function. If not handled in the code, causes the interpreter to exit.
TypeError	Raised when an operation or function is attempted that is invalid for the specified data type.
ValueError	Raised when the built-in function for a data type has the valid type of arguments, but the arguments have invalid values specified.

RuntimeError	Raised when a generated error does not fall into any category.
NotImplementedError	Raised when an abstract method that needs to be implemented in an inherited class is not actually implemented.

### **What is Exception?**

An exception is an event, which occurs during the execution of a program that disrupts the normal flow of the program's instructions. In general, when a Python script encounters a situation that it cannot cope with, it raises an exception. An exception is a Python object that represents an error.

When a Python script raises an exception, it must either handle the exception immediately otherwise it terminates and quits.

## Handling an exception

If you have some suspicious code that may raise an exception, you can defend your program by placing the suspicious code in a **try:** block. After the **try:** block, include an **except:** statement, followed by a block of code which handles the problem as elegantly as possible.

The Python standard for database interfaces is the Python DB-API. Most Python database interfaces adhere to this standard.

You can choose the right database for your application. Python Database API supports a wide range of database servers such as –

- GadFly
- mSQL
- MySQL
- PostgreSQL
- Microsoft SQL Server 2000
- Informix
- Interbase
- Oracle
- Sybase

The DB API provides a minimal standard for working with databases using Python structures and syntax wherever possible. This API includes the following:

- Importing the API module.
- Acquiring a connection with the database.
- Issuing SQL statements and stored procedures.
- Closing the connection

## **7.SYSTEM REQUIREMENTS**

### **7.1 HARDWARE REQUIREMENTS**

- Processor- Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM:4 GB
- Hard Disk: 40 GB.

### **7.2 SOFTWARE REQUIREMENTS**

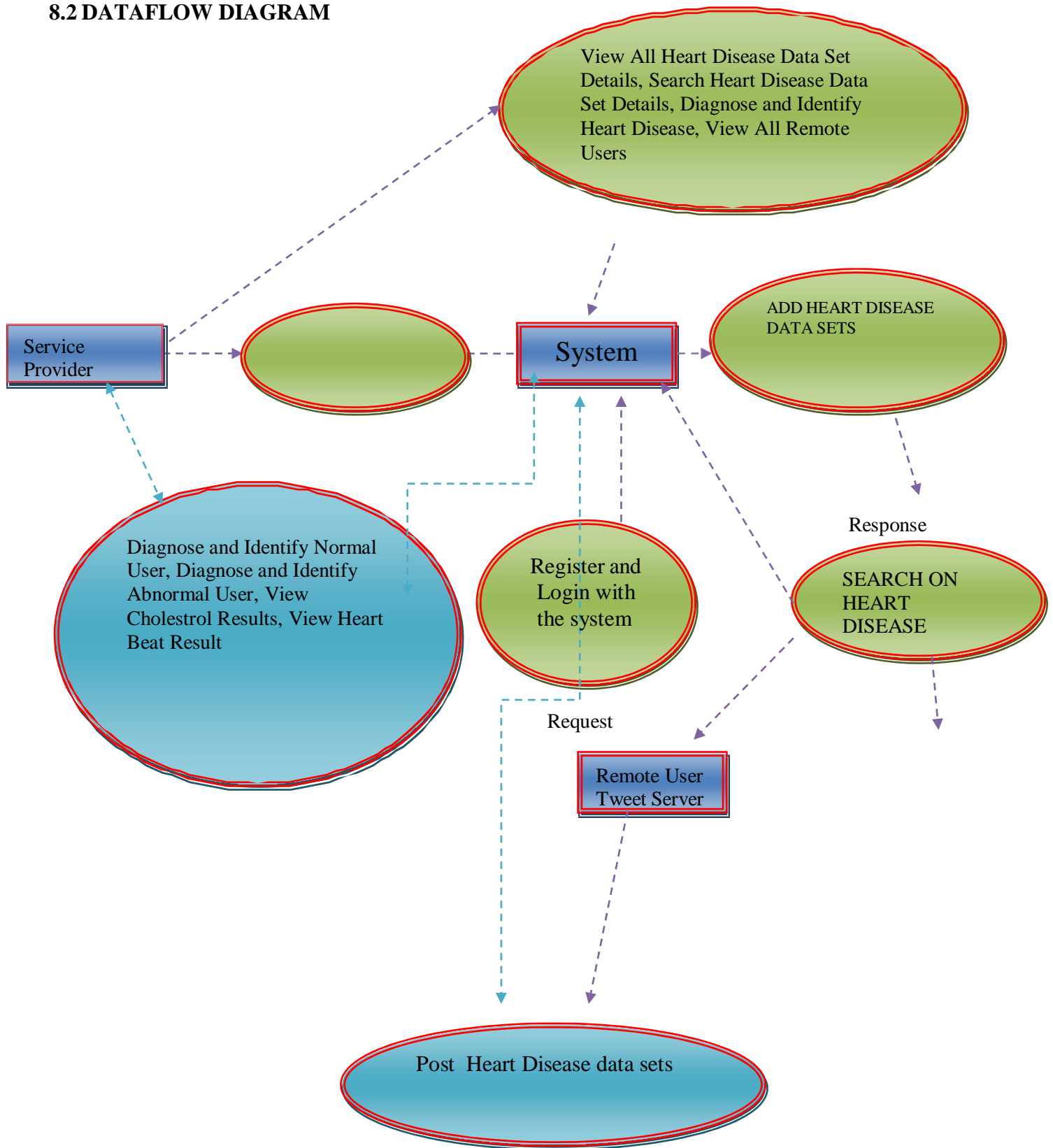
- Operating System- windows 7 / 8.1 / 10/
- Server: XAMPP Web Server
- Database: MYSQL Server 5.0
- Frontend: HTML, CSS, JS
- Backend: Python
- IDE:Pycharm

## 8. SYSTEM DESIGN

### 8.1 DATA FLOW DIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

## 8.2 DATAFLOW DIAGRAM



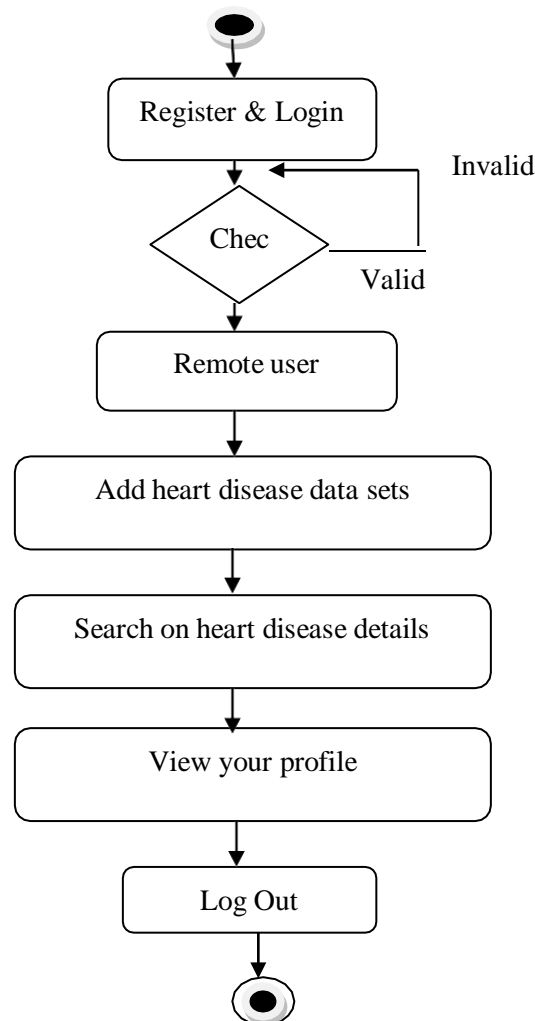
**Fig 8.2 Dataflow Diagram**

## 8.3 UML DIAGRAMS

### Activity Diagram

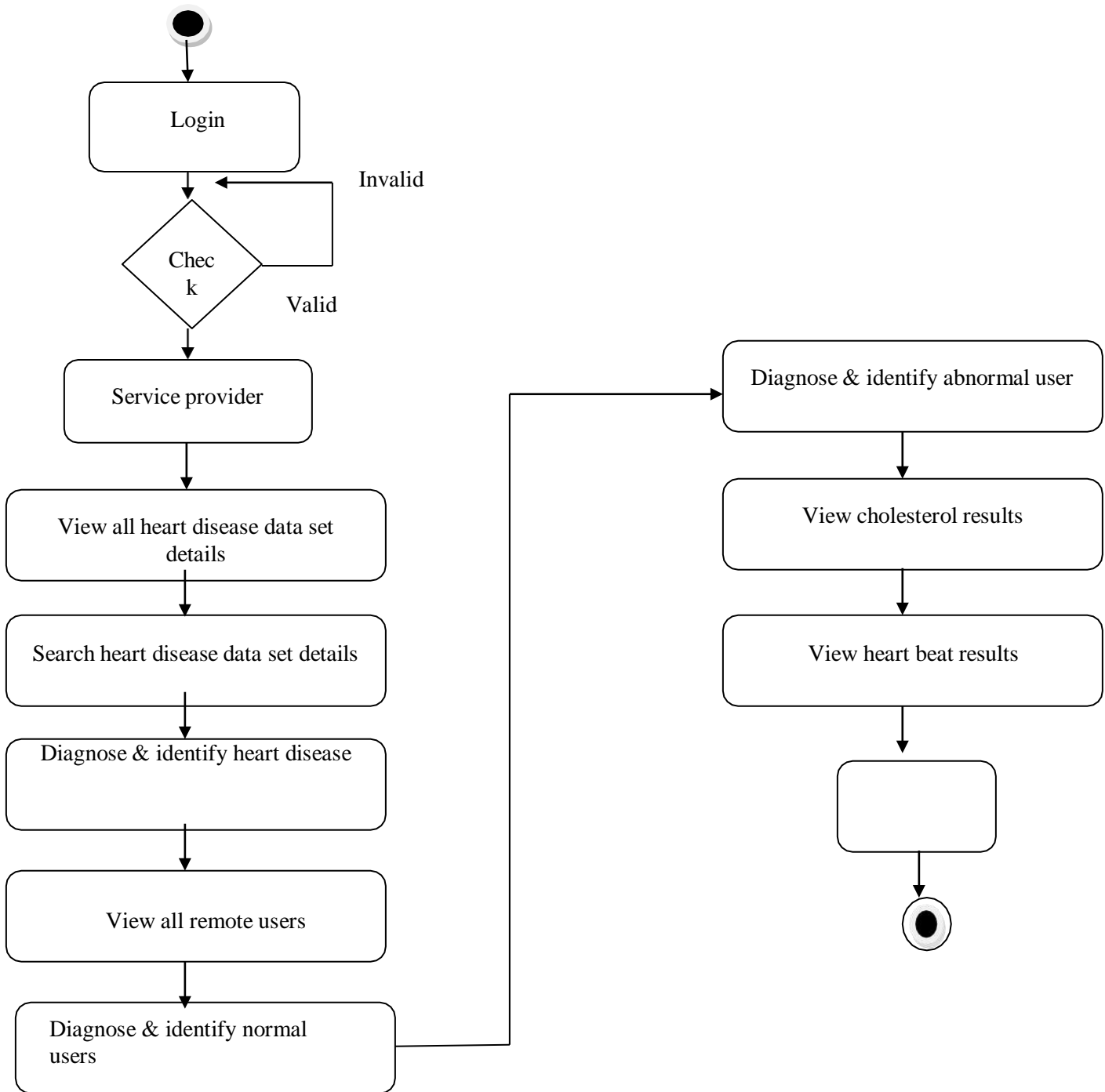
Activity diagrams are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

### Activity Diagram for remote user



**Fig 8.3 Activity Diagram for remote user**

## 8.4 Activity Diagram for Service provider



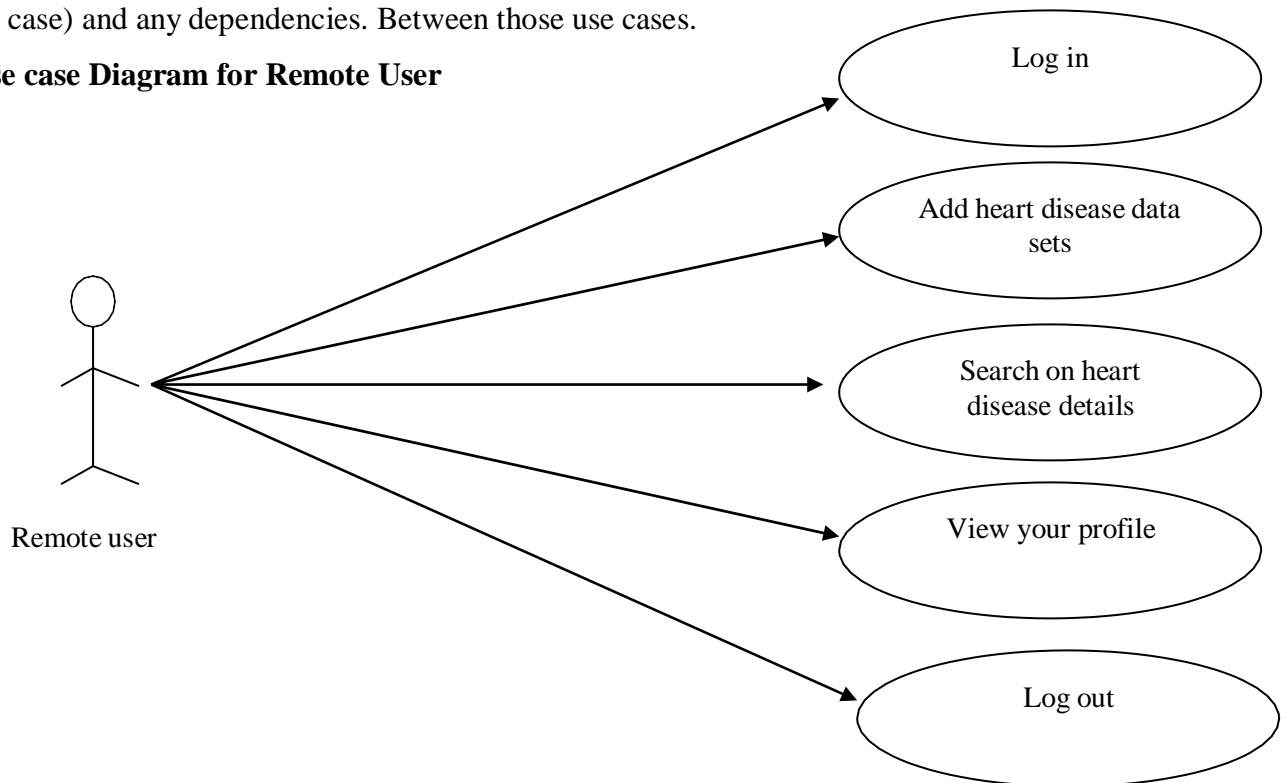
**Fig 8.4 Activity Diagram for Service provide**



## 8.5 USE CASE DIAGRAM

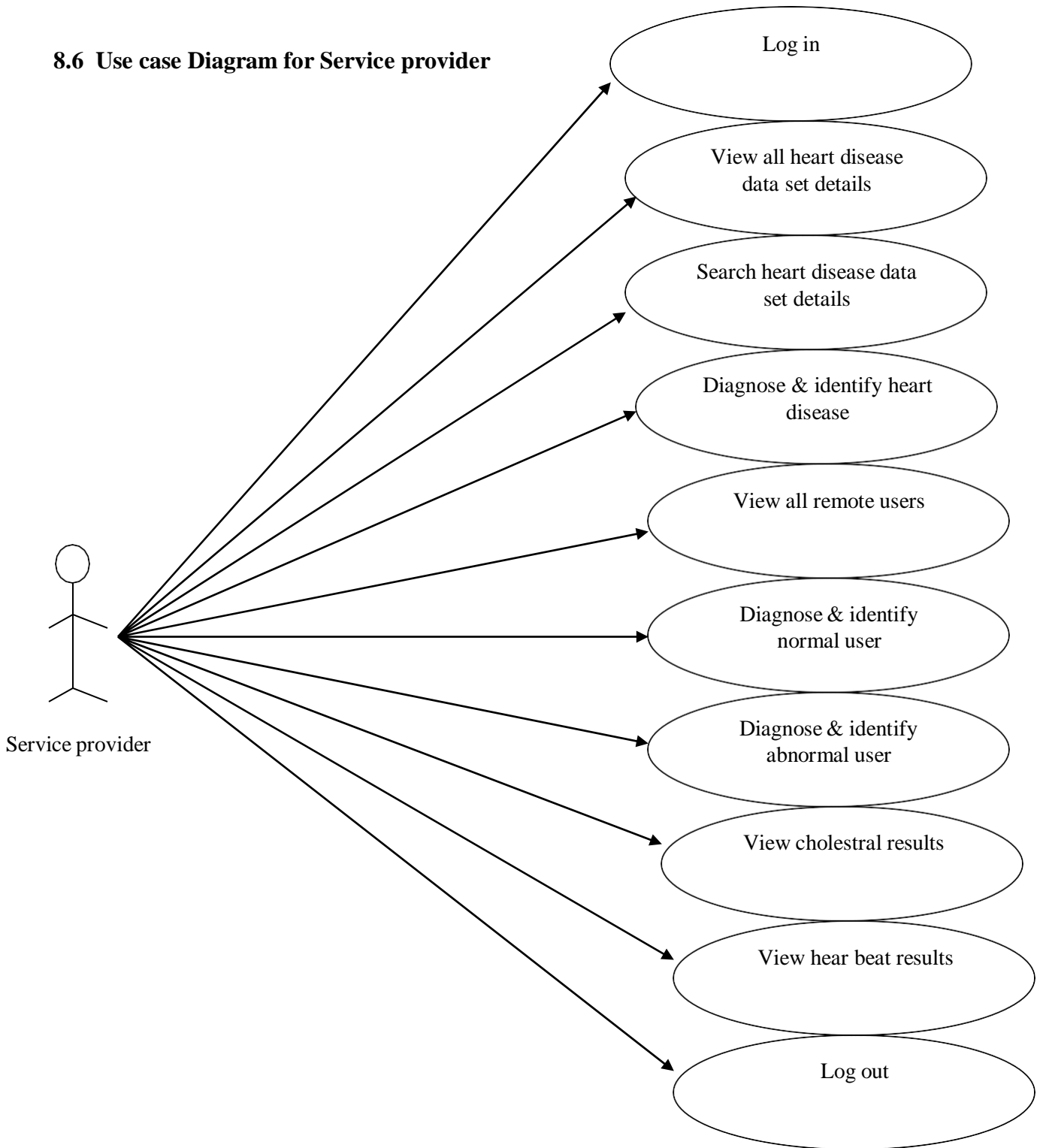
A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

### Use case Diagram for Remote User



**Fig 8.5 Use case Diagram for Remote User**

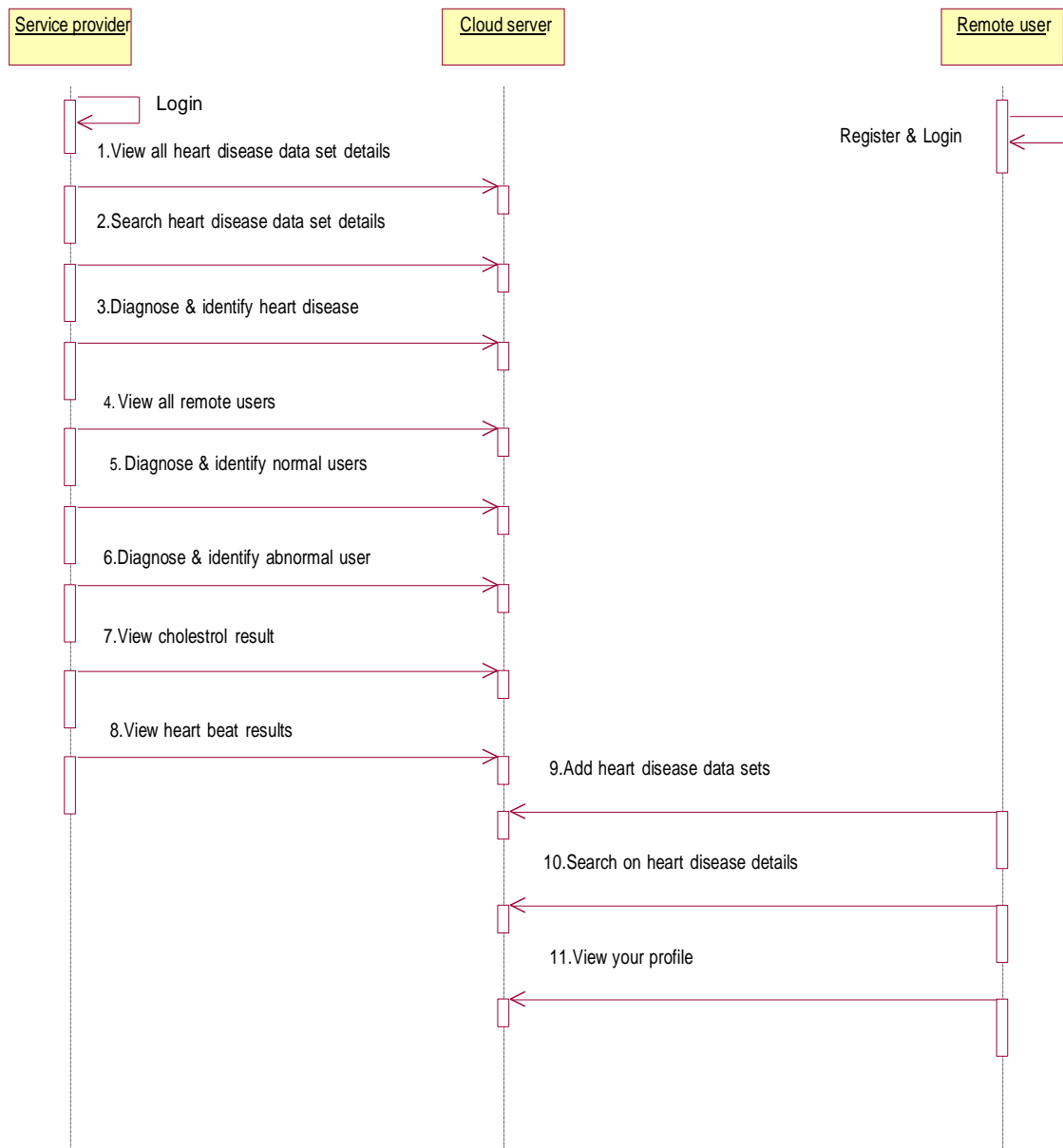
## 8.6 Use case Diagram for Service provider



**Fig 8.6 Usecase Diagram For Service Provider**

## 8.7 Sequence Diagram

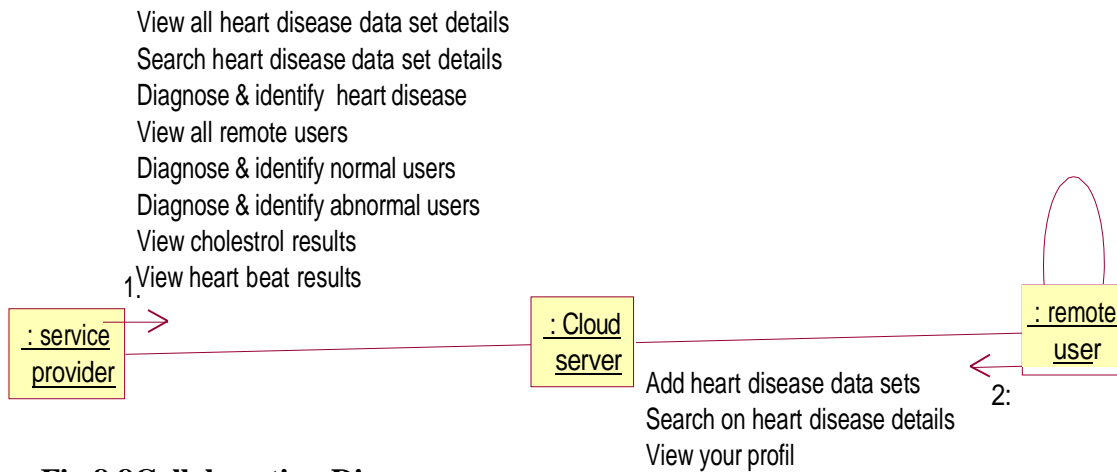
A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.



**Fig 8.7 Sequence Diagram**

## 8.8 Collaboration Diagram

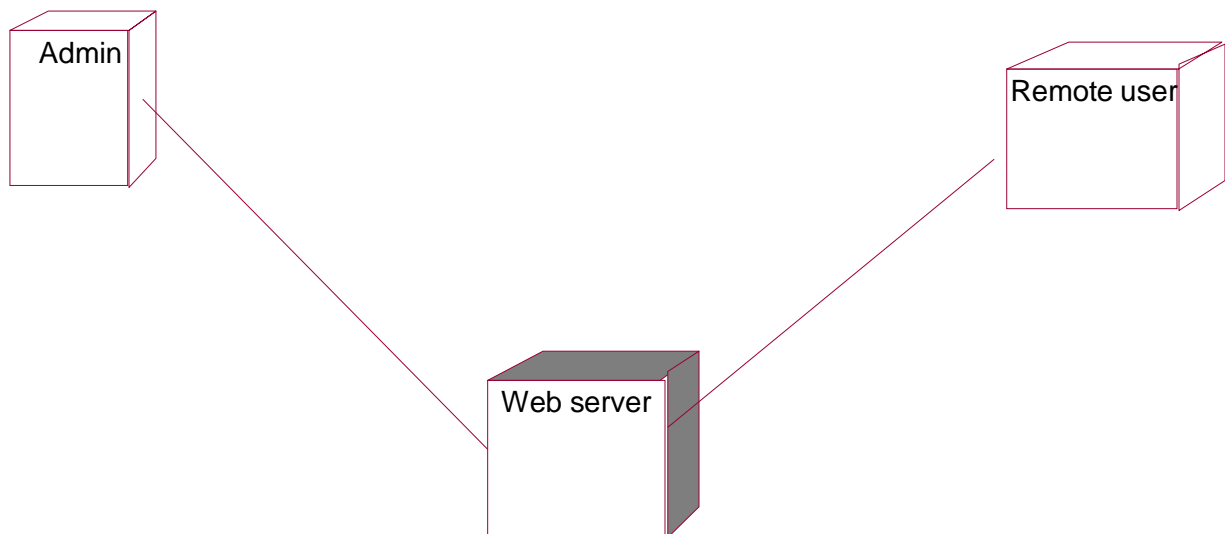
A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.



**Fig 8.8 Collaboration Diagram**

## 8.9 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.



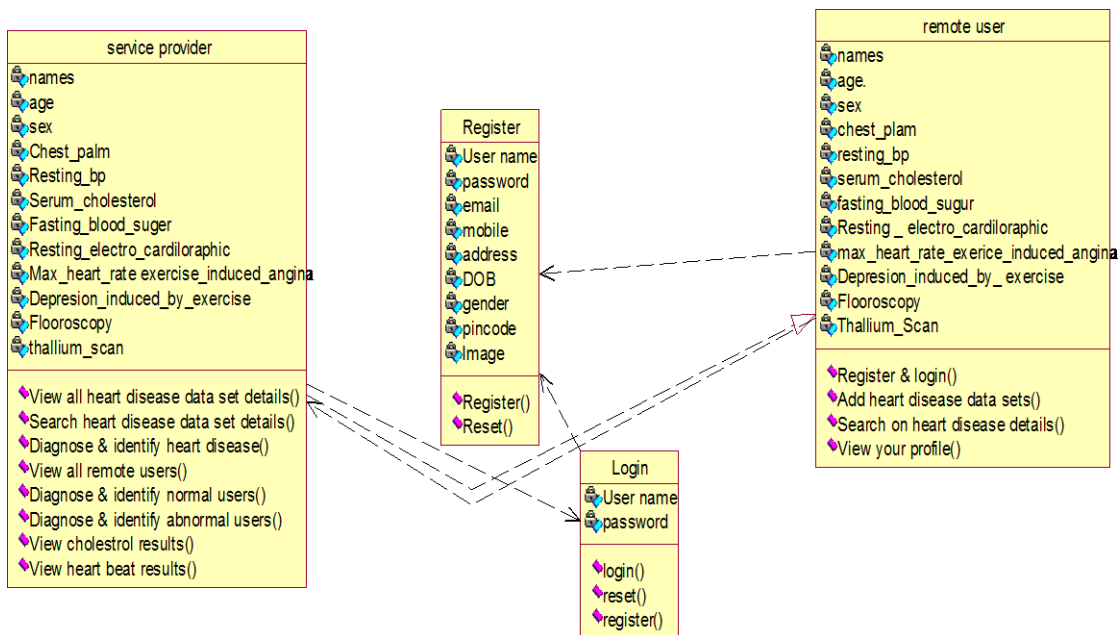
**Fig 8.9 Deployment diagram**

## 8.10 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

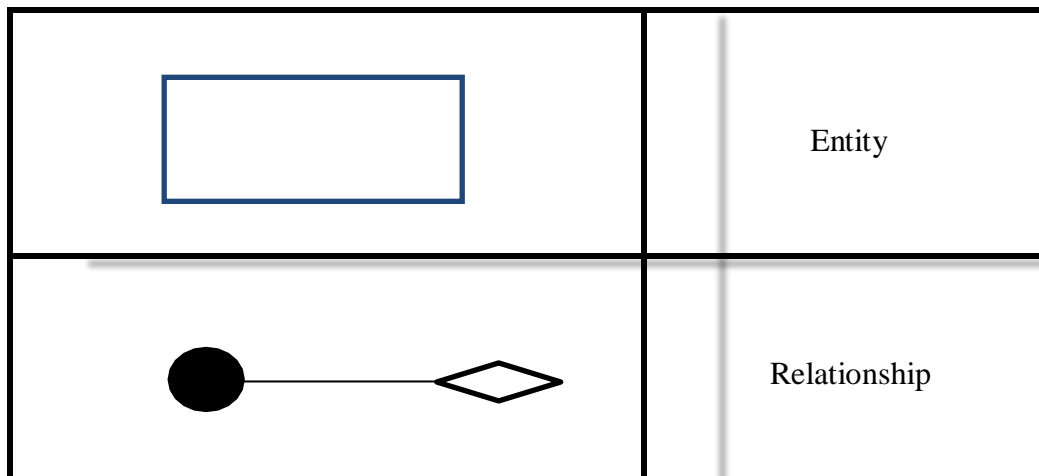
1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.



**Fig 8.10 Class Diagram**

## 8.11 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.



**Fig 8.11 E-R Notations**

## 9. IMPLEMENTATION

### 9.1 INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.2 OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.



4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### 9.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

6. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
7. Select methods for presenting information.
8. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections of the
  - Future.
  - Signal important events, opportunities, problems, or warnings.
  - Trigger an action.

- Confirm an action.

## 9.4 CODING

### **Initial.py**

# Generated by Django 2.0.5 on 2019-04-23 07:01

```
from django.db import migrations, models
```

```
class Migration(migrations.Migration):
```

```
 initial = True
```

```
 dependencies = [
]
```

```
 operations = [
 migrations.CreateModel(
 name='ClientRegister_Model',
 fields=[
 ('id', models.AutoField(auto_created=True, primary_key=True, serialize=False,
verbose_name='ID')),
 ('username', models.CharField(max_length=30)),
 ('email', models.EmailField(max_length=30)),
 ('password', models.CharField(max_length=10)),
 ('phoneno', models.IntegerField()),
 ('country', models.CharField(max_length=30)),
 ('state', models.CharField(max_length=30)),
 ('city', models.CharField(max_length=30)),
],
),
]
```

### **Client\_posts.py**

# Generated by Django 2.0.5 on 2019-04-25 05:53

```
from django.db import migrations, models
import django.db.models.deletion
```

```
class Migration(migrations.Migration):
```

```
 dependencies = [
 ('Remote_User', '0001_initial'),
]
```

```
 operations = [
```

## HDPM: An Effective Heart Disease Predict Model

---

```
migrations.CreateModel(
 name='ClientPosts_Model',
 fields=[
 ('id', models.AutoField(auto_created=True, primary_key=True, serialize=False,
verbose_name='ID')),
 ('desc', models.CharField(max_length=300)),
 ('uname', models.CharField(max_length=300)),
 ('topics', models.CharField(max_length=300)),
 ('sanalysis', models.CharField(max_length=300)),
 ('senderstatus', models.CharField(default='process', max_length=300)),
 ('ratings', models.IntegerField(default=0)),
 ('userId', models.ForeignKey(on_delete=django.db.models.deletion.CASCADE,
to='Remote_User.ClientRegister_Model')),
],
),
]
```

### **Client post model use.py**

# Generated by Django 2.0.5 on 2019-04-25 09:57

```
from django.db import migrations, models
```

```
class Migration(migrations.Migration):
```

```
 dependencies = [
 ('Remote_User', '0002_clientposts_model'),
]
```

```
 operations = [
 migrations.AddField(
 model_name='clientposts_model',
 name='uname',
 field=models.IntegerField(default=0),
),
]
```

### **Auto.py**

# Generated by Django 2.0.5 on 2019-04-29 04:57

```
from django.db import migrations, models
```

```
class Migration(migrations.Migration):
```

```
 dependencies = [

 ('Remote_User', '0003_clientposts_model_usefulcounts'),
```

```
]
operations = [
 migrations.AddField(
 model_name='clientposts_model',
 name='uses',
 field=models.CharField(default='', max_length=100),
 preserve_default=False,
),
 migrations.AddField(
 model_name='clientposts_model',
 name='tname',
 field=models.CharField(default='', max_length=50),
 preserve_default=False,
),
]
```

### **Client post model dislikes**

# Generated by Django 2.0.5 on 2019-04-29 05:15

```
from django.db import migrations, models
```

```
class Migration(migrations.Migration):
```

```
 dependencies = [
 ('Remote_User', '0004_auto_20190429_1027'),
]
```

```
 operations = [
 migrations.AddField(
 model_name='clientposts_model',
 name='dislikes',
 field=models.IntegerField(default=0),
),
]
```

### **Review.py**

# Generated by Django 2.0.5 on 2019-04-29 05:19

```
from django.db import migrations, models
```

```
class Migration(migrations.Migration):
```

```
 dependencies = [
```

```
('Remote_User', '0005_clientposts_model_dislikes'),
]

operations = [
 migrations.CreateModel(
 name='review_Model',
 fields=[
 ('uname', models.CharField(max_length=100)),
 ('ureview', models.CharField(max_length=100)),
 ('tname', models.CharField(max_length=300)),
 ('suggestion', models.CharField(max_length=300)),
 ('dt', models.CharField(max_length=300)),
 ('sanalysis', models.CharField(max_length=300)),
],
),
]
```

### **Client post model name.py**

# Generated by Django 2.0.5 on 2019-04-30 04:45

```
from django.db import migrations, models
```

```
class Migration(migrations.Migration):
```

```
 dependencies = [
 ('Remote_User', '0006_review_model'),
]
```

```
 operations = [
 migrations.AddField(
 model_name='clientposts_model',
 name='uname',
 field=models.CharField(default="", max_length=50),
 preserve_default=False,
),
]
```

### **Admin.py**

```
from django.contrib import admin
```

```
Register your models here.
```

### **Apps.py**

```
from django.apps import AppConfig
```

## HDPM: An Effective Heart Disease Predict Model

---

```
class ClientSiteConfig(AppConfig):
 name = 'Remote_User'
```

### **Forms.py**

```
from django import forms
```

```
from Remote_User.models import ClientRegister_Model
```

```
class ClientRegister_Form(forms.ModelForm):
 password = forms.CharField(widget=forms.PasswordInput())
 email = forms.EmailField(required=True)
```

```
class Meta:
```

```
 model = ClientRegister_Model
```

```
 fields = ("username", "email", "password", "phoneno", "country", "state", "city")
```

### **Tests.py**

```
from django.test import TestCase
```

```
Create your tests here.
```

### **Views.py**

```
from django.db.models import Count
```

```
from django.db.models import Q
```

```
from django.shortcuts import render, redirect, get_object_or_404
```

```
import datetime
```

```
import openpyxl
```

```
Create your views here.
```

```
from Remote_User.models import
```

```
review_Model, ClientRegister_Model, heart_disease_model, recommend_Model
```

```
def login(request):
```

```
 if request.method == "POST" and 'submit1' in request.POST:
```

```
 username = request.POST.get('username')
```

```
 password = request.POST.get('password')
```

```
 try:
```

```
enter = ClientRegister_Model.objects.get(username=username, password=password)request.session["userid"] = enter.id
```

```
 return redirect('Add_DataSet_Details')except:
```

```
pass

return render(request, 'RUser/login.html')

def Add_DataSet_Details(request):
 if "GET" == request.method:
 return render(request, 'RUser/Add_DataSet_Details.html', { })
 else:
 excel_file = request.FILES["excel_file"]

 # you may put validations here to check extension or file size

 wb = openpyxl.load_workbook(excel_file)

 # getting all sheets
 sheets = wb.sheetnames
 print(sheets)

 # getting a particular sheet
 worksheet = wb["Sheet1"]
 print(worksheet)

 # getting active sheet
 active_sheet = wb.active
 print(active_sheet)

 # reading a cell
 print(worksheet["A1"].value)

 excel_data = list()
 # iterating over the rows and
 # getting value from each cell in row
 for row in worksheet.iter_rows():
 row_data = list()
 for cell in row:
 row_data.append(str(cell.value))
 print(cell.value)
 excel_data.append(row_data)

 heart_disease_model.objects.all().delete()

 for r in range(1, active_sheet.max_row+1):
 heart_disease_model.objects.create(
 names=active_sheet.cell(r, 1).value,
```

## HDPM: An Effective Heart Disease Predict Model

---

```
 age=active_sheet.cell(r, 2).value,
 sex=active_sheet.cell(r, 3).value,
 chest_pain=active_sheet.cell(r, 4).value,
 resting_bp=active_sheet.cell(r, 5).value,
 serum_cholesterol=active_sheet.cell(r, 6).value,
 fasting_blood_sugar=active_sheet.cell(r, 7).value,
 resting_electro_cardiographic=active_sheet.cell(r, 8).value,
 max_heart_rate=active_sheet.cell(r, 9).value,
 exercise_induced_angina=active_sheet.cell(r, 10).value,
 depression_induced_by_exercise=active_sheet.cell(r, 11).value,
 fluoroscopy=active_sheet.cell(r, 12).value,
 thallium_scan=active_sheet.cell(r, 13).value

)
```

```
return render(request, 'RUser/Add_DataSet_Details.html', {"excel_data": excel_data})
```

```
def Register1(request):
```

```
 if request.method == "POST":
 username = request.POST.get('username')
 email = request.POST.get('email')
 password = request.POST.get('password')
 phoneno = request.POST.get('phoneno')
 country = request.POST.get('country')
 state = request.POST.get('state')
 city = request.POST.get('city')
 ClientRegister_Model.objects.create(username=username, email=email,
 password=password, phoneno=phoneno,
 country=country, state=state, city=city)

 return render(request, 'RUser/Register1.html')
 else:

 return render(request, 'RUser/Register1.html')
```

```
def ViewYourProfile(request):
```

```
 userid = request.session['userid']
 obj = ClientRegister_Model.objects.get(id= userid)
 return render(request, 'RUser/ViewYourProfile.html', {'object':obj})
```

```
def Search_Heart_Disease(request):
```



## HDPM: An Effective Heart Disease Predict Model

---

```
if request.method == "POST":
 keyword = request.POST.get('keyword')
 obj = heart_disease_model.objects.all().filter(Q(chest_pain_contains=keyword) |
Q(names_contains=keyword) | Q(
 resting_electro_cardiographic_contains=keyword) |
Q(exercise_induced_angina_contains=keyword) | Q(
 depression_induced_by_exercise_contains=keyword) | Q(fluoroscopy__contains=keyword) |
Q(
 thallium_scan_contains=keyword))
 return render(request, 'RUser/Search_Heart_Disease.html',{'objs': obj})
return render(request, 'RUser/Search_Heart_Disease.html')

def ratings(request,pk):
 vott1, vott, neg = 0, 0, 0
 objs = heart_disease_model.objects.get(id=pk)
 unid = objs.id
 vot_count = heart_disease_model.objects.all().filter(id=unid)
 for t in vot_count:
 vott = t.ratings
 vott1 = vott + 1
 obj = get_object_or_404(heart_disease_model, id=unid)
 obj.ratings = vott1
 obj.save(update_fields=["ratings"])
 return redirect('Add_DataSet_Details')

 return render(request,'RUser/ratings.html',{'objs':vott1 })
```

### **Views.py**

```
from django.db.models import Count, Avg
from django.shortcuts import render, redirect
from django.db.models import Count
from django.db.models import Q
import datetime

Create your views here.
from Remote_User.models import
heart_disease_model,ClientRegister_Model,review_Model,recommend_Model

def serviceproviderlogin(request):
 if request.method == "POST":
 admin = request.POST.get('username')
 password = request.POST.get('password')
```

```
if admin == "SProvider" and password == "SProvider":
 return redirect('View_Remote_Users')

return render(request, 'SProvider/serviceproviderlogin.html')

def viewtreandingquestions(request, chart_type):
 dd = {}
 pos, neu, neg = 0, 0, 0
 poss = None
 topic =
heart_disease_model.objects.values('ratings').annotate(dcount=Count('ratings')).order_by('-
dcount')
 for t in topic:
 topics = t['ratings']

pos_count = heart_disease_model.objects.filter(topics=topics).values('names').annotate(topiccount
=Count('ratings'))
 poss = pos_count
 for pp in pos_count:
 senti = pp['names']
 if senti == 'positive':
 pos = pp['topiccount']
 elif senti == 'negative':
 neg = pp['topiccount']
 elif senti == 'nutral':
 neu = pp['topiccount']
 dd[topics] = [pos, neg, neu]
 return
render(request, 'SProvider/viewtreandingquestions.html', {'object': topic, 'dd': dd, 'chart_type': chart_t
ype})

def Search_HeartDisease(request): # Search
 if request.method == "POST":
 kword = request.POST.get('keyword')
 obj = heart_disease_model.objects.all().filter(Q(chest_pain_contains=kword) |
Q(names_contains=kword) | Q(resting_electro_cardiographic_contains=kword)|
Q(exercise_induced_angina_contains=kword)|
Q(depression_induced_by_exercise_contains=kword)| Q(fluoroscopy_contains=kword)|
Q(thallium_scan_contains=kword))
 return render(request, 'SProvider/Search_HeartDisease.html', {'objs': obj})
 return render(request, 'SProvider/Search_HeartDisease.html')
def Diagnose_Heart_Disease(request): # Search
```

## HDPM: An Effective Heart Disease Predict Model

---

```
cholesterol=200
hrate_high=100
hrate_low=60
sugar=100
```

```
obj = heart_disease_model.objects.all().filter(Q(resting_bp__gt=bp)|
Q(serum_cholesterol__gt=cholesterol)|Q(max_heart_rate__gt=hrate_high)|Q(max_heart_rate__lt
=hrate_low) | Q(fasting_blood_sugar__gt=sugar))
return render(request, 'SProvider/Diagnose_Heart_Disease.html', {'objs': obj})
```

```
def Normal_Users(request): # Positive
```

```
 bp = 140
 cholesterol = 200
 hrate_high = 100
 hrate_low = 60
 sugar = 100
 obj = heart_disease_model.objects.all().filter(
 Q(resting_bp__lt=bp),
 Q(serum_cholesterol__lt=cholesterol),Q(max_heart_rate__lt=hrate_high),Q(max_heart_rate__gt=
hrate_low),Q(fasting_blood_sugar__lt=sugar))
 return render(request, 'SProvider/Normal_Users.html', {'objs': obj})
```

```
def Abnormal_Users(request):
```

```
 keyword='Abnormal'
 obj = heart_disease_model.objects.all().filter(
 Q(chest_pain_contains=keyword) | Q(resting_electro_cardiographic_contains=keyword)|
 Q(exercise_induced_angina_contains=keyword)|Q(depression_induced_by_exercise_contains=k
word),Q(
 fluoroscopy_contains=keyword), Q(thallium_scan_contains=keyword))
 return render(request, 'SProvider/Abnormal_Users.html', {'objs': obj})
```

```
def View_Remote_Users(request):
```

```
 obj=ClientRegister_Model.objects.all()
 return render(request,'SProvider/View_Remote_Users.html',{'objects':obj})
```

```
def ViewTrendings(request):
```

```
 topic =
heart_disease_model.objects.values('topics').annotate(dcount=Count('topics')).order_by('-
dcount')
 return render(request,'SProvider/ViewTrendings.html',{'objects':topic})
```

```
def negativechart(request,chart_type):
```

```
 dd = {}
```

## HDPM: An Effective Heart Disease Predict Model

---

```
pos, neu, neg = 0, 0, 0
poss = None
topic =
heart_disease_model.objects.values('ratings').annotate(dcount=Count('ratings')).order_by('-
dcount')
for t in topic:
 topics = t['ratings']
 pos_count =
heart_disease_model.objects.filter(topics=topics).values('names').annotate(topiccount=Count('rat
ings'))
 poss = pos_count
 for pp in pos_count:
 senti = pp['names']
 if senti == 'positive':
 pos = pp['topiccount']
 elif senti == 'negative':
 neg = pp['topiccount']
 elif senti == 'neutral':
 neu = pp['topiccount']
 dd[topics] = [pos, neg, neu]
 return
render(request, 'SProvider/negativechart.html', {'object':topic, 'dd':dd, 'chart_type':chart_type})
```

```
def charts(request, chart_type):
 chart1 =
heart_disease_model.objects.values('names').annotate(dcount=Avg('serum_cholesterol'))
 return render(request, "SProvider/charts.html", {'form':chart1, 'chart_type':chart_type})
```

```
def View_HeartDiseaseDataSets_Details(request):
 obj = heart_disease_model.objects.all()
 return render(request, 'SProvider/View_HeartDiseaseDataSets_Details.html', {'list_objects':
obj})
```

```
def likeschart(request, like_chart):
 charts = heart_disease_model.objects.values('names').annotate(dcount=Avg('max_heart_rate'))
 return render(request, "SProvider/likeschart.html", {'form':charts, 'like_chart':like_chart})
```

### **Design.php**

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="UTF-8">
```

```
<title>Remote User</title>
```

```
<link href="https://fonts.googleapis.com/css?family=Russo+One" rel="stylesheet">
```

```
<style>
```

```
body{
```

# HDPM: An Effective Heart Disease Predict Model

---

```
 background-size:cover;
 font-family: 'Russo One', sans-serif;
 background-color: #000000;
 }
 h1{
 color:white;
 }
.topnav {
 overflow: hidden;
 background-color: #812;
}

.topnav a {
 float: left;
 color: #FFFFFF;
 text-align: center;
 padding: 14px 16px;
 text-decoration: none;
 font-size: 17px;
}

.topnav a:hover {
 background-color: #ddd;
 color: black;
}

.topnav a.active {
 background-color: #8e4fd1;
 color: white;
}
.style1 {color: #FF0000}
</style>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8"></head>
<body>

<h1 class="style1">HDPM: An Effective Heart Disease Prediction Model for a Clinical
Decision Support System</h1>

<div class="topnav">
 ADD HEART DISEASE DATA
SETS
 SEARCH ON HEART DISEASE
DETAILS

 VIEW YOUR PROFILE
```

## HDPM: An Effective Heart Disease Predict Model

---

```
LOGOUT
```

```
</div>
```

```
<div class="mainholder">
```

```
{% block userblock % }
```

```
{% endblock % }
```

```
</div>
```

```
</body>
```

```
</html>
```

### **Login.py**

```
<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css" rel="stylesheet" id="bootstrap-css">
```

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
 <title>Login</title>
```

```
 <meta charset="utf-8">
```

```
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-
```

# HDPM: An Effective Heart Disease Predict Model

```
fit=no">

 <head>

<link rel="icon" href="images/icon.png" type="image/x-icon" />

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

 <style>
 body {
 }
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{font-family: 'Fredoka One', cursive;
}

 .text-uppercase{
font-family: 'Righteous', cursive;

 }
 .style1 {color: #FF0000}
 .style4 {color: #FF0000; font-weight: bold; }
</style>
</head>
<body>
<div class="container-fluid">
 <div class="container">
 <h2 class="style1 text-center" id="title">HDPM: An Effective
Heart Disease Prediction Model for a Clinical Decision Support System
</h2>

 <p class="text-center">
 <small id="passwordHelpInline"
class="text-muted">Heart disease, disease prediction model, clinical decision support system,
outlier data,
imbalanced data, machine learning..
</small> </p>
 <hr>
 <div class="row">
 <div class="col-md-5">
 <form role="form" method="POST" >
 { % csrf_token % }
 </form>
 </div>
 </div>
 </div>
</div>
</body>
</html>
```

# HDPM: An Effective Heart Disease Predict Model

```
center"> </p>
 <p class="text-uppercase" style="text-align: center;">
 </p>
 </div>
</div>
<div class="col-md-2">
 <!-- null -->
</div>
<div class="col-md-5">
 <form method="POST" role="form">
 {% csrf_token %}
 <fieldset>
 <p class="text-uppercase"> Login Using
Your Account: </p>
 <div class="form-group">
 <input type="text"
name="username" class="form-control input-lg" placeholder="User Name" required>
 </div>
 <div class="form-group">
 <input type="password"
name="password" class="form-control input-lg" placeholder="Password" required>
 </div>
 <div>
 <input type="submit"
name="submit1" class="btn btn-md" value="sign_in">
 </div></br>
 <p class="text-uppercase"> Login Using
Your Account: </p>
 <div>
 <button class="btn btn-lg "><a href="{% url
'serviceproviderlogin' %}">SERVICE PROVIDER</button>
 <button class="btn btn-lg "><a href="{% url 'Register1'
%}">REGISTER</button>
 </div>
 </fieldset>
 </div>
</form>
```



```
</div>

</div>
</body>

</html>
Search heart desiase.py
{% extends 'RUser/design.html' %}
{% block userblock %}

<link rel="icon" href="images/icon.png" type="image/x-icon" />

<link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

<style>
body {background-color:#000000;}
.container-fluid {padding:50px;}
.container{background-color:white;padding:50px; }
#title{font-family: 'Fredoka One', cursive;
}

.text-uppercase{
font-family: 'Righteous', cursive;

}
.tweettext{

border: 2px solid yellowgreen;
width: 1104px;
height: 442px;
overflow: scroll;

background-color:;
}

.style1 {
color: #FF0000;
font-weight: bold;
}
}
```

# HDPM: An Effective Heart Disease Predict Model

---

```
.style2 {color: #FFFF00}
.style3 {color: #FFFFFF}
</style>

<body>
<div class="container-fluid">
 <div class="container">

 <div class="row">
 <div class="col-md-5">

 <form role="form" method="POST" >
 {% csrf_token %}
 <fieldset>
 <p class="text-uppercase pull-center
style1">SEARCH HEART DISEASE DETAILS(Enter name or Keyword as Abnormal)!!! </p>
 <hr>

 {% csrf_token %}
 <table width="568" align="center">
 <tr>
 <td width="287" height="44" bgcolor="#FF0000"><div
align="center">Enter Username Name or Keyword Here
</div></td>
 <td width="269"><input type="text" name="keyword" ></td>
 </tr>
 <tr>
 <td><p> </p>
 <p>
 <input name="submit" type="submit" class="style1" value="Search">
 </p></td>
 </tr>
 </table>

 </fieldset>

 </form>
```

## HDPM: An Effective Heart Disease Predict Model

```
<table border="5" bordercolor="#FF00FF">
 <tr><td bgcolor="#FF0000">Patient Name</td>
 <td bgcolor="#FF0000">Age</td>
 <td bgcolor="#FF0000">Sex</td>

 <td bgcolor="#FF0000">Chest Pain</td>
 <td bgcolor="#FF0000">Resting Blood
Pressure()</td>
 <td bgcolor="#FF0000">Cholesterol</td>
 <td bgcolor="#FF0000">Fasting Blood
Sugar</td>
 <td bgcolor="#FF0000">Resting Electro
Cardiographic</td>
 <td bgcolor="#FF0000">Max Heart Rate</td>
 <td bgcolor="#FF0000">Exercise Induced
Angina</td>
 <td bgcolor="#FF0000">Depression Induced by
Exercise</td>
 <td bgcolor="#FF0000">Fluoroscopy</td>
 <td bgcolor="#FF0000">Thallium Scan</td>

</tr>

 { % for object in objs % }
 <tr>
 <td style="color:red; font-size:20px; font-family:fantasy" ><div
align="center">{{ object.names }}</div></td>
 <td style="font-family:monospace; font-size:19px; "><div
align="center">{{ object.age }}</div></td>
 <td style="font-family:monospace; font-size:19px; "><div
align="center">{{ object.sex }}</div></td>
 <td style="font-family:monospace; font-size:19px; "><div
align="center">{{ object.chest_pain }}</div></td>
 <td bgcolor="#FF0000" style="font-family:monospace; font-size:19px; "><div
align="center" class="style2">{{ object.resting_bp }} mmHg</div></td>
 <td bgcolor="#FF0000" style="font-family:monospace; font-size:19px;
"><div align="center" class="style2">{{ object.serum_cholesterol }} mg/dl</div></td>
 <td bgcolor="#0000FF" style="font-family:monospace; font-size:19px;
"><div align="center" class="style3">{{ object.fasting_blood_sugar }} mg/dl</div></td>
 <td style="font-family:monospace; font-size:19px; "><div
align="center">{{ object.resting_electro_cardiographic }}</div></td>
 <td bgcolor="#FF0000" style="font-family:monospace; font-size:19px; "><div
align="center" class="style2">{{ object.max_heart_rate }} beats</div></td>
 <td bgcolor="#FFFFFF" style="font-family:monospace; font-size:19px;
"><div align="center">{{ object.exercise_induced_angina }}</div></td>
 <td style="font-family:monospace; font-size:19px; "><div
```

## HDPM: An Effective Heart Disease Predict Model

---

```
align="center">{{ object.depression_induced_by_exercise }}</div></td>
 <td style="font-family:monospace; font-size:19px; "><div
align="center">{{ object.fluoroscopy }}</div></td>
 <td style="font-family:monospace; font-size:19px; "><div

align="center">{{ object.thallium_scan }}</div></td>
 </tr>

 {% endfor %}
 </table>
 </div>

 <div class="col-md-2">
 <!....._null.....>
 </div>
</div>
</div>
</div>
{% endblock %}
</tr>
View your profile.py
```

## HDPM: An Effective Heart Disease Predict Model

```
{% extends 'RUser/design.html' % }
{% block userblock % }

<link rel="icon" href="images/icon.png" type="image/x-icon" />

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

 <style>
 body { background-color:#000000;}
 .container-fluid { padding:50px;}
 .container{ background-color:white;padding:50px; }
 #title{ font-family: 'Fredoka One', cursive;
 }

 .text-uppercase{
 font-family: 'Righteous', cursive;

 }
 .style1 {
 color: #FF0000;
 font-weight: bold;
 }
</style>

 <body>
 <div class="container-fluid">

 <div class="container">

 <div class="row">
 <div class="col-md-5">
 <form role="form" method="POST" >
 {% csrf_token % }
 <fieldset>
 <p class="text-uppercase pull-center
style1">YOUR PROFILE DETAILS !!! </p>
 <hr>
 <div class="form-group">
 <P>USER NAME =
{{ object.username }}</P>
 </div>
```

## HDPM: An Effective Heart Disease Predict Model

---

```
 <div class="form-group">
 <P>EMAIL = {{ object.email }}</P>
 </div>
```

```
 <div class="form-group">
 <P>PASSWORD = {{ object.password }}</P>
 </div>
```

```
 <div class="form-group">
 <p>MOBILE NO = {{ object.phoneno }}</p>
 </div>
```

```
 <div class="form-group">
 <p>COUNTRY = {{ object.country }}</p>
 </div>
```

```
 <div class="form-group">
 <p>STATE = {{ object.state }}</p>
 </div>
```

```
 <div class="form-group">
 <p>CITY = {{ object.city }}</p>
 </div>
```

```
 </fieldset>
 </form>
</div>

<div class="col-md-2">
 <!.null.>
</div>
```

```
</div>
</div>
</div>
{% endblock % }
Manage.py
#!/usr/bin/env python
"""Django's command-line utility for administrative tasks."""
import os
import sys
```

```
def main():
 """Run administrative tasks."""
 os.environ.setdefault('DJANGO_SETTINGS_MODULE',
 'effective_heart_disease_prediction.settings')
 try:
 from django.core.management import execute_from_command_line
 except ImportError as exc:
 raise ImportError(
 "Couldn't import Django. Are you sure it's installed and "
 "available on your PYTHONPATH environment variable? Did you "
 "forget to activate a virtual environment?"
) from exc
 execute_from_command_line(sys.argv)

if __name__ == '__main__':
 main()
```

### **io.py**

"""The io module provides the Python interfaces to stream handling. The builtin open function is defined in this module.

At the top of the I/O hierarchy is the abstract base class IOBase. It defines the basic interface to a stream. Note, however, that there is no

separation between reading and writing to streams; implementations are allowed to raise an OSError if they do not support a given operation.

Extending IOBase is RawIOBase which deals simply with the reading and writing of raw bytes to a stream. FileIO subclasses RawIOBase to provide an interface to OS files.

BufferedIOBase deals with buffering on a raw byte stream (RawIOBase). Its subclasses, BufferedWriter, BufferedReader, and BufferedRWPair buffer streams that are readable, writable, and both respectively. BufferedRandom provides a buffered interface to random access streams. BytesIO is a simple stream of in-memory bytes.

Another IOBase subclass, TextIOBase, deals with the encoding and decoding of streams into text. TextIOWrapper, which extends it, is a buffered text interface to a buffered raw stream (BufferedIOBase). Finally, StringIO is an in-memory stream for text.

Argument names are not part of the specification, and only the arguments of open() are intended to be used as keyword arguments.

data:

```
DEFAULT_BUFFER_SIZE
```

```
An int containing the default buffer size used by the module's buffered
I/O classes. open() uses the file's blksize (as obtained by os.stat) if
possible.
```

```
"""
```

```
New I/O library conforming to PEP 3116.
```

```
__author__ = ("Guido van Rossum <guido@python.org>, "
 "Mike Verdone <mike.verdone@gmail.com>, "
 "Mark Russell <mark.russell@zen.co.uk>, "
 "Antoine Pitrou <solipsis@pitrou.net>, "
 "Amaury Forgeot d'Arc <amauryfa@gmail.com>, "
 "Benjamin Peterson <benjamin@python.org>")
```

```
__all__ = ["BlockingIOError", "open", "IOBase", "RawIOBase", "FileIO",
 "BytesIO", "StringIO", "BufferedIOBase",
 "BufferedReader", "BufferedWriter", "BufferedRWPair",
 "BufferedRandom", "TextIOBase", "TextIOWrapper",
 "UnsupportedOperation", "SEEK_SET", "SEEK_CUR", "SEEK_END"]
```

```
import _io
```

```
import abc
```

```
from _io import (DEFAULT_BUFFER_SIZE, BlockingIOError, UnsupportedOperation,
 open, FileIO, BytesIO, StringIO, BufferedReader,
 BufferedWriter, BufferedRWPair, BufferedRandom,
 IncrementalNewlineDecoder, TextIOWrapper)
```

```
OpenWrapper = _io.open # for compatibility with _pyio
```

```
Pretend this exception was created here.
UnsupportedOperation.__module__ = "io"
```

```
for seek()
SEEK_SET = 0
SEEK_CUR = 1
SEEK_END = 2
```

```
Declaring ABCs in C is tricky so we do it here.
```



## HDPM: An Effective Heart Disease Predict Model

---

```
Method descriptions and default implementations are inherited from the C
version however.
```

```
class IOBase(_io._IOBase, metaclass=abc.ABCMeta):
 __doc__ = _io._IOBase.__doc__
```

```
class RawIOBase(_io._RawIOBase, IOBase):
 __doc__ = _io._RawIOBase.__doc__
```

```
class BufferedIOBase(_io._BufferedIOBase, IOBase):
 __doc__ = _io._BufferedIOBase.__doc__
```

```
class TextIOBase(_io._TextIOBase, IOBase):
 __doc__ = _io._TextIOBase.__doc__
```

```
RawIOBase.register(FileIO)
```

```
for klass in (BytesIO, BufferedReader, BufferedWriter, BufferedRandom,
 BufferedRWPair):
 BufferedIOBase.register(klass)
```

```
for klass in (StringIO, TextIOWrapper):
 TextIOBase.register(klass)
del klass
```

```
try:
 from _io import _WindowsConsoleIO
except ImportError:
 pass
```

```
else:
 RawIOBase.register(_WindowsConsoleIO)
```

```
Keyword.py
```

```
#!/usr/bin/env python3
```

```
"""Keywords (from "graminit.c")
```

```
This file is automatically generated; please don't muck it up!
```

```
To update the symbols in this file, 'cd' to the top directory of
the python source tree after building the interpreter and run:
```

```
./python Lib/keyword.py
"""
```

```
__all__ = ["iskeyword", "kwlist"]
```

```
kwlist = [
```

```
!--start keywords--
'False',
'None',
'True',
'and',
'as',
'assert',
'async',
'await',
'break',
'class',
'continue',
'def',
'del',
'elif',
'else',
'except',
'finally',
'for',
'from',
'global',
'if',
'import',
'in',
'is',
'lambda',
'nonlocal',
'not',

'or',
'pass',
'raise',
'return',
'try',
'while',
'with',
'yield',
!--end keywords--
]

iskeyword = frozenset(kwlist).__contains__

def main():
 import sys, re

 args = sys.argv[1:]
 iptfile = args and args[0] or "Python/graminit.c"
```

## HDPM: An Effective Heart Disease Predict Model

---

```
if len(args) > 1: optfile = args[1]
else: optfile = "Lib/keyword.py"

load the output skeleton from the target, taking care to preserve its
newline convention.
with open(optfile, newline='') as fp:
 format = fp.readlines()
 nl = format[0][len(format[0].strip()):] if format else '\n'

scan the source file for keywords
with open(iptfile) as fp:
 strprog = re.compile("[^"]+")
 lines = []
 for line in fp:
 if '{1, "' in line:
 match = strprog.search(line)
 if match:
 lines.append(" " + match.group(1) + "," + nl)
 lines.sort()

insert the lines of keywords into the skeleton
try:
 start = format.index("#--start keywords--" + nl) + 1
 end = format.index("#--end keywords--" + nl)
 format[start:end] = lines
except ValueError:
 sys.stderr.write("target does not contain format markers\n")
 sys.exit(1)

write the output file
with open(optfile, 'w', newline='') as fp:
 fp.writelines(format)

if __name__ == "__main__":
 main()
```

## 10. SYSTEM TESTING

### SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

#### 10.1 TYPES OF TESTING

##### Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

##### Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

##### Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

### **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software

under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works

### 10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

#### Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

#### Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

#### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

#### Acceptance Testing

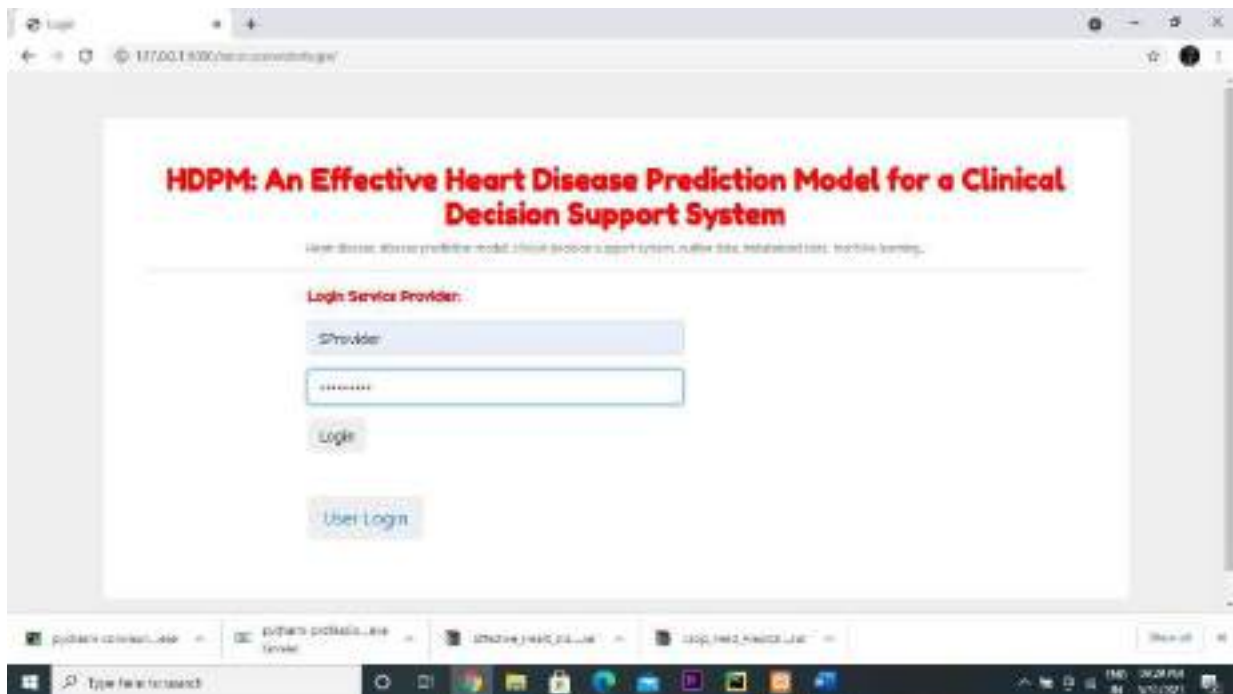
User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## 11.OUTPUT SCREENS

### SCREEN:1 Service Provider Login

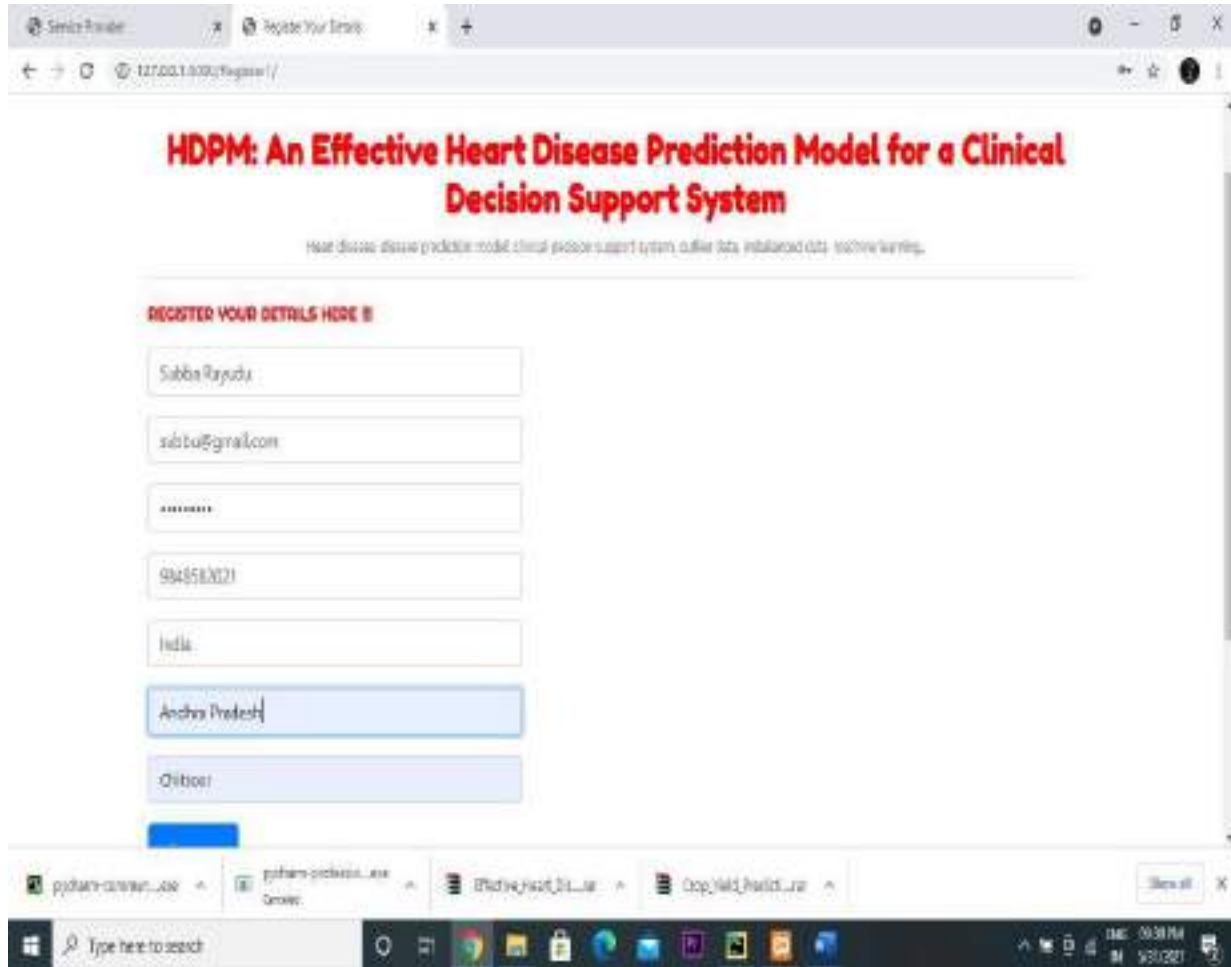
The below interface represents service provider login



# HDPM: An Effective Heart Disease Predict Model

## SCREEN:2 User registration

The below interface represents a User registration



The screenshot displays a web browser window with the following content:

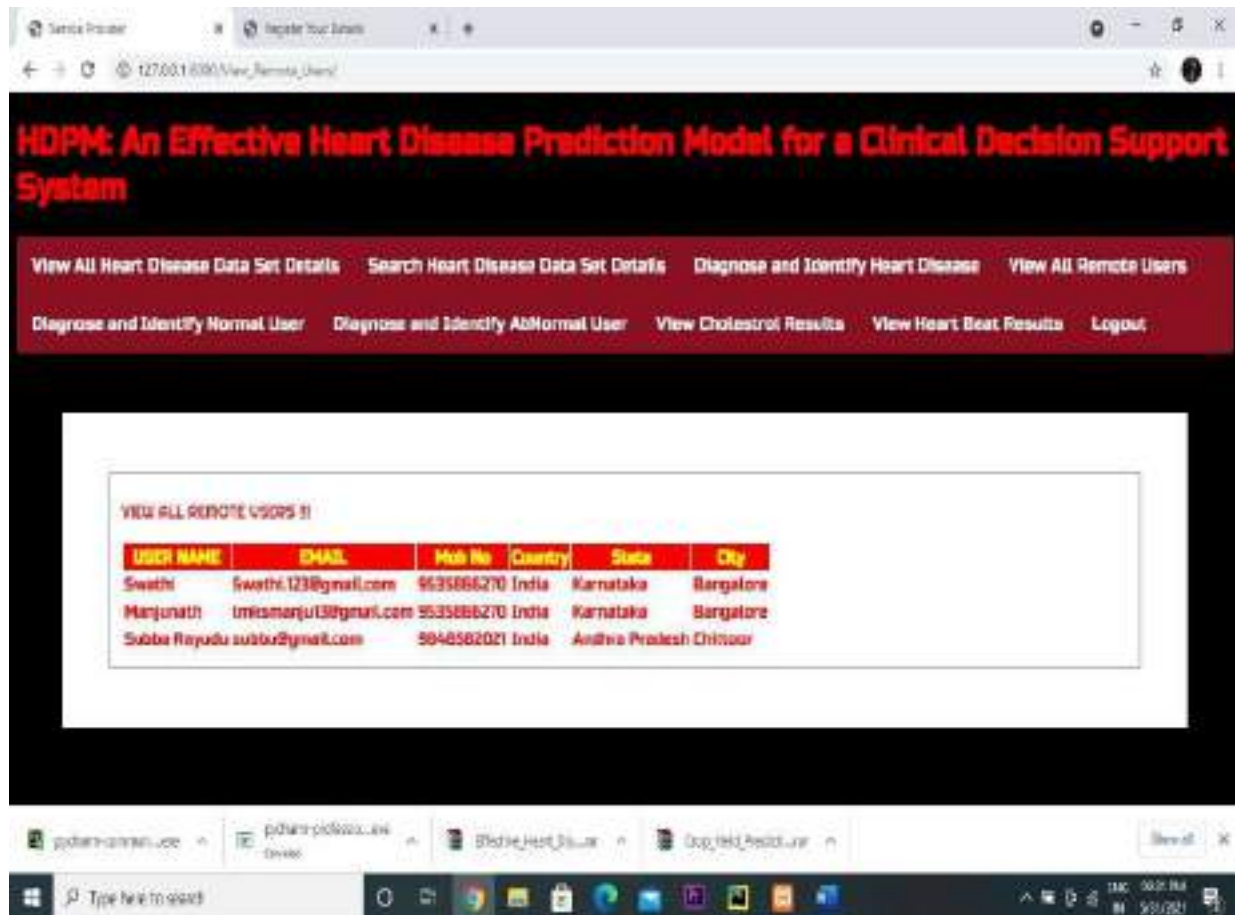
- Browser Tabs:** "Senior Project" and "Register Your Details".
- Address Bar:** "127.0.0.1:8080/register/"
- Page Title:** "HDPM: An Effective Heart Disease Prediction Model for a Clinical Decision Support System"
- Page Content:**
  - Header: "HDPM: An Effective Heart Disease Prediction Model for a Clinical Decision Support System" in red text.
  - Sub-header: "Heart disease disease prediction model clinical decision support system online data installation (dta) software/verlog."
  - Section: "REGISTER YOUR DETAILS HERE !!"
  - Form fields:
    - Name: "Subbu Rayudu"
    - Email: "subbu@gmail.com"
    - Password: "\*\*\*\*\*"
    - Phone: "9948582021"
    - State: "India"
    - Address: "Anchar Pradesh"
    - City: "Chennai"
  - Submit button: A blue button at the bottom of the form.



# HDPM: An Effective Heart Disease Predict Model

## SCREEN:3 View all Remote Users In Service Provider

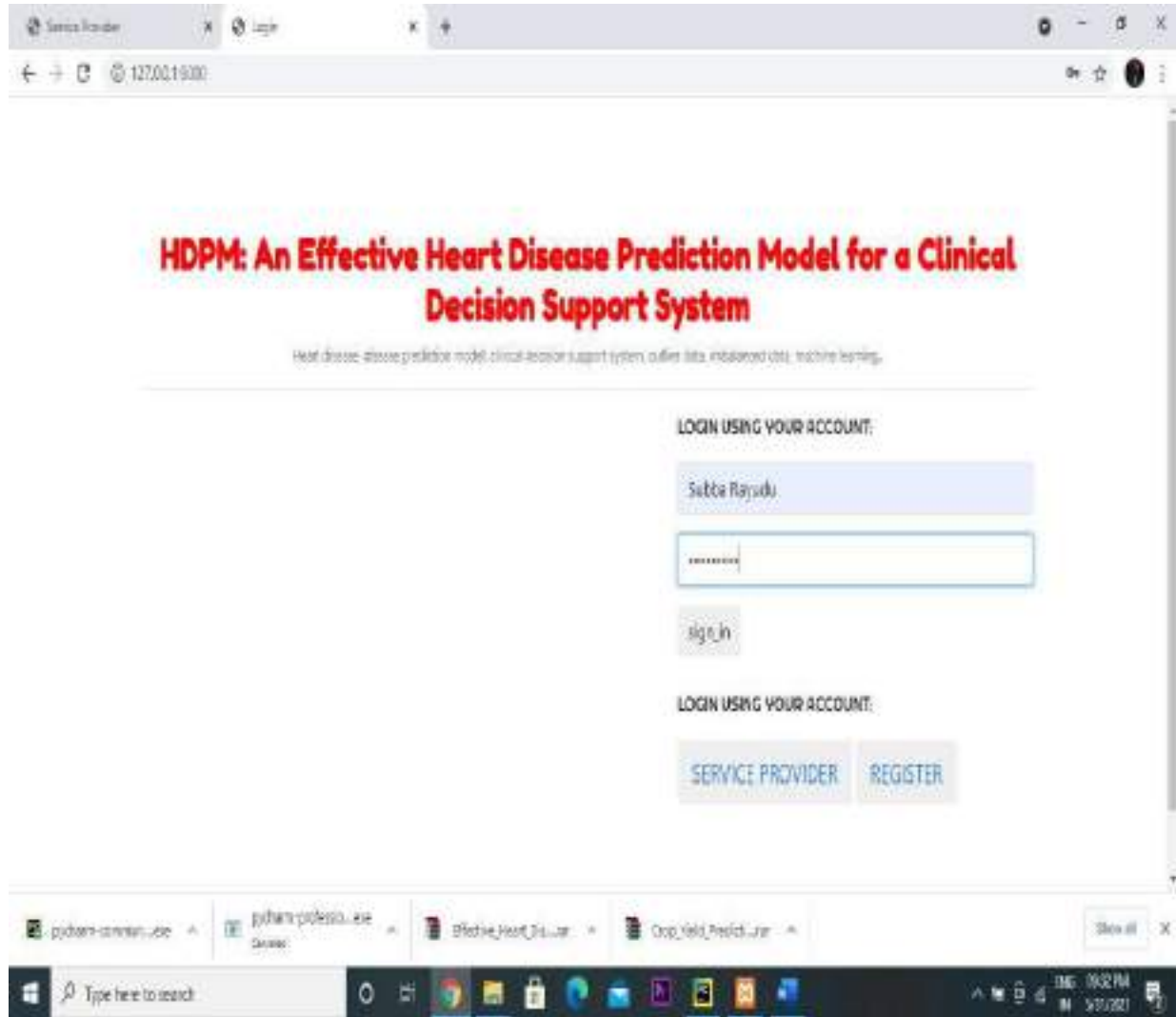
The below interface represents a view all remote users in service provider



# HDPM: An Effective Heart Disease Predict Model

## SCREEN:4 Remote User login

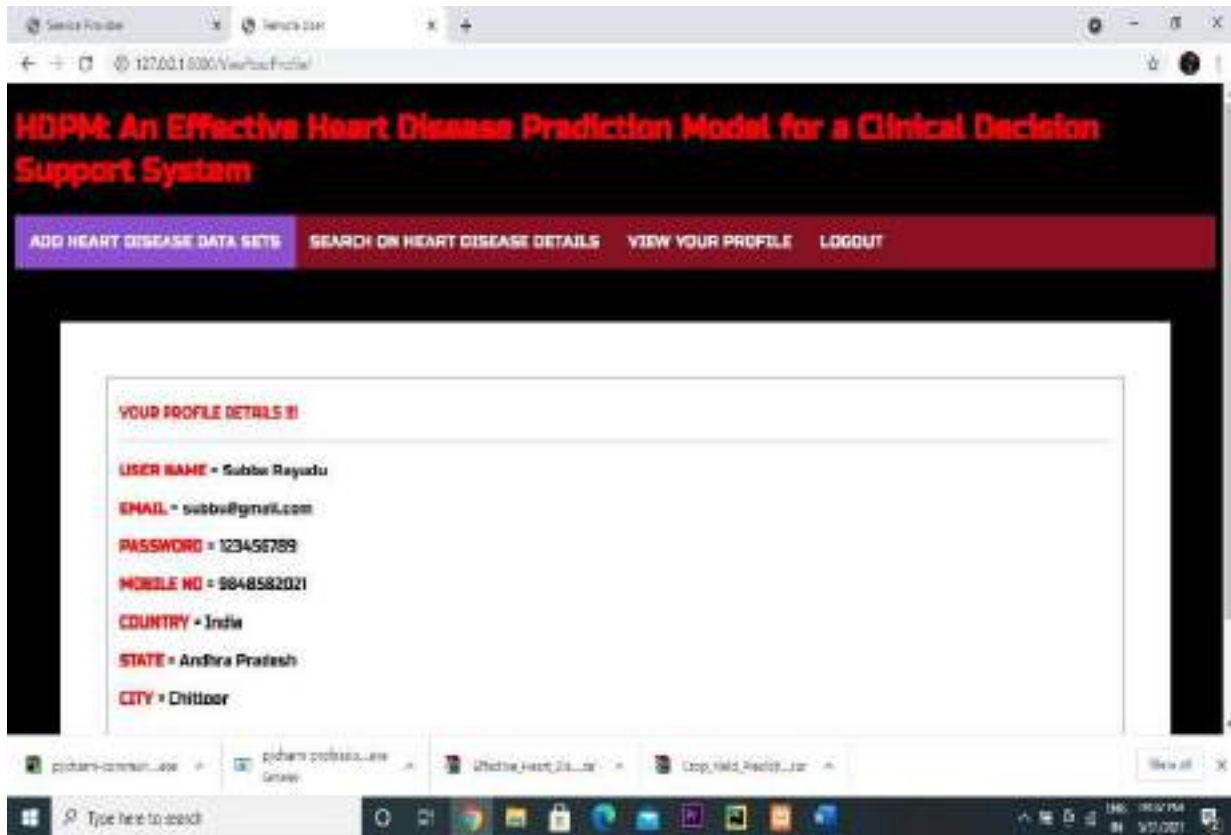
The below interface represents a remote user login



# HDPM: An Effective Heart Disease Predict Model

## SCREEN:5 Remote User Profile Details

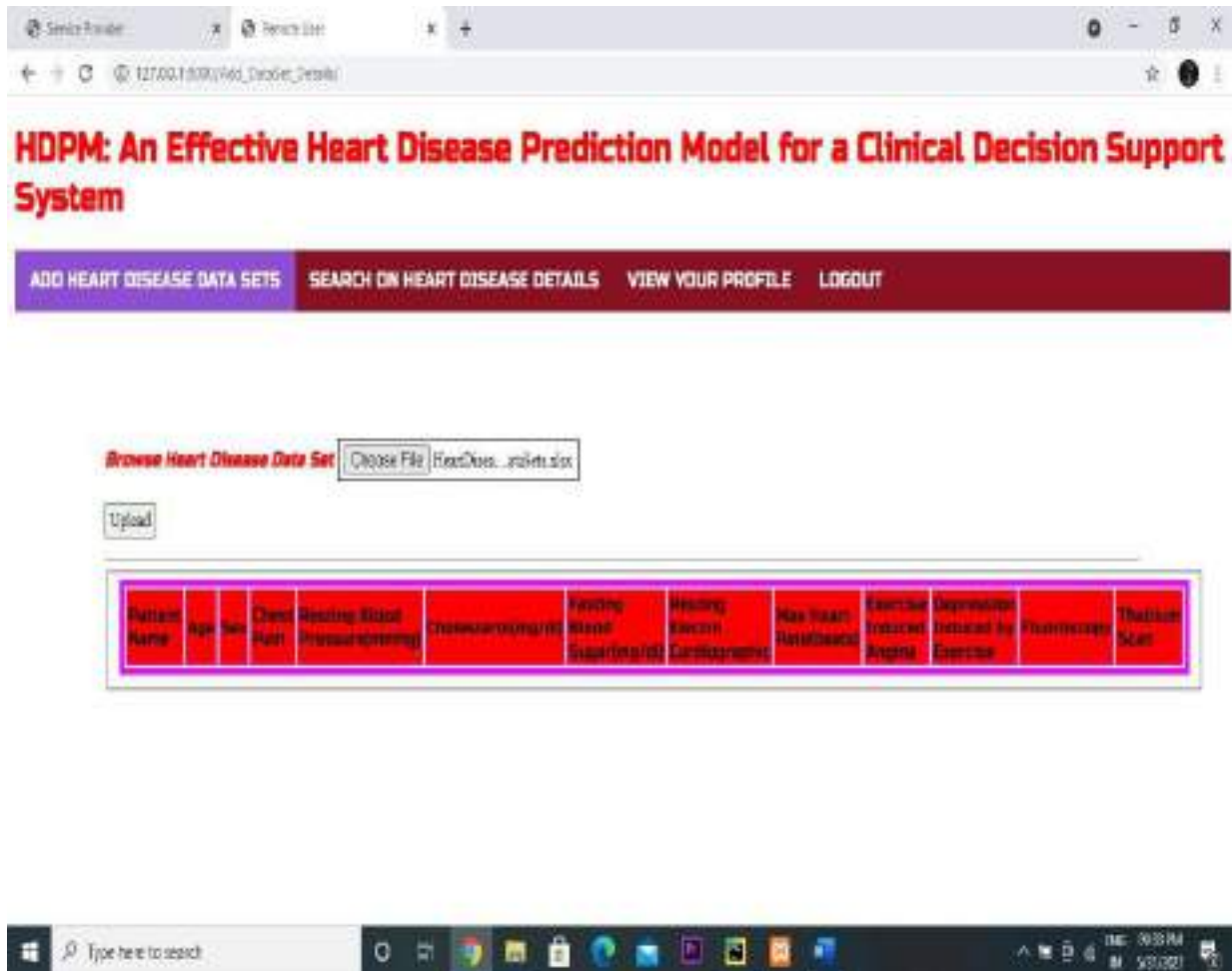
The below interface represents a remote user profile details



# HDPM: An Effective Heart Disease Predict Model

## SCREEN:6 Upload Heart Disease Data Set

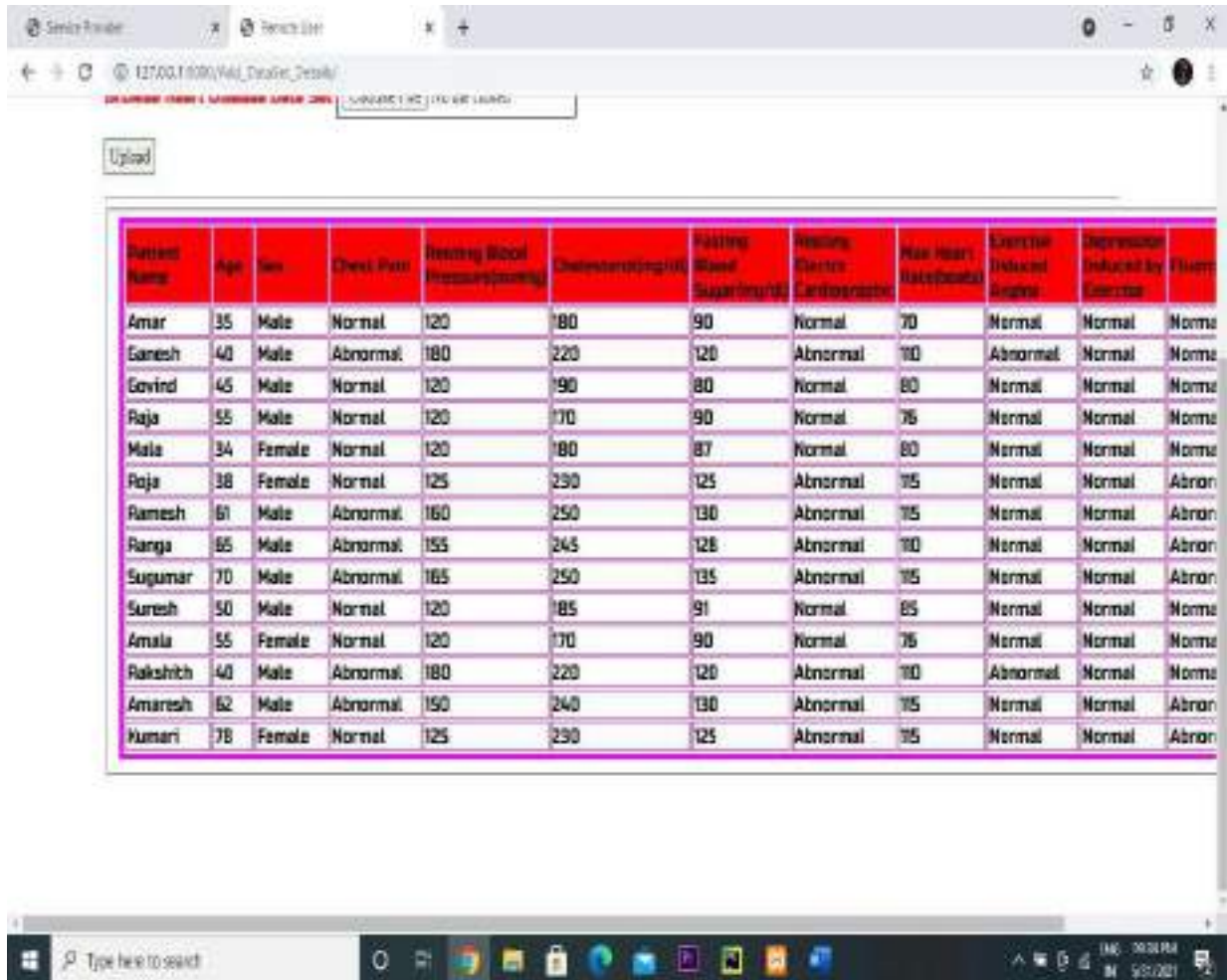
The below interface represents a upload heart disease data set



# HDPM: An Effective Heart Disease Predict Model

## SCREEN:7 Heart Disease Data set Details

The below interface represents a heart disease data set details



Patient Name	Age	Sex	Chest Pain	Resting Blood Pressure (mmHg)	Cholesterol (mg/dl)	Fasting Blood Sugar (mg/dl)	Resting Electrocardiographic	Max Heart Rate (bats)	Exercise Induced Angina	ST depression Induced by Exercise	Thromb
Amar	35	Male	Normal	120	180	90	Normal	70	Normal	Normal	Normal
Ganesh	40	Male	Abnormal	180	220	120	Abnormal	100	Abnormal	Normal	Normal
Govind	45	Male	Normal	120	190	80	Normal	80	Normal	Normal	Normal
Raja	55	Male	Normal	120	170	90	Normal	75	Normal	Normal	Normal
Mala	34	Female	Normal	120	180	87	Normal	80	Normal	Normal	Normal
Poja	38	Female	Normal	125	230	125	Abnormal	75	Normal	Normal	Abnormal
Ramesh	61	Male	Abnormal	160	250	130	Abnormal	75	Normal	Normal	Abnormal
Ranga	65	Male	Abnormal	155	245	128	Abnormal	100	Normal	Normal	Abnormal
Sugumar	70	Male	Abnormal	165	250	135	Abnormal	75	Normal	Normal	Abnormal
Suresh	50	Male	Normal	120	185	91	Normal	85	Normal	Normal	Normal
Amala	55	Female	Normal	120	170	90	Normal	75	Normal	Normal	Normal
Rakshith	40	Male	Abnormal	180	220	120	Abnormal	100	Abnormal	Normal	Normal
Amares	62	Male	Abnormal	150	240	130	Abnormal	75	Normal	Normal	Abnormal
Humari	78	Female	Normal	125	230	125	Abnormal	75	Normal	Normal	Abnormal



# HDPM: An Effective Heart Disease Predict Model

## SCREEN:8 View All Normal And Heart Disease Data set Details

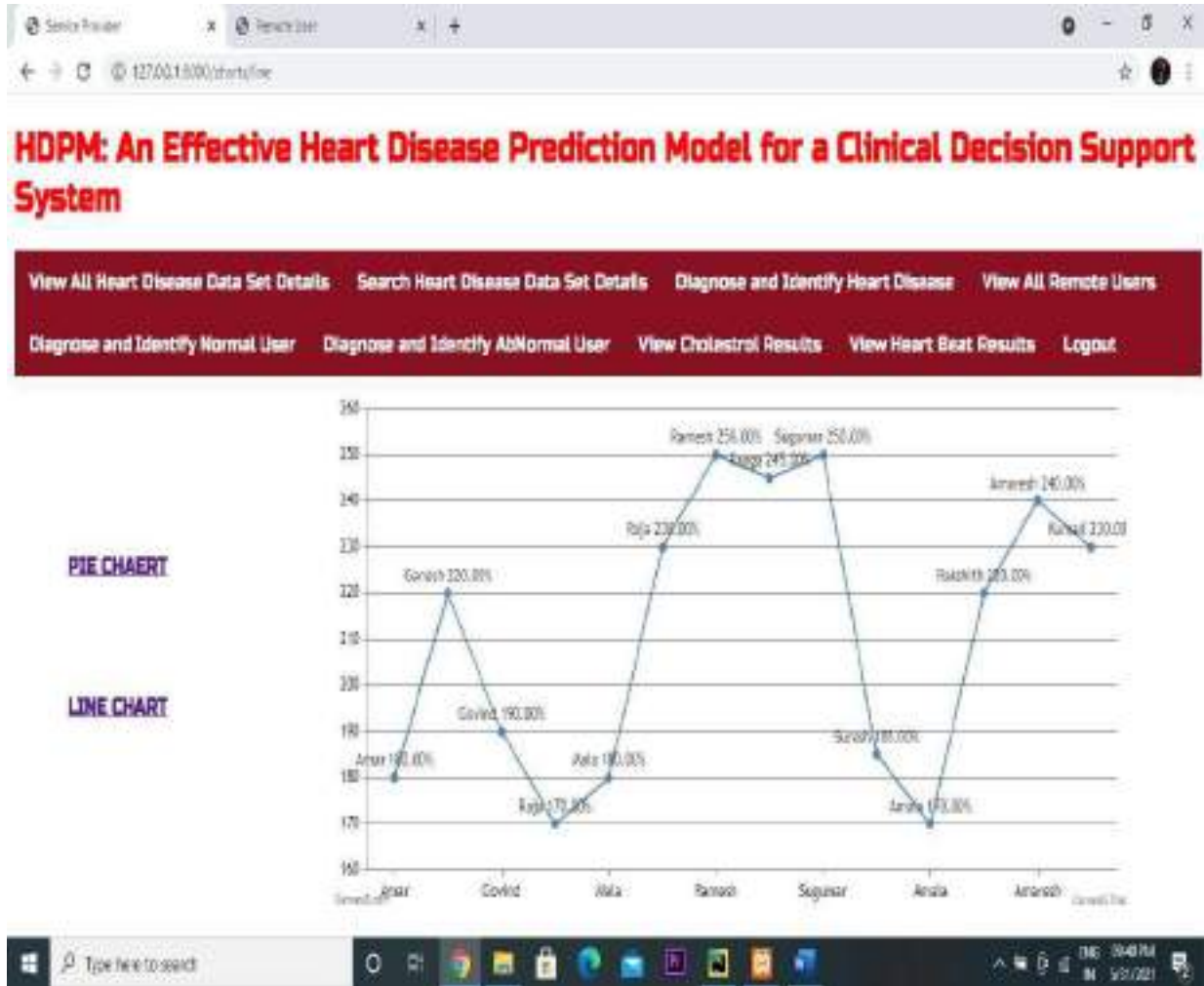
The below interface represents a view all normal and heart disease data set details

Patient Name	Age	Sex	Chest Pain	Resting Blood Pressure	Cholesterol	Fasting Blood Sugar	Resting Electrocardiographic	Max Heart Rate	Exercise Induced Angina	Depression Induced by Exercise	Fluoroscopy	Thallium Scan
Amar	35	Male	Normal	120mmHg	120mg/dl	90mg/dl	Normal	70beats	Normal	Normal	Normal	Normal
Garvish	40	Male	Abnormal	180mmHg	220mg/dl	120mg/dl	Abnormal	110beats	Normal	Normal	Normal	Normal
Govind	45	Male	Normal	120mmHg	130mg/dl	80mg/dl	Normal	80beats	Normal	Normal	Normal	Normal
Raja	55	Male	Normal	120mmHg	170mg/dl	90mg/dl	Normal	76beats	Normal	Normal	Normal	Normal
Nita	34	Female	Normal	120mmHg	160mg/dl	87mg/dl	Normal	80beats	Normal	Normal	Normal	Normal
Neja	38	Female	Normal	125mmHg	170mg/dl	125mg/dl	Abnormal	115beats	Normal	Normal	Abnormal	Abnormal
Ramesh	61	Male	Abnormal	160mmHg	250mg/dl	130mg/dl	Abnormal	115beats	Normal	Normal	Abnormal	Abnormal
Ranga	65	Male	Abnormal	155mmHg	240mg/dl	128mg/dl	Abnormal	110beats	Normal	Normal	Abnormal	Abnormal
Sugumar	70	Male	Abnormal	165mmHg	250mg/dl	135mg/dl	Abnormal	115beats	Normal	Normal	Abnormal	Abnormal
Suresh	50	Male	Normal	120mmHg	130mg/dl	91mg/dl	Normal	85beats	Normal	Normal	Normal	Normal
Anala	55	Female	Normal	120mmHg	170mg/dl	90mg/dl	Normal	76beats	Normal	Normal	Normal	Normal
Rakesh	40	Male	Abnormal	180mmHg	220mg/dl	120mg/dl	Abnormal	110beats	Normal	Normal	Normal	Normal
Amresh	62	Male	Abnormal	150mmHg	170mg/dl	130mg/dl	Abnormal	115beats	Normal	Normal	Abnormal	Abnormal
Namari	78	Female	Normal	125mmHg	170mg/dl	125mg/dl	Abnormal	115beats	Normal	Normal	Abnormal	Abnormal

# HDPM: An Effective Heart Disease Predict Model

## SCREEN:9 View Cholesterol Results in Line chart

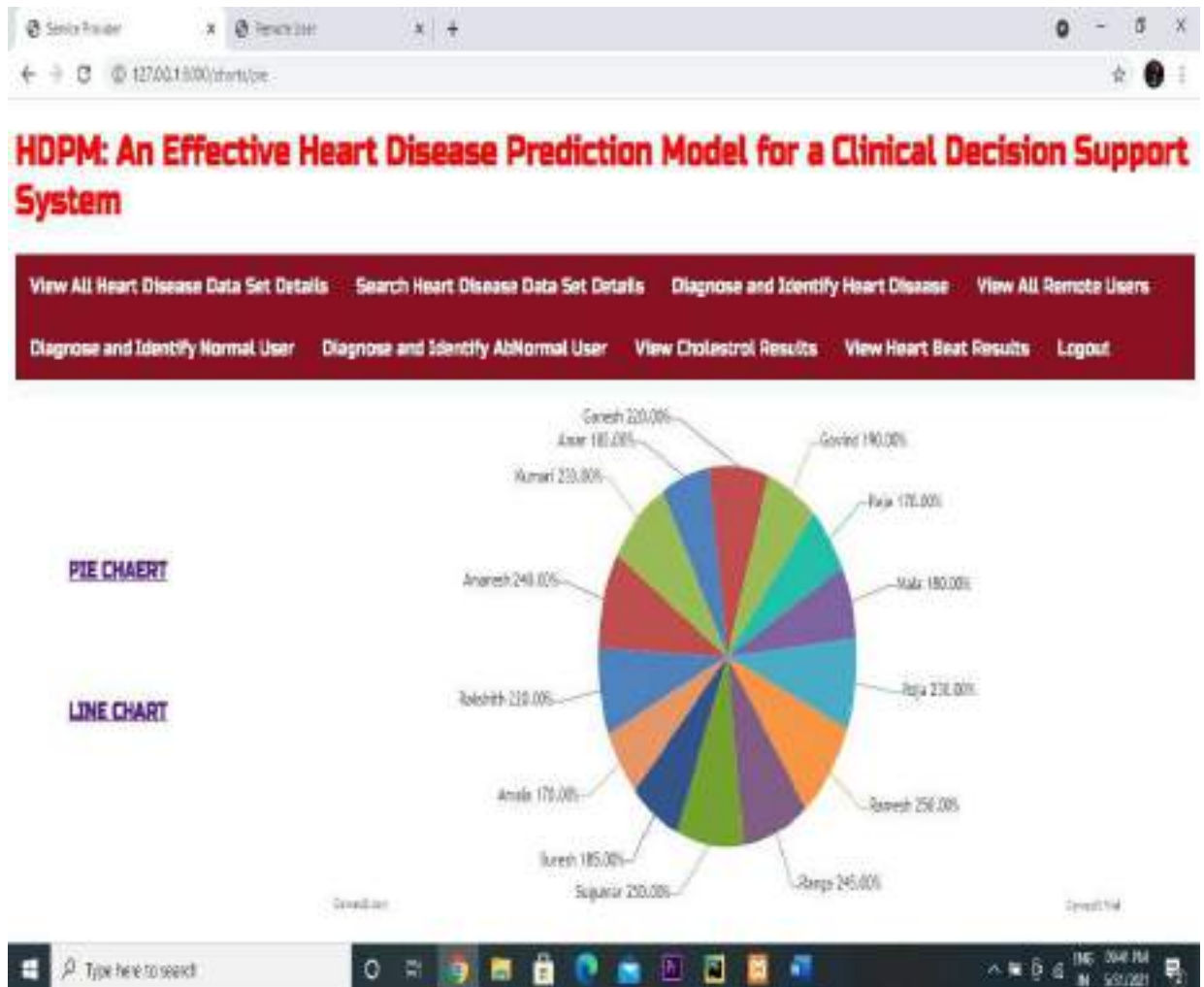
The below interface represents a view cholesterol results in line chart



# HDPM: An Effective Heart Disease Predict Model

## SCREEN:10 View cholesterol Results in Pie chart

The below interface represents a view cholesterol results in pie chart





# HDPM: An Effective Heart Disease Predict Model

## SCREEN:11 View Heart Beat Results

The below interface represents a view heartbeat result



## CONCLUSION

Further more, with the increasing concerns about privacy, security and time-sensitive applications, edge computing and edge device concepts could be further studied with the goal of improving the medical clinical decision support system. In this study, we have not obtained any feedback from heart specialist yet. This paper proposes a framework using combinations of support vector machines, logistic regression, and decision trees to arrive at an accurate prediction of heart disease. Using the Cleveland Heart Disease database, this paper provides guidelines to train and test the system and thus attain the most efficient model of the multiple rule based combinations.

## **FUTURE ENHANCEMENT**

1. In the future, once specific demographic dataset (from Korea) is collected, the comments from local heart specialist for verifying dataset and prediction model could be presented.
2. This paper provides guidelines to train and test the system and thus attain the most efficient model of the multiple rule based combinations.
3. Further, this paper proposes a comparative study of the multiple results, which include sensitivity, specificity, and accuracy

## REFERENCES

- [1] World Health Organization. (2017). Cardiovascular Diseases (CVDs).[Online]. Available: <https://www.who.int/health-topics/cardiovascular-diseases/>
- [2] E. J. Benjamin et al., "Heart disease and stroke statistics 2019 update: A report from the American heart association," *Circulation*, vol. 139, no. 10, pp. e56e528, Mar. 2019, doi: 10.1161/CIR.0000000000000659.
- [3] Statistics Korea. (2018). Causes of Death Statistics in 2018. [Online]. Available: <http://kostat.go.kr/portal/eng/pressReleases/8/10/index.board?bmode=read&bSeq=&aSeq=37878>
- [4] World Health Organization. (2017). Cardiovascular Diseases (CVDs). [Online]. Available: [https://www.who.int/news-room/factsheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/factsheets/detail/cardiovascular-diseases-(cvds))
- [5] P. Greenland, J. S. Alpert, G. A. Beller, E. J. Benjamin, M. J. Budoff, Z. A. Fayad, E. Foster, M. A. Hlatky, J. M. Hodgson, F. G. Kushner, M. S. Lauer, L. J. Shaw, S. C. Smith, A. J. Taylor, W. S. Weintraub, and N. K. Wenger, "2010 ACCF/AHA guideline for assessment of cardiovascular risk in asymptomatic adults: A report of the American college of cardiology foundation/American heart association task force on practice guidelines," *Circulation*, vol. 122, no. 25, pp. e584e636, Dec. 2010, doi:10.1161/CIR.0b013e3182051b4c.



**A  
Project Report  
On**

**Group Key Management Protocol for File Sharing on Cloud Storage**

*Submitted in partial fulfilment for the award of the degree*

**of  
Master of Computer Applications**

*Submitted by*

**S.V.GOPI**

**(Reg. No. 19F65F0007)**

*Under the esteemed guidance of*

**Mr. J.S.ANANDA KUMAR, MCA.**

**Assistant Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**(2020-2021)**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled “GROUP KEY MANAGEMENT PROTOCOL FOR FILE SHARING ON CLOUD STORAGE” that is being submitted by S.V.GOPI (Reg. No. 19F65F0007) in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **S.V.GOPI** hereby declare that the project report entitled “**GROUP KEY MANAGEMENT PROTOCOL FOR FILE SHARING ON COLUD STORAGE** ” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. J. S. ANANDA KUMAR**, MCA. Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**S.V.GOPI**

**Reg. No.: 19F65F0007**



## **ACKNOWLEDGEMENT**

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr.J.S.ANANDA KUMAR**,MCA.,Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P.KARTHIKEYAN**, MCA. HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

**(S.V.GOPI)**

# CONTENTS

S. No.	CHAPTERS	PAGE NO.
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF SCREENS	ii
	LIST OF ABBREVIATIONS	iii
1	INTRODUCTION	1
2	SYSTEM STUDY	2-3
3	SYSTEM ANALYSIS	4
	3.1 EXISTING SYSTEM	5
	3.2 DISADVANTAGES	5
	3.3 PROPOSED SYSTEM	5
	3.4 ADVANTAGES	5
4	SOFTWARE MODULES	6-25
5	SYSTEM ARCHITECTURE	26
6	SYSTEM DESIGN	27
7	UML DIAGRAMS	27-33
8	SOFTWARE ENVIRONMENT	34-47
9	SYSTEM REQUIREMENTS	48
10	IMPLEMENTATION	49-109
11	SYSTEM TESTING	110-112
12	OUTPUT SCREENS	113-124
	CONCLUSION	125
	FUTURE ENHANCEMENT	126
	REFERENCES	127

## **ABSTRACT**

The large-scale sharing needs of many enterprises promote the development of cloud storage. While the cloud computing stores the shared files outside the trust domain of the owner, the demands and concerns for file security is arising. In this, a Group Key Management Protocol for file sharing on cloud storage is proposed. Faced with network attacks from public channel, a group key generation scheme based on mixed encryption technology is proposed. And a verification scheme is used to prevent shared files from being attacked by the collusion attack of cloud providers and group members. Security and performance analyses indicate that the proposed protocol is both secure and efficient for data sharing in cloud Computing.

## LIST OF FIGURES

<b>S. No.</b>	<b>Figure Name</b>	<b>Page No.</b>
1	5.1 System Architecture	26
2	7.1 Use Case Diagram	28
3	7.2 Class Diagram	29
4	7.3 Sequence Diagram	30
5	7.4 Collaboration Diagram	31
6	7.5 Activity Diagram	32
7	7.6 Component Diagram	33
8	7.7 Deployment diagram	33

## LIST OF SCREENS

S.NO	SCREEN NAME	PAGE.NO.
1	Home	113
2	Csp Login	114
3	Csp Home	114
4	Add Group	115
5	View groups	115
6	New Registered Users	116
7	Acceted User List	116
8	User Registration	117
9	User Login	117
10	User Home	118
11	View Groups	118
12	My Groups	119
13	My Groups View Time Line	119
14	Key Uploading	120
15	If Key is Valid	120
16	Keyuploading	121
17	If Key is Invalid	121
18	Upload Files	122
19	My Files	122
20	My Files View View Files Data	123
21	My Files Share Files Sharing Into Group	123
22	Send Message Message Sending Into Group	124

## LIST OF ABBREVIATIONS

<b>S.No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	DFD	Data Flow Diagram
5	SQL	Structure Query Language
6	CART	Classification And Regression Trees
7	CHAID	Chi Square Automatic Interaction Detection
8	KNN	K -Nearest Neighbors
9	CRM	Customer Relationship Management
10	ID3	+++Iterative Dichotomiser 3
11	ECG	Electro Cardio Graphy
12	LDL	Low-Density Lipoprotein
13	HDL	High-Density Lipoprotein
14	UML	Unified Modeling Language

## 1. INTRODUCTION

Faced with today's innovative blow-up of cloud technologies, rebuilding services in terms of cloud have become more popular. In a shared-tenancy cloud computing environment, data from different clients which can be hosted on separate virtual machines may reside on a single physical machine. Under this paradigm, the data storage and management is under full control of the cloud provider, so data owners are left vulnerable and have to solely rely on the cloud provider to protect their data. Recent news shows that Google provided the FBI all the documents of one of its users after receiving a search warrant, but the users have not been aware of the search until they are arrested. Because cloud provider has the full access to the data, the privacy of data could be violated if user's data is intercepted or modified by the cloud provider.

A common way to guarantee privacy is encrypting and authenticating the shared files. There is a series of cryptographic schemes under such circumstance that a third party auditor is able to check the availability of files while nothing about the file leaks. Likewise, cloud users probably will not hold the strong belief that the cloud server is doing a good job in terms of confidentiality. The cloud users are motivated to encrypt their files with their own keys before uploading them to the cloud server. The remaining challenge is how to share and manage the cryptographic keys among valid users without the participant of the cloud provider

## 2. SYSTEM STUDY

### FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

- ◆ ECONOMICAL FEASIBILITY
- ◆ TECHNICAL FEASIBILITY
- ◆ SOCIAL FEASIBILITY

### ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.



## **TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

## **SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

## **SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

## 3. SYSTEM ANALYSIS

### MODULES:

**User:** Click to home page and search item, view recipe list, select recipe, view reviews, and classify reviews based on sentiment analysis.

### System:

Here system can collect recipes list, collect recipe reviews and classify the reviews

### Implementation:

- Collect data from “AllRecipes.com” as we searched item name.
- Collect the reviews of the selected recipe
- Finally we found that review type (Negative, positive and neutral) and classify thereviews.

## STEPS FOR EXECUTING THE PROJECTS

**Step 1:** Open Eclipse and set the workspace

**Step2:** Right Click on the project Run As and Run On Tomcat Server

**Step3:** In middle we got tomcat error that time we need to change port number

**Step4:**Copy url in Google chrome and Run

## 3.1 EXISTING METHOD

Compared to CFS and NASD, CFS is tailored towards single-user workstations and relied on user-supplied passwords for data encryption. NASD proposes a distributed system comprising intelligent disks and users supplied keys as proofs of authorization. While these schemes use identity privacy by using attribute-based techniques which fail to protect user attribute privacy.

## 3.2 DRAWBACKS

- Doesn't prevent out-side attacks.
- Not secure.

## 3.3 PROPOSED METHOD

In proposed scheme, the verification scheme is used to prevent shared files from being attacked by the collusion attack of cloud providers and group members. Security and performance analyses indicate that the proposed protocol is both secure and efficient for data sharing in cloud computing. Faced with network attacks from public channel, a group key generation scheme based on mixed encryption technology is proposed.

## 3.4 ADVANTAGES

- Verification of protocols can be done.
- Trustable.

## APPLICATIONS

1. Healthcare
2. Organizations

## 4. SOFTWARE MODULES

This Java Development Kit(JDK) allows you to code and run Java programs. It's possible that you install multiple JDK versions on the same PC. But Its recommended that you install only latest version.

### How to install Java for Windows

Following are the steps for JDK 8 free download for 32 bit or JDK 8 download 64 bit and installation

**Step 1)** Go to [link](#). Click on JDK Download for Java



**Java SE 8**  
Java SE 8u271 is the latest release for the Java SE 8 Platform.

- Documentation
- Installation Instructions
- Release Notes
- Oracle License
  - Binary License
  - Documentation License
  - BSD License
- Java SE Licensing Information User Manual
  - Includes Third Party Licenses
- Certified System Configurations
- Readme Files
  - JDK ReadMe
  - JRE ReadMe

**Oracle JDK**

- ↓ JDK Download
- ↓ Server JRE Download
- ↓ [JRE Download](#)
- ↓ Documentation Download
- ↓ Demos and Samples Download

**Step 2)** Next,

1. Accept License Agreement

2. Download Java 8 JDK for your version 32 bit or JDK 8 download for windows 10 64bit.

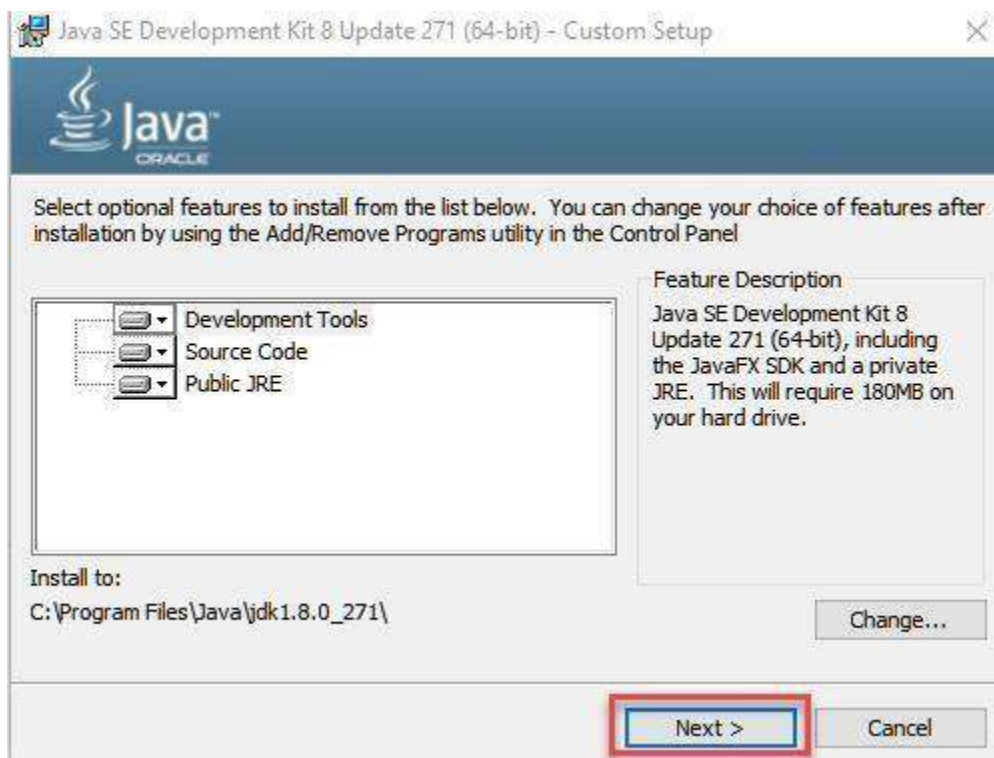
Solaris SPARC 64-bit	88.75 MB	<a href="#">jdk-8u271-solaris-sparc64.tar.gz</a>
Solaris x64 (SVR4 package)	134.42 MB	<a href="#">jdk-8u271-solaris-x64.tar.Z</a>
Solaris x64	91.52 MB	<a href="#">jdk-8u271-solaris-x64.tar.gz</a>
Windows x86	154.48 MB	<a href="#">jdk-8u271-windows-6116.exe</a>
Windows x64	166.79 MB	<a href="#">jdk-8u271-windows-x64.exe</a>

**Step 3)** when you click on the Installation link the popup will be open. Click on I reviewed and accept the Oracle Technology Network License Agreement for Oracle Java SE and you will be redirected to the login page. If you don't have an oracle account you can easily sign up by adding basics details of yours

**Step 4)** Once the Java JDK 8 download is complete, run the exe for install JDK. Click Next



**Step 5)** Select the PATH to install Java in Windows and click next.



**Step 6)** Once you install Java in windows, click Close

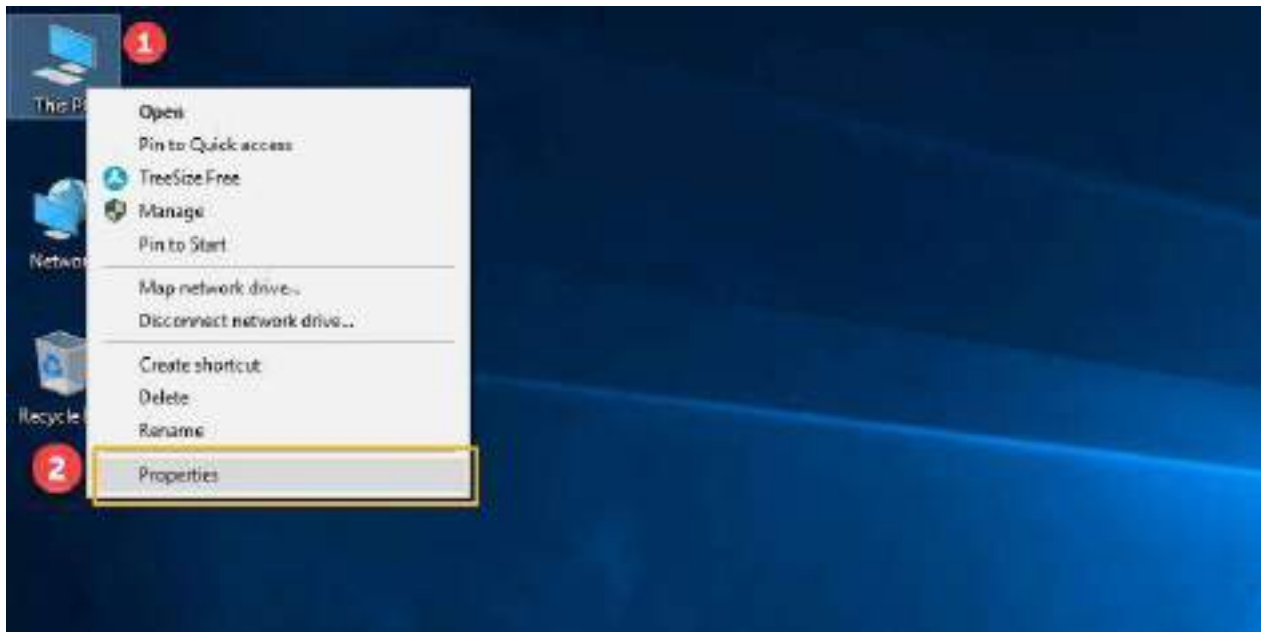


## How to set Environment Variables in Java: Path and Class path

The PATH variable gives the location of executable like javac, java etc. It is possible to run a program without specifying the PATH but you will need to give full path of executable like **C:\Program Files\Java\jdk-13.0.1\bin\javac A.java** instead of simple **javac A.java**

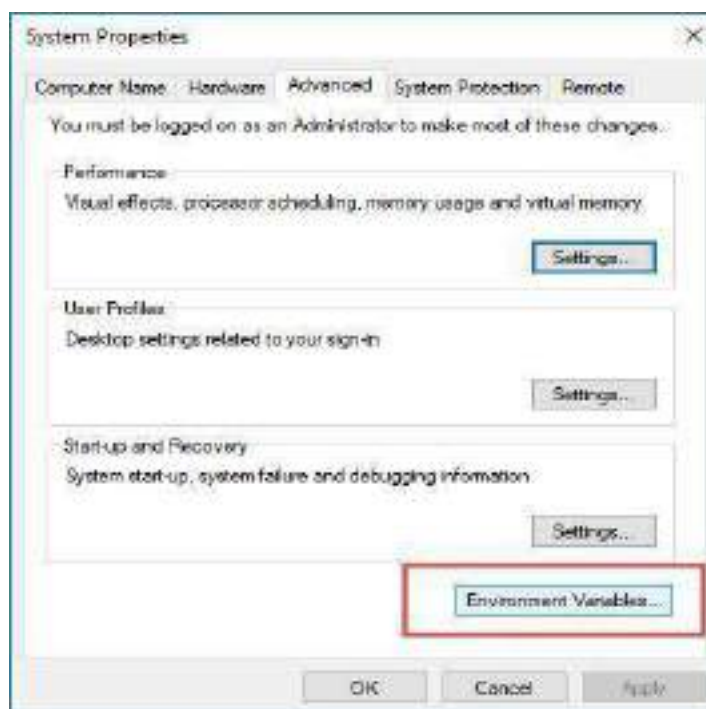
The CLASSPATH variable gives location of the Library Files.Let's look into the steps to set the PATH and CLASSPATH

**Step 1)** Right Click on the My Computer and Select the properties



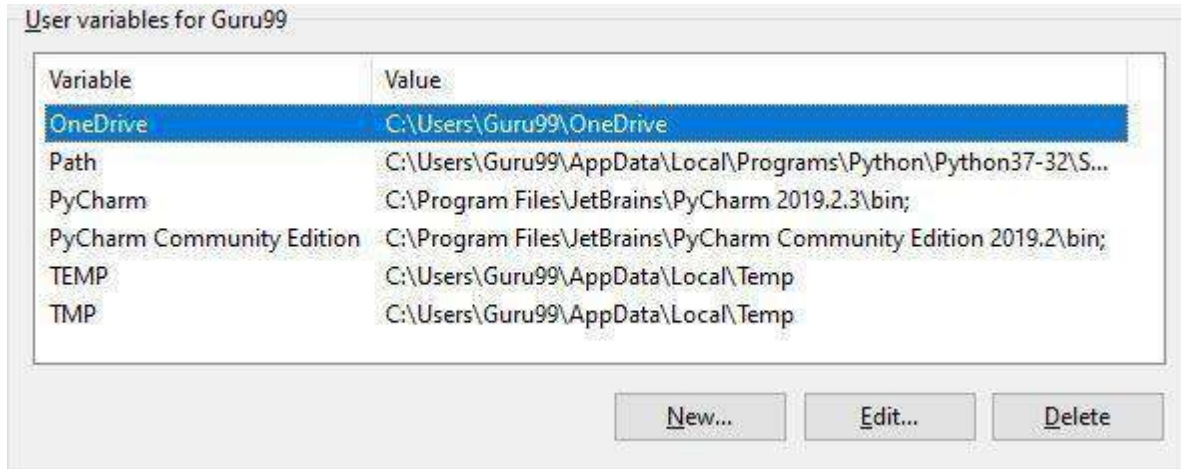
**Step 2)** Click on advanced system settings

**Step 3)** Click on Environment Variables

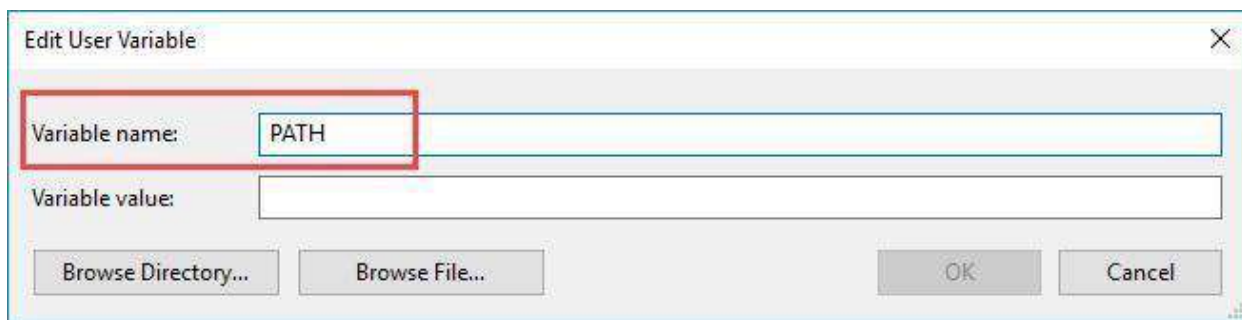




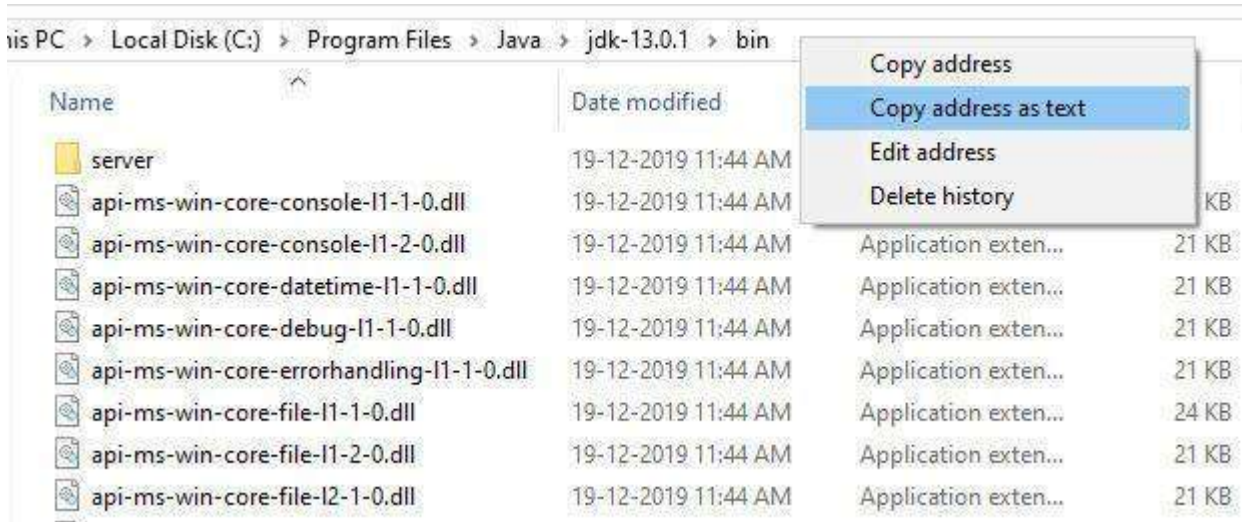
**Step 4)** Click on new Button of User variables



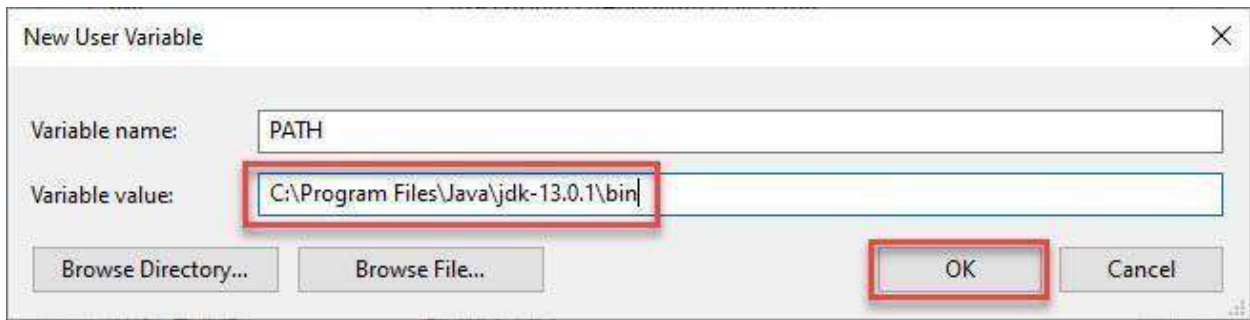
**Step 5)** Type PATH in the Variable name.



**Step 6)** Copy the path of bin folder which is installed in JDK folder.



**Step 7)** Paste Path of bin folder in Variable value and click on OK Button

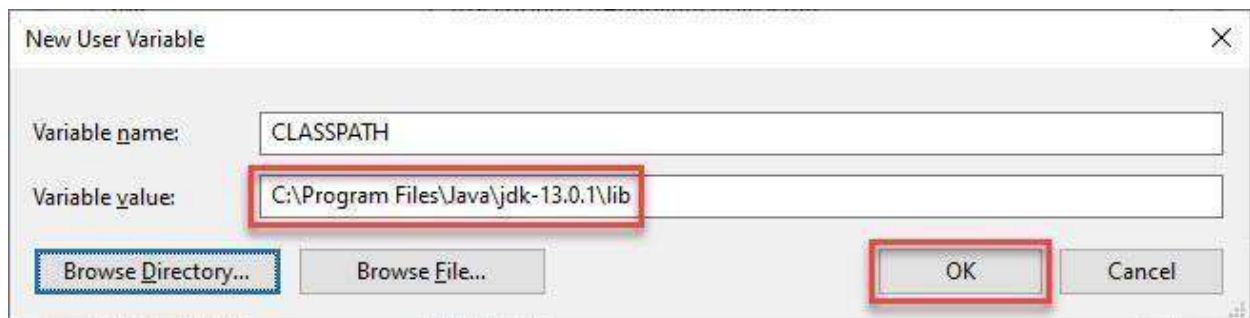


```
PATH = <JDK installation directory>\bin;%PATH%;
```

**Note:** In case you already have a PATH variable created in your PC, edit the PATH variable to

Here, %PATH% appends the existing path variable to our new value

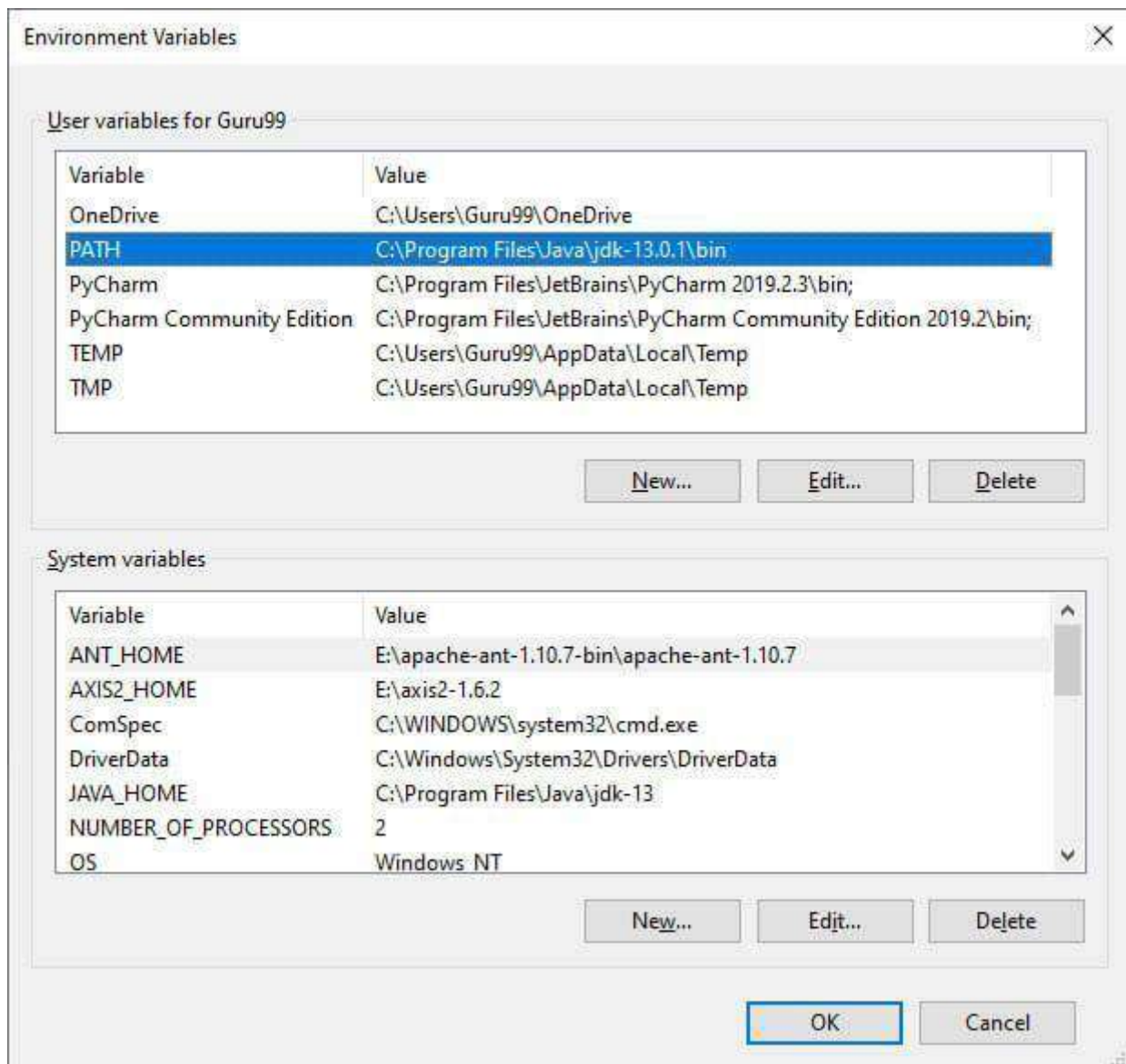
**Step 8)** You can follow a similar process to set CLASSPATH.



**Note:** In case you java installation does not work after installation, change classpath to

```
CLASSPATH = <JDK installation directory>\lib\tools.jar;
```

**Step 9)** Click on OK button



**Step 10)** Go to command prompt and type javac commands. If you see a screen like below, Java is installed

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.18362.535]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Guru99>javac
Usage: javac <OPTIONS> <source files>
where possible options include:
 @filename Read options and filenames from file
 -key[=value] Options to pass to annotation processors
 --add-modules <module>(<module>)*
 Root modules to resolve in addition to the initial modules, or all modules
 on the module path if <module> is ALL-MODULE-PATH.
 --boot-class-path <path>, -bootclasspath <path>
 Override location of bootstrap class files
 --class-path <path>, -classpath <path>, -cp <path>
 Specify where to find user class files and annotation processors
 -d <directory> Specify where to place generated class files
 -deprecation
 Output source locations where deprecated APIs are used
 --enable-preview
 Enable preview language features. To be used in conjunction with either -source or --release.
 -encoding <encoding>
 Specify character encoding used by source files
 -endorseddirs <dirs>
 Override location of endorsed standards path
 -extdirs <dirs>
 Override location of installed extensions
```

## Eclipse: (Oxygen)

The Eclipse download requires about 300 MB of disk space; keep it on your machine, in case you need to re-install Eclipse. When installed, Eclipse requires an additional 330 MB of disk space.

## Downloading

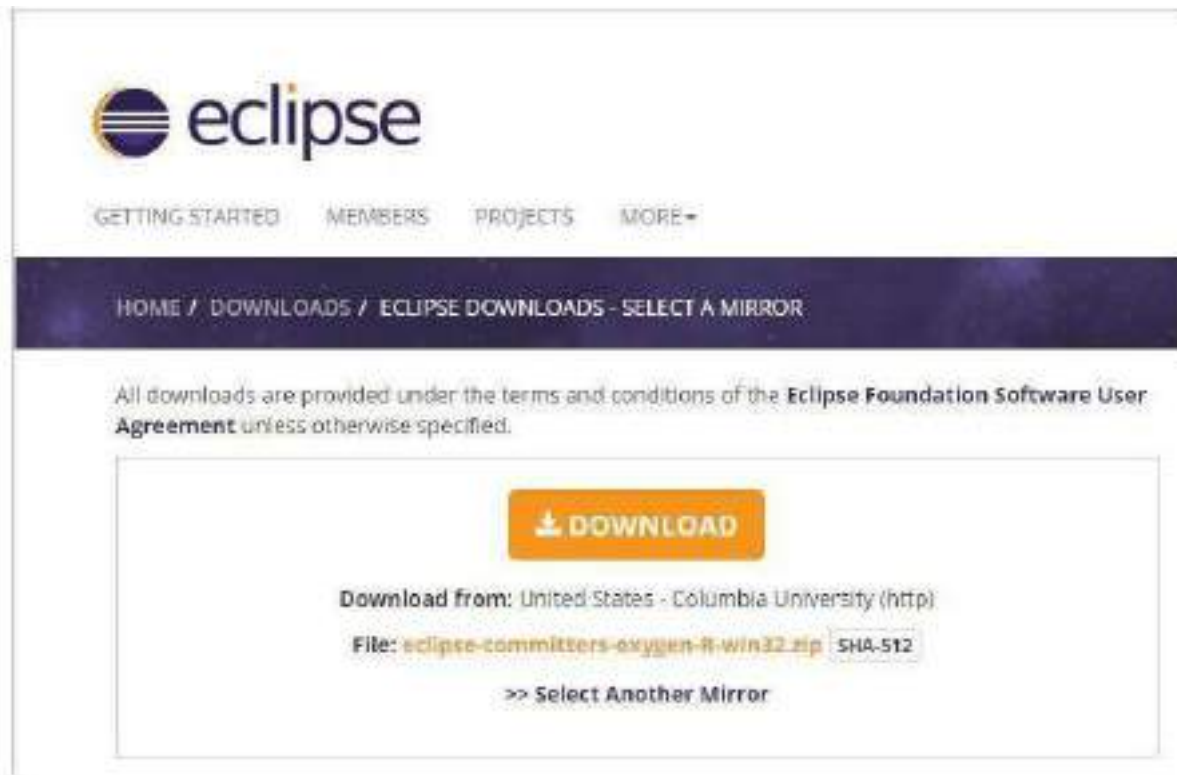
1. Click [Eclipse](#)

The following page will appear in your browser. In this handout we will download **Eclipse IDE for Eclipse Committers** for Windows 32 Bit; if your computer uses Windows, continue below; otherwise choose either **Mac Cocoa** or **Linux** instead



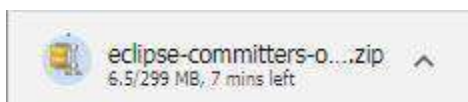
1. It is critical that Java, Python, and Eclipse are either all 32 Bit or are all 64 Bit (and only if your Machine/OS supports 64 Bit): I think it easiest to use 32 Bit for everything.
2. Click the **32-Bit** (after Windows) to the right of the **Eclipse IDE for Eclipse Committers**.
3. You will see the following page (don't worry about the name of the institution underneath the orange **DOWNLOAD** button).



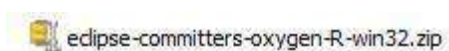


Click the orange **DOWNLOAD** button. The site named here, in orange to the right of the button: **United States - Columbia University (http)** is the random one chosen by the download page this time; yours may differ.

This file should start downloading in your standard download folder, while showing a splash screen about donating to Eclipse. This file is about 300 Mb so it might take a while to download fully if you are on a slow internet connection (it took me about 5 minutes over a cable modem). Don't worry about the exact time as long as the download continues to make steady progress. In Chrome progress is shown on the bottom-left of the window, via the icon



The file should appear as



Terminate the tab browsing this webpage.

1. Move this file to a more permanent location, so that you can install Eclipse (and reinstall it later, if necessary).
2. Start the **Installing** instructions directly below.

Unzip **eclipse-committers-oxygen-R-win32.zip**, the file that you just downloaded and moved.

On my machine (running Windows 7), I can

- Right-click the file.
- Hover over the **IZArc** command from the menu of options.
- Click **Extract Here**



1. If you do not have IZArc or an equivalent unzipping program, here is the web site to download a free copy of [IZArc](#).

Unzipping this file creates a folder named **eclipse**; unzipping 250 MB can take a few minutes. You can leave this folder here or move it elsewhere on your hard disk. I recommend putting the downloaded file and resulting folder in the **C:\Program**

**Files\** directory.

2. Create a shortcut on your desktop to the **eclipse.exe** file in this **eclipse** folder:

On most Windows machines, you can

- Right-press the file **eclipse.exe**
- Drag it to the desktop.
- Release the right button.
- Click **Create shortcut here**

Now you are ready to perform a **one-time only** setup of Eclipse on your machine.

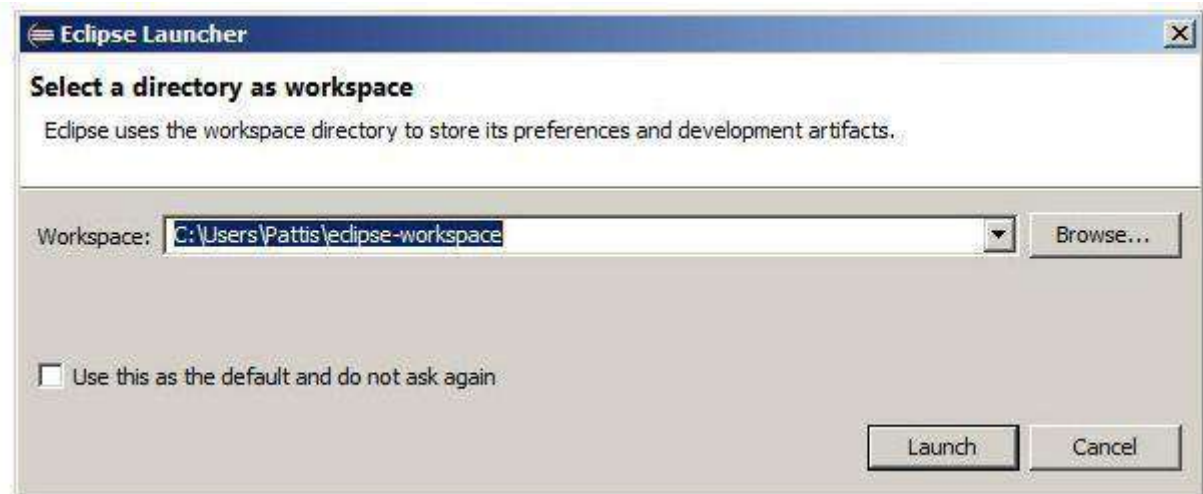
3. Double-click the shortcut to Eclipse that you just created above.

The following splash screen will appear



and then an **Eclipse Launcher** pop-up window will appear





1. In the **Workspace** text box, your name should appear between **C:\Users\** and **\eclipse-workspace**, instead of **Pattis**.

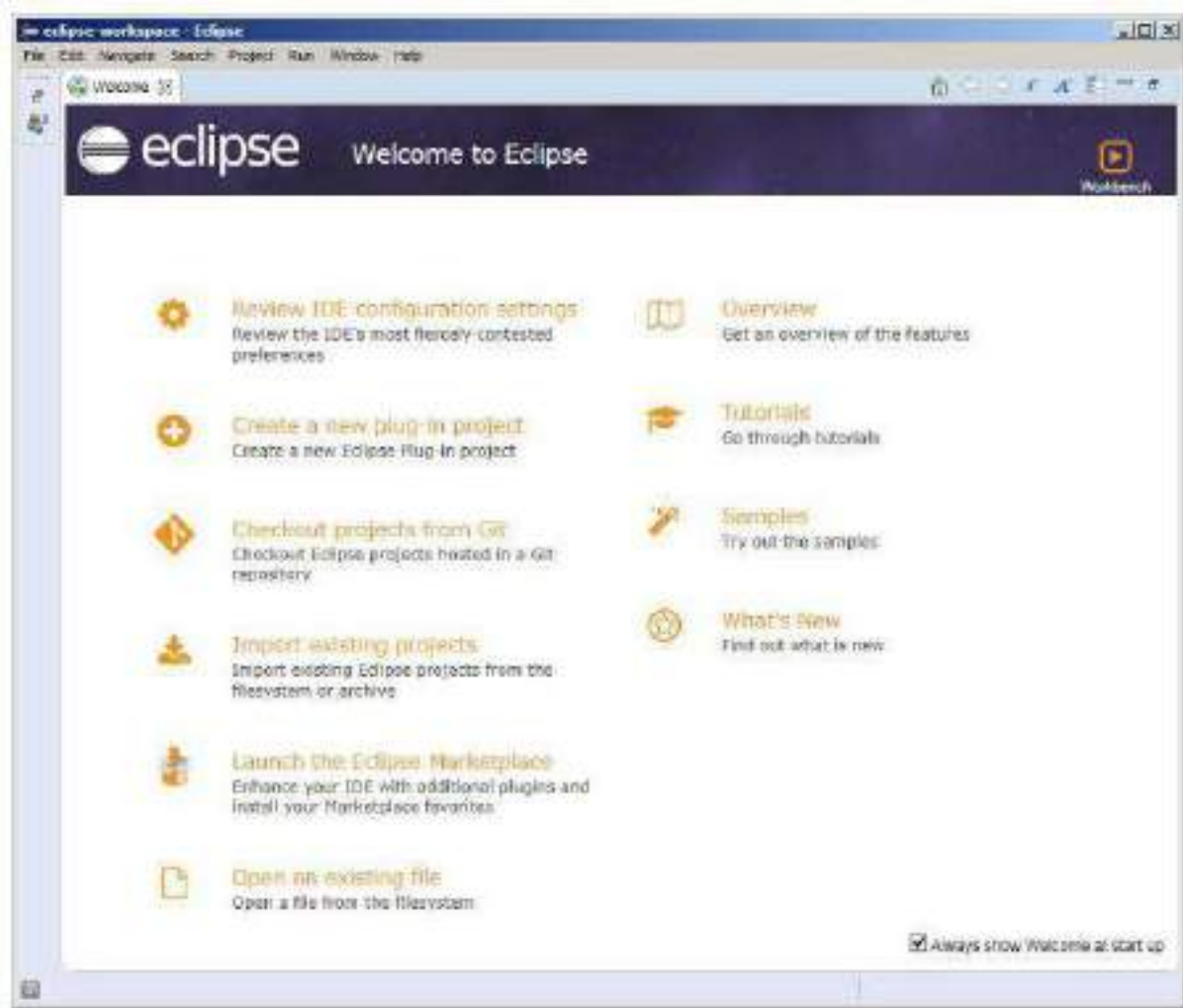
Leave **unchecked** the **Use this as the default and do not ask again** box. Although you will use this same workspace for the entire quarter (checking projects in and out of it), it is best to see this **Workspace Launcher** pop-up window each time you start Eclipse, to remind you where your workspace is located.

In fact, it is a good idea to create on your desktop a shortcut to your workspace folder; but you must click **OK** (see below) before Eclipse creates this folder and you can create a shortcut to it.

2. Click **Launch**.

Progress bars will appear as Eclipse loads.

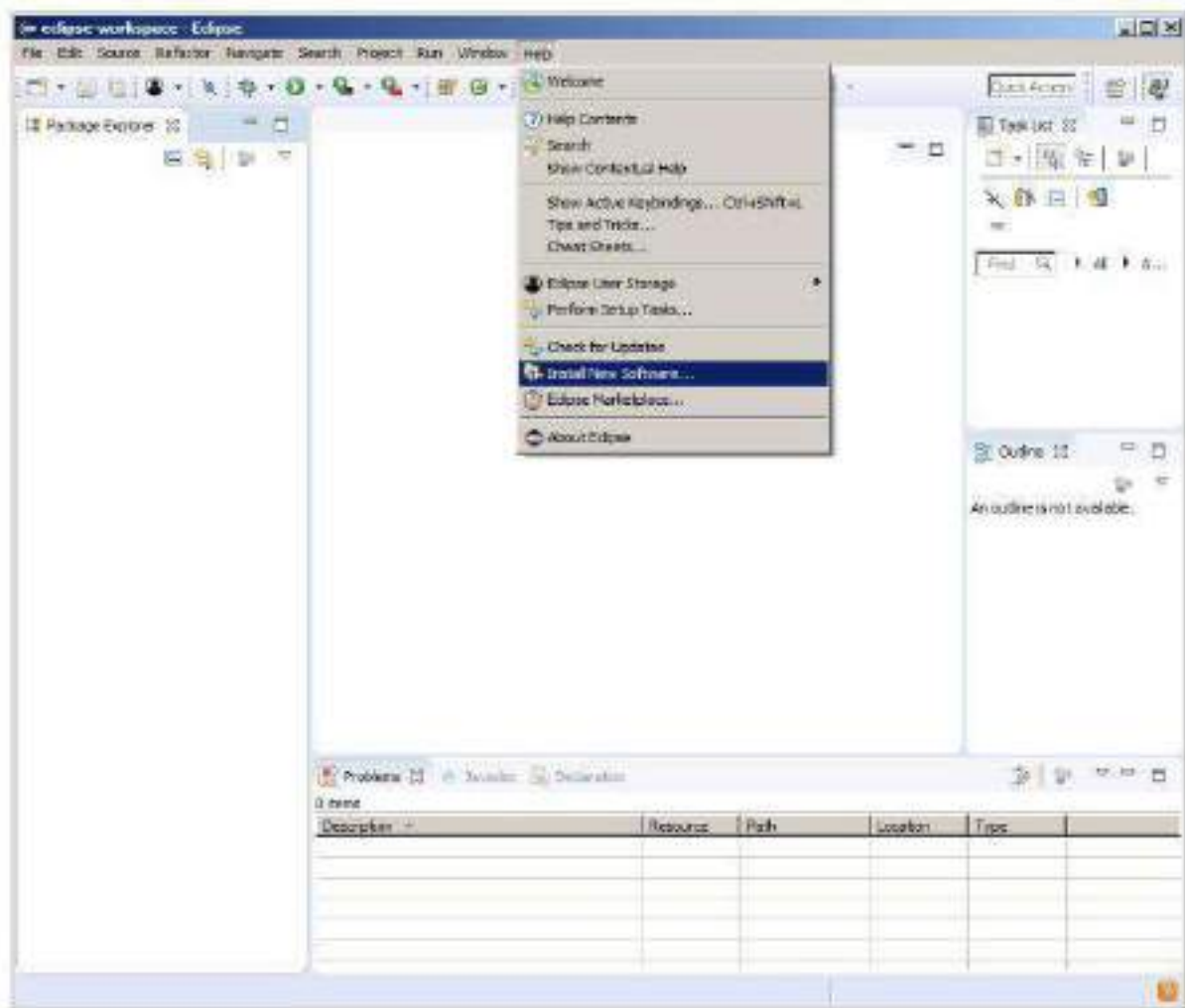
Eventually the Eclipse workbench will appear with a **Welcome** tab covering it.



1. Terminate (click **X** on) the **Welcome** tab.

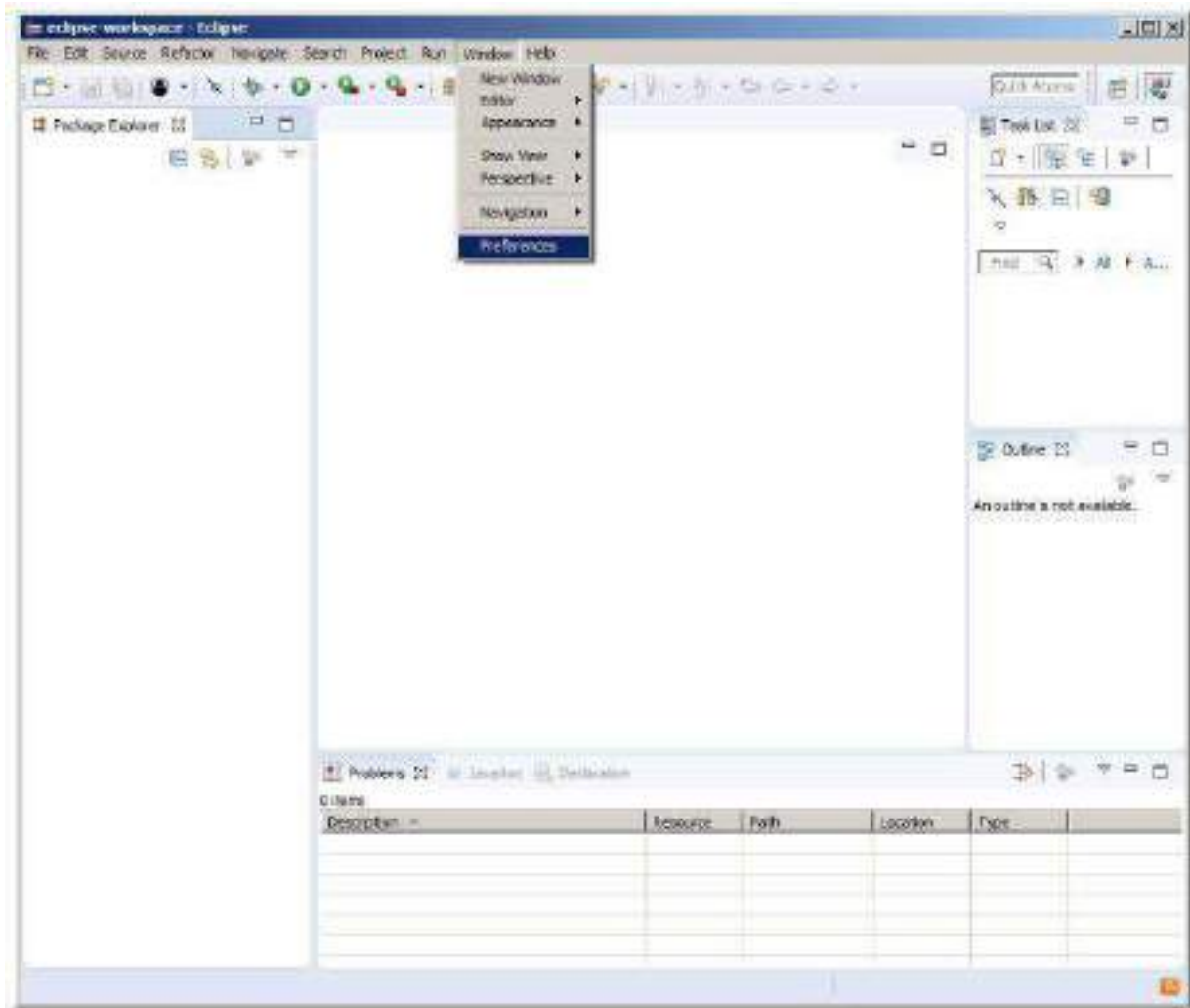
You will not see the **Welcome** tab when you start Eclipse again, after this first time.

2. Click **Help** (on the far right of the line below this window's blue title **eclipse- workspace - Eclipse**) and then click **Install New Software...** in its pull-down menu, as shown below.



The Install pop-up window will appear.

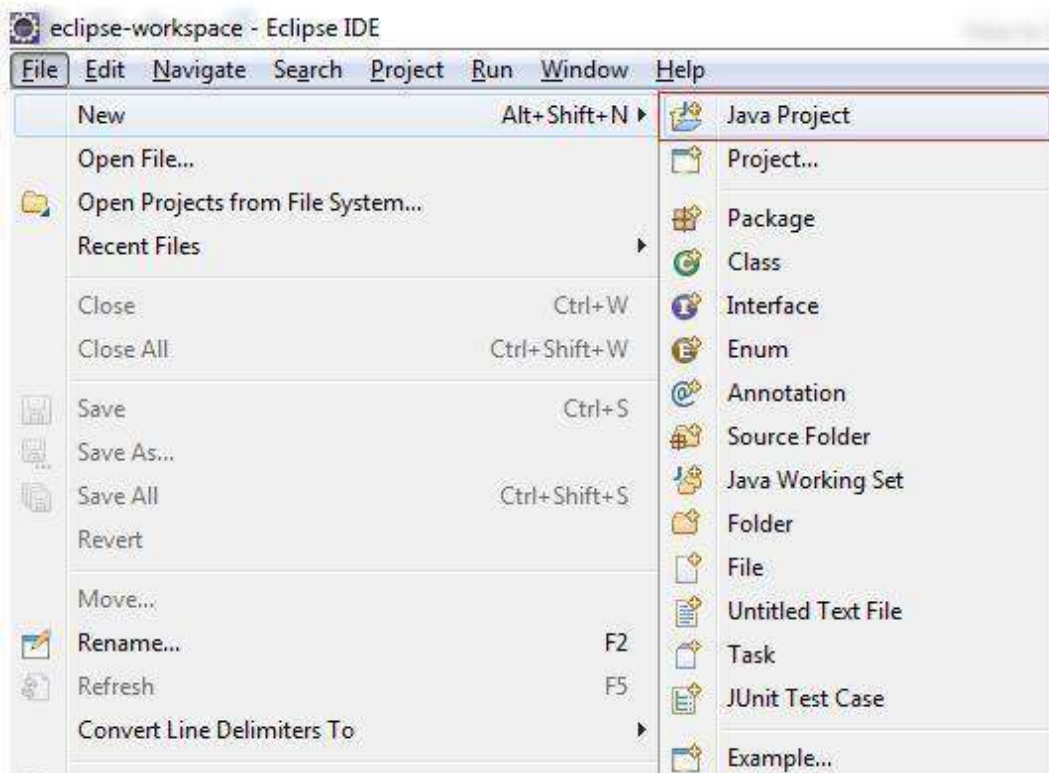
Click Window (to the left of Help on the far right of the line below this window's blue title eclipse-workspace - Eclipse) and then click Preferences in its pull-down menu, as shown below.

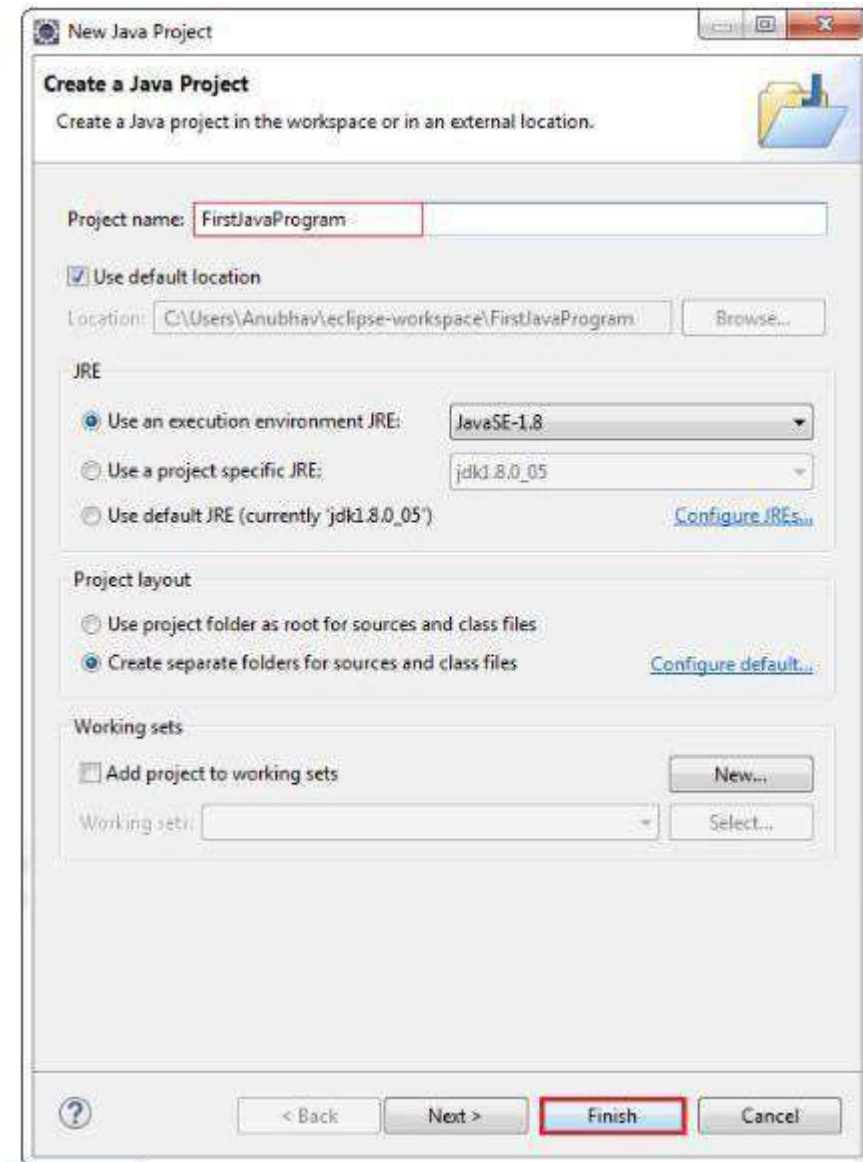


- Create a project.
- Right-click on your project and choose **Properties**.
- Click on **Java Build Path**.
- Click on the **Libraries** tab.
- Click on **Add External JARs...**
- Navigate to **junit.jar**. It should be in a location such as.....**Eclipse 3.0.1\plugins\org.junit\_3.8.1\junit.jar**.
- Select **junit.jar**, click on **Open**, click on **OK**.

- To create a test class:
- Open the New wizard (**File > New > Other...**)
- Select **Java > JUnit** in the left pane and **TestCase** in the right pane and click **Next**.
- Enter the name of your test class and click **OK**.
- To run your test class, select your test class and choose **Run as > JUnit Test** from the **Run** drop-down menu in the toolbar.

**Step 1: Open Eclipse and click File > New > Java Project.**

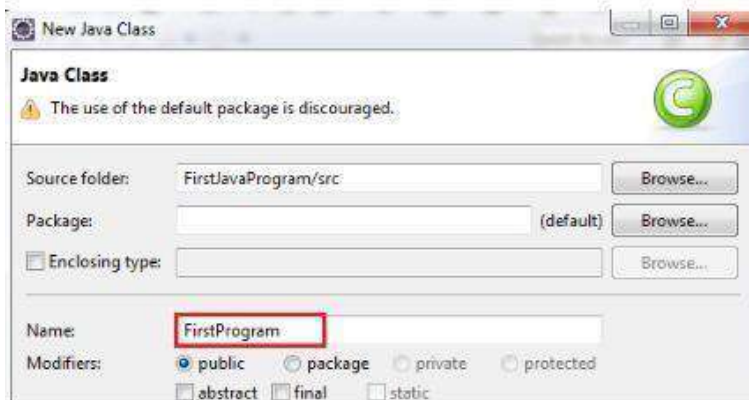




**Step 3:** In the Package Explorer (left-hand side of the window) select the project which you have created.



Step 4: Right-click on the src folder, select New > Class from the submenu. Provide the Class name and click on Finish button.



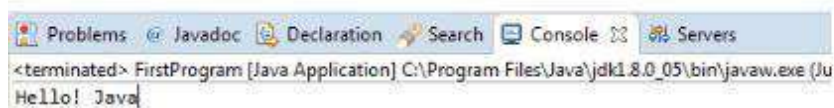
Step 5: Write the program and save it.

```
1
2 public class FirstProgram
3 {
4 public static void main(String[] args)
5 {
6 System.out.print("Hello! ");
7 System.out.print("Java");
8 }
9 }
```

Step 6: Now, press Ctrl+F11 or click on the Run menu and select Run or click on Run button.



Step 7: Output





5.SYSTEM ARCHITECTURE

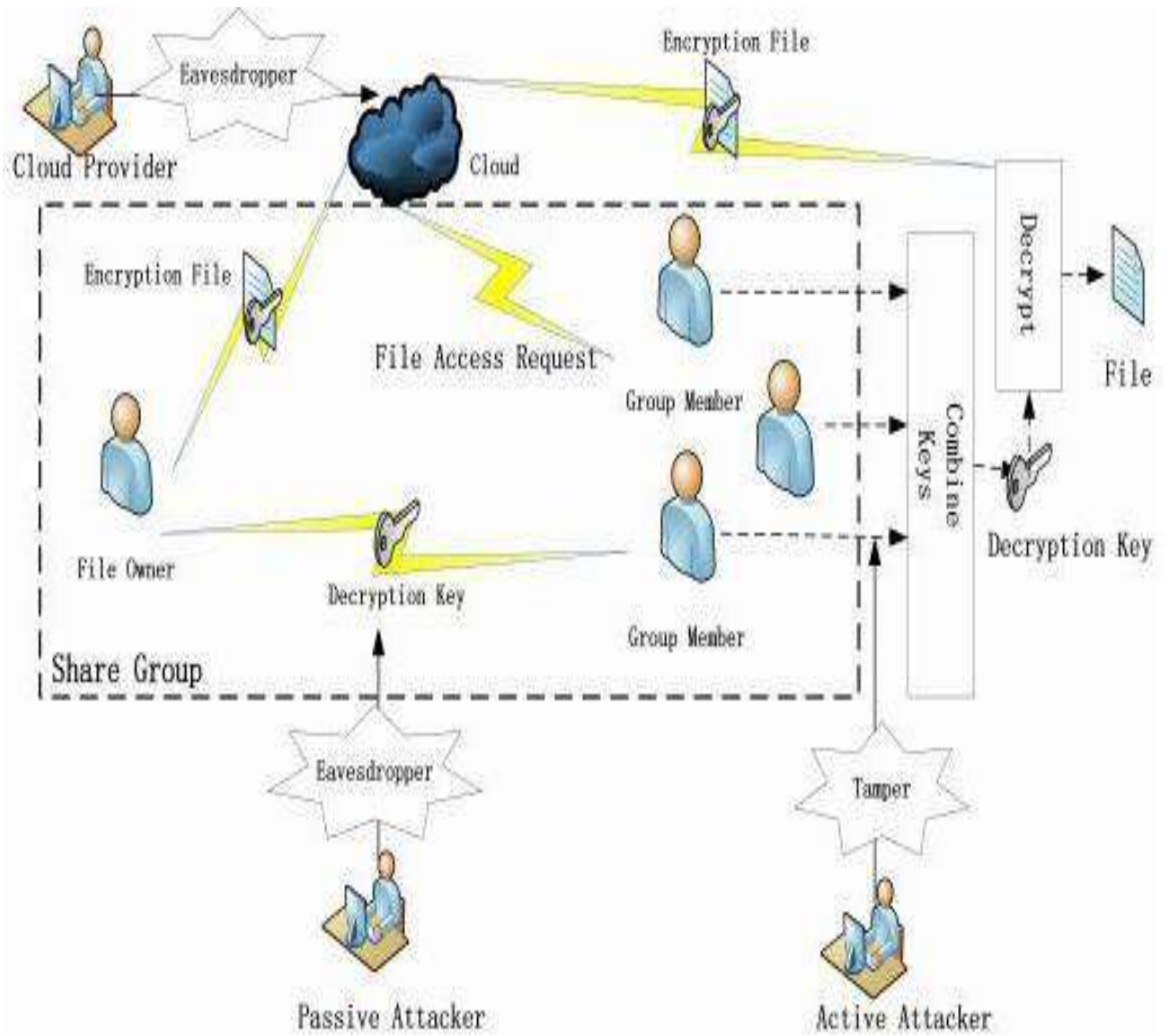


Fig 5.1.System Architecture.



## 6. SYSTEM DESIGN

### 7. UML DIAGRAMS

UML stands for Unified Modeling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group.

The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artifacts of software system, as well as for business modeling and other non-software systems.

The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems.

The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

#### GOALS

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.
7. Integrate best practices.

## USE CASE DIAGRAM:

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

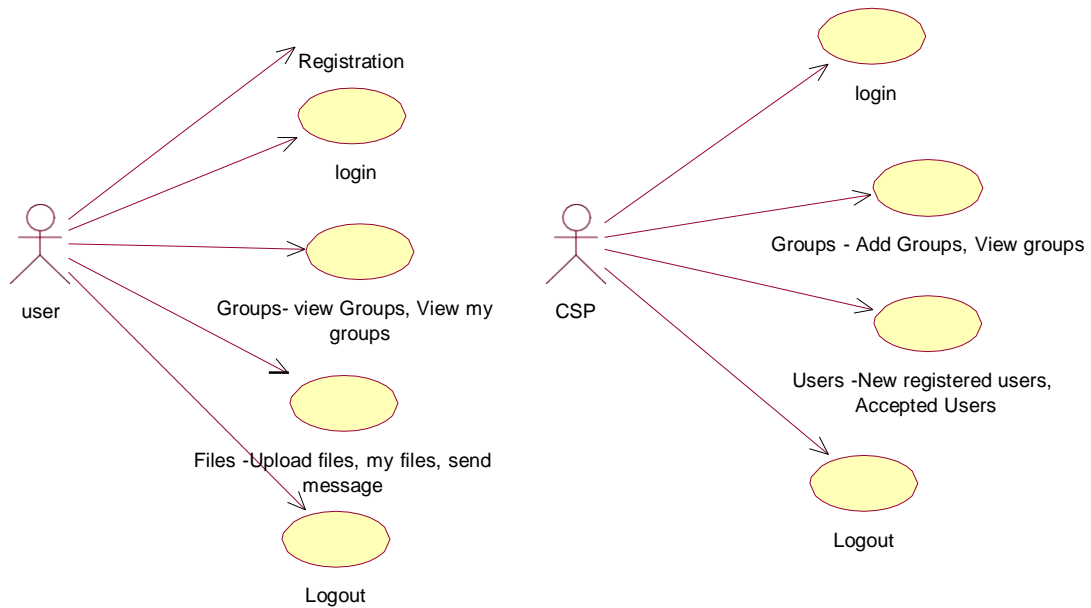


Fig.7.1.Use case Diagram.

## CLASS DIAGRAM:

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.

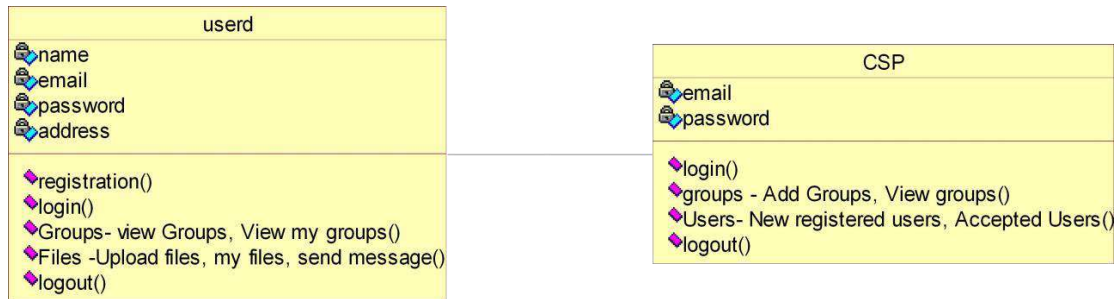


Fig.7.2. Class Diagram.

## SEQUENCE DIAGRAM:

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

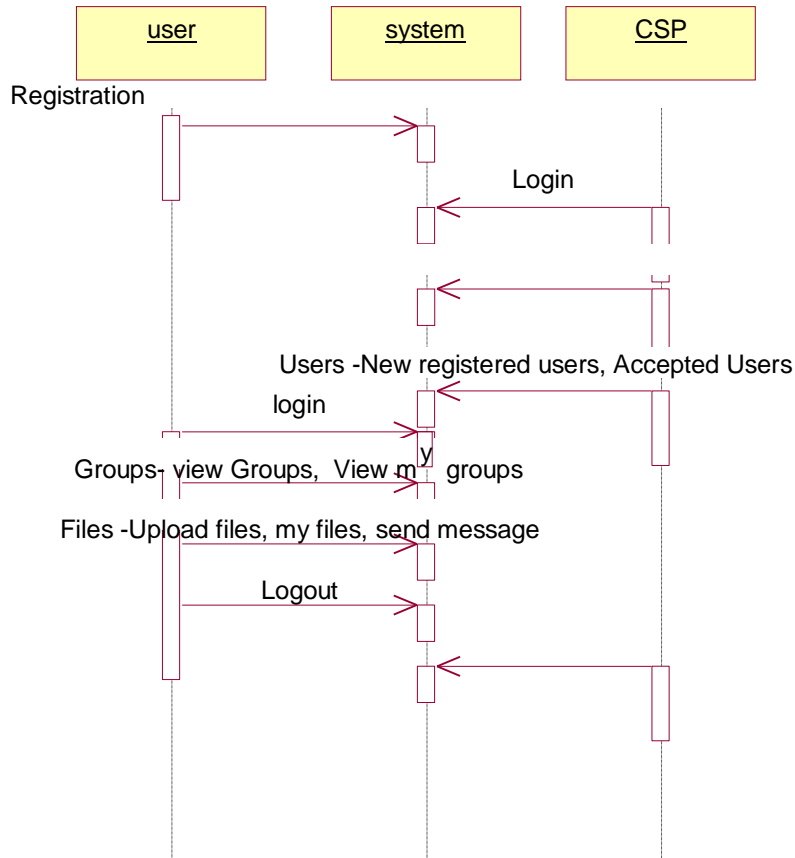


Fig. 7.3. Sequence Diagram.

## COLLABORATION DIAGRAM:

In collaboration diagram the method call sequence is indicated by some numbering technique as shown below. The number indicates how the methods are called one after another. We have taken the same order management system to describe the collaboration diagram. The method calls are similar to that of a sequence diagram. But the difference is that the sequence diagram does not describe the object organization whereas the collaboration diagram shows the object organization.

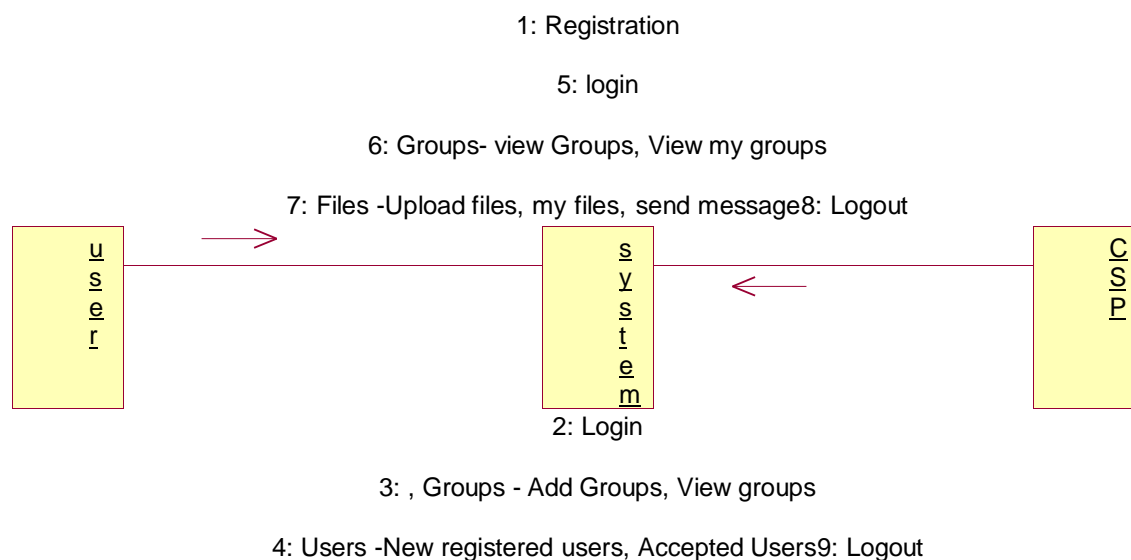


Fig .7.4 .Collobaration Diagram.

## ACTIVITY DIAGRAM:

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

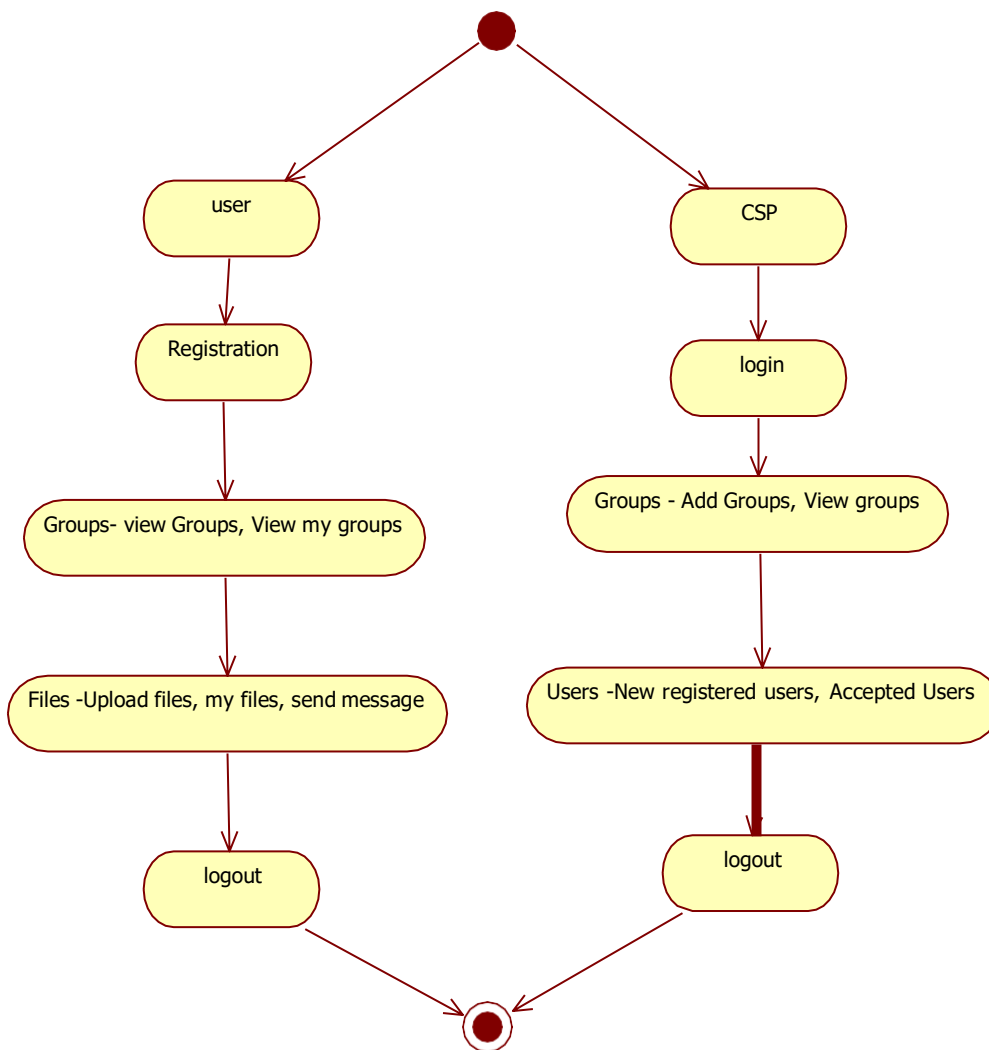


Fig.7.5. Activity Diagram.

## COMPONENT DIAGRAM

Component diagrams are used to describe the physical artifacts of a system. This artifact includes files, executables, libraries etc. So the purpose of this diagram is different, Component diagrams are used during the implementation phase of an application. But it is prepared well in advance to visualize the implementation details. Initially the system is designed using different UML diagrams and then when the artifacts are ready component diagrams are used to get an idea of the implementation.

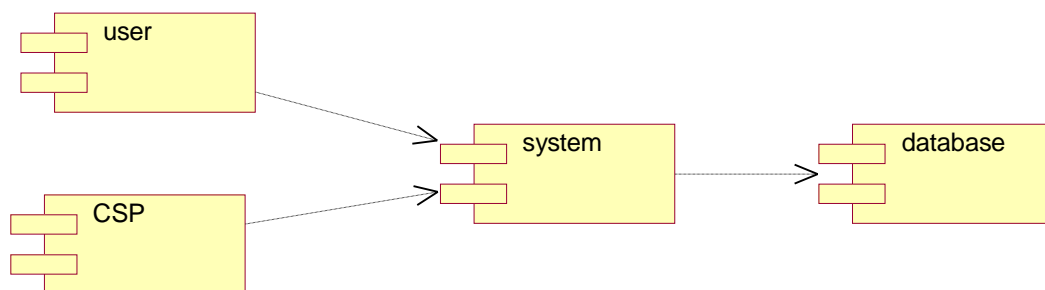


Fig.7.6.Component Diagram.

## DEPLOYMENT DIAGRAM

Deployment diagram represents the deployment view of a system. It is related to the component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical hard ware's used to deploy the application.

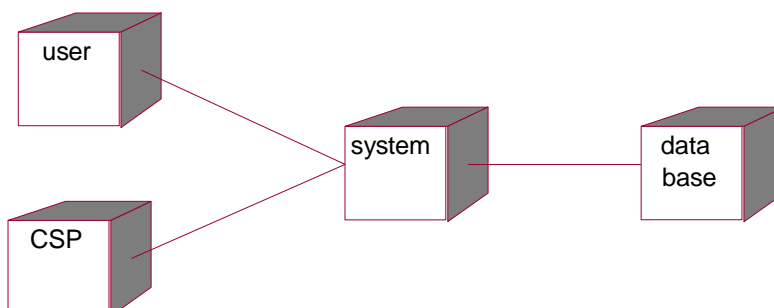


Fig.7.7.Deployment Diagram.

## 8. SOFTWARE ENVIRONMENT

### Java Technology

Java technology is both a programming language and a platform.

### The Java Programming Language

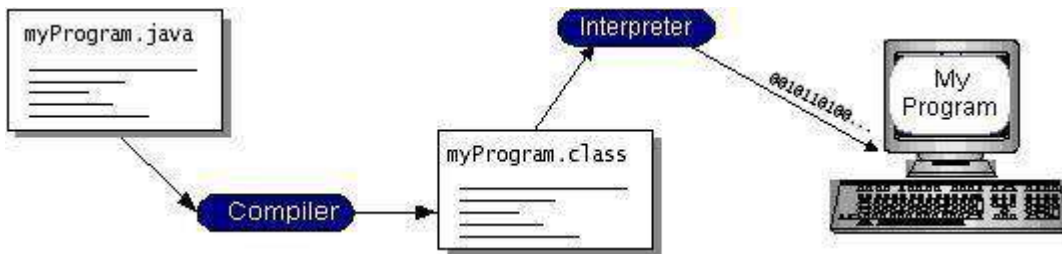
The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

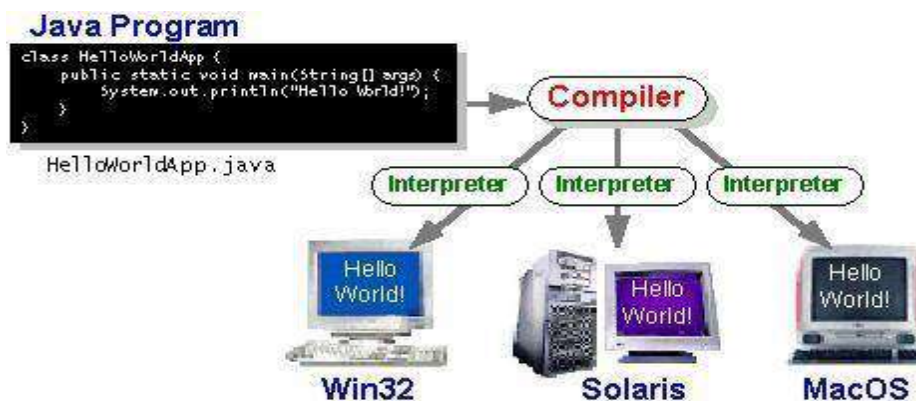
With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an



intermediate language called *Java byte codes* —the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.



You can think of Java byte codes as the machine code instructions for the *Java Virtual Machine* (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.



## The Java Platform

A *platform* is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platform hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms.

The Java platform has two components:

- *The Java Virtual Machine (Java VM)*
- *The Java Application Programming Interface (Java API)*

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms.

The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, *What Can Java Technology Do?* Highlights what functionality some of the packages in the Java API provide.

The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.



Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring performance close to that of native code without threatening portability.

## . **What Can Java Technology Do?**

The most common types of programs written in the Java programming language are *applets* and *applications*. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser.

However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a *server* serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a *servlet*. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

**The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.

**Applets:** The set of conventions used by applets.

**Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.

**Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate

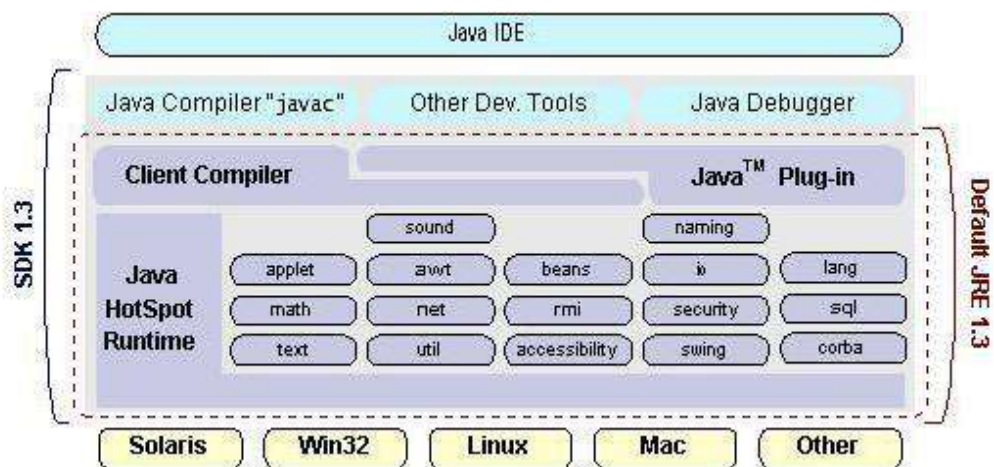
language.

**Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.

**Software components:** Known as JavaBeans™, can plug into existing component architectures.

**Object serialization:** Allows lightweight persistence and communication via Remote Method I **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relationaldatabases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.



## How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

**Get started quickly:** Although the Java programming language is a powerful object-oriented

language, it's easy to learn, especially for programmers already familiar with C or C++.

**Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.

**Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.

**Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.

**Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

**Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.

**Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded "on the fly," without recompiling the entire program.

## ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the

syntax that is needed to port their program from one database to another when business needs suddenly change

. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

## **JDBC**

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on.

To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution.

JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after.

The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book

### **JDBC Goals**

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early



reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java.

The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

## **SQL Level API**

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.

### **1. SQL Conformance**

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

### **2. JDBC must be implemental on top of common database interfaces**

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by software interface.

This interface would translate JDBC calls to ODBC and vice versa.

### **3. Provide a Java interface that is consistent with the rest of the Java system**

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

### **4. Keep it simple**

This goal probably appears in all software design goal listings. JDBC is no exception.



Sun felt that the design of JDBC should be very simple, allowing for only one method of completing a task per mechanism. Allowing duplicate functionality only serves to confuse the users of the API.

## 5. Use strong, static typing wherever possible

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

## 6. Keep the common cases simple

Because more often than not, the usual SQL calls used by the programmer are simple SELECT's, INSERT's, DELETE's and UPDATE's, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java **Networking**. And for dynamically updating the cache table we go for MS **Access** database. Java has two things: a programming language and a platform.

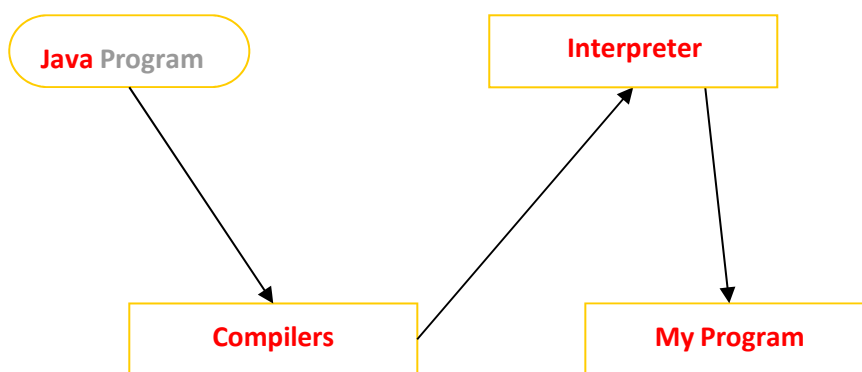
Java is a high-level programming language that is all of the following

- Simple
- Architecture-neutral
- Object-oriented
- Portable
- Distributed
- High-performance
- Interpreted
- Multithreaded
- Robust

- Dynamic
- Secure

Java is also unusual in that each Java program is both compiled and interpreted. With a compiler you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer.

Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works

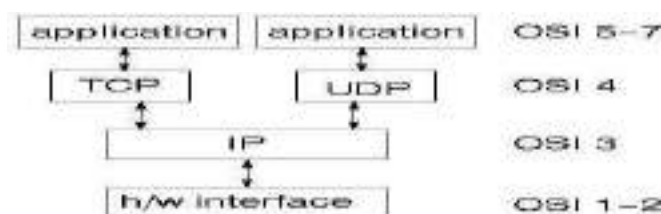


You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware.

Java byte codes help make “write once, run anywhere” possible. You can compile your Java program into byte codes on my platform that has a Java compiler. The byte codes can then be run any implementation of the Java VM. For example, the same Java program can run Windows NT, Solaris, and Macintosh.

## Networking TCP/IP stack

The TCP/IP stack is shorter than the OSI one:



TCP is a connection-oriented protocol; UDP (User Datagram Protocol) is a connectionless protocol.

## **IP datagram's**

The IP layer provides a connectionless and unreliable delivery system. It considers each datagram independently of the others. Any association between datagram must be supplied by the higher layers. The IP layer supplies a checksum that includes its own header. The header includes the source and destination addresses. The IP layer handles routing through an Internet. It is also responsible for breaking up large datagram into smaller ones for transmission and reassembling them at the other end.

## **UDP**

UDP is also connectionless and unreliable. What it adds to IP is a checksum for the contents of the datagram and port numbers. These are used to give a client/server model - see later.

## **TCP**

TCP supplies logic to give a reliable connection-oriented protocol above IP. It provides a virtual circuit that two processes can use to communicate.

## **Internet addresses**

In order to use a service, you must be able to find it. The Internet uses an address scheme for machines so that they can be located. The address is a 32 bit integer which gives the IP address. This encodes a network ID and more addressing. The network ID falls into various classes according to the size of the network address.

## **Network address**

Class A uses 8 bits for the network address with 24 bits left over for other addressing. Class B uses 16 bit network addressing. Class C uses 24 bit network addressing and class D uses all 32.

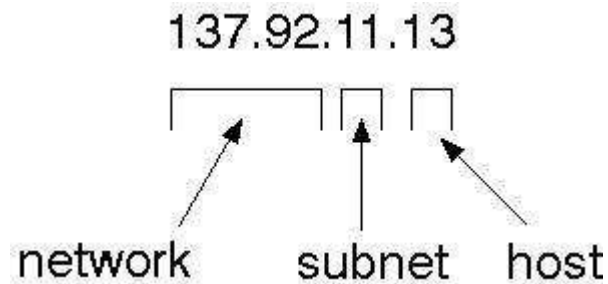
## **Subnet address**

Internally, the UNIX network is divided into sub networks. Building 11 is currently on one sub network and uses 10-bit addressing, allowing 1024 different hosts.

## Host address

8 bits are finally used for host addresses within our subnet. This places a limit of 256 machines that can be on the subnet.

## Total address



The 32 bit address is usually written as 4 integers separated by dots.

## Port addresses

A service exists on a host, and is identified by its port. This is a 16 bit number. To send a message to a server, you send it to the port for that service of the host that it is running on. This is not location transparency! Certain of these ports are "well known".

## Sockets

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with `Read File` and `Write File` functions.

```
#include <sys/types.h>#include <sys/socket.h>
```

```
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, `protocol` will be zero, and `type` will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

## JFree Chart

JFreeChart is a free 100% Java chart library that makes it easy for developers to display

professional quality charts in their applications. JFreeChart's extensive feature set includes:

A consistent and well-documented API, supporting a wide range of chart types;

A flexible design that is easy to extend, and targets both server-side and client-side applications;

Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG);

JFreeChart is "open source" or, more specifically, **free software**. It is distributed under the terms of the **GNU Lesser General Public Licence** (LGPL), which permits use in proprietary applications.

## 2. Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include:

Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas);

Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart;

Testing, documenting, testing some more, documenting some more.

## 3. Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts --- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

## 4. Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet. A consistent and well-documented API, supporting a wide range of chart types A flexible design that is easy to extend, and targets both server-side and client-side applications; Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG);

## 9. SYSTEM REQUIREMENTS

### H/W System Configuration:-

- Processor - I3/Intel Processor
- RAM - 4GB (min)
- Hard Disk - 500GB

### S/W System Configuration:-

- Operating System : Windows 7/8/10
- Application Server : Tomcat 7.0
- Front End : HTML, JSP
- Scripts : JavaScript.
- Server side Script : Java Server Pages.
- Database : My SQL 6.0
- Database Connectivity : JDBC

## **10.Implementation:**

- a. Collect data from “AllRecipes.com” as we searched item name.
- b. Collect the reviews of the selected recipe
- c. Finally we found that review type (Negative, positive and neutral) and classify thereviews.

## **STEPS FOR EXECUTING THE PROJECTS**

### **Step 1:**

Open Eclipse and set the workspace

### **Step2:**

Right Click on the project Run As and Run On Tomcat Server

### **Step3:**

In middle we got tomcat error that time we need to change port number

### **Step4:**

Copy url in Google chrome and Run

## **CODINGCSP:**

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="utf-8">
```

```
<meta content="width=device-width, initial-scale=1.0" name="viewport">
```

```
<title>Group Key Management Protocol for File Sharing on Cloud Storage</title>
```

```
<meta content="" name="description">
```

```
<meta content="" name="keywords">
```

```
<!-- Favicons -->
```

```
<link href="assets/img/favicon.png" rel="icon">
```

```
<link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">
```

```
<!-- Google Fonts -->
```

```
<link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Lato:400,300,700,900" rel="stylesheet">
```

```
<!-- Vendor CSS Files -->
```

```
<link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
```

```
<link href="assets/vendor/icomfont/icomfont.min.css" rel="stylesheet">
```

```
<link href="assets/vendor/venobox/venobox.css" rel="stylesheet">
```

```
<link href="assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">
```



<!-- Template Main CSS File -->

<link href="assets/css/style.css" rel="stylesheet">

<!-- =====

\* Template Name: Amoeba - v2.3.0

\* Template URL: <https://bootstrapmade.com/free-one-page-bootstrap-template-amoeba/>

\* Author: BootstrapMade.com

\* License: <https://bootstrapmade.com/license/>

===== -->

</head>

<body>

<!-- ===== Header ===== -->

<header id="header" class="fixed-top">

<div class="container">

<div class="logo float-left">

<h1 class="text-light" style="font-size: 20px!important;"><a href="index.html"><span>Group KeyManagement Protocol for File Sharing on Cloud Storage</span></a></h1>

<!-- Uncomment below if you prefer to use an image logo -->

<!-- <a href="index.html"></a-->

</div>

<nav class="nav-menu float-right d-none d-lg-block">

<ul>

```
<li class="active">Home
CSP

<li class="drop-down">User

Login
Registration

</nav><!-- .nav-menu -->

</div>

</header><!-- End #header -->

<main id="main">

<!-- ===== Breadcrumbs ===== -->
<section class="breadcrumbs">
<div class="container">

<div class="d-flex justify-content-between align-items-center">
<!-- <h2>Portfolio Details</h2>
-->

Home
```

```
CSP
<!-- Portfolio
Portfolio Details -->

</div>

</div>
</section><!-- Breadcrumbs -->

<!-- ===== Portfolio Details Section ===== -->
<section class="portfolio-details">
<div class="container">

<div class="" align="center">

<h2>CSP LOGIN</h2>

<div class="col-lg-5 col-md-12">
<form action="forms/csp.jsp" method="post" role="form" class="">
<div class="form-group">
 <input type="email" name="email" required="required" required="required" class="form-
control" placeholder="Email" data-rule="email" data-msg="Please enter a valid email" />
<div class="validate"></div>
</div>
<div class="form-group">
```

```
<input type="password" class="form-control"
required="required" name="password" placeholder="Password" data-rule="minlen:1" data-
msg="Please enter password" />
```

```
</div class="validate"></div>
```

```
</div>
```

```
<input type="submit" value="Login">
```

```
</form>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</section><!-- End Portfolio Details Section -->
```

```
</main><!-- End #main -->
```

```
<!-- ===== Footer ===== -->
```

```
<footer id="footer" style="position: fixed; left: 0; bottom: 0; width: 100%;">
```

```
<div class="container">
```

```
</div>
```

```
</footer>

<i class="icofont-simple-up"></i>

<!-- Vendor JS Files -->

<script src="assets/vendor/jquery/jquery.min.js"></script>

<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>

<script src="assets/vendor/jquery.easing/jquery.easing.min.js"></script>

<script src="assets/vendor/php-email-form/validate.js"></script>

<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>

<script src="assets/vendor/venobox/venobox.min.js"></script>

<script src="assets/vendor/owl.carousel/owl.carousel.min.js"></script>

<!-- Template Main JS File -->

<script src="assets/js/main.js"></script>

</body>

</html>

CSPHOME:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta content="width=device-width, initial-scale=1.0" name="viewport">

<title>Group Key Management Protocol for File Sharing on Cloud Storage</title>
```

<meta content="" name="description">

<meta content="" name="keywords">

<!-- Favicons -->

<link href="assets/img/favicon.png" rel="icon">

<link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">

<!-- Google Fonts -->

<link href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Lato:400,300,700,900" rel="stylesheet">

<!-- Vendor CSS Files -->

<link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">

<link href="assets/vendor/icomfont/icomfont.min.css" rel="stylesheet">

<link href="assets/vendor/venobox/venobox.css" rel="stylesheet">

<link href="assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">

<!-- Template Main CSS File -->

<link href="assets/css/style.css" rel="stylesheet">

<!-- ===== -->

- \* Template Name: Amoeba - v2.3.0
- \* Template URL: <https://bootstrapmade.com/free-one-page-bootstrap-template-amoeba/>
- \* Author: BootstrapMade.com
- \* License: <https://bootstrapmade.com/license/>

===== -->

</head>

<body>

<!-- ===== Header ===== -->

<header id="header" class="fixed-top">

<div class="container">

<div class="logo float-left">

<h1 class="text-light" style="font-size: 20px!important;"><a href="index.html"><span>Group  
KeyManagement Protocol for File Sharing on Cloud Storage</span></a></h1>

<!-- Uncomment below if you prefer to use an image logo -->

<!-- <a href="index.html"></a>-->

</div>

<nav class="nav-menu float-right d-none d-lg-block">

<ul>

<li class="active"><a href="csphome.jsp">Home</a></li>

<li class="drop-down"><a href="">Groups</a>

<ul>

<li><a href="ag.jsp">Add Group</a></li>

<li><a href="vgc.jsp">View Groups</a></li>

</ul>

</li>

```
<li class="drop-down">Users

New Registrations
List

Logout

</nav><!-- .nav-menu -->

</div>
</header><!-- End #header -->

<main id="main">

<!-- ===== Breadcrumbs ===== -->
<section class="breadcrumbs">
<div class="container">

<div class="d-flex justify-content-between align-items-center">
<!-- <h2>Portfolio Details</h2>
-->
Home
<!-- Portfolio
```



<li>Portfolio Details</li> -->

</ol>

</div>

</div>

</section><!-- Breadcrumbs -->

<section id="hero">

<div class="hero-container">

<h1 style="text-transform: uppercase;">Welcome CSP</h1>

</div>

<br>

</section>

</main><!-- End #main -->

<!-- ===== Footer ===== -->

<footer id="footer">

<div class="container">

</div>

</footer><!-- End #footer -->

<a href="#" class="back-to-top"><i class="icofont-simple-up"></i></a>

<!-- Vendor JS Files -->

<script src="assets/vendor/jquery/jquery.min.js"></script>

<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>

<script src="assets/vendor/jquery.easing/jquery.easing.min.js"></script>

<script src="assets/vendor/php-email-form/validate.js"></script>

<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>

<script src="assets/vendor/venobox/venobox.min.js"></script>

<script src="assets/vendor/owl.carousel/owl.carousel.min.js"></script>

<!-- Template Main JS File -->

<script src="assets/js/main.js"></script>

</body>

</html>

## **DOWNFILE:**

<% @ page language="java" contentType="text/html; charset=ISO-8859-1"pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Insert title here</title>

</head>

```
<body>
<% @page import="java.sql.*"%>
<% @ page import="java.io.*"%>
<% @ page import="java.util.zip.*"%>
<% @ page import="java.util.*"%>

<%

String fid= request.getParameter("fid");System.out.println(fid);
int aa=0;

Class.forName("com.mysql.jdbc.Driver");
Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/groupkeyManagement","root", "root");

Blob b = null; String buff=null;try
{
Statement st=conn.createStatement();

ResultSet rs4=st.executeQuery("select data,fname from files where id='"+fid+"'");while(rs4.next())
```

```
{
b=rs4.getBlob(1); buff=rs4.getString(2); out.println(rs4.getString(1));
}
}
catch(Exception e)
{
out.println(e);
}

if(b != null)
{

String fileName = buff;

byte[] ba = b.getBytes(1, (int)b.length());

response.setContentType("text"); response.setHeader("Content-Disposition","attachment;
fileName="+fileName+".txt");

 PreparedStatement pl=conn.prepareStatement("update files set
downloads=downloads+1 where id="+fid+"");

pl.executeUpdate();

OutputStream os = response.getOutputStream();os.write(ba);

os.close();
```

```
ba = null;

//session.removeAttribute("document1");

}

else

{

 //response.sendRedirect("cost_recharge2.jsp");
 System.out.println("null");

}

%>

</body>

</html>
```

## FILE REQUESTS:

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="utf-8">
```

```
<meta content="width=device-width, initial-scale=1.0" name="viewport">
```

```
<title>Group Key Management Protocol for File Sharing on Cloud Storage</title>
```

```
<meta content="" name="description">
```

```
<meta content="" name="keywords">
```

```
<!-- Favicons -->
```

```
<link href="assets/img/favicon.png" rel="icon">
```

```
<link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">
```

```
<!-- Google Fonts -->
```

```
<link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Lato:400,300,700,900" rel="stylesheet">
```

```
<!-- Vendor CSS Files -->
```

```
<link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
```

```
<link href="assets/vendor/icomfont/icomfont.min.css" rel="stylesheet">
```

```
<link href="assets/vendor/venobox/venobox.css" rel="stylesheet">
```

```
<link href="assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">
```

<!-- Template Main CSS File -->

<link href="assets/css/style.css" rel="stylesheet">

<!-- =====

\* Template Name: Amoeba - v2.3.0

\* Template URL: <https://bootstrapmade.com/free-one-page-bootstrap-template-amoeba/>

\* Author: BootstrapMade.com

\* License: <https://bootstrapmade.com/license/>

===== -->

</head>

<body>

<!-- ===== Header ===== -->

<header id="header" class="fixed-top">

<div class="container">

<div class="logo float-left">

<h1 class="text-light" style="font-size: 20px!important;"><a href="index.html"><span>Group KeyManagement Protocol for File Sharing on Cloud Storage</span></a></h1>

<!-- Uncomment below if you prefer to use an image logo -->

<!-- <a href="index.html"></a>-->

</div>

<nav class="nav-menu float-right d-none d-lg-block">

<ul>

<li class="active"><a href="uhome.jsp">Home</a></li>

```
<li class="drop-down">Groups

View Groups
View My Groups
View Other Groups
View File Requests
View My File Requests
View File Request Status

<li class="drop-down">Files

Upload
File
My files
Send Message

Logout

</nav><!-- .nav-menu -->
```



```
</div>

</header><!-- End #header -->

<main id="main">

<!-- ===== Breadcrumbs ===== -->

<section class="breadcrumbs">

<div class="container">

<div class="d-flex justify-content-between align-items-center">

<!-- <h2>Portfolio Details</h2>

-->

Home

Groups

View File Requests

<!-- Portfolio

Portfolio Details -->

</div>

</div>

</div>

</section><!-- Breadcrumbs -->

<section id="hero">

<div class="hero-container">
```

```
<iframe src="filerequessts1.jsp" style="height: 100%;width: 95%"></iframe>
```

```
</div>
```

```


```

```
</section>
```

```
</main><!-- End #main -->
```

```
<!-- ===== Footer ===== -->
```

```
<footer id="footer">
```

```
<div class="container">
```

```
</div>
```

```
</footer><!-- End #footer -->
```

```
<i class="icofont-simple-up"></i>
```

```
<!-- Vendor JS Files -->
```

```
<script src="assets/vendor/jquery/jquery.min.js"></script>
```

```
<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
```

```
<script src="assets/vendor/jquery.easing/jquery.easing.min.js"></script>
```

```
<script src="assets/vendor/php-email-form/validate.js"></script>
```

```
<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
```

```
<script src="assets/vendor/venobox/venobox.min.js"></script>
```

```
<script src="assets/vendor/owl.carousel/owl.carousel.min.js"></script>
```

```
<!-- Template Main JS File -->
<script src="assets/js/main.js"></script>

</body>

</html>
```

## **KEYDOWNLOAD:**

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"pageEncoding="ISO-
8859-1"% >
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<% @page import="comm.path"% >
<% @page import="java.io.*" %>
<%
String mid=request.getParameter("mid"); String kfile=path.kpath()+"publicKey"+mid;

System.out.println(kfile);

//response.sendRedirect(kfile);

%>
```

```
<a href="<%=kfile%>">sdds
</body>
</html>
```

## KEYUP:

```
<% @page import="java.nio.file.Files"%>
<% @page import="java.security.*"%>
<% @page import="com.mkyong.asymmetric.*"%>
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"pageEncoding="ISO-
8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>

<% @page import="java.io.*"%>

<% @page import="java.time.format.DateTimeFormatter" %>
<% @page import="java.time.LocalDateTime" %>
<%

DateTimeFormatter dtf = DateTimeFormatter.ofPattern("yyyyMMdd HH mm ss");LocalDateTime
now = LocalDateTime.now();

String da=dtf.format(now).toString();System.out.println(da);
```

```
String msgno=request.getParameter("id");String msg="";

AsymmetricCryptography ac = new AsymmetricCryptography();

//PrivateKey privateKey = ac.getPrivate("D:\\DPR21\\Group Key Management Protocol for File
Sharing\\WebContent\\KeyPair\\privateKey"+msgno+"");

 PublicKey publicKey =
ac.getPublic("C://Users//prathap//Desktop//"+request.getParameter("kfile"));

if(publicKey==null){

}

else{

ac.decryptFile(ac.getFileInBytes(new File("D:\\DPR21\\Group Key Management Protocol for File
Sharing\\WebContent\\KeyPair\\text_enc"+msgno+".txt")),
new File("C://Users//prathap//Desktop//text_dec"+da+msgno+".txt"), publicKey);

}

//AsymmetricCryptography. main(msgno, msg);

//AsymmetricCryptography. main(msgno, msg);

String filePath="C://Users//prathap//Desktop//text_dec"+da+msgno+".txt";

if(new File(filePath).exists()){

StringBuilder contentBuilder = new StringBuilder();

try (BufferedReader br = new BufferedReader(new FileReader(filePath)))
```

```
{

String sCurrentLine;
while ((sCurrentLine = br.readLine()) != null)
{
contentBuilder.append(sCurrentLine).append("\n");
}
}

System.out.println(contentBuilder.toString());
%>

<h2>Message</h2>

<textarea rows="9" cols="54" readonly="readonly" > <%=contentBuilder.toString()%></textarea>

<% }else
{
 out.println("You upload Invalid Key ");
}

%
>

</body>

</html>
```

## MYREQACCE:

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<% @ page import="java.sql.*"%>

<% @page import="java.util.Random"%>

<%

String uid=session.getAttribute("id9").toString();String fileid=request.getParameter("reqid");

Random rand = new Random();

int keyy = rand.nextInt(10000);

Class.forName("com.mysql.jdbc.Driver");

Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/groupkeyManagement","root", "root");
```

```
String sql="update filereqs set keyy='"+keyy+"' where id='"+fileid+"'";
```

```
PreparedStatement pr=conn.prepareStatement(sql);
```

```
pr.executeUpdate();
```

```
response.sendRedirect("myfilerequests1.jsp");
```

```
%>
```

```
</body>
```

```
</html>
```



## MYFILEREQUESTS:

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="utf-8">
```

```
<meta content="width=device-width, initial-scale=1.0" name="viewport">
```

```
<title>Group Key Management Protocol for File Sharing on Cloud Storage</title>
```

```
<meta content="" name="description">
```

```
<meta content="" name="keywords">
```

```
<!-- Favicons -->
```

```
<link href="assets/img/favicon.png" rel="icon">
```

```
<link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">
```

```
<!-- Google Fonts -->
```

```
<link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Lato:400,300,700,900" rel="stylesheet">
```

```
<!-- Vendor CSS Files -->
```

```
<link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
```

```
<link href="assets/vendor/icomfont/icomfont.min.css" rel="stylesheet">
```

```
<link href="assets/vendor/venobox/venobox.css" rel="stylesheet">
```

```
<link href="assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">
```

<!-- Template Main CSS File -->

<link href="assets/css/style.css" rel="stylesheet">

<!-- =====

\* Template Name: Amoeba - v2.3.0

\* Template URL: <https://bootstrapmade.com/free-one-page-bootstrap-template-amoeba/>

\* Author: BootstrapMade.com

\* License: <https://bootstrapmade.com/license/>

===== -->

</head>

<body>

<!-- ===== Header ===== -->

<header id="header" class="fixed-top">

<div class="container">

<div class="logo float-left">

<h1 class="text-light" style="font-size: 20px!important;"><a href="index.html"><span>Group KeyManagement Protocol for File Sharing on Cloud Storage</span></a></h1>

<!-- Uncomment below if you prefer to use an image logo -->

<!-- <a href="index.html"></a>-->

</div>

<nav class="nav-menu float-right d-none d-lg-block">

<ul>

<li class="active"><a href="uhome.jsp">Home</a></li>

```
<li class="drop-down">Groups

View Groups
View My Groups
View Other Groups
View File Requests
View My File Requests
View File Request Status

<li class="drop-down">Files

Upload
File
My files
Send
Message

</
ul
>

Logout

</nav><!-- .nav-menu -->
```

```
</div>

</header><!-- End #header -->

<main id="main">

<!-- ===== Breadcrumbs ===== -->

<section class="breadcrumbs">

<div class="container">

<div class="d-flex justify-content-between align-items-center">

<!-- <h2>Portfolio Details</h2>

-->

Home

Groups

View File Requests

<!-- Portfolio

Portfolio Details -->

</div>

</div>

</div>

</section><!-- Breadcrumbs -->

<section id="hero">

<div class="hero-container">
```

```
<iframe src="myfilerequests1.jsp" style="height: 100%;width: 95%"></iframe>
```

```
</div>
```

```


```

```
</section>
```

```
</main><!-- End #main -->
```

```
<!-- ===== Footer ===== -->
```

```
<footer id="footer">
```

```
<div class="container">
```

```
</div>
```

```
</footer><!-- End #footer -->
```

```
<i class="icofont-simple-up"></i>
```

```
<!-- Vendor JS Files -->
```

```
<script src="assets/vendor/jquery/jquery.min.js"></script>
```

```
<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
```

```
<script src="assets/vendor/jquery.easing/jquery.easing.min.js"></script>
```

```
<script src="assets/vendor/php-email-form/validate.js"></script>
```

```
<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
```

```
<script src="assets/vendor/venobox/venobox.min.js"></script>
```

```
<script src="assets/vendor/owl.carousel/owl.carousel.min.js"></script>
```

```
<!-- Template Main JS File -->
```

```
<script src="assets/js/main.js"></script>
```

```
</body>
```

```
</html> REQUESTSACCE:
```

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1" pageEncoding="ISO-8859-1"%>
```

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<meta charset="ISO-8859-1">
```

```
<title>Insert title here</title>
```

```
</head>
```

```
<body>
```

```
<% @ page import="java.sql.*"%>
```

```
<%
```

```
String uid=session.getAttribute("id9").toString();
```

```
String reqid=request.getParameter("reqid");String mem=request.getParameter("mem");
```

```
//out.println(mem.replaceFirst("2,", " "));

System.out.println("members data"+mem);System.out.println("loin id"+uid);

String s =mem; if(mem.equals(uid)){
out.println("both are equal");

mem="";
}
else {

String uid1=uid+", "; String uid2=", "+uid; String uid3=", "+uid+", ";

out.println(uid.length()+1+"
");
String mam1=s.substring(0, uid.length()+1);
String mam2=s.substring(s.length()-uid.length()-1,s.length());
//out.println("first are equal"+mam2);
```

```
if(mam1.equals(uid1)){
 out.println("matched at first ");

 mem=mem.substring(uid1.length(), mem.length());
}
```

```
else if(mam2.equals(uid2)){ out.println("matched at last ");
```

```
 mem=mem.substring(0, mem.length()-uid1.length());
```

```
}
```

```
else if(mem.contains(uid3)){ out.println("matched at middle ");
```

```
 mem=mem.replace(uid3, ",");
```

```
}
```

```
}
```



```
out.println(mem+"mem===");
```

```
int a=0; Class.forName("com.mysql.jdbc.Driver");
```

```
Connection conn =
```

```
DriverManager.getConnection("jdbc:mysql://localhost:3306/groupkeyManagement","root", "root");
```

```
String sql="update filereqs set members='"+mem+"',acceptmembers=acceptmembers+1 where
id='"+reqid+"'";
```

```
PreparedStatement ps=conn.prepareStatement(sql);
```

```
out.println(sql);
```

```
ps.executeUpdate(); response.sendRedirect("requests.jsp?accepted successfully");
```

```
%>
```

```
</body>
```

```
</html> REQUESTS:
```

```
<!DOCTYPE html>
```

```
<html lang="en">

<head>

<meta charset="utf-8">

<meta content="width=device-width, initial-scale=1.0" name="viewport">

<title>Group Key Management Protocol for File Sharing on Cloud Storage</title>

<meta content="" name="description">

<meta content="" name="keywords">

<!-- Favicons -->

<link href="assets/img/favicon.png" rel="icon">

<link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">

<!-- Google Fonts -->

<link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Lato:400,300,700,900" rel="stylesheet">

<!-- Vendor CSS Files -->

<link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">

<link href="assets/vendor/icomfont/icomfont.min.css" rel="stylesheet">

<link href="assets/vendor/venobox/venobox.css" rel="stylesheet">

<link href="assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">

<!-- Template Main CSS File -->

<link href="assets/css/style.css" rel="stylesheet">
```

<!-- =====

- \* Template Name: Amoeba - v2.3.0
- \* Template URL: <https://bootstrapmade.com/free-one-page-bootstrap-template-amoeba/>
- \* Author: BootstrapMade.com
- \* License: <https://bootstrapmade.com/license/>

===== -->

</head>

<body>

<!-- ===== Header ===== -->

<header id="header" class="fixed-top">

<div class="container">

<div class="logo float-left">

<h1 class="text-light" style="font-size: 20px!important;"><a href="index.html"><span>Group KeyManagement Protocol for File Sharing on Cloud Storage</span></a></h1>

<!-- Uncomment below if you prefer to use an image logo -->

<!-- <a href="index.html"></a-->

</div>

<nav class="nav-menu float-right d-none d-lg-block">

<ul>

<li class="active"><a href="uhome.jsp">Home</a></li>

<li class="drop-down"><a href="">Groups</a>

```

View Groups
View My Groups
View Other Groups
View File Requests
View My File Requests
View File Request Status

<li class="drop-down">Files

Upload
File

My files
Send
Message

<u
>
</li
i> Logout

</nav><!-- .nav-menu -->

</div>

</header><!-- End #header -->
```

```
<main id="main">

<!-- ===== Breadcrumbs ===== -->

<section class="breadcrumbs">

<div class="container">

<div class="d-flex justify-content-between align-items-center">

<!-- <h2>Portfolio Details</h2>

-->

Home

Groups

View File Requests

<!-- Portfolio

Portfolio Details -->

</div>

</div>

</section><!-- Breadcrumbs -->

<section id="hero">

<div class="hero-container">

<iframe src="requests1.jsp" style="height: 100%;width: 95%"></iframe>

</div>
```

<br>

</section>

</main><!-- End #main -->

<!-- ===== Footer ===== -->

<footer id="footer">

<div class="container">

</div>

</footer><!-- End #footer -->

<a href="#" class="back-to-top"><i class="icofont-simple-up"></i></a>

<!-- Vendor JS Files -->

<script src="assets/vendor/jquery/jquery.min.js"></script>

<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>

<script src="assets/vendor/jquery.easing/jquery.easing.min.js"></script>

<script src="assets/vendor/php-email-form/validate.js"></script>

<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>

<script src="assets/vendor/venobox/venobox.min.js"></script>

<script src="assets/vendor/owl.carousel/owl.carousel.min.js"></script>

<!-- Template Main JS File -->

<script src="assets/js/main.js"></script>

</body>

</html>

## **SENDFILEREQUESTS:**

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"pageEncoding="ISO-8859-1"%>
```

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<meta charset="ISO-8859-1">
```

```
<title>Insert title here</title>
```

```
</head>
```

```
<body>
```

```
<% @ page import="java.sql.*"%>
```

```
<%
```

```
String uid=session.getAttribute("id9").toString();
```

```
String groupid= request.getParameter("gid");
```

```
String fileid= request.getParameter("fid");int a=0;
```

```
Class.forName("com.mysql.jdbc.Driver");

Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/groupkeyManagement","root", "root");

String checksql="select count(*) from filereqs where userid='"+session.getAttribute("id9")+"' and
fileid='"+fileid+"'";

out.println(checksql);

PreparedStatement ps=conn.prepareStatement(checksql);

ResultSet rs=ps.executeQuery();while(rs.next()){
a=rs.getInt(1);

}

if(a==0){

String sql=" insert into filereqs(fileid,groupid,userid,ownerid,samegroup,totmem,members)
values '"+fileid+"','"+groupid+"','"+session.getAttribute("id9")+"',(select uid from files where
id='"+fileid+"'),'no',(select members from groups where id='"+groupid+"'),(select
group_concat(concat(",USERID, ")) from usergroup WHERE GROUPID='"+groupid+"')";

System.out.println(sql);

PreparedStatement pp=conn.prepareStatement(sql);pp.executeUpdate();

response.sendRedirect("msg.jsp?m=1");
```



```
}
```

```
else{
```

```
response.sendRedirect("msg.jsp?m=2");
```

```
}
```

```
%>
```

```
</body>
```

```
</html>SMS:
```

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="utf-8">
```

```
<meta content="width=device-width, initial-scale=1.0" name="viewport">
```

```
<title>Group Key Management Protocol for File Sharing on Cloud Storage</title>
```

<meta content="" name="description">

<meta content="" name="keywords">

<!-- Favicons -->

<link href="assets/img/favicon.png" rel="icon">

<link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">

<!-- Google Fonts -->

<link href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Lato:400,300,700,900" rel="stylesheet">

<!-- Vendor CSS Files -->

<link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">

<link href="assets/vendor/icomfont/icomfont.min.css" rel="stylesheet">

<link href="assets/vendor/venobox/venobox.css" rel="stylesheet">

<link href="assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">

<!-- Template Main CSS File -->

<link href="assets/css/style.css" rel="stylesheet">

<!-- ===== -->

- \* Template Name: Amoeba - v2.3.0
- \* Template URL: <https://bootstrapmade.com/free-one-page-bootstrap-template-amoeba/>
- \* Author: BootstrapMade.com
- \* License: <https://bootstrapmade.com/license/>

===== -->

</head>

<body>

<!-- ===== Header ===== -->

<header id="header" class="fixed-top">

<div class="container">

<div class="logo float-left">

<h1 class="text-light" style="font-size: 20px!important;"><a href="index.html"><span>Group  
KeyManagement Protocol for File Sharing on Cloud Storage</span></a></h1>

<!-- Uncomment below if you prefer to use an image logo -->

<!-- <a href="index.html"></a>-->

</div>

<nav class="nav-menu float-right d-none d-lg-block">

<ul>

<li class="active"><a href="uhome.jsp">Home</a></li>

<li class="drop-down"><a href="">Groups</a>

<ul>

<li><a href="vg.jsp">View Groups</a></li>

<li><a href="vmg.jsp">View My Groups</a></li>

<li><a href="vog.jsp">View Other Groups</a></li>

<li><a href="requests.jsp">View File Requests</a></li>

<li><a href="myfilerequests.jsp">View My File Requests</a></li>

<li><a href="filerequessts.jsp">View File Request Status</a></li>

```


<li class="drop-down">Files

Upload File

My files Send Message

</
ul
>

 Logout
i>

</nav><!-- .nav-menu -->

</div>

</header><!-- End #header -->

<main id="main">

<!-- ===== Breadcrumbs ===== -->

<section class="breadcrumbs">

<div class="container">
```

```
<div class="d-flex justify-content-between align-items-center">
<!-- <h2>Portfolio Details</h2>
-->
Home

File

Send Message

</div>

</div>
</section><!-- Breadcrumbs -->

<section id="hero">
<div class="hero-container">
<iframe src="forms/sms.jsp" style="height: 100%;width: 95%"></iframe>
</div>

</section>

</main><!-- End #main -->

<!-- ===== Footer ===== -->
<footer id="footer">
```

```
<div class="container">
```

```
</div>
```

```
</footer><!-- End #footer -->
```

```
<i class="icofont-simple-up"></i>
```

```
<!-- Vendor JS Files -->
```

```
<script src="assets/vendor/jquery/jquery.min.js"></script>
```

```
<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
```

```
<script src="assets/vendor/jquery.easing/jquery.easing.min.js"></script>
```

```
<script src="assets/vendor/php-email-form/validate.js"></script>
```

```
<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
```

```
<script src="assets/vendor/venobox/venobox.min.js"></script>
```

```
<script src="assets/vendor/owl.carousel/owl.carousel.min.js"></script>
```

```
<!-- Template Main JS File -->
```

```
<script src="assets/js/main.js"></script>
```

```
</body>
```

```
</html>
```

**UHOME:**

```
<!DOCTYPE html>
```

```
<html lang="en">
```

<head>

<meta charset="utf-8">

<meta content="width=device-width, initial-scale=1.0" name="viewport">

<title>Group Key Management Protocol for File Sharing on CloudStorage</title>

<meta content="" name="description">

<meta content="" name="keywords">

<!-- Favicons -->

<link href="assets/img/favicon.png" rel="icon">

<link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">

<!-- Google Fonts -->

<link

href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Lat o:400,300,700,900"

rel="stylesheet">

<!-- Vendor CSS Files -->

<link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">

<link href="assets/vendor/icofont/icofont.min.css" rel="stylesheet">

<link href="assets/vendor/venobox/venobox.css" rel="stylesheet">

<link href="assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">

```
<!-- Template Main CSS File -->
```

```
<link href="assets/css/style.css" rel="stylesheet">
```

```
<!-- =====
```

```
* Template Name: Amoeba - v2.3.0
```

```
* Template URL: https://bootstrapmade.com/free-one-page-bootstrap-template-amoeba/
```

```
* Author: BootstrapMade.com
```

```
* License: https://bootstrapmade.com/license/
```

```
===== -->
```

```
</head>
```

```
<body>
```

```
<!-- ===== Header ===== -->
```

```
<header id="header" class="fixed-top">
```

```
<div class="container">
```

```
<div class="logo float-left">
```

```
<h1 class="text-light" style="font-size: 20px !important;">
```

```
Group Key Management Protocol for File Sharing on Cloud
Storage
```

```
fluid"</
```

```
<di>
```



```

<li class="active">Home

<li class="drop-down">Groups

View Groups
View My Groups
View Other Groups
View File Requests
View My File Requests
View File Request Status

<li class="drop-down">Files

Upload File
My files
Send Message

Logout
```

```

</nav>
<!-- .nav-menu -->

</div>
</header>
<!-- End #header -->

<main id="main"> <!-- ===== Breadcrumbs ===== -->
<section class="breadcrumbs">
<div class="container">

 <div class="d-flex justify-content-between align-items-center">
 <!-- <h2>Portfolio Details</h2>
-
-
>

 Home

 <!-- Portfolio

Portfolio Details -->

 </div>

</div>

</section>
<!-- Breadcrumbs -->
```

```
<section id="hero">
<div class="hero-container">
<h1 style="text-transform: uppercase;">Welcome
<%=session.getAttribute("name")%></h1>

</div>

</section>

</main>
<!-- End #main -->

<!-- ===== Footer ===== -->
<footer id="footer">
<div class="container"></div>
</footer>
<!-- End #footer -->

<i class="icofont-simple-up"></i>

<!-- Vendor JS Files -->
<script src="assets/vendor/jquery/jquery.min.js"></script>
<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
<script src="assets/vendor/jquery.easing/jquery.easing.min.js"></script>
<script src="assets/vendor/php-email-form/validate.js"></script>
```

```
<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
```

```
<script src="assets/vendor/venobox/venobox.min.js"></script>
```

```
<script src="assets/vendor/owl.carousel/owl.carousel.min.js"></script>
```

```
<!-- Template Main JS File -->
```

```
<script src="assets/js/main.js"></script>
```

```
</body>
```

```
</html>
```

## USERR:

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="utf-8">
```

```
<meta content="width=device-width, initial-scale=1.0" name="viewport">
```

```
<title>Group Key Management Protocol for File Sharing on Cloud Storage</title>
```

```
<meta content="" name="description">
```

```
<meta content="" name="keywords">
```

```
<!-- Favicons -->
```

```
<link href="assets/img/favicon.png" rel="icon">
```

```
<link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">
```

```
<!-- Google Fonts -->
```

```
<link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Lato:400,300,700,900" rel="stylesheet">
```

```
<!-- Vendor CSS Files -->
```

```
<link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
```

```
<link href="assets/vendor/icomfont/icomfont.min.css" rel="stylesheet">
```

```
<link href="assets/vendor/venobox/venobox.css" rel="stylesheet">
```

```
<link href="assets/vendor/owl.carousel/assets/owl.carousel.min.css" rel="stylesheet">
```

<!-- Template Main CSS File -->

<link href="assets/css/style.css" rel="stylesheet">

<!-- =====

\* Template Name: Amoeba - v2.3.0

\* Template URL: <https://bootstrapmade.com/free-one-page-bootstrap-template-amoeba/>

\* Author: BootstrapMade.com

\* License: <https://bootstrapmade.com/license/>

===== -->

</head>

<body>

<!-- ===== Header ===== -->

<header id="header" class="fixed-top">

<div class="container">

<div class="logo float-left">

<h1 class="text-light" style="font-size: 20px!important;"><a href="index.html"><span>Group KeyManagement Protocol for File Sharing on Cloud Storage</span></a></h1>

<!-- Uncomment below if you prefer to use an image logo -->

<!-- <a href="index.html"></a>-->

</div>

<nav class="nav-menu float-right d-none d-lg-block">

<ul>

<li class="active"><a href="index.html">Home</a></li>

```
CSP

<li class="drop-down">User

Login
Registration

</nav><!-- .nav-menu -->

</div>
</header><!-- End #header -->

<main id="main">

<!-- ===== Breadcrumbs ===== -->
<section class="breadcrumbs">
<div class="container">

<div class="d-flex justify-content-between align-items-center">
<!-- <h2>Portfolio Details</h2>
-->
Home
User Registration
```

```
<!-- Portfolio
Portfolio Details -->

</div>

</div>
</section><!-- Breadcrumbs -->

<!-- ===== Portfolio Details Section ===== -->
<section class="portfolio-details">
<div class="container">

<div class="" align="center">
<%String haha=null;
String ab=null;
String a="Your Registration Successfully Completed";haha=request.getParameter("msg");
System.out.println("hahahahahah===== "+haha); if(haha==null){
System.out.println("=====");
}

else if(haha.equals(a)){

%>
```



```
<p style="color: green;font-weight: bold;"><%=haha %></p>
```

```
<
%
} else if(haha.equals("failed")){
```

```
% <p style="color: red;font-weight: bold;">Your Email Id Already Registered</p>
>
```

```
<%
```

```
}
```

```
else{
```

```
}
```

```
%>
```

```
<h2>User Registration</h2>
```

```


```

```


```

```
<div class="col-lg-5 col-md-12">
```

```
<form action="forms/userr.jsp" method="post" role="form" class="">
```

```
<div class="form-group">
```

```
 <input type="text" class="form-control"
required="required" name="name" placeholder="Name" data-rule="minlen:3" data-msg="Please
enter Name" />
```

```
<div class="validate"></div>
```

```
</div>
```

```
<div class="form-group">
```

```
<input type="email" name="email" class="form-control"required="required"
placeholder="Email" data-rule="email" data-msg="Please enter a valid email" />

<div class="validate"></div>

</div>

<div class="form-group">

 <input type="number" class="form-control" min="0"required="required"
max="999999999" name="mobile"placeholder="Phone Number" data-rule="minlen:10" data-
msg="Please enter valid Phonenumber" />

<div class="validate"></div>

</div>

<div class="form-group">

 <input type="password" class="form-control"required="required"
name="password"placeholder="Password" data-rule="minlen:1" data-msg="Please enter password"
/>

<div class="validate"></div>

</div>

<input type="submit" value="Register">

</form>

</div></div>

</div>
</div>

</section><!-- End Portfolio Details Section -->
```

</main><!-- End #main -->

<!-- ===== Footer ===== -->

<footer id="footer" style="position: fixed; left: 0; bottom: 0; width: 100%;">

<div class="container">

</div>

</footer>

<a href="#" class="back-to-top"><i class="icofont-simple-up"></i></a>

<!-- Vendor JS Files -->

<script src="assets/vendor/jquery/jquery.min.js"></script>

<script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>

<script src="assets/vendor/jquery.easing/jquery.easing.min.js"></script>

<script src="assets/vendor/php-email-form/validate.js"></script>

<script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>

<script src="assets/vendor/venobox/venobox.min.js"></script>

<script src="assets/vendor/owl.carousel/owl.carousel.min.js"></script>

<!-- Template Main JS File -->

<script src="assets/js/main.js"></script>

</body>

</html>

## SYSTEM TESTING

### UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

### INTEGRATION TESTING

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

### FUNCTIONAL TEST

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted. Invalid Input :

identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked. Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

## **SYSTEM TEST**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

## **WHITE BOX TESTING**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is used to test areas that cannot be reached from a black box level.

## **BLACK BOX TESTING**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## **UNIT TESTING:**

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as

two distinct phases.

## **Test strategy and approach**

Field testing will be performed manually and functional tests will be written in detail.

## **Test objectives**

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

## **Features to be tested**

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

## **INTEGRATION TESTING**

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

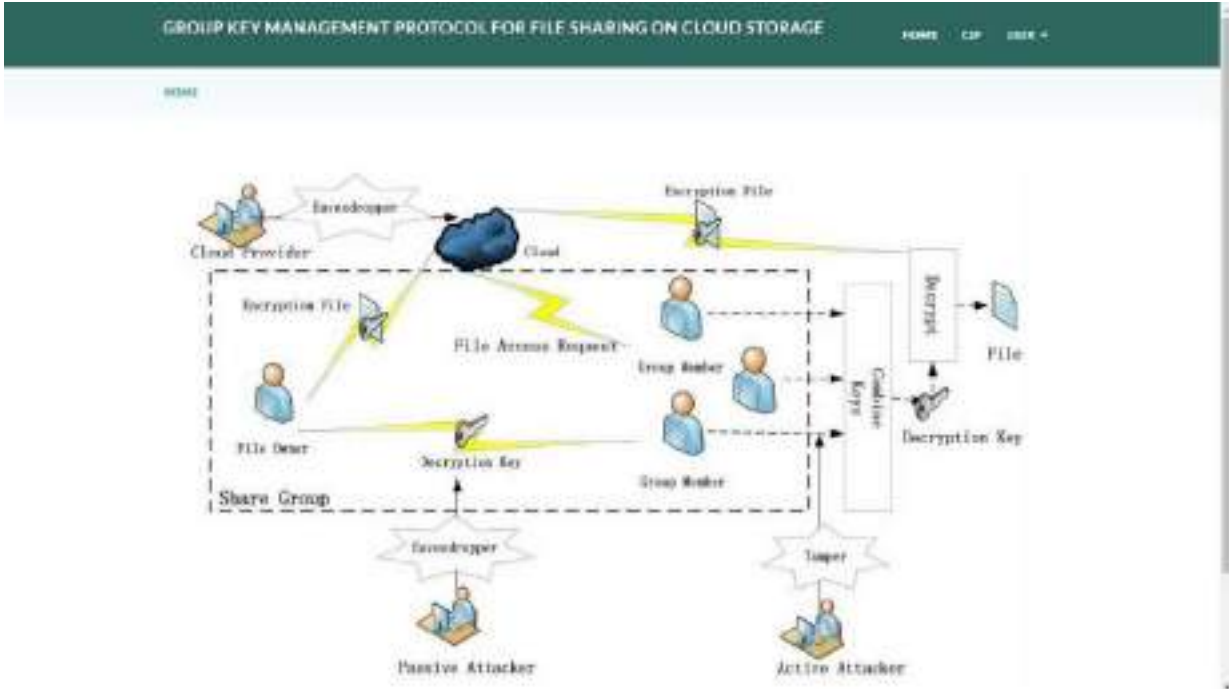
## **ACCEPTANCE TESTING**

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered

### 11. OUTPUT SCREENS

#### SCREEN 1:HOME



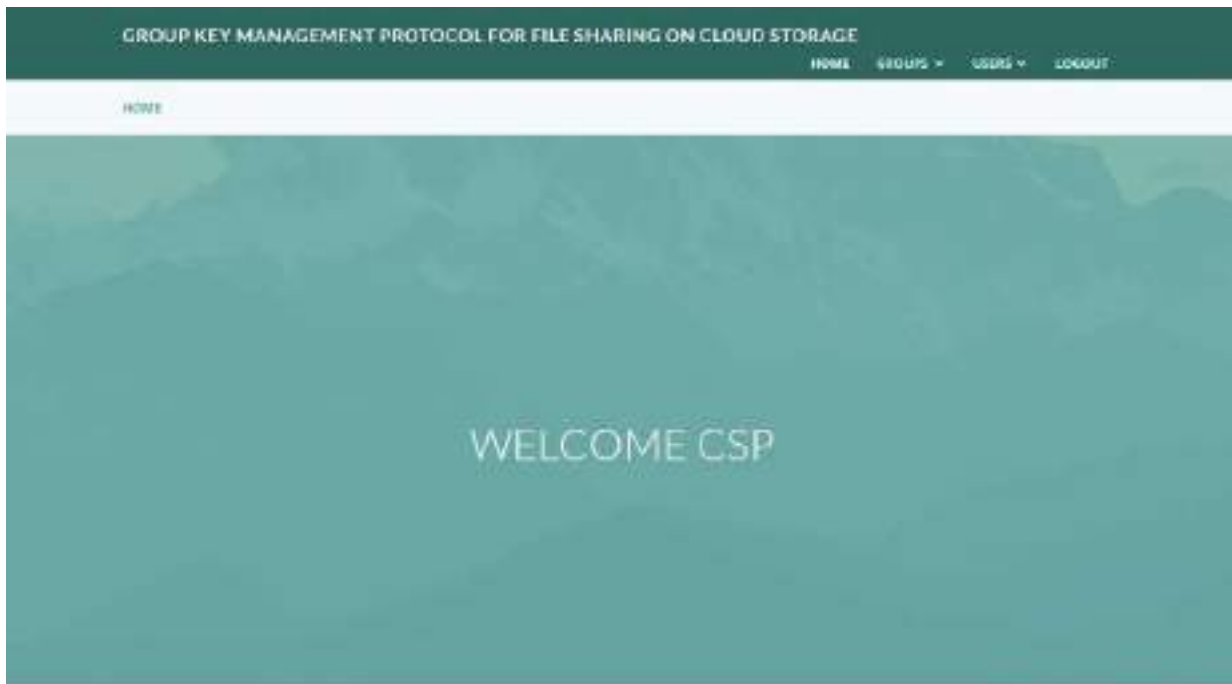


## CSP LOGIN

The login form consists of two input fields. The first field is for the email address, containing "csp@gmail.com". The second field is for the password, containing "123". Below the fields is a "Login" button.

SCREEN2:CSPLOGIN

SCREEN3:CSPHOME





## SCREEN4:ADDGROUP

GROUP KEY MANAGEMENT PROTOCOL FOR FILE SHARING ON CLOUD STORAGE

HOME GROUPS USERS LOGOUT

HOME > ADDGROUP

Add Group

View Groups

Add Group

Group Name

Group type

Description

Add

## SCREEN5:VIEWGROUPS

GROUP KEY MANAGEMENT PROTOCOL FOR FILE SHARING ON CLOUD STORAGE

HOME GROUPS USERS LOGOUT

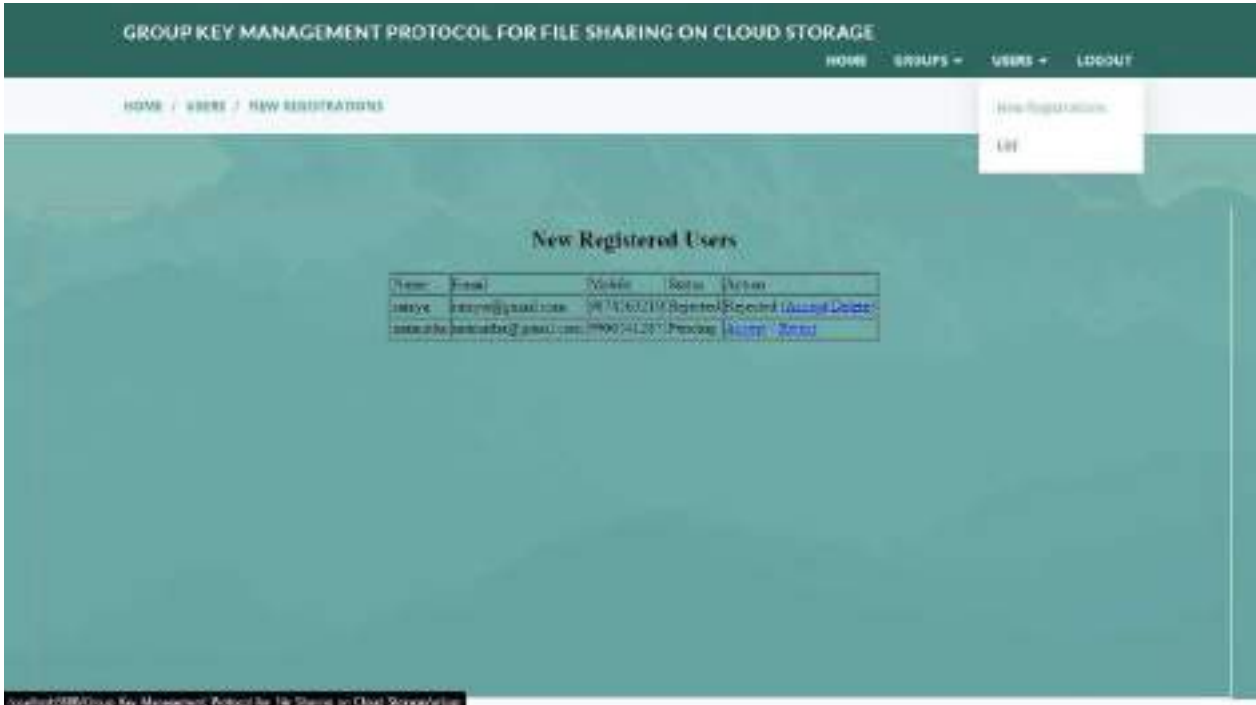
HOME > VIEWGROUPS

Add Group

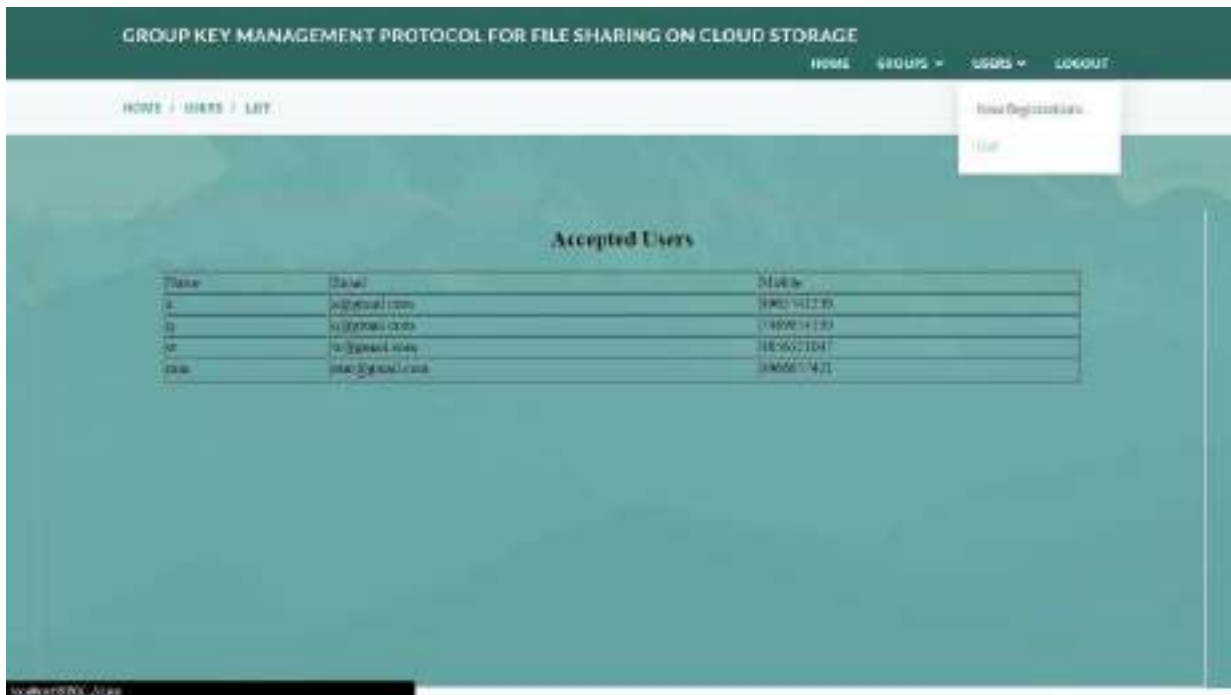
View Groups

Group Name	Type	Description	No. of Members	No. of Files
admins	sa	admins	4	0
admins	adm	adm	1	0
guru	adm. for experts	empowering logical skills	1	0

## SCREEN6:NEWREGISTEREDUSERS



## SCREEN7:ACCEPTED UESR LIST

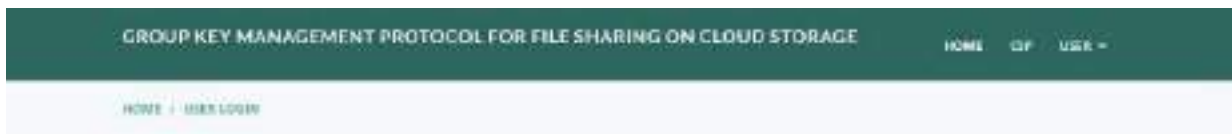


## SCREEN8:USER REGISTRATION



### User Registration

## SCREEN9:USER LOGIN

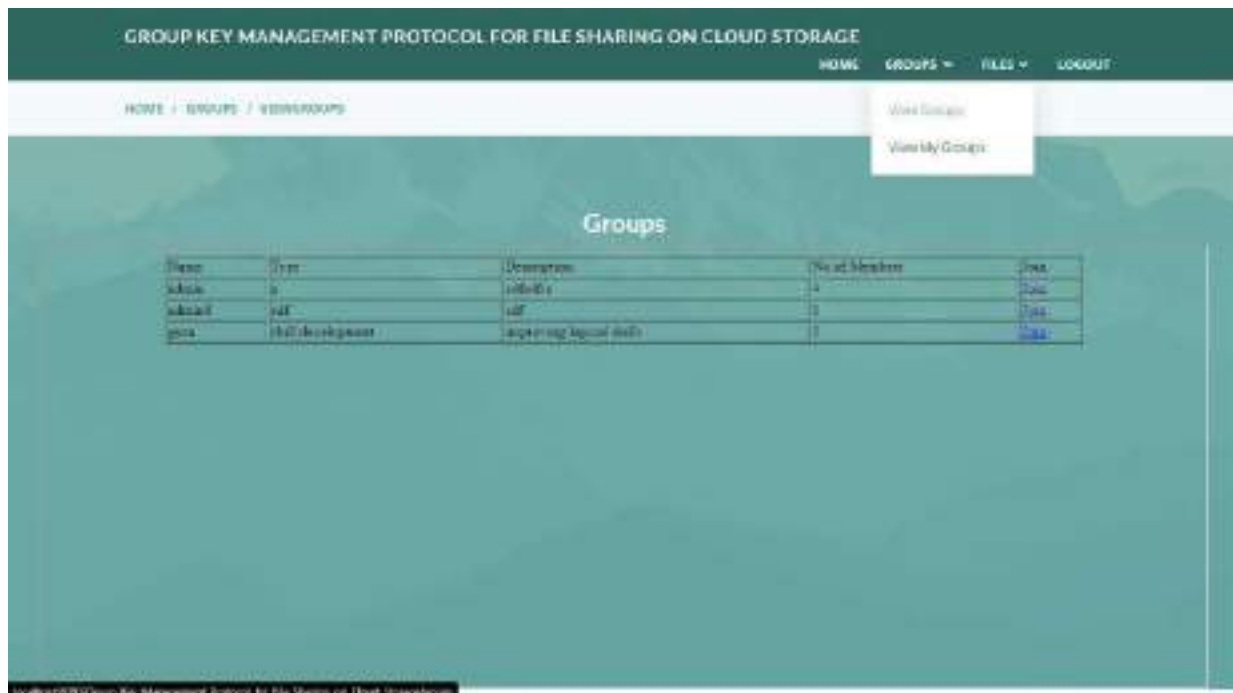


### USER LOGIN

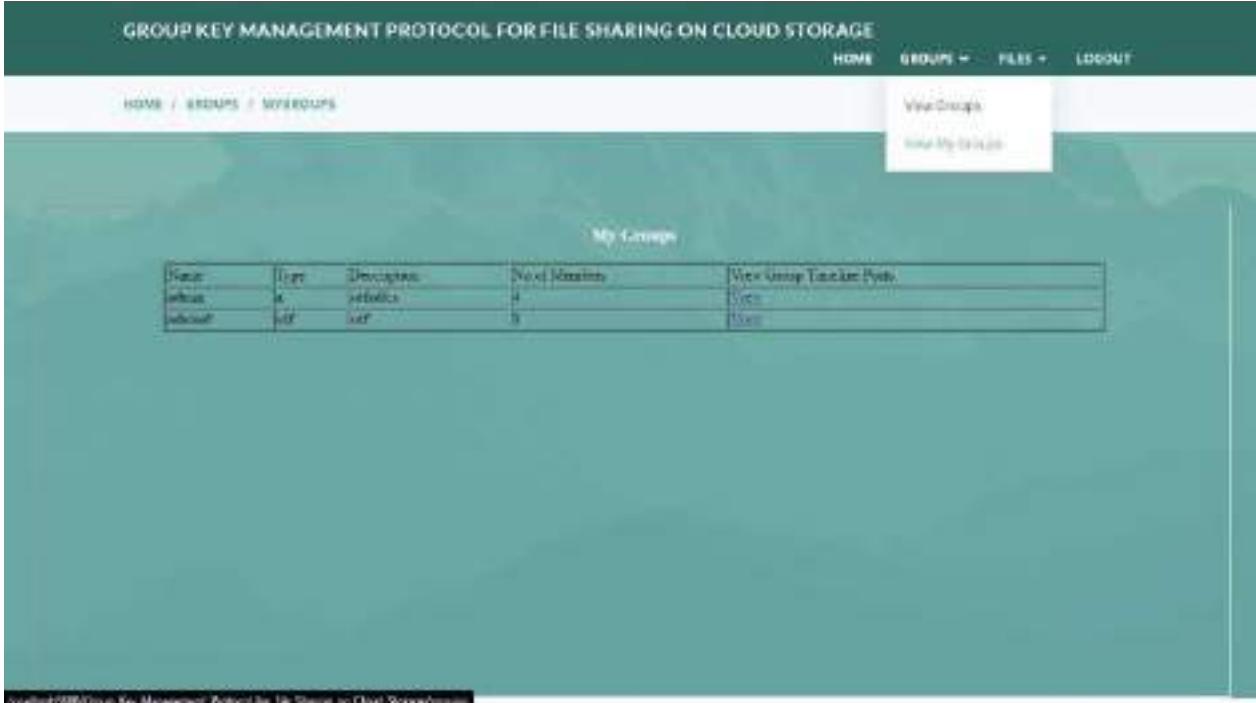
## SCREEN10:USER HOME



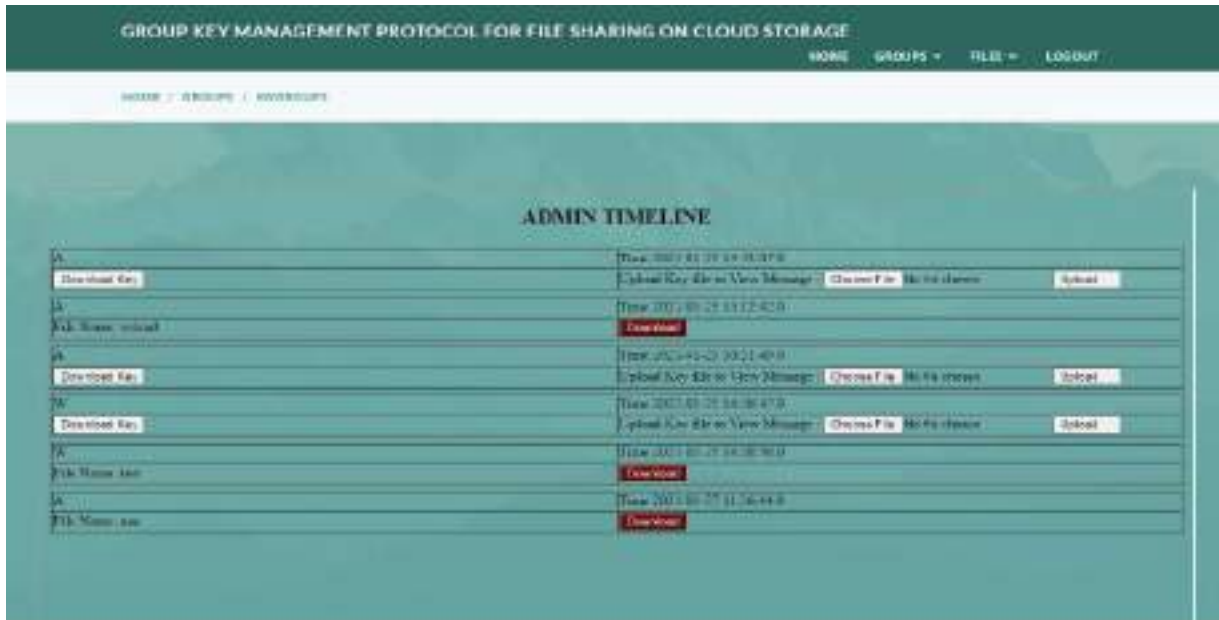
## SCREEN11:VIEW GROUPS



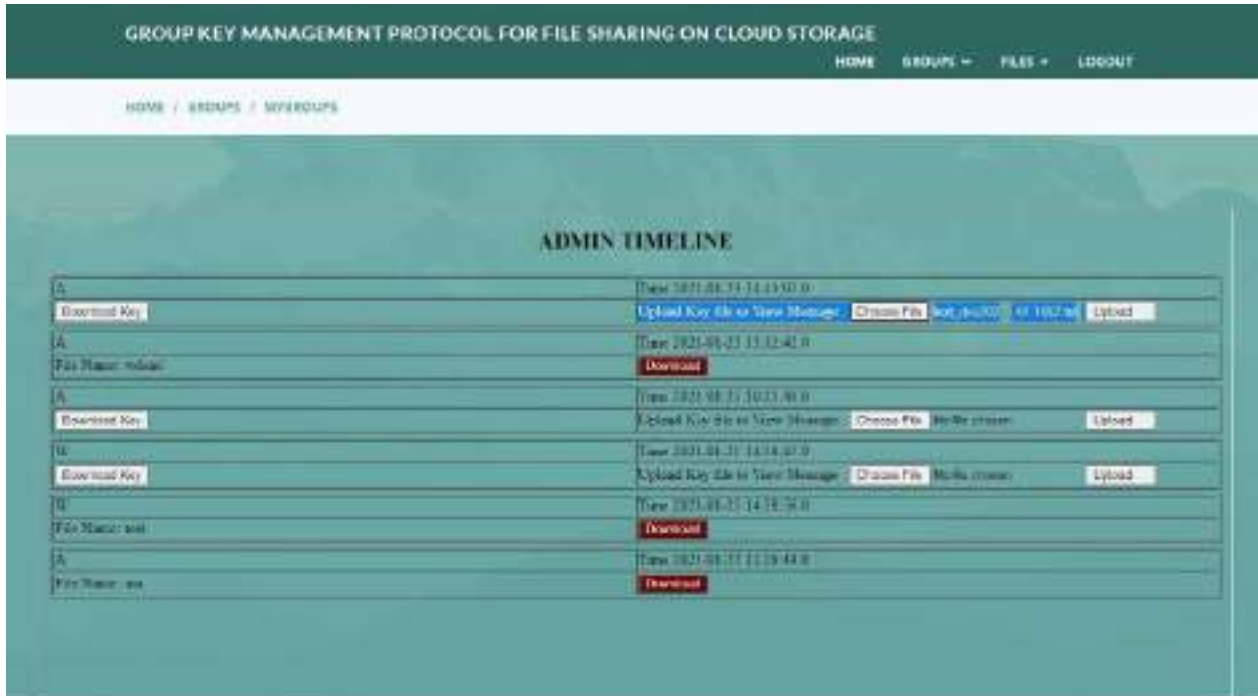
## SCREEN12:MY GROUPS



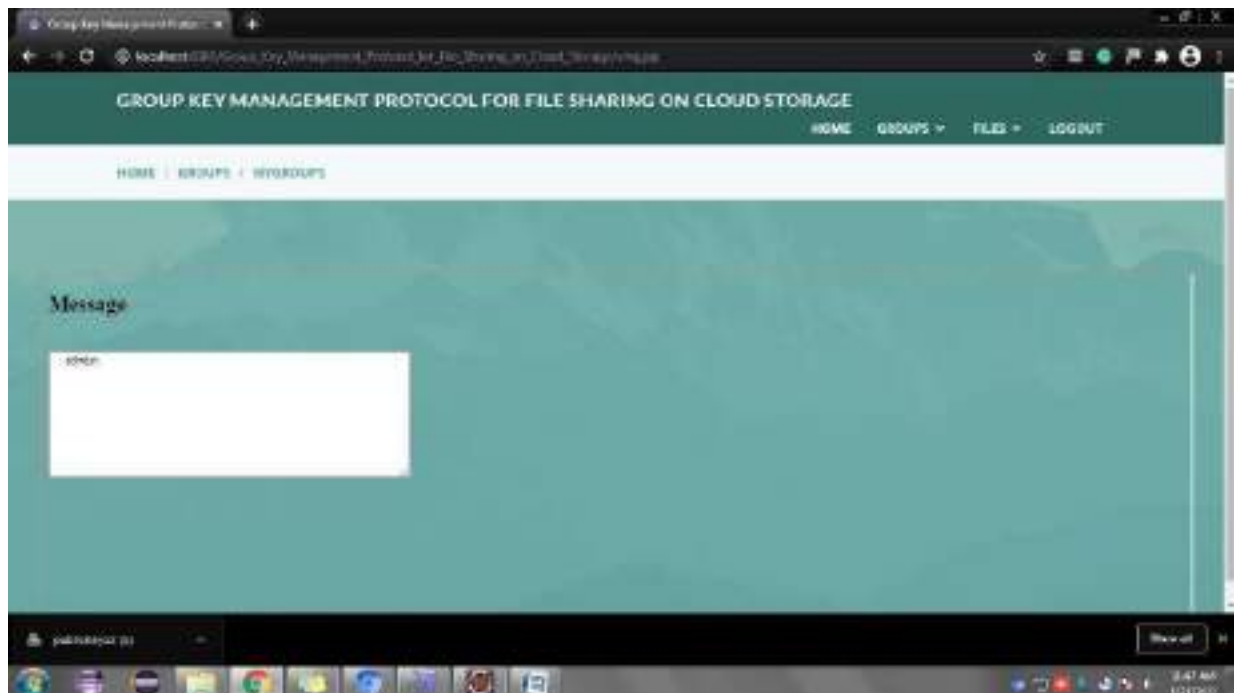
## SCREEN13:MYGROUPS VIEW TIMELINE



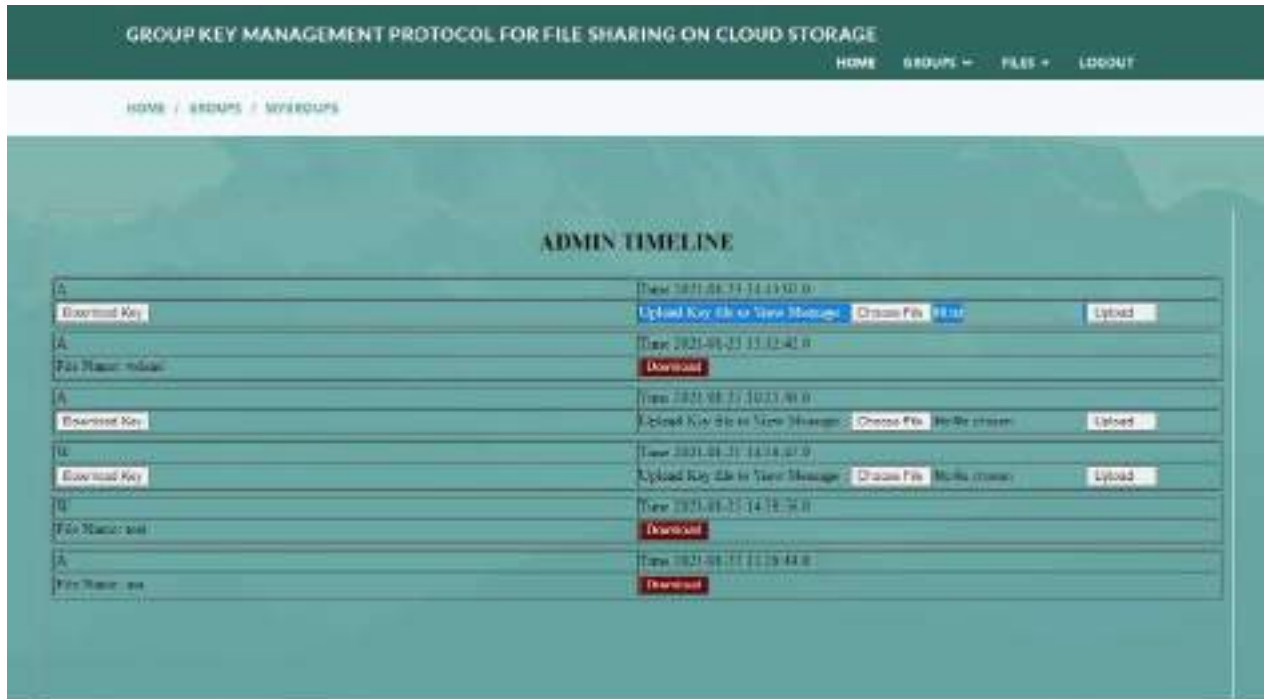
## SCREEN14:KEY UPLOADING



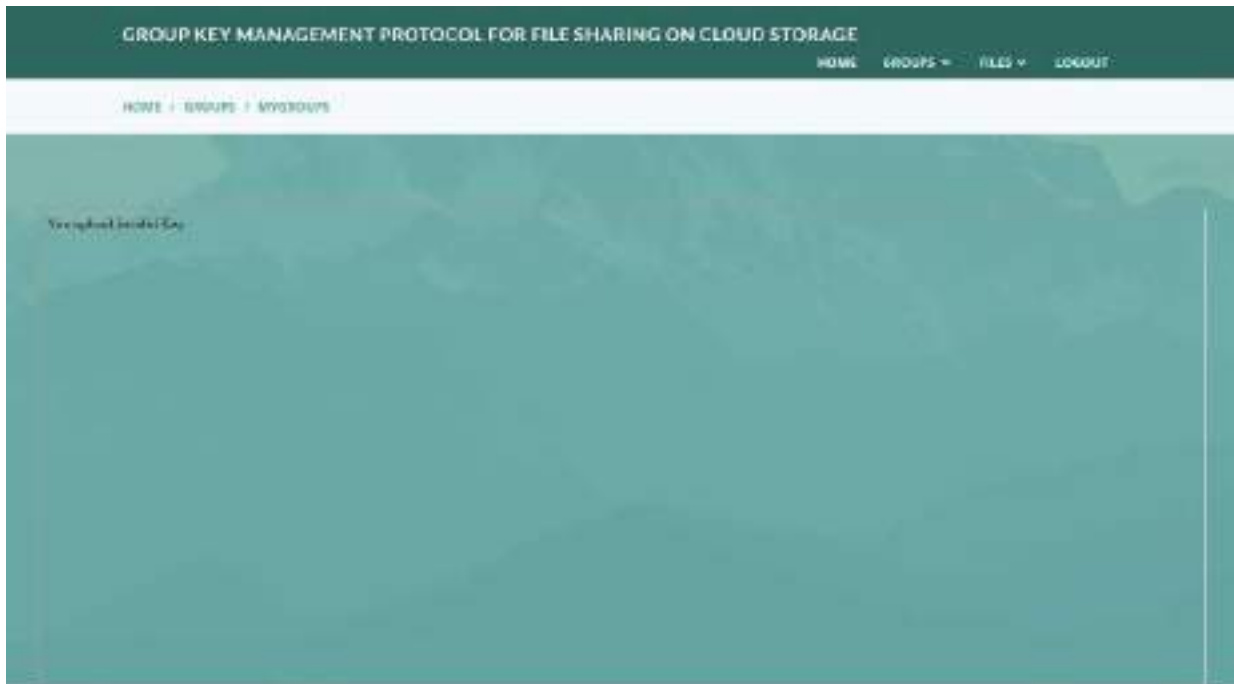
## SCREEN15:IF KEY IS VALID



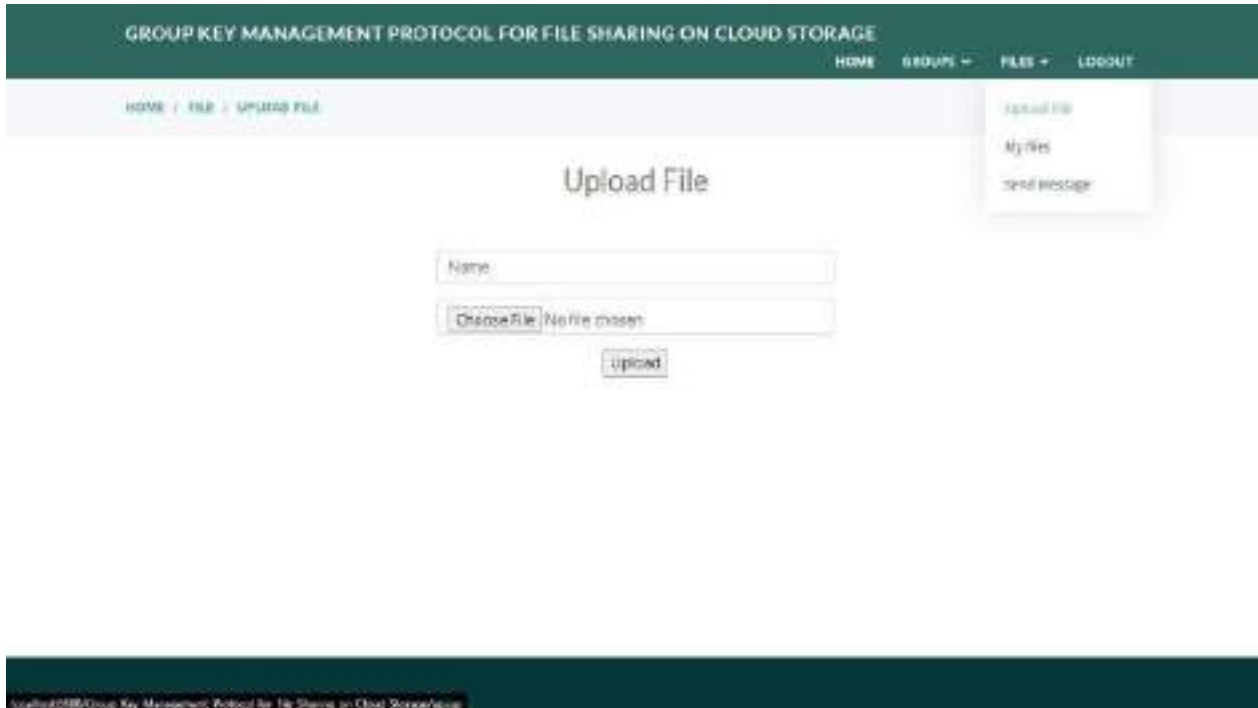
## SCREEN16:KEYUPLOADING



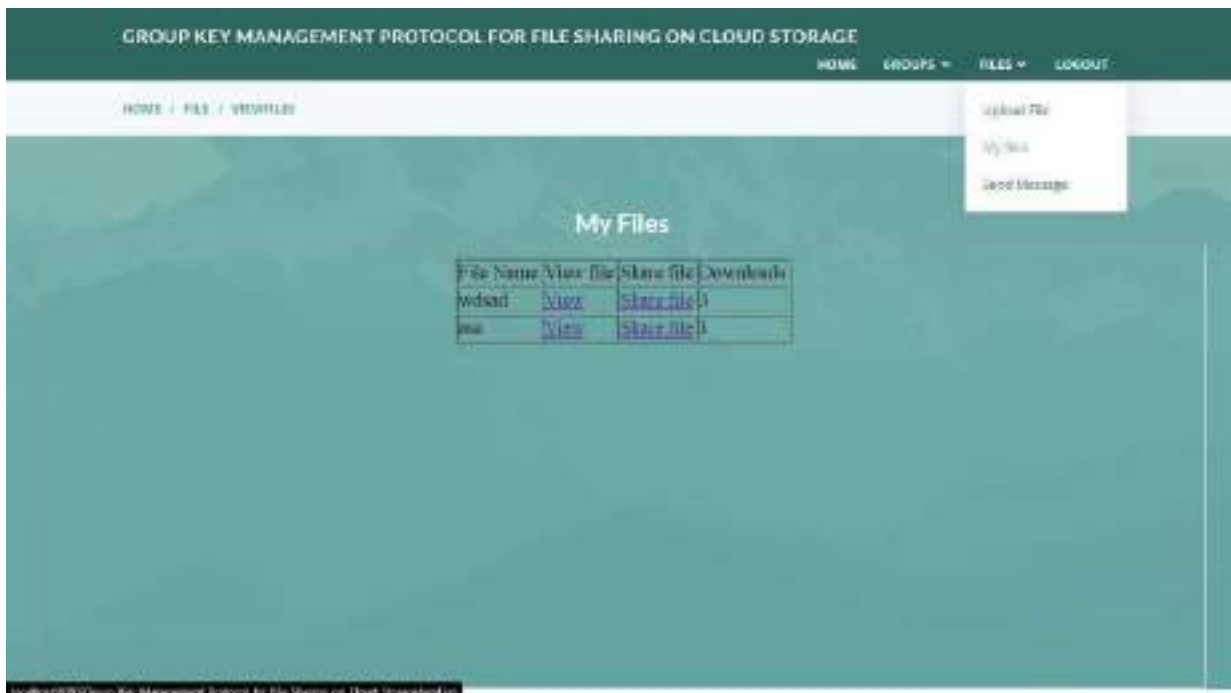
## SCREEN17:IF KEY IS INVALID



## SCREEN18:UPLOAD FILES

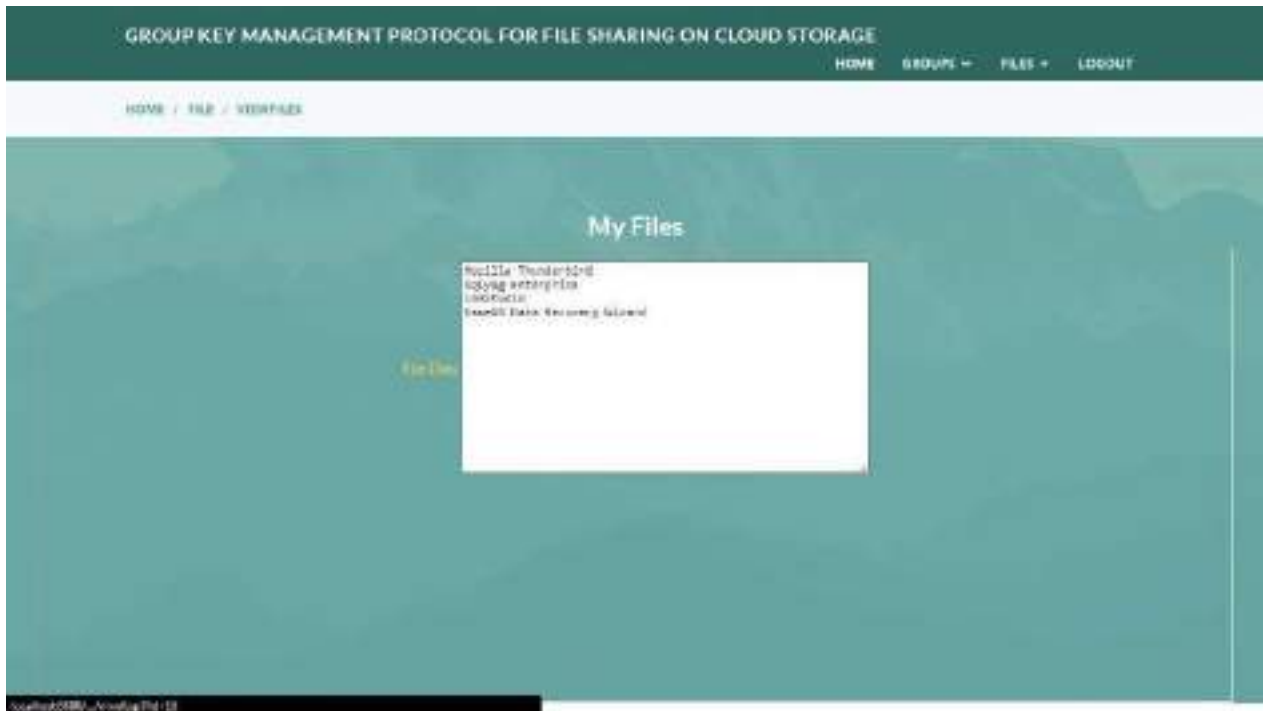


## SCREEN19:MY FILES





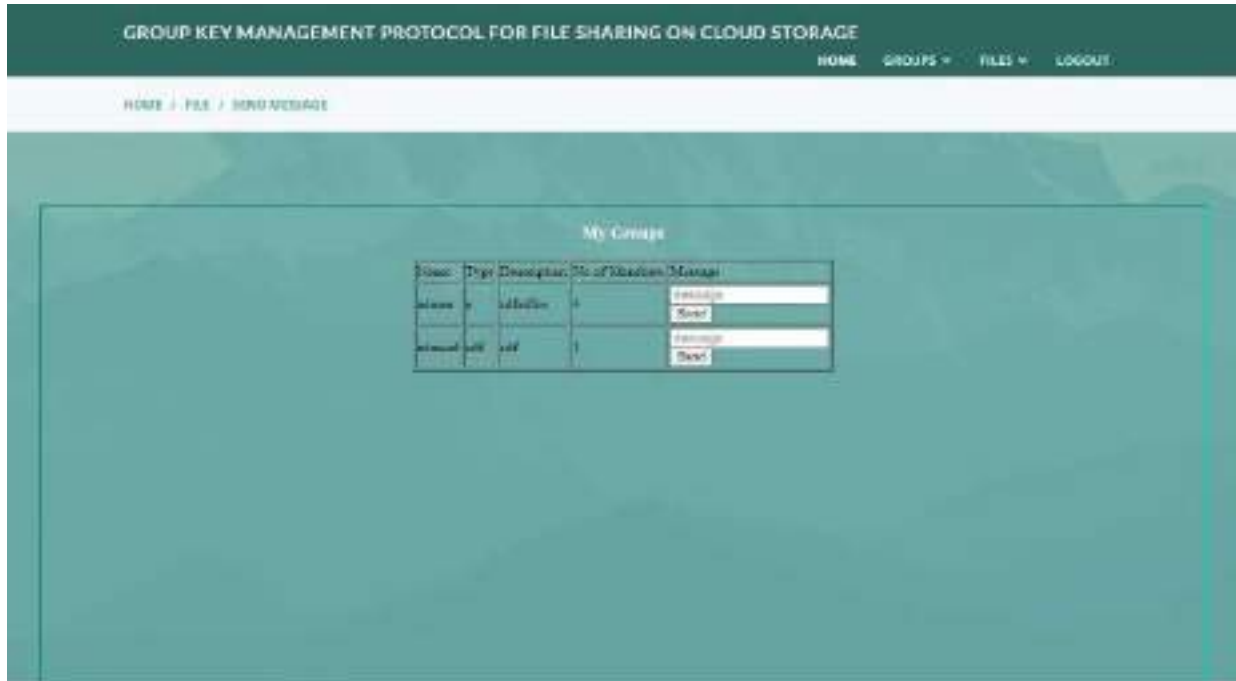
## SCREEN20:MY FILES VIEW VIEW FILE DATA:



## SCREEN21:MY FILES SHARE FILE FILE SHARING INTO GROUP



## SCREEN22:SEND MESSAGE MESSAGE SENDING INTO GROUPS



## CONCLUSION

In this project, we implemented a novel group key management protocol for file sharing on cloud storage. Publickey is used by GKMP to guarantee the group key distribute fairly and resist attack from compromised vehicles or the cloud provider. We give a detailed analysis of possible security attacks and corresponding defense, which demonstrates that GKMP is secure under weaker assumptions. Moreover, we demonstrate the protocol exhibits less storage and computing complexity.

### **FUTURE SCOPE**

In future we can implement to add security authentication schemes for data sharing and also implement to data auditing schemes.

## REFERENCES

- [1] J.Wu, Y.Li, T.Wang, et al. CPDA: A Confidentiality-Preserving Deduplication Cloud Storage With Public Cloud Auditing, IEEE Access, vol.7, pp.160482-160497, 2019
- [2] Po-Wen. C, Chin L, "Audit-Free Cloud Storage via Deniable AttributeBased Encryption", IEEE Transactions on Cloud Computing, vol.6, no.2, pp. 414-427, 2018.
- [3] J. Zhou et al., "Securing outsourced data in the multi-authority cloud with fine- grained access control and efficient attribute revocation", Comput. J., vol. 60, no. 8, pp. 1210-1222, Aug. 2017.
- [4] Hu.X, Jianfei.S, "Comments on Verifiable and Exculpable Outsourced Attribute- Based Encryption for Access Control in Cloud Computing", IEEE Transactions on Dependable and Secure Computing., vol. 14, no.4, pp. 461-462, Aug.2017.
- [5] Z. Fu X. Sun S. Ji G. Xie "Towards efficient content-aware search over encrypted outsourced data in cloud" Proc. 35th Annu. IEEE Int. Conf. Comput. Commun.(INFOCOM) pp. 1-9 Apr. 2016.
- [6] Y. S. Rao "A secure and efficient ciphertext-policy attribute-based signcryption for personal health records sharing in cloud computing" Future Gener. Comput. Syst. vol. 67 pp. 133-151 Feb. 2017.
- [7] H. liu Y. huang J. K. Liu "Secure sharing of Personal Health Records in cloud computing: Ciphertext-Policy Attribute-Based Signcryption" Future Gener. Comput. Syst. vol. 52 pp. 67-76 Nov. 2015.

**A**  
**Project Report**

**on**

**FRAUD DETECTION IN CREDIT CARD DATA USING UNSUPERVISED MACHINE  
LEARNING BASED SCHEME**

*Submitted in partial fulfilment for the award of the degree*

**of**

**Master of Computer Applications**

*Submitted by*

**S HARI KRISHNA.**  
**(Reg. No. 19F65F0008)**

*Under the esteemed guidance of*

**Mrs. P. SUKANYA, MCA.,**  
**Assistant Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**  
**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**  
**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**2020-2021**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with 'A' Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled **“FRUAD DETECTION IN CREDIT CARD DATA USING UNSUPERVISED MACHINE LEARNING BASED SCHEME”** that is being submitted by **S HARIKRISHNA(Reg.No.19F65F0008)** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 20-2021.*

**InternalGuide**

**Head of theDepartment**

---

*Submitted for the main project viva-voce examination heldon \_\_\_\_\_*

**InternalExaminer**

**External Examiner**

## **DECLARATION**

I, S HARI KRISHNA hereby declare that the project report entitled“**FRAUD DETECTION IN CREDIT CARD DATA USING UNSUPERVISED MACHINELEARNINGBASED SCHEME**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mrs. P. SUKANYA, MCA.,** Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING &TECHNOLOGY (AUTONOMOUS)** ,Puttur, for the award of the degree of **MASTER OF COMPUTER APLLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree

**Place: Puttur**

**Date:**

**S HARIKRISHNA.**

**Reg. No.:19F65F0008**



## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mrs. P. SUKANYA**, MCA., Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for him valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey heartfelt thanks to ProjectSupervisor **MR.P.KARTHIKEYAN**,MCA,M.E, HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for her valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr.K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend mythankstomyparentsand myfriendsfortheencouragement ofprecedingthe project in right way to complete the project in successfulway.

(S HARI KRISHNA)

# CONTENTS

S.NO	CHAPTERS	PAGENO
1	ABSTRACT	1
2	INTRODUCTION	2
3	LITERATURE REVIEW	3
4	SCOPE	5
5	EXISTING METHOD	6
6	PROPOSED METHOD	7
7	APPLICATIONS	8
8	HARDWARE & SOFTWARE REQUIRMENTS	9
9	ARCHITECTURE	10
10	SOFTWARE INSTALLATION FOR MACHINE LEARNING	11
11	MODULES SYSTEM USER	15
12	ALGORITHMS	16
13	SYSTEM DESIGN	21
14	SOURCE CODE	30
15	INTRODUCTION TO PYTHON 15.1 PYTHON CONCEPTS 15.2 DIFFERENT MODES IN PYTHON 15.3 EXCEPTION 15.4 PYTHON MODULES 15.5 PYTHON WEB FRAMEWORKS	39
16	SYSTEM STUDY	62
17	SYSTEM TESTING	65
18	SCREENSHOTS	70
19	CONCLUSION	77
20	FUTURE SCOPE	78
21	REFERENCES	79

## LIST OF FIGURES

S.NO	NAMES	PAGENO
1	SYSTEM ARCHITECTUR	10
2	USE CASE DIAGRAM	22
3	CLASS DIAGRAM	23
4	SEQUENCE DIAGRAM	24
5	COLLABORATION DIAGRAM	25
6	DEPLOYMENT DIAGRAM	25
7	ACTIVITY DIAGRAM	26
8	COMPONENT DIAGRAM	27
9	ER DIAGRAM	28
10	DFD DIAGRAM	29

## LIST OF OUTPUT SCREENS

S.NO	SCREEN NAME	PAGENO
1	DATA LOADING	70
2	INFORMATION ABOUT DATASET	71
3	LOCAL OUTLIER FACTOR MODEL	72
4	ISOLATION FOREST MODEL	73
5	K-MEANS MODEL	74
6	AUTO ENCODERS	75
7	NEURAL NETWORKS	76

## LIST OF OBSERVATIONS

S.NO	ACRONYMS	OBSERVATION
1	DFD	DATA FLOW DIAGRAM
2	ER	ENTITY RELATIONAL
3	SGD	STOCHASTIC GRADIENT DECENT
4	ML	MULTI LINEAR PERCEPTRON
5	SVC	SUPPORT VECTOR CLASSIFIER
6	SVM	SUPPORT VECTOR MACHINE
7	GUI	GRAPHICAL USER INTERFACE
8	XML	EXTENSIBLE MARKUP LANGUAGE
9	HTML	HYPER TEXT MARKUP LANGUAGE
10	API	APPLICATION PROGRAMING INTERFACE
11	SAX	SIMPLE API FOR XML
12	DOM	DOCUMENT OBJECT MODEL

## **1.ABSTRACT:**

Development of communication technologies and ecommerce has made the credit card as the most common technique of payment for both online and regular purchases. So, security in this system is highly expected to prevent fraud transactions. Fraud transactions in credit card data transaction are increasing each year. In this direction, researchers are also trying the novel techniques to detect and prevent such frauds. However, there is always a need of some techniques that should precisely and efficiently detect these frauds. This paper proposes a scheme for detecting frauds in credit card data which uses a Neural Network (NN) based unsupervised learning technique. Proposed method outperforms the existing approaches of Auto Encoder (AE), Local Outlier Factor (LOF), Isolation Forest (IF) and K-Means clustering. Proposed NN based fraud detection method performs with 99.87% accuracy whereas existing methods AE, IF, LOF and K Means gives 97%, 98%, 98% and 99.75% accuracy respectively.

**Keywords:** Unsupervised Learning, Anomaly Detection, Fraud Detection, Auto-Encoder, Credit Card

## **2. INTRODUCTION**

Falsification of the credit card can be defined as the unapproved use of a customer's card data to create purchases or to dismiss funds from the cardholder's record. The misconduct extortion starts from the credit card when somebody incorrectly acquires the number printed on card or the essential records for the card to be operated [9,10]. The owner of the card, the agent by whom card is issued and even guarantor of a card might not be informed of the fraud until the record is used to create purchases. As shopping through internet-based applications and paying bills online has been come into practice, there is no longer requirement of a physical card to create purchases.

Fraud detection in online shopping systems is the hottest topic nowadays. Fraud investigators, banking systems, and electronic payment systems such as PayPal must have an efficient and complex fraud detection system to prevent fraud activities that change rapidly. According to a Cyber Source report from 2017, the present fraud loss by order channel, that is, the percentage of fraud loss in their web store was 74 percent and 49 percent in their mobile channels [1]. Based on this information, the lesson is to determine anomalies across patterns of fraud behavior that have undergone change relative to the past

The rising of E-commerce business has resulted in a gentle growth within the usage of credit cards for online transactions and purchases. With the rise in the usage of credit cards, the number of fraud cases has also been doubled. Credit card frauds are those which are done with an intention to gain money in a deceptive manner without the knowledge of the cardholder.

### **3.LITERATURE REVIEW**

**[1] L. Bhavya , V. Sasidhar Reddy , U. Anjali Mohan , S. Karishma, 2020, Credit Card Fraud Detection using Classification, Unsupervised, Neural Networks Models, INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) Volume 09, Issue 04 (April 2020),**

Nowadays online transactions have grown in large quantities. Among them, online credit card transactions hold a huge share. Therefore, there is much need for credit card fraud detection applications in banks and financial business. Credit card fraud purposes may be to obtain goods without paying or to obtain unauthorized funds from an account. With the demand for money credit card fraud events became common. This results in a huge loss in finances to the cardholder.

**[2] Renjith, Shini. (2018). Detection of Fraudulent Sellers in Online Marketplaces using Support Vector Machine Approach. International Journal of Engineering Trends and Technology. 57. 48-53. 10.14445/22315381/IJETT-V57P210.**

The e-commerce share in the global retail spend is showing a steady increase over the years indicating an evident shift of consumer attention from bricks and mortar to clicks in retail sector. In recent years, online marketplaces have become one of the key contributors to this growth. Fraudulent e-commerce buyers and their transactions are being studied in detail and multiple strategies to control and prevent them are discussed. Another area of fraud happening in marketplaces are on the seller side and is called merchant fraud. Goods/services offered and sold at cheap rates, but never shipped is a simple example of this type of fraud. This paper attempts to suggest a framework to detect such fraudulent sellers with the help of machine learning techniques.



**[3] Saputra, Adi & Suharjito, Suharjito. (2019). Fraud Detection using Machine Learning in e-Commerce. 10.14569/IJACSA.2019.0100943.**

The volume of internet users is increasingly causing transactions on e-commerce to increase as well. We observe the quantity of fraud on online transactions is increasing too. Fraud prevention in e-commerce shall be developed using machine learning, this work to analyze the suitable machine learning algorithm, the algorithm to be used is the Decision Tree, Naive Bayes, Random Forest, and Neural Network. Result of evaluation using confusion matrix achieve the highest accuracy of the neural network by 96 percent, random forest is 95 percent, Naïve Bayes is 95 percent, and Decision tree is 91 percent. Synthetic Minority Over-sampling Technique (SMOTE) is able to increase the average of F1-Score from 67.9 percent to 94.5 percent and the average of G-Mean from

73.5 percent to 84.6 percent.

**[4] A. K. Rai and R. K. Dwivedi, "Fraud Detection in Credit Card Data using Unsupervised Machine Learning Based Scheme," 2020 International Conference on Electronics and Sustainable Communication Systems (ICESC), Coimbatore, India, 2020, pp. 421-426, doi: 10.1109/ICESC48915.2020.9155615.**

Development of communication technologies and e-commerce has made the credit card as the most common technique of payment for both online and regular purchases. So, security in this system is highly expected to prevent fraud transactions. Fraud transactions in credit card data transaction are increasing each year. In this direction, researchers are also trying the novel techniques to detect and prevent such frauds. However, there is always a need of some techniques that should precisely and efficiently detect these frauds. This paper proposes a scheme for detecting frauds in credit card data which uses a Neural Network (NN) based unsupervised learning technique. Proposed method outperforms the existing approaches of Auto Encoder (AE), Local Outlier Factor (LOF), Isolation Forest (IF) and k-means clustering.

#### **4.SCOPE:**

- Our Models can be used for detecting the fraudulent transactions.
- It can be helpful for the customers without losing their information.

## **5.EXISTING METHOD**

In existing system, models are build based on Auto Encoder (AE), Local Outlier Factor (LOF), Isolation Forest (IF) and K-Means clustering to estimate fraudulent and non-fraudulent transactions. This techniques gives low precision scores and recall scores and also lacks the robustness because of higher computational time.

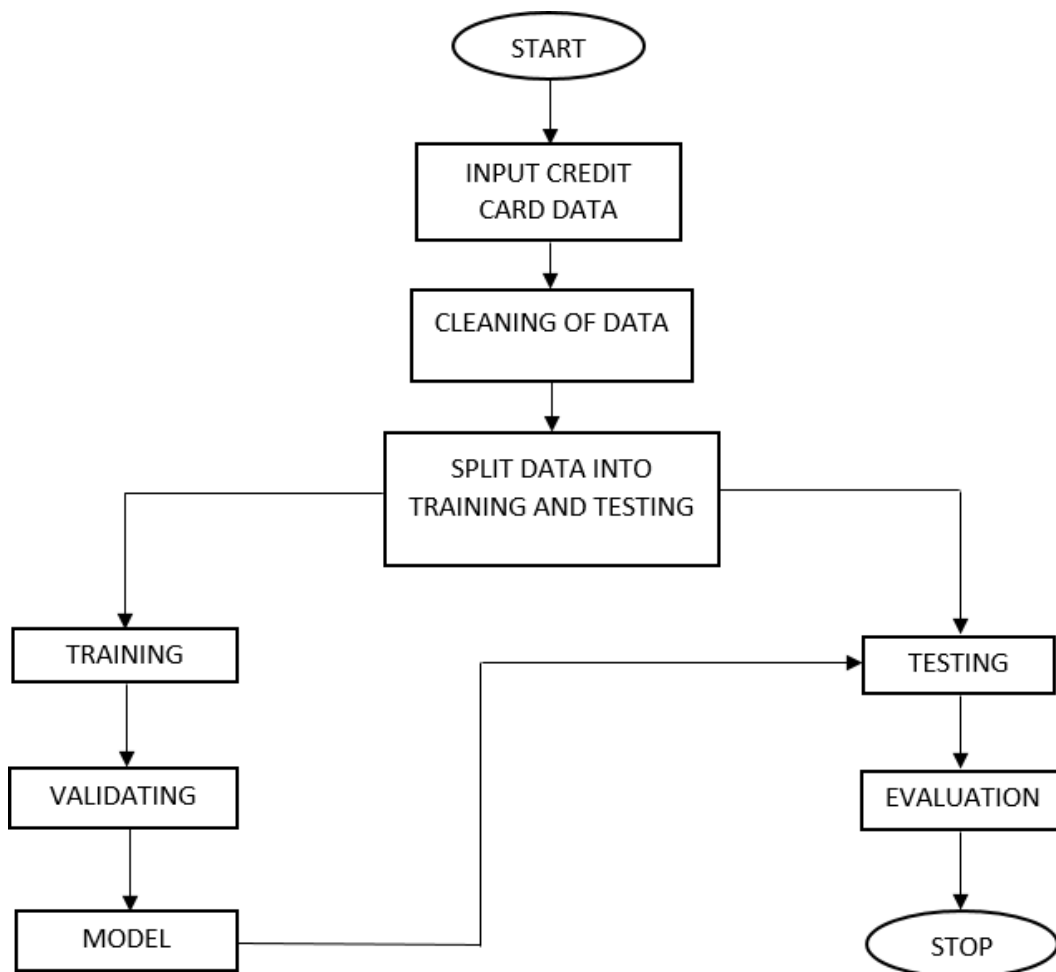
### **DISADVANTAGES:**

- Low accuracy.
- Time consuming.
- High complexities.

## 6.PROPOSED METHOD

We propose this system to investigate a problem of whether it is valuable or not to use machine learning techniques to detect whether the credit card is fraud or not fraud using Neural Networks.

### **Flow of the project:**



## **ADVANTAGES:**

- High accuracy.
- Time Saving.
- Low complexities.
- High reliability

## **7.APPLICATIONS:**

- Used for preventing credit card frauds by banks.
- Financial industries employees them heavily to prevent frauds

## **8.HARDWARE & SOFTWARE REQUIREMENTS**

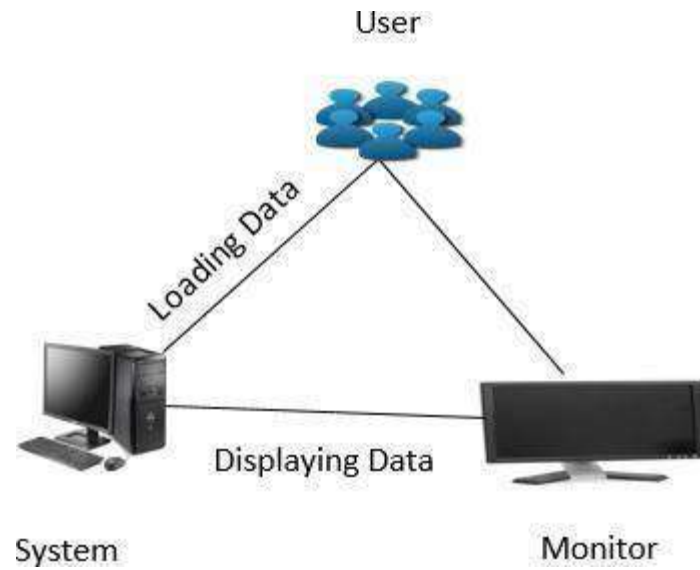
### **HARDWARE CONFIGURATION:**

- Processor - I3/Intel Processor
- RAM - 4GB (min)
- Hard Disk - 128 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - LCD

### **SOFTWARE CONFIGURATION:**

- Operating System : Windows 7+
- Server side Script : Python 3.6+
- IDE : Jupyter Notebook
- Libraries Used : Pandas, Numpy, scikit-learn, Matplotlib

## 9.ARCHITECTURE



Fig():architecture

## **10.SOFTWARE INSTALLATION FOR THIS PROJECTS:**

Installing Python:

1. To download and install Python visit the official website of Python <https://www.python.org/downloads/> and choose your version.



2. Once the download is complete, run the exe for install Python. Now click on Install Now.
3. You can see Python installing at this point.
4. When it finishes, you can see a screen that says the Setup was successful. Now click on "Close".

Installing PyCharm:



1. To download PyCharm visit the website <https://www.jetbrains.com/pycharm/download/> and Click the "DOWNLOAD" link under the Community Section.

## Download PyCharm

Windows

Mac

Linux

### Professional

For both Scientific and Web Python development. With HTML, JS, and SQL support.

Download

Free trial

### Community

For pure Python development

Download

Free, open-source

2. Once the download is complete, run the exe for install PyCharm. The setup wizard should have started. Click "Next".
3. On the next screen, Change the installation path if required. Click "Next".
4. On the next screen, you can create a desktop shortcut if you want and click on "Next".
5. Choose the start menu folder. Keep selected JetBrains and click on "Install".
6. Wait for the installation to finish.
7. Once installation finished, you should receive a message screen that PyCharm is installed. If you want to go ahead and run it, click the "Run PyCharm Community Edition" box first and click "Finish".

8. After you click on "Finish," the Following screen will appear.



9. You need to install some packages to execute your project in a proper way.

10. Open the command prompt/ anaconda prompt or terminal as administrator.

11. The prompt will get open, with specified path, type “pip install package name” which you want to install (like numpy, pandas, seaborn, scikit-learn, matplotlib.pyplot)

Ex: pip install numpy

```
C:\WINDOWS\system32>pip install numpy==1.18.5
Collecting numpy==1.18.5
 Downloading numpy-1.18.5-cp36-cp36m-win_amd64.whl (12.7 MB)
 |██| 12.7 MB 939 kB/s
ERROR: tensorboard 2.0.2 has requirement setuptools>=41.0.0, b
Installing collected packages: numpy
Successfully installed numpy-1.18.5
```

## **11.MODULES**

### **1. System:**

#### **1.1 Store Dataset:**

The System stores the dataset given by the user.

#### **1.2 Model Training:**

The system takes the data from the user and fed that data to the selected model.

#### **1.3 Model Predictions:**

The system takes the data given by the user and predict the output based on the given data.

### **2.User:**

#### **1.4 Load Dataset:**

The user can load the dataset he/she want to work on.

#### **1.5 View Dataset:**

The User can view the dataset.

#### **1.6 Select model:**

User can apply the model to the dataset for accuracy.

#### **1.7 Evaluation:**

User can evaluate the model performance.

## 12.ALGORITHMS

### **K-means Clustering:**

There is an algorithm that tries to minimize the distance of the points in a cluster with their centroid – the k-means clustering technique.

The main objective of the K-Means algorithm is to minimize the sum of distances between the points and their respective cluster centroid.

A cluster refers to a collection of data points aggregated together because of certain similarities.

You'll define a target number  $k$ , which refers to the number of centroids you need in the dataset. A centroid is the imaginary or real location representing the center of the cluster.

Every data point is allocated to each of the clusters through reducing the in-cluster sum of squares.

In other words, the K-means algorithm identifies  $k$  number of centroids, and then allocates every data point to the nearest cluster, while keeping the centroids as small as possible.

#### **STEPS:**

1. Choose the number of clusters  $k$ .
2. Select  $k$  random points from the data as centroids.
3. Assign all the points to the closest cluster centroid.
4. Re-compute the centroids of newly formed clusters.
5. Repeat steps 3 and 4.

### **Local Outlier Factor:**

Local outlier factor (LOF) is an algorithm that identifies the outliers present in the dataset.

LRD is inverse of the average reachability distance of A from its neighbors. Intuitively according to LRD formula, more the average reachability distance (i.e., neighbors are far from the point), less density of points are present around a particular point. This tells how far a point is from the nearest cluster of points. Low values of LRD implies that the closest cluster is far from the point.

LRD of each point is used to compare with the average LRD of its K neighbors. LOF is the ratio of the average LRD of the K neighbors of A to the LRD of A.

Intuitively, if the point is not an outlier (inlier), the ratio of average LRD of neighbors is approximately equal to the LRD of a point (because the density of a point and its neighbors are roughly equal). In that case, LOF is nearly equal to 1. On the other hand, if the point is an outlier, the LRD of a point is less than the average LRD of neighbors. Then LOF value will be high.

Generally, if  $LOF > 1$ , it is considered as an outlier, but that is not always true. Let's say we know that we only have one outlier in the data, then we take the maximum LOF value among all the LOF values, and the point corresponding to the maximum LOF value will be considered as an outlier.

**Isolation Factor:**

It is a tree-based algorithm, built around the theory of decision trees and random forests. When presented with a dataset, the algorithm splits the data into two parts based on a random threshold value. This process continues recursively until each data point is isolated. Once the algorithm runs through the whole data, it filters the data points which took fewer steps than others to be isolated. Isolation Forest in sklearn is part of the Ensemble model class, it returns the anomaly score of each instance to measure abnormality.

In most unsupervised methods, “normal” data points are first profiled and anomalies are reported if they do not resemble that profile. Isolation forest, on the other hand, takes a different approach; it isolates anomalous data points explicitly.

It is important to mention that Isolation Forest is an unsupervised machine learning algorithm. Meaning, there is no actual “training” or “learning” involved in the process and there is no pre-determined labeling of “outlier” or “not-outlier” in the dataset. So there is no accuracy test in the conventional machine learning sense.

Isolation Forest Algorithm returns the anomaly score of each sample using the Isolation Forest algorithm.

The Isolation Forest ‘isolates’ observations by randomly selecting a feature and then randomly selecting a split value between the maximum and minimum values of the selected feature.

Since recursive partitioning can be represented by a tree structure, the number of splitting required to isolate a sample is equivalent to the path length from the root node to the terminating node.

Random partitioning produces noticeably shorter paths for anomalies.

Hence, when a forest of random trees collectively produce shorter path lengths for particular samples, they are highly likely to be anomalies.

### **Auto Encoders:**

Autoencoders are a specific type of feed forward neural networks where the input is the same as the output. They compress the input into a lower-dimensional code and then reconstruct the output from this representation. The code is a compact “summary” or “compression” of the input, also called the latent-space representation.

An autoencoder consists of 3 components: encoder, code and decoder. The encoder compresses the input and produces the code, the decoder then reconstructs the input only using this code.

Autoencoders are mainly a dimensionality reduction (or compression) algorithm with a couple of important properties:

**Data-specific:** Autoencoders are only able to meaningfully compress data similar to what they have been trained on. Since they learn features specific for the given training data, they are different than a standard data compression algorithm like gzip. So we can't expect an autoencoder trained on handwritten digits to compress landscape photos.

**Lossy:** The output of the autoencoder will not be exactly the same as the input, it will be a close but degraded representation. If you want lossless compression they are not the way to go.

**Unsupervised:** To train an autoencoder we don't need to do anything fancy, just throw the raw input data at it. Autoencoders are considered an unsupervised learning technique since they don't need explicit labels to train on. But to be more precise they are self-supervised because they generate their own labels from the training data.



## **Neural Networks:**

A neural network is a series of algorithms that endeavors to recognize underlying relationships in a set of data through a process that mimics the way the human brain operates. Neural Networks are used for solving many business problems such as sales forecasting, customer research, data validation, and risk management. It is neurally implemented mathematical model. It contains huge number of interconnected processing elements called neurons to do all operations. Information stored in the neurons are basically the weighted linkage of neurons.

Neural networks are a set of algorithms, modeled loosely after the human brain, that are designed to recognize patterns. They interpret sensory data through a kind of machine perception, labeling or clustering raw input. The patterns they recognize are numerical, contained in vectors, into which all real-world data, be it images, sound, text or time series, must be translated.

Neural networks help us cluster and classify. You can think of them as a clustering and classification layer on top of the data you store and manage. They help to group unlabeled data according to similarities among the example inputs, and they classify data when they have a labeled dataset to train on. (Neural networks can also extract features that are fed to other algorithms for clustering and classification; so you can think of deep neural networks as components of larger machine-learning applications involving algorithms for reinforcement learning, classification and regression.)

## **13.SYSTEM DESIGN**

### **UML DIAGRAM**

UML stands for Unified Modeling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group.

The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artifacts of software system, as well as for business modeling and other non-software systems.

The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems.

The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

### **GOALS:**

The Primary goals in the design of the UML are as follows:

6. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
7. Provide extendibility and specialization mechanisms to extend the core concepts.
8. Be independent of particular programming languages and development process.
9. Provide a formal basis for understanding the modeling language

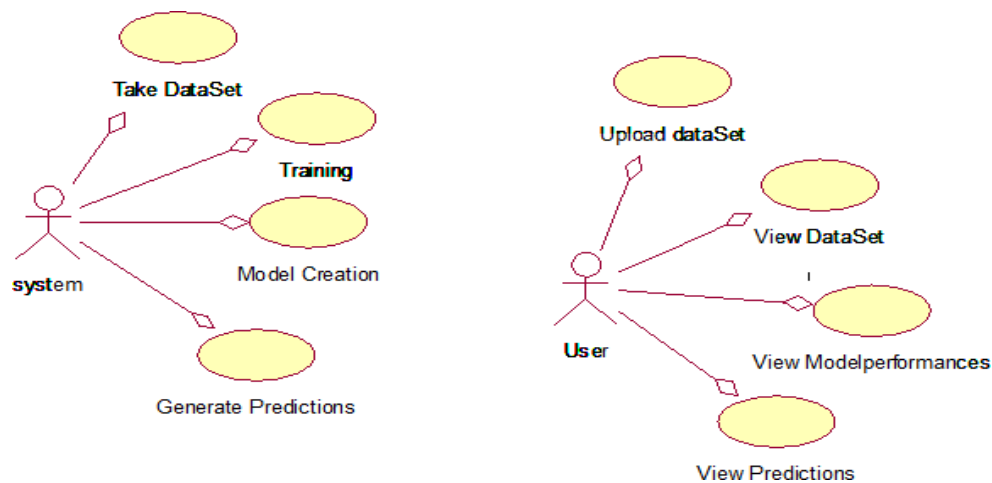
10. Encourage the growth of OO tools market.

11. Support higher level development concepts such as collaborations, frameworks, patterns and components

10. Integrate best practices.

### 1. USE CASE DIAGRAM:

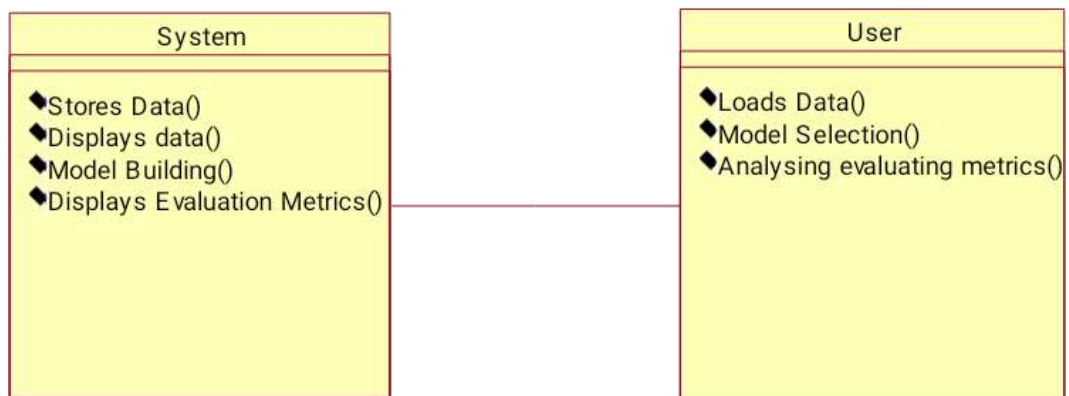
A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.



Fig(1):use case diagram

## 2.CLASS DIAGRAM:

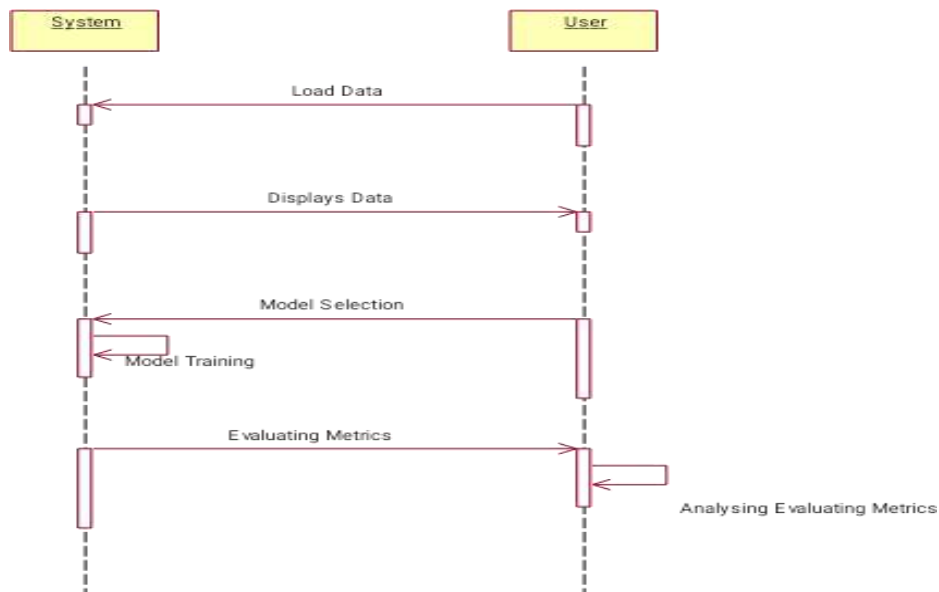
In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.



Fig(2):class diagram

### 3.SEQUENCE DIAGRAM:

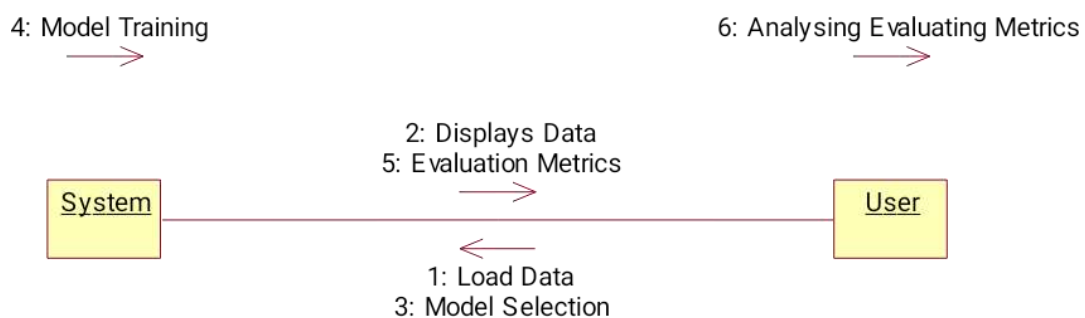
A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams



Fig(3):sequence diagram

#### 4. COLLABORATION DIAGRAM:

In collaboration diagram the method call sequence is indicated by some numbering technique as shown below. The number indicates how the methods are called one after another. We have taken the same order management system to describe the collaboration diagram. The method calls are similar to that of a sequence diagram. But the difference between collaboration and sequence with a user interact is that the sequence diagram does not describe the object organization whereas the collaboration diagram shows the object organization



Fig(4):collaboration diagram

### 5.DEPLOYMENT DIAGRAM

Deployment diagram represents the deployment view of a system. It is related to the component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical hardware used to deploy the application.

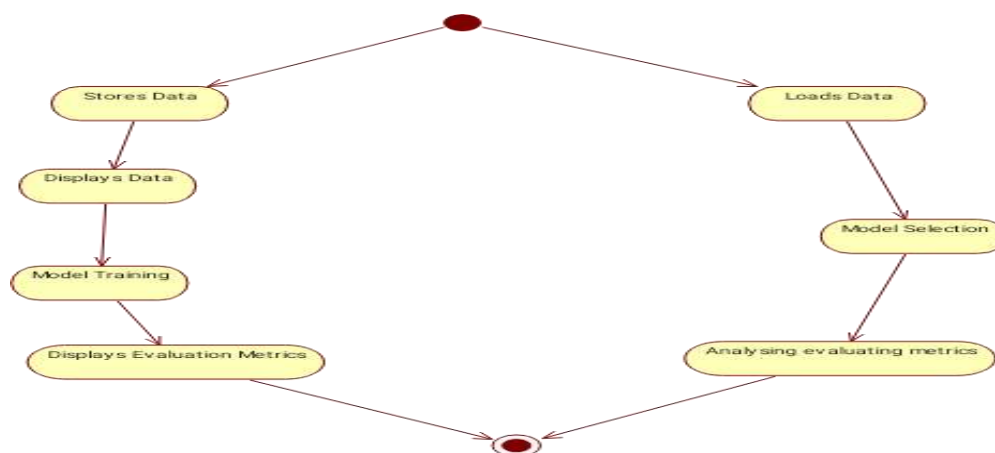


Fig(5):deployment diagram

### 6.ACTIVITY DIAGRAM:

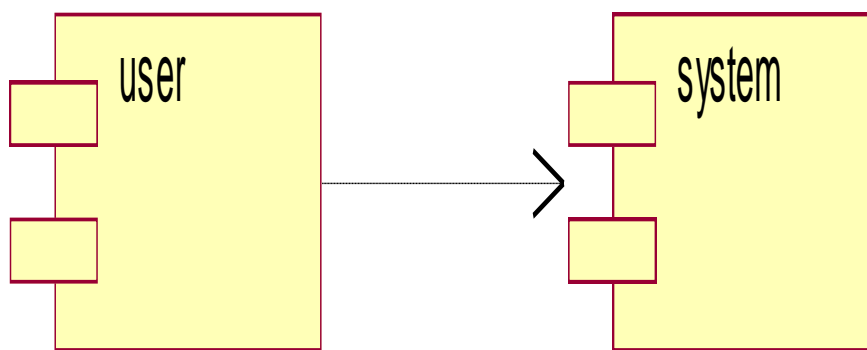
Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams can be used to describe the business and operational step-by- step workflows of components in a system. An activity diagram shows the overall

flow of control.



## 7.COMPONENT DIAGRAM

A component diagram, also known as a UML component diagram, describes the organization and wiring of the physical components in a system. Component diagrams are often drawn to help model implementation details and double-check that every aspect of the system's required functions is covered by planned development



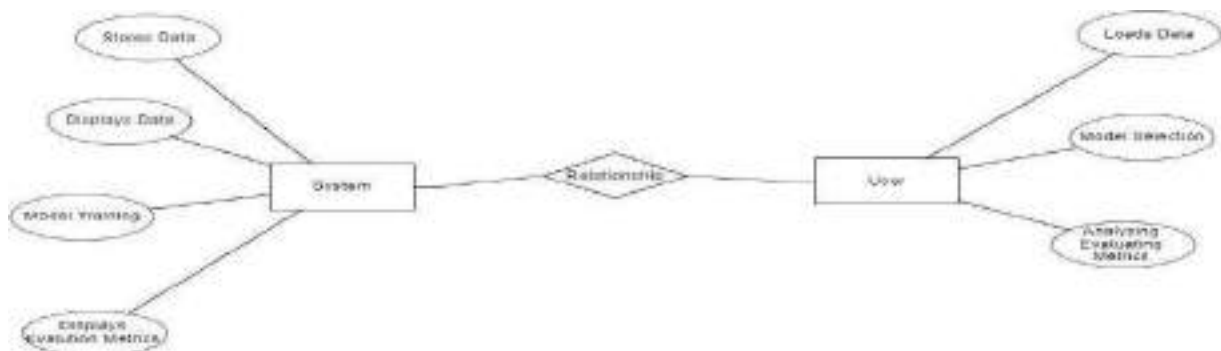
Fig(7):component diagram



## 8.ER DIAGRAM:

An Entity–relationship model (ER model) describes the structure of a database with the help of a diagram, which is known as Entity Relationship Diagram (ER Diagram). An ER model is a design or blueprint of a database that can later be implemented as a database. The main components of E-R model are: entity set and relationship set.

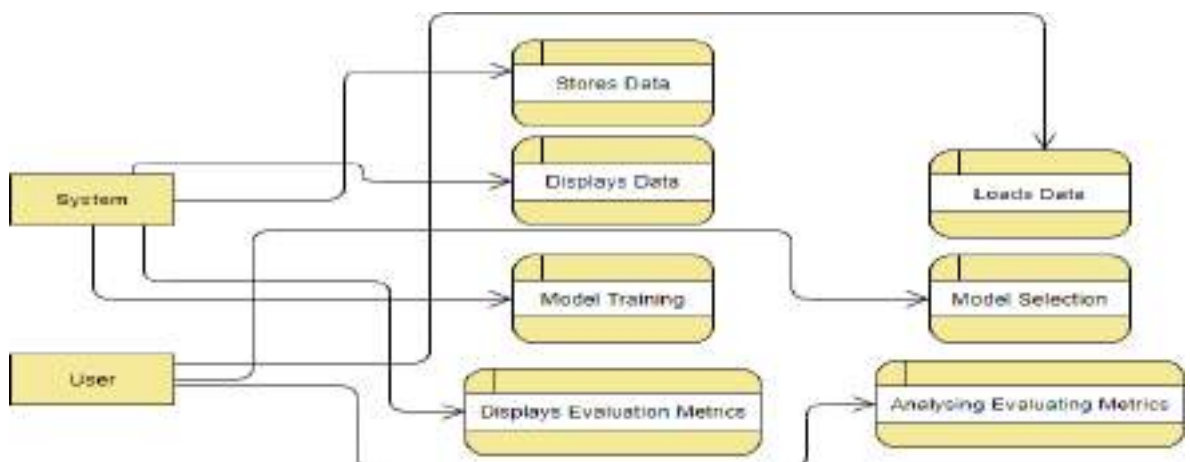
An ER diagram shows the relationship among entity sets. An entity set is a group of similar entities and these entities can have attributes. In terms of DBMS, an entity is a table or attribute of a table in database, so by showing relationship among tables and their attributes, ER diagram shows the complete logical structure of a database. Let's have a look at a simple ER diagram to understand this concept.



Fig(8):ER diagram

## 9.DFD DIAGRAM:

A Data Flow Diagram (DFD) is a traditional way to visualize the information flows within a system. A neat and clear DFD can depict a good amount of the system requirements graphically. It can be manual, automated, or a combination of both. It shows how information enters and leaves the system, what changes the information and where information is stored. The purpose of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communications tool between a systems analyst and any person who plays a part in the system that acts as the starting point for redesigning a system.



Fig(9):DFD diagram

## 14. Source code

```
import numpy as np
import pandas as pd
pd.set_option("display.max_columns", 50)

df=pd.read_csv('creditcard.csv')

df.shape

df=df.sample(frac=0.3)

df.head()

df.isnull().sum()

df.describe()

df.info()

df.Class.value_counts()

df.Class.value_counts()*100/df.shape[0]

import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns

plt.figure(figsize=(12,8))
sns.heatmap(df.corr()) # Heatmap of correlation between columns of $\hat{d}f$.

Local Outlier Factor

#Fraud Transactions
fraud=df[df.Class==1]
#Valid Transactions
valid=df[df.Class==0]

anomalies_fraction=len(fraud)/len(df)

anomalies_fraction

#Input data X=df.drop(['Class'],axis=1)
```

```
y=df.Class

lof=LocalOutlierFactor(n_neighbors=20, contamination=anomalies_fraction)
y_pred=lof.fit_predict(X)
y_pred=lof.predict(X)

y_pred

np.unique(y_pred,

return_counts=True)

y_pred[y_pred==1]=0
y_pred[y_pred==-1]=1

np.unique(y_pred, return_counts=True)

pd.Series(y_pred).value_counts()

from sklearn.metrics import accuracy_score, classification_report, precision_score, f1_score

lofac = accuracy_score(y, y_pred)

lofre = recall_score(y, y_pred)

lofpre = precision_score(y, y_pred)

print(classification_report(y, y_pred, digits=6))

from sklearn.metrics import precision_score, recall_score, confusion_matrix, f1_score

precision_score(y, y_pred)

recall_score(y, y_pred)

confusion_matrix(y, y_pred)

pd.crosstab(y, y_pred, rownames=['Actual'], colnames=['Predicted'])

Isolation Forest

from sklearn.ensemble import IsolationForest

Iso_Forest=IsolationForest(contamination=anomalies_fraction, max_samples=len(X))
Iso_Forest.fit(X)
```

```
y_pred2[y_pred2==-1]=1

np.unique(y_pred2, return_counts=True)

confusion_matrix(y,y_pred2)

print(classification_report(y,y_pred2,digits=6))

pd.crosstab(y,y_pred2, rownames=['Actual'], colnames=['Predicted'])

isofpre = precision_score(y,y_pred2)

isofre = recall_score(y,y_pred2)

isofacc =accuracy_score(y,y_pred2)

K Means Clustering

from sklearn.cluster import KMeans
from sklearn.model_selection import train_test_split

x_train,x_test,y_train,y_test = train_test_split(X,y)

kmeans=KMeans(n_clusters=2,random_state=0,algorithm="elkan",max_iter=10000,n_jobs=-1)
kmeans.fit(x_train)
pred=kmeans.predict(x_test)
X = X.drop(['Time'],axis =1)

kmeans = KMeans(n_clusters=2, init='k-means++',n_jobs = -1)

model = kmeans.fit(X)

pred = kmeans.predict(X)

pred

np.unique(pred, return_counts=True)
```

```
pd.Series(pred).value_counts()

recall_score(y,pred)

precision_score(y,pred)

 f1_score(y,pred)
accuracy_score(y,pred)

print(classification_report(y,pred))

confusion_matrix(y,pred)

pd.crosstab(y,pred, rownames=['Actual'], colnames=['Predicted'])

kre = recall_score(y,pred)

kpre = precision_score(y,pred)

kacc = accuracy_score(y,pred)

Auto encoders
from keras.models import Model, load_model
from keras.layers import Input, Dense
from keras.callbacks import ModelCheckpoint, TensorBoard
from keras import regularizers

df = df.drop(['Time'],axis =1)
X_train, X_test = train_test_split(df, test_size=0.2, random_state=42)
X_train = X_train[X_train.Class == 0]

X_train = X_train.drop(['Class'], axis=1)
y_test = X_test['Class']
X_test = X_test.drop(['Class'], axis=1)
X_train = X_train.values

X_test = X_test.values
X_train.shape

input_dim = X_train.shape[1]
encoding_dim = 14
```

```
input_layer = Input(shape=(input_dim,))
encoder = Dense(encoding_dim, activation="tanh",
 activity_regularizer=regularizers.l1(10e-
 5))(input_layer)

encoder = Dense(int(encoding_dim / 2), activation="relu")(encoder)
decoder = Dense(int(encoding_dim / 2), activation='tanh')(encoder)
decoder = Dense(input_dim, activation='relu')(decoder)
autoencoder = Model(inputs=input_layer, outputs=decoder)

nb_epoch = 20
batch_size = 32
autoencoder.compile(optimizer='adam',
 loss='mean_squared_error',
 metrics=['accuracy'])

checkpointer = ModelCheckpoint(filepath="model.h5",
verbose=0,
save_best_only=True)

tensorboard =
TensorBoard(log_dir='./logs', #
 histogram_freq=0,
write_graph=True,
write_images=True)
history = autoencoder.fit(X_train,
 X_train,
 epochs=nb_epoch,
 batch_size=batch_size,

 validation_data=(X_test, X_test)).history
```

```
predictions = autoencoder.predict(X_test)

predictions[1]

mse = np.mean(np.power(X_test - predictions, 2), axis=1)
error_df = pd.DataFrame({'reconstruction_error': mse,
 'true_class': y_test})
error_df

threshold = 10
y_pred3 = [1 if e > threshold else 0 for e in error_df.reconstruction_error.values]
conf_matrix = confusion_matrix(error_df.true_class, y_pred3)

aeacc = accuracy_score(error_df.true_class, y_pred3)
aeacc

aepre = precision_score(error_df.true_class, y_pred3)
aepre

aere = recall_score(error_df.true_class, y_pred3)
aere

f1_score(error_df.true_class, y_pred3)

conf_matrix

pd.crosstab(error_df.true_class, y_pred, rownames=['Actual'], colnames=['Predicted'])

print(classification_report(error_df.true_class, y_pred3))

Neural Networks

from keras.models import Sequential
from keras.layers import Dense, Dropout
```



```
from sklearn.model_selection import
train_test_split X = X.drop(['Time'],axis =1)
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=42)
We are transforming data to numpy array to implementing with keras

X_train = np.array(X_train)
X_test = np.array(X_test)
y_train = np.array(y_train)
y_test = np.array(y_test)

df = df.drop(['Time'],axis =1)
X_train, X_test = train_test_split(df, test_size=0.2, random_state=42)
X_train = X_train[X_train.Class == 0]
X_train = X_train.drop(['Class'], axis=1)
y_test = X_test['Class']
X_test = X_test.drop(['Class'], axis=1)
X_train = X_train.values
X_test = X_test.values
X_train.shape

X_train.shape

model = Sequential([
 Dense(units=20, input_dim = X_train.shape[1], activation='relu'),
 Dense(units=24,activation='relu'),
 Dropout(0.5),
 Dense(units=20,activation='relu'
),
 Dense(units=24,activation='relu'
), Dense(1, activation='sigmoid')
])
model.summary()

model.compile(loss='binary_crossentropy',optimizer='adam',metrics = ['accuracy'])

nb_epoch = 50
model.fit(X_train,y_train,epochs=nb_epoch,batch_size = batch_size)

pred1 = model.predict(X_test)

pred1[1]

mse = np.mean(np.power(X_test - pred, 2), axis=1)
```

```
#error_df = pd.DataFrame({'reconstruction_error': mse,
'true_class': y_test})
error_df

threshold = 2.9
y_pred = [1 if e > threshold else 0 for e in error_df.reconstruction_error.values]
conf_matrix = confusion_matrix(error_df.true_class, y_pred)

model.evaluate(X_test,y_test)

nnac = accuracy_score(y_test,pred1.round())
nnac

nnpre = precision_score(y_test,pred1.round())
nnpre
nnre = recall_score(y_test,pred1.round())
nnre

print(classification_report(y_test,pred1.round()))

graph = pd.DataFrame({'Models':['Local Outlier Factor','Isolation Forest','K-Means Clustering','Auto
Encoder','Neural
Networks'],'Accuracy':[lofac*100,isofacc*100,kacc*100,aeacc*100,nnac*100],'Precision':[lofpre*100,i
sofpre*100,kpre*100,
aepre*100,nnpre*100],'Recall':[lofre*100,isofre*100,kre*100,aere*100,nnre*100]
}) graph

plt.figure(figsize = (10,6))
sns.barplot(y = graph.Precision,x = graph.Models)
plt.xticks(rotation = 'vertical')
plt.show()

plt.figure(figsize = (10,6))
sns.barplot(y = graph.Recall,x = graph.Models)
plt.xticks(rotation = 'vertical')
plt.show()

plt.figure(figsize = (10,6))
sns.barplot(y = graph.Accuracy,x = graph.Models)
plt.xticks(rotation = 'vertical')
plt.show()
```

## **15.INTRODUCTION TO PYTHON**

### **Python**

#### **What Is A Script?**

Up to this point, I have concentrated on the interactive programming capability of Python. This is a very useful capability that allows you to type in a program and to have it executed immediately in an interactive mode

#### **Scripts are reusable**

Basically, a script is a text file containing the statements that comprise a Python program. Once you have created the script, you can execute it over and over without having to retype it each time.

#### **Scripts are editable**

Perhaps, more importantly, you can make different versions of the script by modifying the statements from one file to the next using a text editor. Then you can execute each of the individual versions. In this way, it is easy to create different programs with a minimum amount of typing.

#### **You will need a text editor**

Just about any text editor will suffice for creating Python script files.

You can use Microsoft Notepad, Microsoft WordPad, Microsoft Word, or just about any word processor if you want to.

## **Difference between a script and a program**

### **Script:**

Scripts are distinct from the core code of the application, which is usually written in a different language, and are often created or at least modified by the end-user. Scripts are often interpreted from source code or byte code, whereas the applications they control are traditionally compiled to native machine code.

### **Program:**

The program has an executable form that the computer can use directly to execute the instructions.

The same program in its human-readable source code form, from which executable programs are derived (e.g., compiled)

## **Python**

What is Python? Chances you are asking yourself this. You may have found this book because you want to learn to program but don't know anything about programming languages. Or you may have heard of programming languages like C, C++, C#, or Java and want to know what Python is and how it compares to "big name" languages. Hopefully I can explain it for you.

### **Python concepts**

If you're not interested in the how's and whys of Python, feel free to skip to the next chapter. In this chapter I will try to explain to the reader why I think Python is one of the best languages available and why it's a great one to start programming with.

- Open source general-purpose language.
- Object Oriented, Procedural, Functional
- Easy to interface with C/ObjC/Java/Fortran
- Easy-ish to interface with C++ (via SWIG)
- Great interactive environment

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

- **Python is Interpreted** – Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- **Python is Interactive** – you can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- **Python is Object-Oriented** – Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- **Python is a Beginner's Language** – Python is a great language for the beginner-level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.

## History of Python

Python was developed by Guido van Rossum in the late eighties and early nineties at the National Research Institute for Mathematics and Computer Science in the Netherlands.

Python is derived from many other languages, including ABC, Modula-3, C, C++, Algol-68, Smalltalk, and UNIX shell and other scripting languages.

Python is copyrighted. Like Perl, Python source code is now available under the GNU General Public License (GPL).

Python is now maintained by a core development team at the institute, although Guido van Rossum still holds a vital role in directing its progress.

## Python Features

Python's features include –

- **Easy-to-learn** – Python has few keywords, simple structure, and a clearly defined syntax. This allows the student to pick up the language quickly.
- **Easy-to-read** – Python code is more clearly defined and visible to the eyes.
- **Easy-to-maintain** – Python's source code is fairly easy-to-maintain.
- **A broad standard library** – Python's bulk of the library is very portable and cross-platform compatible on UNIX, Windows, and Macintosh.
- **Interactive Mode** – Python has support for an interactive mode which allows interactive testing and debugging of snippets of code.
- **Portable** – Python can run on a wide variety of hardware platforms and has the

- **Extendable** – you can add low-level modules to the Python interpreter. These modules enable programmers to add to or customize their tools to be more efficient.
- **Databases** – Python provides interfaces to all major commercial databases.
- **GUI Programming** – Python supports GUI applications that can be created and ported to many system calls, libraries and windows systems, such as Windows MFC, Macintosh, and the X Window system of Unix.
- **Scalable** – Python provides a better structure and support for large programs than shell scripting.

Apart from the above-mentioned features, Python has a big list of good features, few are listed below –

- It supports functional and structured programming methods as well as OOP.
- It can be used as a scripting language or can be compiled to byte-code for building large applications.
- It provides very high-level dynamic data types and supports dynamic type checking.
- It supports automatic garbage collection.
- It can be easily integrated with C, C++, COM, ActiveX, CORBA, and Java.

## Dynamic vs Static

The Python is a dynamic-typed language. Many other languages are static typed, such as C/C++ and Java. A static typed language requires the programmer to explicitly tell the computer what type of “thing” each data value is.

For example, in C if you had a variable that was to contain the price of something, you would have to declare the variable as a “float” type.

This tells the compiler that the only data that can be used for that variable must be a floating point number, i.e. a number with a decimal point.

If any other data value was assigned to that variable, the compiler would give an error when trying to compile the program.

Python, however, doesn’t require this. You simply give your variables names and assign values to them. The interpreter takes care of keeping track of what kinds of objects your program is using. This also means that you can change the size of the values as you develop the program. Say you have another decimal number (a.k.a. a floating point number) you need in your program.

With a static typed language, you have to decide the memory size the variable can take when you first initialize that variable. A double is a floating point value that can handle a much larger number than a normal float (the actual memory sizes depend on the operating environment).

If you declare a variable to be a float but later on assign a value that is too big to it, your program will fail; you will have to go back and change that variable to be a double.

With Python, it doesn’t matter. You simply give it whatever number you want and Python will take care of manipulating it as needed. It even works for derived values.



For example, say you are dividing two numbers. One is a floating point number and one is an integer. Python realizes that it's more accurate to keep track of decimals so it automatically calculates the result as a floating point number

## **Variables**

Variables are nothing but reserved memory locations to store values. This means that when you create a variable you reserve some space in memory.

Based on the data type of a variable, the interpreter allocates memory and decides what can be stored in the reserved memory. Therefore, by assigning different data types to variables, you can store integers, decimals or characters in these variables.

## **Standard Data Types**

The data stored in memory can be of many types. For example, a person's age is stored as a numeric value and his or her address is stored as alphanumeric characters. Python has various standard data types that are used to define the operations possible on them and the storage method for each of them.

Python has five standard data types –

- Numbers
- String
- List
- Tuple
- Dictionary

## **Python Numbers**

Number data types store numeric values. Number objects are created when you assign a value to them

## **Python Strings**

Strings in Python are identified as a contiguous set of characters represented in the quotation marks. Python allows for either pairs of single or double quotes. Subsets of strings can be taken using the slice operator ([ ] and [:]) with indexes starting at 0 in the beginning of the string and working their way from -1 at the end.

## **Python Lists**

Lists are the most versatile of Python's compound data types. A list contains items separated by commas and enclosed within square brackets ([]). To some extent, lists are similar to arrays in C. One difference between them is that all the items belonging to a list can be of different data type.

The values stored in a list can be accessed using the slice operator ([ ] and [:]) with indexes starting at 0 in the beginning of the list and working their way to end -1. The plus (+) sign is the list concatenation operator, and the asterisk (\*) is the repetition operator.

## **Python Tuples**

A tuple is another sequence data type that is similar to the list. A tuple consists of a number of values separated by commas. Unlike lists, however, tuples are enclosed within parentheses.

The main differences between lists and tuples are: Lists are enclosed in brackets ( [ ] ) and their elements and size can be changed, while tuples are enclosed in parentheses ( ( ) ) and cannot be updated. Tuples can be thought of as **read-only** lists.

### **Python Dictionary**

Python's dictionaries are kind of hash table type. They work like associative arrays or hashes found in Perl and consist of key-value pairs. A dictionary key can be almost any Python type, but are usually numbers or strings. Values, on the other hand, can be any arbitrary Python object.

Dictionaries are enclosed by curly braces ( { } ) and values can be assigned and accessed using square braces ( [ ] ).

### **Different modes in python**

Python has two basic modes: normal and interactive.

The normal mode is the mode where the scripted and finished .py files are run in the Python interpreter.

Interactive mode is a command line shell which gives immediate feedback for each statement, while running previously fed statements in active memory. As new lines are fed into the interpreter, the fed program is evaluated both in part and in whole

### **Some Python Libraries:**

1. Pandas

2. Numpy
3. Pymysql
4. Random

**Pandas:**

- Pandas provide us with many Series and Data Frames. It allows you to easily organize, explore, represent, and manipulate data.
- Smart alignment and indexing featured in Pandas offer you a perfect organization and data labeling.
- Pandas has some special features that allow you to handle missing data or value with a proper measure.
- This package offers you such a clean code that even people with no or basic knowledge of programming can easily work with it.
- It provides a collection of built-in tools that allows you to both read and write data in different web services, data-structure, and databases as well.
- Pandas can support JSON, Excel, CSV, HDF5, and many other formats. In fact, you can merge different databases at a time with Pandas.

**Numpy:**

- Arrays of Numpy offer modern mathematical implementations on huge amount of data. Numpy makes the execution of these projects much easier and hassle-free.

- Numpy provides masked arrays along with general array objects. It also comes with functionalities such as manipulation of logical shapes, discrete Fourier transform, general linear algebra, and many more.
- While you change the shape of any N-dimensional arrays, Numpy will create new arrays for that and delete the old ones.
- This python package provides useful tools for integration. You can easily integrate Numpy with programming languages such as C, C++, and FORTRAN code.
- Numpy provides such functionalities that are comparable to MATLAB. They both allow users to get faster with operations.

### **Pymysql:**

- PyMySQL is a database connector for Python, libraries to enable Python programs to talk to a MySQL server.

[1] Access to the port settings through Pythonproperties.

1. PyMySQL is a pure Python MySQL driver, first written as a rough port of theMySQL-Pythondriver.
2. PyMySQL meets all of criterionforadriver.
3. It is fully open source, hosted on Github, released on Pypi, isactivelymaintained.

### **Random:**

1. The random module is a built-in module to generatethepseudo-randomvariables.
2. It can be used perform some action randomly such as to get a random number, selecting a random elements from a list, shuffleelementsrandomly, etc.

- Generate random numbers for various distributions including integer and floats.
- Random Sampling and choose elements from the population.
- Functions of the random module.
- Shuffle the sequence data. Seed the random generator.
- Generate random strings and passwords.

### **Python class and objects**

These are the building blocks of OOP. Class creates a new object. This object can be anything, whether an abstract data concept or a model of a physical object, e.g. a chair. Each class has individual characteristics unique to that class, including variables and methods. Classes are very powerful and currently “the big thing” in most programming languages. Hence, there are several chapters dedicated to OOP later in the book.

The class is the most basic component of object-oriented programming. Previously, you learned how to use functions to make your program do something.

Now will move into the big, scary world of Object-Oriented Programming (OOP). To be honest, it took me several months to get a handle on objects.

When I first learned C and C++, I did great; functions just made sense for me.

Having messed around with BASIC in the early '90s, I realized functions were just like subroutines so there wasn't much new to learn.

However, when my C++ course started talking about objects, classes, and all the new features of OOP, my grades definitely suffered.

Once you learn OOP, you'll realize that it's actually a pretty powerful tool. Plus many Python libraries and APIs use classes, so you should at least be able to understand what the code is doing.

One thing to note about Python and OOP: it's not mandatory to use objects in your code in a way that works best; maybe you don't need to have a full-blown class with initialization code and methods to just return a calculation. With Python, you can get as technical as you want.

As you've already seen, Python can do just fine with functions. Unlike languages such as Java, you aren't tied down to a single way of doing things; you can mix functions and classes as necessary in the same program. This lets you build the code

Objects are an encapsulation of variables and functions into a single entity. Objects get their variables and functions from classes. Classes are essentially a template to create your objects.

Here's a brief list of Python OOP ideas:

- The class statement creates a class object and gives it a name. This creates a new namespace.
- Assignments within the class create class attributes. These attributes are accessed by qualifying the name using dot syntax: `ClassName.Attribute`.
- Class attributes export the state of an object and its associated behavior. These attributes are shared by all instances of a class.

- Calling a class (just like a function) creates a new instance of the class.

The class is the most basic component of object-oriented programming. Previously, you learned how to use functions to make your program do something.

Now will move into the big, scary world of Object-Oriented Programming (OOP). To be honest, it took me several months to get a handle on objects.

However, when my C++ course started talking about objects, classes, and all the new features of OOP, my grades definitely suffered.

As you've already seen, Python can do just fine with functions. Unlike languages such as Java, you aren't tied down to a single way of doing things; you can mix functions and classes as necessary in the same program. This lets you build the code

One thing to note about Python and OOP: it's not mandatory to use objects in your code in a way that works best; maybe you don't need to have a full-blown class with initialization code and methods to just return a calculation. With Python, you can get as technical as you want.

It operates exactly as a system-caused exceptions, except that the programmer is doing it on purpose. This can be for a number of reasons. One of the benefits of using exceptions is that, by their nature, they don't put any overhead on the code processing.

Because exceptions aren't supposed to happen very often, they aren't processed until they occur.



- Each instance gets ("inherits") the default class attributes and gets its own namespace. This prevents instance objects from overlapping and confusing the program.
- Using the term self identifies a particular instance, allowing for per-instance attributes. This allows items such as variables to be associated with a particular instance.

### **Inheritance**

First off, classes allow you to modify a program without really making changes to it.

To elaborate, by subclassing a class, you can change the behavior of the program by simply adding new components to it rather than rewriting the existing components.

As we've seen, an instance of a class inherits the attributes of that class.

However, classes can also inherit attributes from other classes. Hence, a subclass inherits from a superclass allowing you to make a generic superclass that is specialized via subclasses.

The subclasses can override the logic in a superclass, allowing you to change the behavior of your classes without changing the superclass at all.

### **Operator Overloads**

Operator overloading simply means that objects that you create from classes can respond to actions (operations) that are already defined within Python, such as addition, slicing, printing, etc.

Even though these actions can be implemented via class methods, using overloading ties the behavior closer to Python's object model and the object interfaces are more consistent to Python's built-in objects, hence overloading is easier to learn and use.

## Exceptions

I've talked about exceptions before but now I will talk about them in depth. Essentially, exceptions are events that modify program's flow, either intentionally or due to errors.

They are special events that can occur due to an error, e.g. trying to open a file that doesn't exist, or when the program reaches a marker, such as the completion of a loop.

Exceptions, by definition, don't occur very often; hence, they are the "exception to the rule" and a special class has been created for them. Exceptions are everywhere in Python.

Virtually every module in the standard Python library uses them, and Python itself will raise them in a lot of different circumstances.

Here are just a few examples:

- Accessing a non-existent dictionary key will raise a Key Error exception.
- Searching a list for a non-existent value will raise a Value Error exception
- Calling a non-existent method will raise an Attribute Error exception.
- Referencing a non-existent variable will raise a Name Error exception.
- Mixing data types without coercion will raise a Type Error exception.

One use of exceptions is to catch a fault and allow the program to continue working; we have seen this before when we talked about files.

This is the most common way to use exceptions. When programming with the Python command line interpreter, you don't need to worry about catching exceptions.

Your program is usually short enough to not be hurt too much if an exception occurs.

Plus, having the exception occur at the command line is a quick and easy way to tell if your code logic has a problem.

However, if the same error occurred in your real program, it will fail and stop working. Exceptions can be created manually in the code by raising an exception.

It operates exactly as a system-caused exceptions, except that the programmer is doing it on purpose. This can be for a number of reasons. One of the benefits of using exceptions is that, by their nature, they don't put any overhead on the code processing.

Because exceptions aren't supposed to happen very often, they aren't processed until they occur.

Exceptions can be thought of as a special form of the if/elif statements. You can realistically do the same thing with if blocks as you can with exceptions.

However, as already mentioned, exceptions aren't processed until they occur; if blocks are processed all the time.

Proper use of exceptions can help the performance of your program.

The more infrequent the error might occur, the better off you are to use exceptions; using if blocks requires Python to always test extra conditions before continuing.

Exceptions also make code management easier: if your programming logic is mixed in with error-handling if statements, it can be difficult to read, modify, and debug your program.

### User-Defined Exceptions

I won't spend too much time talking about this, but Python does allow for a programmer to create his own exceptions.

You probably won't have to do this very often but it's nice to have the option when necessary.

However, before making your own exceptions, make sure there isn't one of the built-in exceptions that will work for you.

They have been "tested by fire" over the years and not only work effectively, they have been optimized for performance and are bug-free.

Making your own exceptions involves object-oriented programming, which will be covered in the next chapter

. To make a custom exception, the programmer determines which base exception to use as the class to inherit from, e.g. making an exception for negative numbers or one for imaginary numbers would probably fall under the Arithmetic Error exception class.

To make a custom exception, simply inherit the base exception and define what it will do.

### **Python modules**

Python allows us to store our code in files (also called modules). This is very useful for more serious programming, where we do not want to retype a long function definition from the very beginning just to change one mistake. In doing this, we are essentially defining our own modules, just like the modules defined already in the Python library.

To support this, Python has a way to put definitions in a file and use them in a script or in an interactive instance of the interpreter. Such a file is called a *module*; definitions from a module can be *imported* into other modules or into the *main* module.

### **Testing code**

As indicated above, code is usually developed in a file using an editor. To test the code, import it into a Python session and try to run it.

Usually there is an error, so you go back to the file, make a correction, and test again.

This process is repeated until you are satisfied that the code works.

The entire process is known as the development cycle.

There are two types of errors that you will encounter. Syntax errors occur when the form of some command is invalid.

This happens when you make typing errors such as misspellings, or call something by the wrong name, and for many other reasons. Python will always give an error message for a syntax error.

### **Functions in Python**

It is possible, and very useful, to define our own functions in Python. Generally speaking, if you need to do a calculation only once, then use the interpreter. But when you or others have need to perform a certain type of calculation many times, then define a function.

You use functions in programming to bundle a set of instructions that you want to use repeatedly or that, because of their complexity, are better self-contained in a sub-program and called when needed. That means that a function is a piece of code written to carry out a specified task.

To carry out that specific task, the function might or might not need multiple inputs. When the task is carried out, the function can or cannot return one or more values.

There are three types of functions in

python: `help()`,`min()`,`print()`.

### **Python Namespace**

Generally speaking, a **namespace** (sometimes also called a context) is a naming system for making names unique to avoid ambiguity. Everybody knows a name spacing system from daily life, i.e. the naming of people in first name and family name (surname).

An example is a network: each network device (workstation, server, printer,) needs a unique name and address. Yet another example is the directory structure of file systems.

The same file name can be used in different directories, the files can be uniquely accessed via the pathnames. Many programming languages use namespaces or contexts for identifiers. An identifier defined in a namespace is associated with that namespace.

This way, the same identifier can be independently defined in multiple namespaces. (Like the same file names in different directories) Programming languages, which support namespaces, may have different rules that determine to which namespace an identifier belongs.

Namespaces in Python are implemented as Python dictionaries, this means it is a mapping from names (keys) to objects (values). The user doesn't have to know this to write a Python program and when using namespaces.

Some namespaces in Python:

- **global names** of a module
- **local names** in a function or method invocation
- **built-in names**: this namespace contains built-in functions (e.g. abs(), cmp(), ...) and built- in exception names

### **Garbage Collection**

Garbage Collector exposes the underlying memory management mechanism of Python, the automatic garbage collector. The module includes functions for controlling how the collector operates and to examine the objects known to the system, either pending collection or stuck in reference cycles and unable to be freed.

### **Python XML Parser**

XML is a portable, open source language that allows programmers to develop applications that can be read by other applications, regardless of operating system and/or developmental language.

What is XML? The Extensible Markup Language XML is a markup language much like HTML or SGML.

This is recommended by the World Wide Web Consortium and available as an open standard.

XML is extremely useful for keeping track of small to medium amounts of data without requiring a SQL-based backbone.

XML Parser Architectures and APIs the Python standard library provides a minimal but useful set of interfaces to work with XML.

The two most basic and broadly used APIs to XML data are the SAX and DOM interfaces.

Simple API for XML SAX: Here, you register callbacks for events of interest and then let the parser proceed through the document.

This is useful when your documents are large or you have memory limitations, it parses the file as it reads it from disk and the entire file is never stored in memory.

Document Object Model DOM API : This is a World Wide Web Consortium recommendation wherein the entire file is read into memory and stored in a hierarchical tree – based form to represent all the features of an XML document.

SAX obviously cannot process information as fast as DOM can when working with large files. On the other hand, using DOM exclusively can really kill your resources, especially if used on a lot of small files.

SAX is read-only, while DOM allows changes to the XML file. Since these two different APIs literally complement each other, there is no reason why you cannot use them both for large projects.

### **Python Web Frameworks**

A web framework is a code library that makes a developer's life easier when building reliable, scalable and maintainable web applications.



Why are web frameworks useful?

Web frameworks encapsulate what developers have learned over the past twenty years while programming sites and applications for the web. Frameworks make it easier to reuse code for common HTTP operations and to structure projects so other developers with knowledge of the framework can quickly build and maintain the application.

Common web framework functionality

Frameworks provide functionality in their code or through extensions to perform common operations required to run web applications. These common operations include:

1. URL routing
2. HTML, XML, JSON, and other output format templating
3. Database manipulation
4. Security against Cross-site request forgery (CSRF) and other attacks
5. Session storage and retrieval

Not all web frameworks include code for all of the above functionality. Frameworks fall on the spectrum from executing a single use case to providing every known web framework feature to every developer. Some frameworks take the "batteries-included" approach where everything possible comes bundled with the framework while others have a minimal core package that is amenable to extensions provided by other packages.

## Comparing web frameworks

There is also a repository called [compare-python-web-frameworks](#) where the same web application is being coded with varying Python web frameworks, templating engines and object.

## Web framework resources

- When you are learning how to use one or more web frameworks it's helpful to have an idea of what the code under the covers is doing.
- Frameworks is a really well done short video that explains how to choose between web frameworks. The author has some particular opinions about what should be in a framework. For the most part I agree although I've found sessions and database ORMs to be a helpful part of a framework when done well.
- What is a web framework? Is an in-depth explanation of what web frameworks are and their relation to web servers?
- Django vs Flask vs Pyramid: Choosing a Python web framework contains background information and code comparisons for similar web applications built in these three big Python frameworks.
- This fascinating blog post takes a look at the code complexity of several Python web frameworks by providing visualizations based on their code bases.
- Python's web frameworks benchmarks is a test of the responsiveness of a framework with encoding an object to JSON and returning it as a response as well as retrieving data from the database and rendering it in a template. There were no conclusive results but the output is fun to read about nonetheless.

- What web frameworks do you use and why are they awesome? is a language agnostic Reddit discussion on web frameworks. It's interesting to see what programmers in other languages like and dislike about their suite of web frameworks compared to the main Python frameworks.
- This user-voted question & answer site asked "What are the best general purpose Python web frameworks usable in production?s" The votes aren't as important as the list of the many frameworks that are available to Python developers.

#### Web frameworks learning checklist

1. Choose a major Python web framework (Django or Flask are recommended) and stick with it. When you're just starting it's best to learn one framework first instead of bouncing around trying to understand every framework.
2. Work through a detailed tutorial found within the resources links on the framework's page.
3. Study open source examples built with your framework of choice so you can take parts of those projects and reuse the code in your application.
4. Build the first simple iteration of your web application then go to the deployment section to make it accessible on the web.

## **16.SYSTEM STUDY**

### **16.1FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis

the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

◆ECONOMICAL FEASIBILITY

◆TECHNICAL FEASIBILITY

◆SOCIAL FEASIBILITY

### **ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

### **16.2TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

### **16.3 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system

Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

.

## **17.SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the

Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### **TYPES OF TESTS**

#### **Unit testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### **Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the

components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be

accepted. Invalid Input : identified classes of invalid

input must be rejected. Functions : identified functions must be

exercised.

Output : identified classes of application outputs must be

exercised. Systems/Procedures: interfacing systems or procedures must be

invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes.

## **SYSTEM TEST**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

### **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

### **6.1 Unit Testing:**

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.



### **Test strategy and approach**

Field testing will be performed manually and functional tests will be written in detail.

### **Test objectives**

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

### **Features to be tested**

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

## **6.2 Integration Testing**

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

### **6.3.Acceptance Testing**

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## 18.SCREEN SHOTS

### Data Loading:

```
In [1]: import numpy as np
import pandas as pd
pd.set_option("display.max_columns", 30)

In [2]: df=pd.read_csv("creditcard.csv")

In [3]: df.shape
Out[3]: (284887, 31)

In [4]: df=df.sample(frac=0.3)

In [5]: df.head(5)
```

	Time	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13
65500	51660.0	1.341125	-0.623387	0.266612	-0.753746	-0.071363	-0.958557	-0.638878	0.185031	-0.846834	0.040140	1.481868	-0.928060	-2.136813
100680	67500.0	1.448854	-1.187643	0.388066	-1.286768	-1.641257	-1.826590	-0.694395	-0.229548	-1.754078	1.442340	-0.582566	-1.218821	-0.123436
260838	158746.0	-0.891959	1.457885	0.319898	-0.881177	0.058103	0.278587	0.630172	0.420629	-0.962712	-0.448144	-0.319297	0.737241	1.006241
84444	68307.0	0.804881	-0.796985	0.900562	0.741938	-0.767196	0.016380	-0.598876	0.295429	0.080080	-0.253944	0.908818	1.087421	0.813203
186686	78868.0	1.391282	-0.370037	0.082758	-0.582143	-0.586885	-0.177171	-0.421587	-0.830174	-0.419582	0.788068	-2.064547	-1.121006	-1.548878

Screen1:data loading

# Information about Dataset:

```
In [8]: df.info()#3
<class 'pandas.core.frame.DataFrame'>
Int64Index: 85442 entries, 65599 to 58941
Data columns (total 31 columns):
Column Non-Null Count Dtype
--- -
0 Time 85442 non-null float64
1 V1 85442 non-null float64
2 V2 85442 non-null float64
3 V3 85442 non-null float64
4 V4 85442 non-null float64
5 V5 85442 non-null float64
6 V6 85442 non-null float64
7 V7 85442 non-null float64
8 V8 85442 non-null float64
9 V9 85442 non-null float64
10 V10 85442 non-null float64
11 V11 85442 non-null float64
12 V12 85442 non-null float64
13 V13 85442 non-null float64
14 V14 85442 non-null float64
15 V15 85442 non-null float64
16 V16 85442 non-null float64
17 V17 85442 non-null float64
18 V18 85442 non-null float64
19 V19 85442 non-null float64
20 V20 85442 non-null float64
21 V21 85442 non-null float64
22 V22 85442 non-null float64
23 V23 85442 non-null float64
24 V24 85442 non-null float64
25 V25 85442 non-null float64
26 V26 85442 non-null float64
27 V27 85442 non-null float64
28 V28 85442 non-null float64
29 Amount 85442 non-null float64
30 Class 85442 non-null int64
dtypes: float64(30), int64(1)
memory usage: 20.9 MB
```

Screen 2:information about dataset

# Local Outlier Factor Model Building:

```
from sklearn.neighbors import LocalOutlierFactor
```

```
lof=LocalOutlierFactor(n_neighbors=20, contamination=anomalies_fraction)
y_pred=lof.fit_predict(X)
```

## Classification Report:

```
] : print(classification_report(y,y_pred, digits=6))
```

	precision	recall	f1-score	support
0	0.998053	0.998053	0.998053	85273
1	0.017751	0.017751	0.017751	169
accuracy			0.996114	85442
macro avg	0.507902	0.507902	0.507902	85442
weighted avg	0.996114	0.996114	0.996114	85442

Screen 3:outliar factor modeling

## Isolation Forest Model Building:

```
]]: from sklearn.ensemble import IsolationForest

]: Iso_Forest=IsolationForest(contamination=anomalies_fraction, max_samples=len(X))
 Iso_Forest.fit(X)
```

## Classification Report:

```
print(classification_report(y,y_pred2,digits=6))
```

	precision	recall	f1-score	support
0	0.998745	0.998745	0.998745	85273
1	0.366864	0.366864	0.366864	169
accuracy			0.997495	85442
macro avg	0.682805	0.682805	0.682805	85442
weighted avg	0.997495	0.997495	0.997495	85442

Screen 4:isolation forest model

## K-Means Model Building:

```
from sklearn.cluster import KMeans
from sklearn.model_selection import train_test_split
```

```
kmeans = KMeans(n_clusters=2, init='k-means++', n_jobs = -1)
```

```
model = kmeans.fit(X)
```

```
C:\Users\YMTS0356\AppData\Roaming\Python\Python36\site-packages\skle
recated in version 0.23 and will be removed in 1.0 (renaming of 0.25
" removed in 1.0 (renaming of 0.25).", FutureWarning)
```

## Classification Report:

```
: print(classification_report(y,pred))
```

	precision	recall	f1-score	support
0	1.00	0.98	0.99	85273
1	0.01	0.08	0.01	169
accuracy			0.98	85442
macro avg	0.50	0.53	0.50	85442
weighted avg	1.00	0.98	0.99	85442

Screen 5: k-means factor modeling

## Auto Encoders:

```

from keras.models import Model, load_model
from keras.layers import Input, Dense
from keras.callbacks import ModelCheckpoint, TensorBoard
from keras import regularizers

df = df.drop(['Time'], axis=1)
X_train, X_test = train_test_split(df, test_size=0.2, random_st
X_train = X_train[X_train.Class == 0]
X_train = X_train.drop(['Class'], axis=1)
y_test = X_test['Class']
X_test = X_test.drop(['Class'], axis=1)
X_train = X_train.values
X_test = X_test.values
X_train.shape

(60212, 29)

input_dim = X_train.shape[1]
encoding_dim = 14
input_layer = Input(shape=(input_dim,))
encoder = Dense(encoding_dim, activation="tanh",
 activity_regularizer=regularizers.l1(1e-5))(in
encoder = Dense(int(encoding_dim / 2), activation="relu")(encod
decoder = Dense(int(encoding_dim / 2), activation="tanh")(encod
decoder = Dense(input_dim, activation="relu")(decoder)
autoencoder = Model(inputs=input_layer, outputs=decoder)

nb_epoch = 20
batch_size = 32
autoencoder.compile(optimizer='adadelta',
 loss='mean_squared_error',
 metrics=['accuracy'])
checkpointer = ModelCheckpoint(filepath="model.h5",
verbose=0,
save_best_only=True)
tensorboard = TensorBoard(log_dir='./logs',
histogram_freq=0,
write_graph=True,
write_images=True)
history = autoencoder.fit(X_train, X_train,
 epochs=nb_epoch,
 batch_size=batch_size,
 validation_data=(X_test, X_test)).history

```

## Classification Report:-:

```
print(classification_report(error_df.true_class, y_pred3))
```

	precision	recall	f1-score	support
0	1.00	0.92	0.96	17061
1	0.02	0.79	0.03	28
accuracy			0.92	17089
macro avg	0.51	0.85	0.49	17089
weighted avg	1.00	0.92	0.96	17089

Screen 6:Auto encoders



## Neural Networks:

```

from keras.models import Sequential
from keras.layers import Dense, Dropout

from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=42)
We are transforming data to numpy array to implementing with keras
X_train = np.array(X_train)
X_test = np.array(X_test)
y_train = np.array(y_train)
y_test = np.array(y_test)

X_train.shape

(59809, 29)

model = Sequential([
 Dense(units=20, input_dim = X_train.shape[1], activation='relu'),
 Dense(units=24,activation='relu'),
 Dropout(0.5),
 Dense(units=20,activation='relu'),
 Dense(units=24,activation='relu'),
 Dense(1, activation='sigmoid')
])
model.summary()
model.compile(loss='binary_crossentropy',optimizer='adam',metrics = ['accuracy'])
nb_epoch = 50
model.fit(X_train,y_train,epochs=nb_epoch,batch_size = batch_size)

```

## Classification Report:

```

print(classification_report(y_test,pred1.round()))

```

	precision	recall	f1-score	support
0	1.00	1.00	1.00	25584
1	0.00	0.78	0.04	49
accuracy			1.00	25633
macro avg	0.95	0.69	0.92	25633
weighted avg	1.00	1.00	1.00	25633

Screen 7:neural networks

## **19.CONCLUSION:**

In this application, we have successfully created unsupervised ML models to detect whether the credit card is fraud or not fraud. We noticed that out of Local Outlier Factor, Isolation Forest, K-Means Clustering, Neural Networks and Auto Encoders Neural Networks performs well with accuracy score of 99% and precision and recall scores of 85%.

## **20.FUTURE SCOPE:**

This system can be extended to improve the models precision and recall scores by applying imbalanced data treatment techniques to improve precision and recall scores of our MachineLearning models.

## **21.REFERENCES:**

- [1] Taha, Altyeb & Malebary, Sharaf. (2020). An Intelligent Approach to Credit Card Fraud Detection Using an Optimized Light Gradient Boosting Machine. IEEE Access. 8. 25579-25587.
- [2] Assaghir, Zainab & Taher, Yehia & Haque, Rafiqul & Hacid, Mohand-Said & Zeineddine, Hassan. (2019). An Experimental Study With Imbalanced Classification Approaches for Credit Card Fraud Detection. IEEE Access.
- [3] L. Meneghetti, M. Terzi, S. Del Favero, G. A Susto, C. Cobelli, “DataDriven Anomaly Recognition for Unsupervised Model-Free Fault Detection in Artificial Pancreas”, Ieee Transactions On Control Systems Technology, (2018) pp. 1-15
- [4] F. Carcillo, Y.-A. Le Borgne and O. Caelen et al., “Combining unsupervised and supervised learning in credit card fraud detection”, Information Sciences, Elsevier (2019), pp. 1-15.
- [5] Ashphak, Mr. & Singh, Tejpal & Sinhal, Dr. Amit. (2012). A Survey of Fraud Detection System using Hidden Markov Model for Credit Card Application Prof. Amit Sinhal. 1.
- [6] Renjith, Shini. (2018). Detection of Fraudulent Sellers in Online Marketplaces using Support Vector Machine Approach. International Journal of Engineering Trends and Technology. 57. 48-53. 10.14445/22315381/IJETT-V57P210.
- [7] Saputra, Adi & Suharjito, Suharjito. (2019). Fraud Detection using Machine Learning in e-Commerce. 10.14569/IJACSA.2019.0100943.

[8] A. K. Rai and R. K. Dwivedi, "Fraud Detection in Credit Card Data using Unsupervised Machine Learning Based Scheme," 2020 International Conference on Electronics and Sustainable Communication Systems (ICESC), Coimbatore, India, 2020, pp. 421-426, doi: 10.1109/ICESC48915.2020.9155615.

[9] John O. Awoyemi, Adebayo O. Adetunmbi, Samuel A. Oluwadare et al., "Credit card fraud detection using Machine Learning Techniques: A Comparative Analysis", IEEE, 2017.

[10] Rajendra Kumar Dwivedi, Sonali Pandey, Rakesh Kumar "A study on Machine Learning Approaches for Outlier Detection in Wireless Sensor Network" IEEE International Conference Confluence, (2018).

**A**

**Project Report**

**on**

**DETECTION OF MALICIOUS SOCIAL BOTS USING LEARNING  
AUTOMATA WITH URL FEATURES IN TWITTER NETWORK**

*Submitted in partial fulfilment for the award of the degree*

**of**

**Master of Computer Applications**

***Submitted by***

**C. HARIKA  
(Reg No: 19F65F0009)**

*Under the esteemed guidance of*

**Mr. P. KARTHIKEYAN, MCA., M.E.  
Associate Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with "A" Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, Puttur-517583,  
Andhra Pradesh  
2020 - 2021**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**

**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with “A” Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583,  
Andhra Pradesh**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled “DETECTION OF MALICIOUS SOCIAL BOTS USING LEARNING AUTOMATA WITH URL FEATURES IN TWITTER NETWORK” that is being submitted by C. HARIKA (Reg. No. 19F65F0009) in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by her under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

**Submitted for the main project viva-voice examination held on \_\_\_\_\_**

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **C. HARIKA** hereby declare that the project report entitled “**DETECTION OF MALICIOUS SOCIAL BOTS USING LEARNING AUTOMATA WITH URL FEATURES IN TWITTER NETWORK**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. KARTHIKEYAN**, MCA., M.E. Associate Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**C. HARIKA**

**Reg. No.: 19F65F0009**



## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mr. P. KARTHIKEYAN, MCA, M.E.** Associate Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA, M.E.,** HOD, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to the project coordinators and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(C.HARIKA)

# CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1
2	SYSTEM STUDY	5
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	7
	3.2 DISADVANTAGES	8
	3.3 PROPOSED SYSTEM	8
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9
5	SYSTEM ARCHITECTURE	10
6	SOFTWARE ENVIRONMENT	13
7	SYSTEM REQUIREMENTS	28
8	SYSTEM DESIGN	29
9	IMPLEMENTATION	40
10	SYSTEM TESTING	87
11	SCREEN SHOTS	90
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

## **ABSTRACT**

Malicious social bots generate fake tweets and automate their social relationships either by pretending like a follower or by creating multiple fake accounts with malicious activities. Moreover, malicious social bots post shortened malicious URLs in the tweet in order to redirect the requests of online social networking participants to some malicious servers. Hence, distinguishing malicious social bots from legitimate users is one of the most important tasks in the Twitter network.

# LIST OF FIGURES

S. No.	Name	Page No.
1	5.1. System Architecture	11
2	5.2. Dataflow Diagram	12
3	6.1. Program Compilation & Interpretation	14
4	6.2. Execution for different platforms	14
5	6.3. Java Platform	15
6	6.4. Java IDE	17
7	6.7. General J2ME Architecture	25
8	8.1. Data Flow Diagram	30
9	8.2.1.1 Activity Diagram for End User	31
10	8.2.1.2 Activity Diagram for Web Server	32
11	8.2.2.1 Use Case Diagram for End User	33
12	8.2.2.2 Use Case Diagram for Web Server	34
13	8.2.3 Sequence Diagram	35
14	8.2.4 Collaboration Diagram	36
15	8.2.5 Deployment Diagram	37
16	8.2.6. Class Diagram	38
17	8.3.1 E-R Notations	39
18	Screen Shots	90

## **LIST OF ABBREVIATIONS**

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	SMS	Smart Meter System
10	ABSI	Adaptive Binary Splitting Inspection
11	DBMS	Database Management System
12	RMI	Remote Method Invocation
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

# 1. INTRODUCTION

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called *Knowledge Discovery in Database (KDD)*. The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation.

Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

## 1.1 What is Data Mining?

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining.

In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information. Data Mining is similar to Data Science carried out by a person, in a specific situation, on a particular data set, with an objective. This process includes various types of services

such as text mining, web mining, audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tonnes of information available on various platforms, but very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

## **1.2 Types of Data Mining**

Data mining can be performed on the following types of data:

### **Relational Database:**

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data searchability, reporting, and organization.

### **Data Repositories:**

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

### **Object-Relational Database:**

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance, etc.

### 1.3 Advantages of Data Mining

- The Data Mining technique enables organizations to obtain knowledge-based data.
- Data mining enables organizations to make lucrative modifications in operation and production.
- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.
- It Facilitates the automated discovery of hidden patterns as well as the prediction of trends and behaviors.
- It can be induced in the new system as well as the existing platforms.
- It is a quick process that makes it easy for new users to analyze enormous amounts of data in a short time.

### 1.4 Applications of Data Mining

#### **Data mining in Education:**

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

#### **Data Mining in Manufacturing Engineering:**

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.



## **Data Mining Financial**

The Digitalization of the banking system is supposed to generate an enormous amount with every new transaction. The data mining technique can help bankers by solving business- related problems in banking and finance by identifying trends, casualties, and correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by experts. The manager may find these data for better targeting, acquiring, retaining, segmenting, and maintain

## **2. SYSTEM STUDY**

### **2.1 FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

#### **2.1.1 ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

#### **2.1.2 TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a

demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

### **2.1.3 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

### 3. SYSTEM ANALYSIS

#### 3.1 EXISTING SYSTEM

Besel analyzed social botnet attack on Twitter. The authors have presented that social bot use URL shortening services and URL redirection in order to redirect users to malicious web pages. Echeverria and Zhou presented methods to detect, retrieve, and analyze botnet over thousands of users to observe the social behavior of bots. In, a social bot hunter model has been presented based on the user behavioral features, such as follower ratio, the number of URLs, and reputation score. In, a trust model has been designed to detect malicious activities in an OSN. The authors analyzed that the low trust value of a user indicates that the information spread by the user is considered as untrustworthy.

In, an MSBD approach has been proposed by considering user behavioral features, such as commenting, liking, and sharing. Madisetty and Desarkar have developed five different convolutional neural network models by considering tweet features. In, a social botnet detection algorithm is proposed by considering spam content in tweets and trust to identify social bots. Gupta et al. designed a framework for detecting spammers in the Twitter network using different machine learning algorithms. In this article, we focus to detect malicious social bots (who perform phishing attacks) by considering various URL-based features using an LA model.

Several spam-detection approaches have been proposed in the Twitter network to distinguish non spam accounts and spam accounts. Moreover, these studies consider user profile features, which can easily be modified by malicious bots. To avoid feature manipulation, Yang considered social relationships between malicious users and with their neighboring users based on closeness centrality. Moreover, profile features and social interaction features may not help in detecting malicious URLs that are posted by the participants.

To address the above-mentioned problem, Janabi considered URL-based features (such as URL length, Http-302 status code, and disabling right click) to distinguish legitimate URLs from suspicious URLs. In, a URL-based approach is proposed to detect spam tweets in Twitter based on the tweet content and URL redirection chains. Patil and Patil used decision tree classifiers with statistical features in order to detect malicious URLs.

### ➤ **DISADVANTAGES OF EXISTING SYSTEM**

- In the existing work, the system considers user profile features, which can easily be modified by malicious bots.
- This system aims to profile features and social interaction features which may not help in detecting malicious URLs that are posted by the participants.

### **3.2 PROPOSED SYSTEM**

The proposed LA-MSBD algorithm helps to detect malicious social bots accurately (in terms of precision, recall, F-measure, and accuracy) in Twitter. The major contributions are as follows:

- Analyze the malicious behavior of a participant by considering URL-based features, such as URL redirection, the relative position of URL, frequency of shared URLs, and spam content in URL.
- Evaluate the trustworthiness of tweets (posted by each participant) by using the Bayesian learning and Dempster–Shafer theory (DST).
- Design of an LA-MSBD algorithm by integrating a trust model with a set of URL-based features. Performance evaluation of the proposed LA-MSBD algorithm using two Twitter data sets
- The Fake Project data set and Social Honeypot data set in terms of precision, recall, F-measure, and accuracy for MSBD in the Twitter network

### **3.3 ADVANTAGES OF PROPOSED SYSTEM**

- The malicious behavior of participants is analyzed effectively by considering features extracted from the posted URLs (in the tweets), such as URL redirection, frequency of shared URLs, and spam content in URL, to distinguish between legitimate and malicious tweets.
- To protect against the malicious social bot attacks, our proposed LA-based malicious social bot detection (LA-MSBD) algorithm integrates a trust computational model with a set of URL-based features for the detection of malicious social bots.

## 4. SOFTWARE MODULES

### 4.1 MODULES

- User
- Web Server

### 4.2 MODULES DESCRIPTION

#### USER

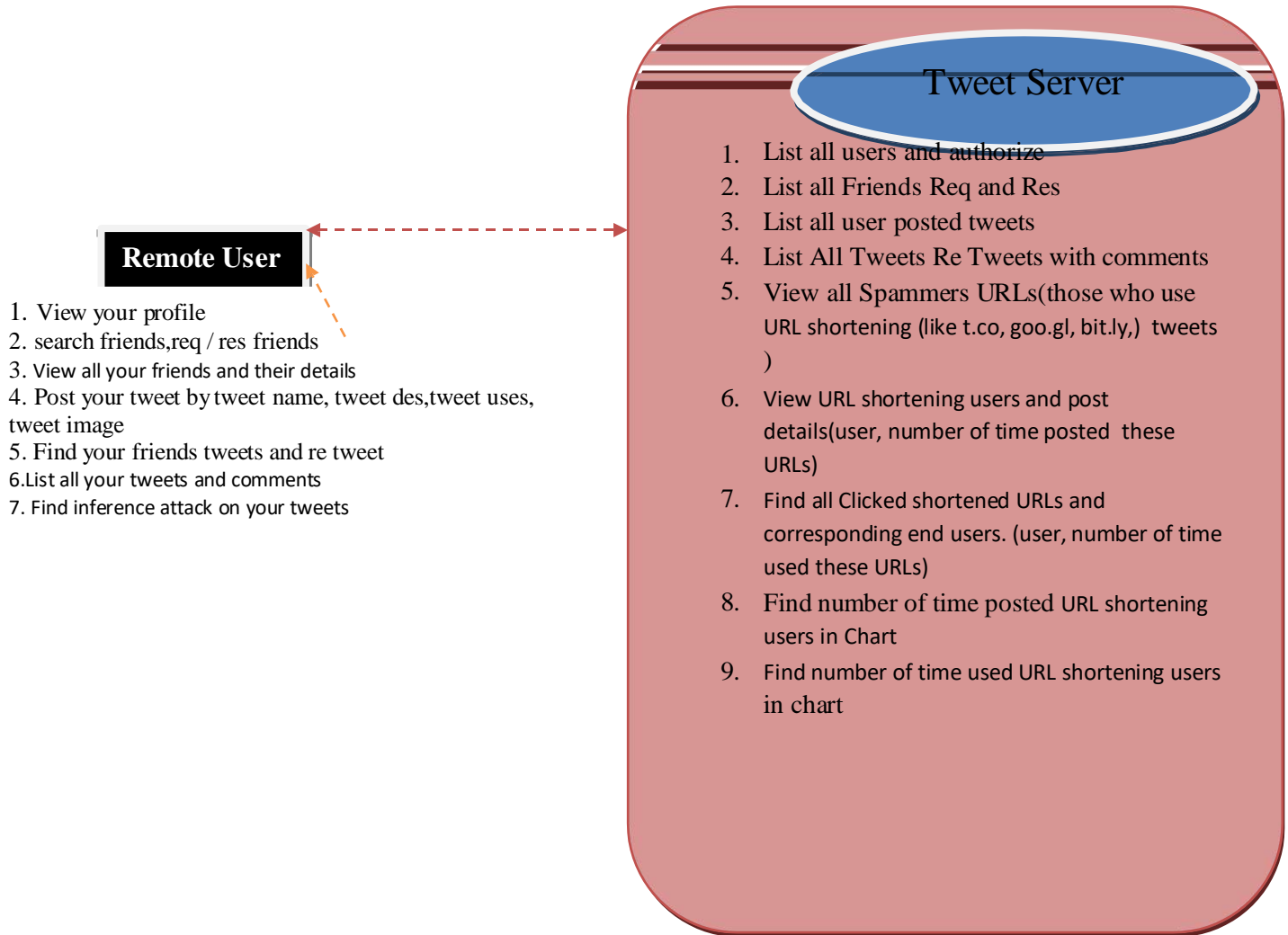
In this module, The end user maintained data in server. User should register before performing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password. Once Login is successful user can perform some operations like viewing their profile details, searching for friends and sending friend requests, accepting friend requests, viewing friends details, Posting Their own Tweets, Finding Friends tweets and Re-tweets, Listing user tweets and comments and Finding Inference Attack user Posted tweets

#### WEB SERVER

In this module, the Admin has to login by using valid user name and password. After login successful he can perform some operations such as view and authorize users, Adding Short URLs, Listing all Friends Request and Responses, Listing all User Posted Tweets, Listing all Tweets and Re-tweets with Comments ,Viewing all Spammers URLs, Viewing URL Shortening Users and Post Details, Finding all Clicked Shortened URLs and Corresponding Users and Chart Results.

## **5.SYSTEM ARCHITECTURE**

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.



**Fig 5.1 System Architecture**



## 5.2 DATA FLOW DIAGRAM

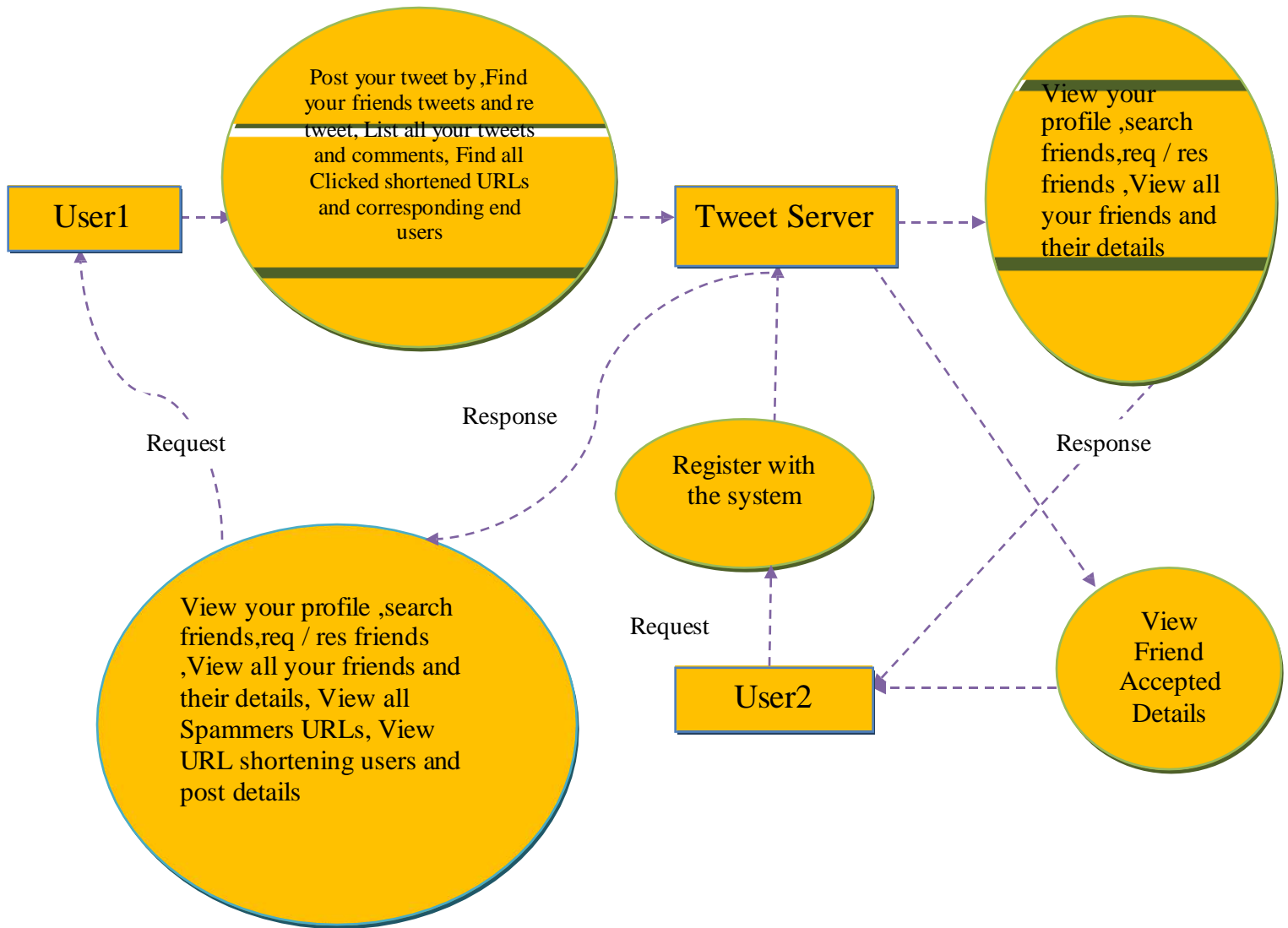


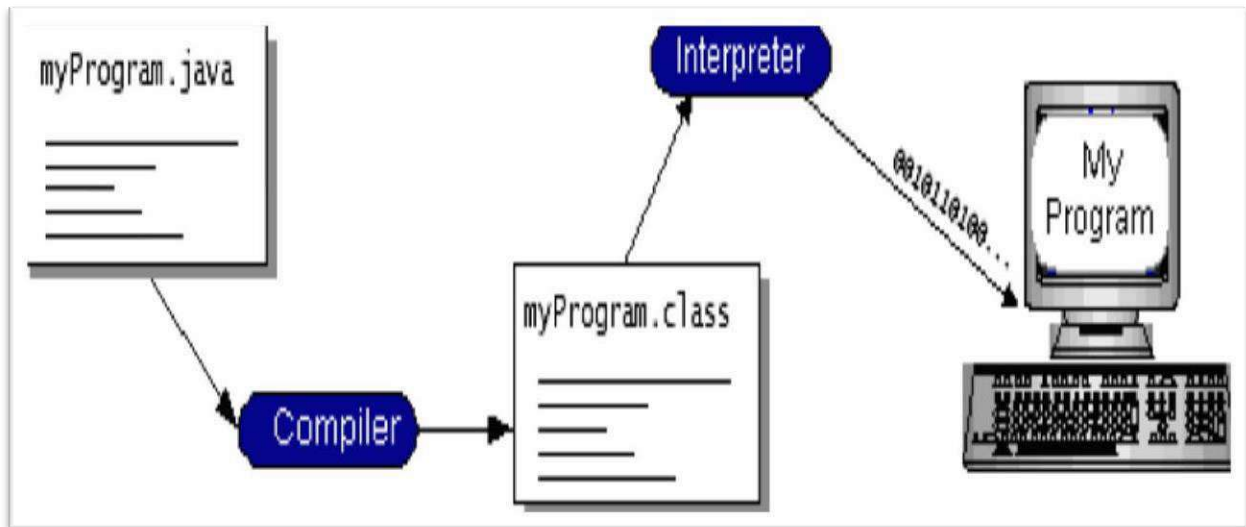
Fig 5.2 Dataflow Diagram

## 6.SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

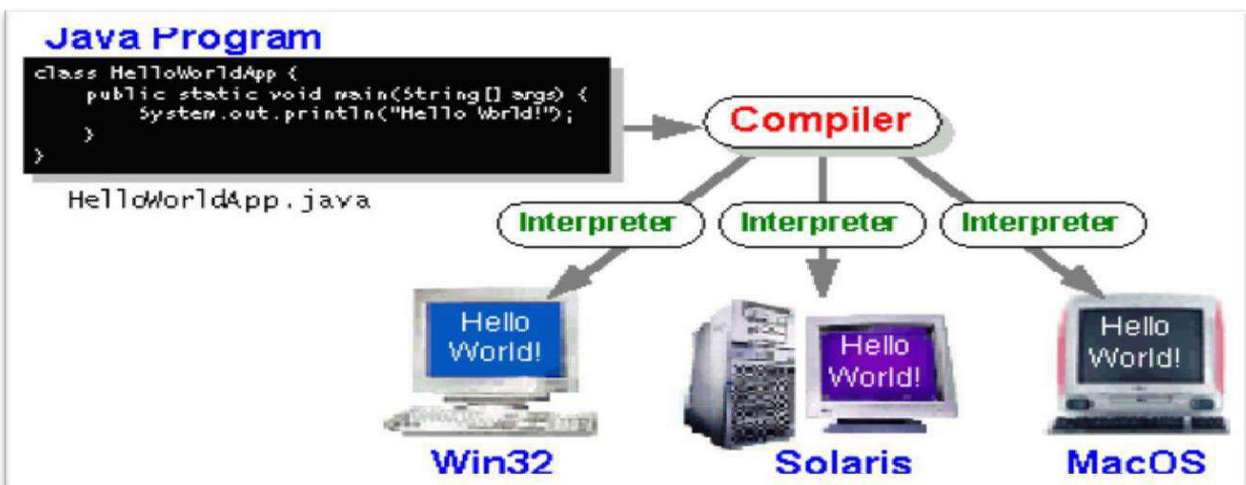
- Simple
- Architecture
- neutral Object
- oriented Portable
- Distributed
- High
- performance
- Interpreted
- Multithreaded
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.



*Fig 6.1: Program Compilation and Interpretation*

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.



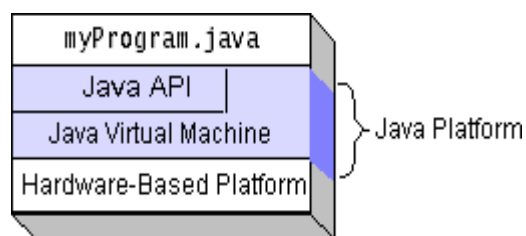
**Fig 6.2: Execution for different platforms**

## 6.2. The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.



**Fig 6.3: Java Platform**

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance close to that of native code without threatening portability.

### 6.3 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide.

- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
- **Software components:** Known as JavaBeans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a widerange of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

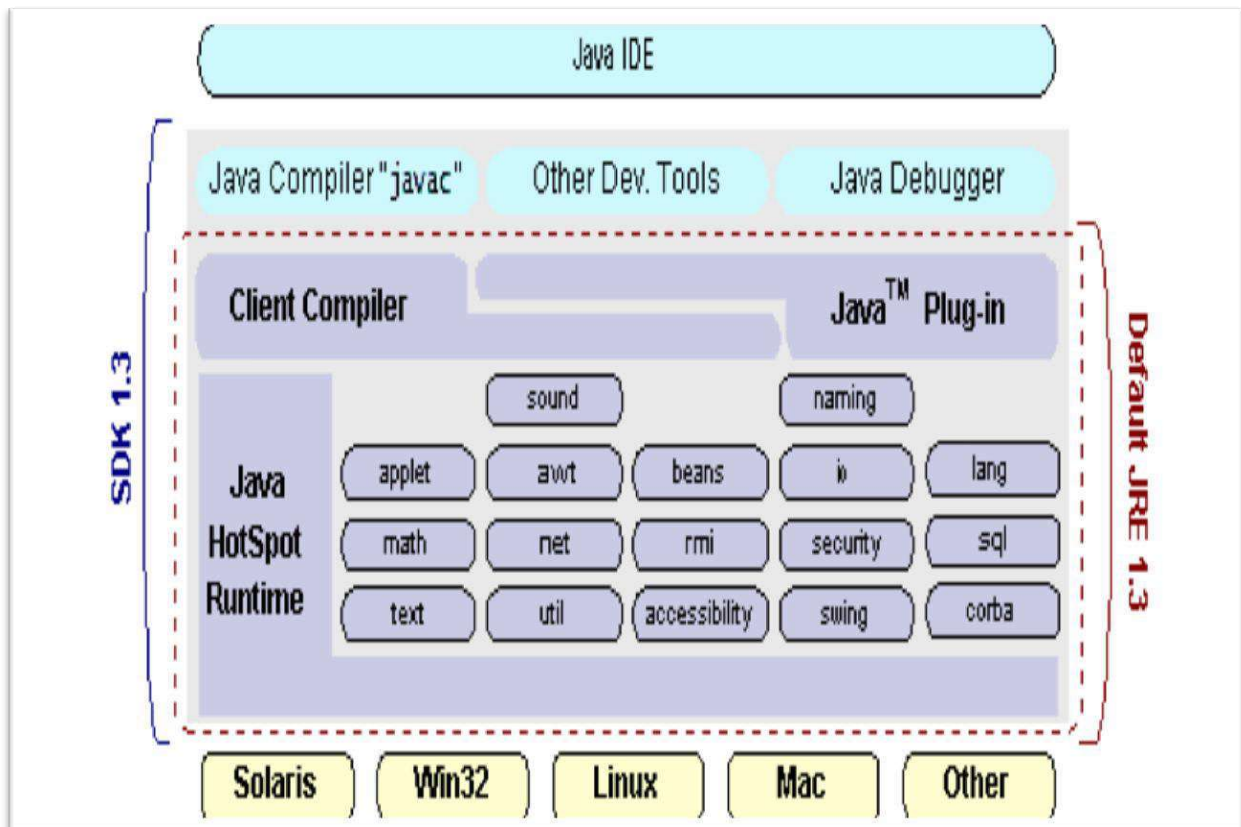


Fig 6.4: Java IDE

### 6.3. How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

#### 6.4. ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program



called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

## **6.5. JDBC**

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes

to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to "generate" JDBC code and to hide many of JDBC's complexities from the end user.

### **SQL Conformance**

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the

connectivity module to handle non- standard functionality in a manner that is suitable for its users.

### **JDBC must be implemental on top of common database interfaces**

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

### **Provide a Java interface that is consistent with the rest of the Java system**

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

### **Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

### **Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compiler you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

## 6.6. SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
> #include
<sys/socket.
h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

## 6.7. JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file

formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

### **Map Visualizations**

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting somemore.

### **Time Series Chart Interactivity**

Implement a new (to JFreeChart) feature for interactive time series charts -- - to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

### **Dashboards**

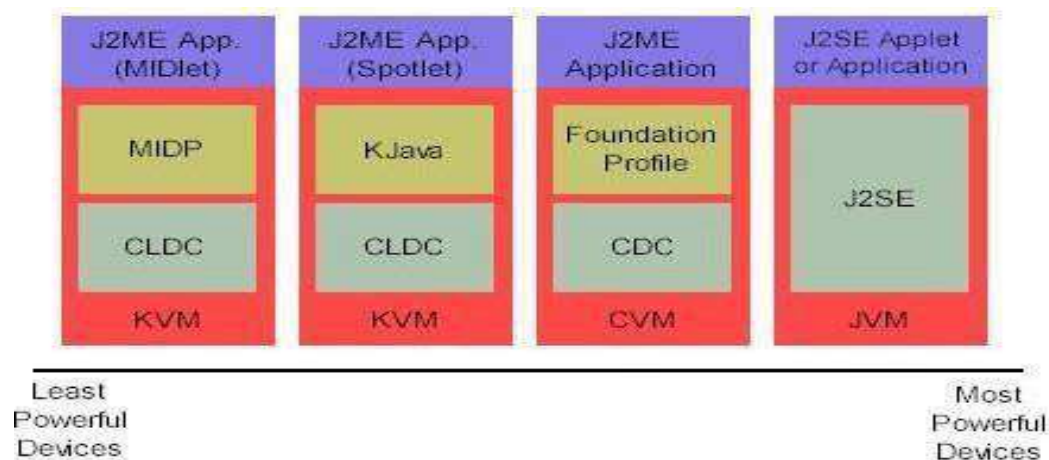
There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

### **Property Editors**

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

## 6.8. J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the JavaOne Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.



**Fig 6.7: General J2ME Architecture**

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It

also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

### **Developing J2ME applications**

**Introduction** In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis.

## Configurations overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.



## **7.SYSTEM REQUIREMENTS**

### **7.1 HARDWARE REQUIREMENTS**

- Processor- Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM:4 GB
- Hard Disk: 40 GB.

### **7.2 SOFTWARE REQUIREMENTS**

- Operating System- windows 7 / 8.1 / 10/
- Server: Apache Tomcat
- Database: MYSQL Server 5.0
- Frontend: HTML, CSS, JS
- Backend: JSP

## 8.SYSTEM DESIGN

### 8.1 DATAFLOWDIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

### 8.1 DATA FLOW DIAGRAM

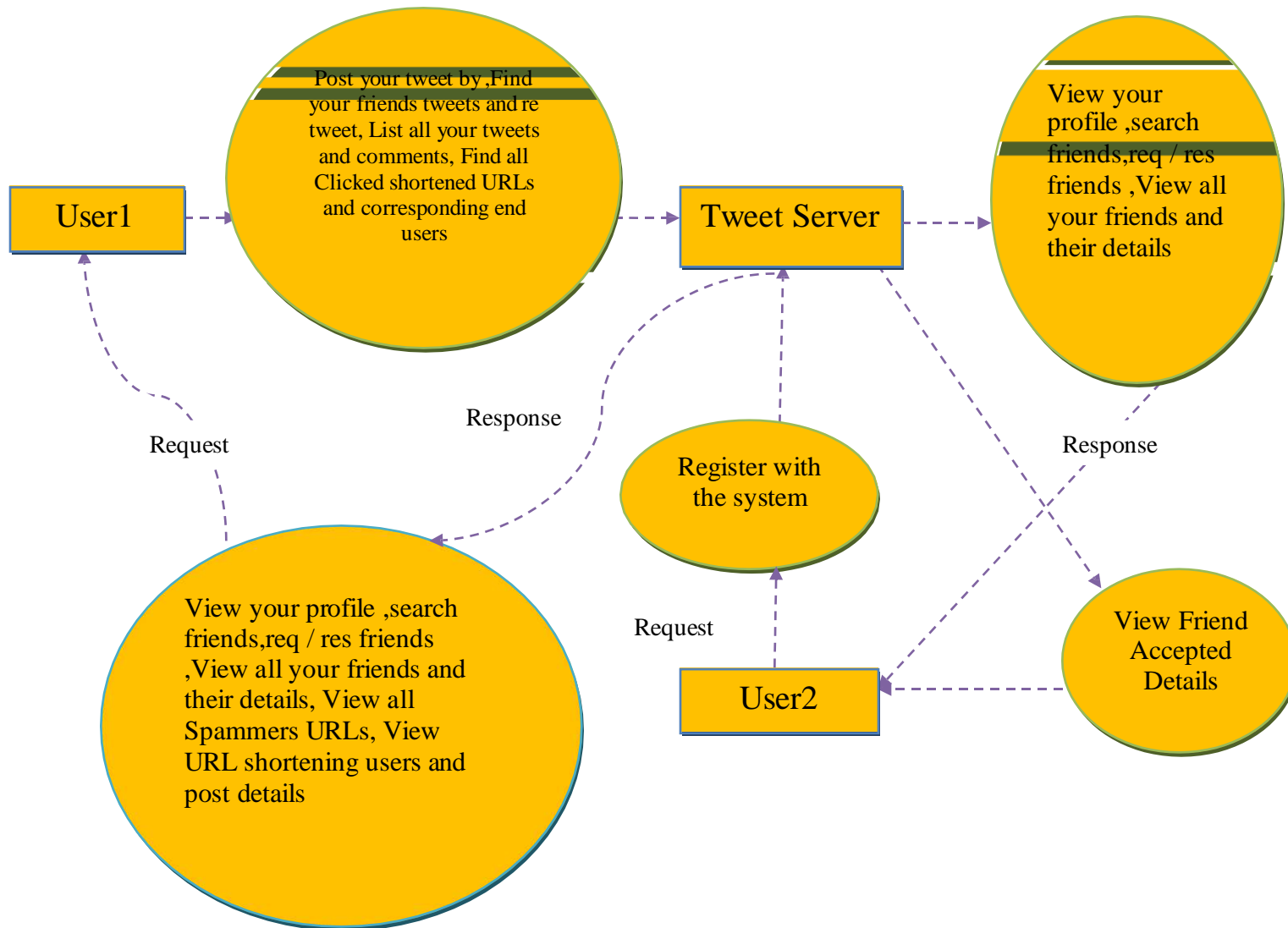


Fig 8.1 Dataflow Diagram

## 8.22UML DIAGRAMS

### 8.2.1 Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

#### 8.2.1.1 Activity Diagram for Enduser

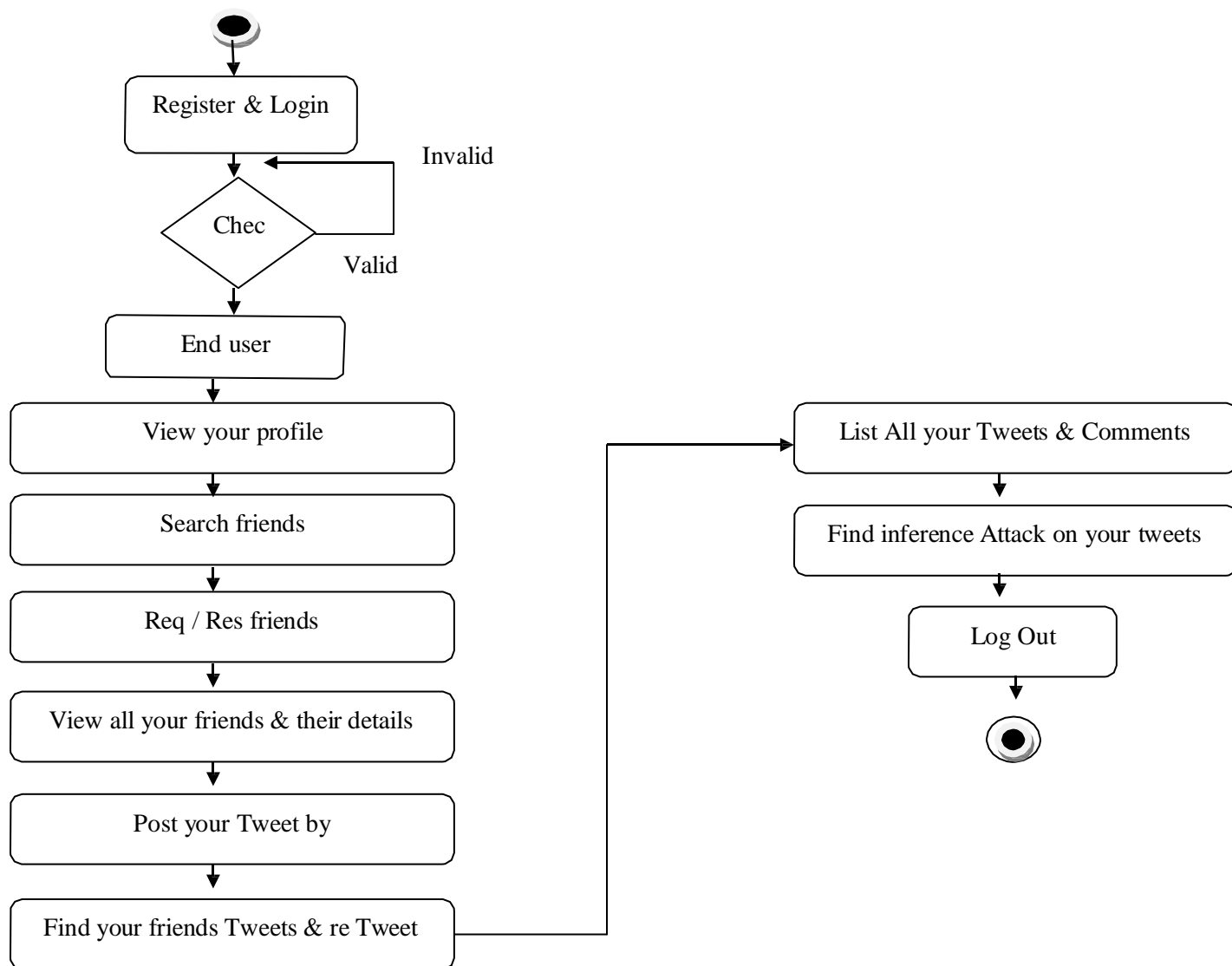


Fig 8.2.1.1 Activity Diagram for Enduser

8.2.1.2 Activity Diagram for WebServer

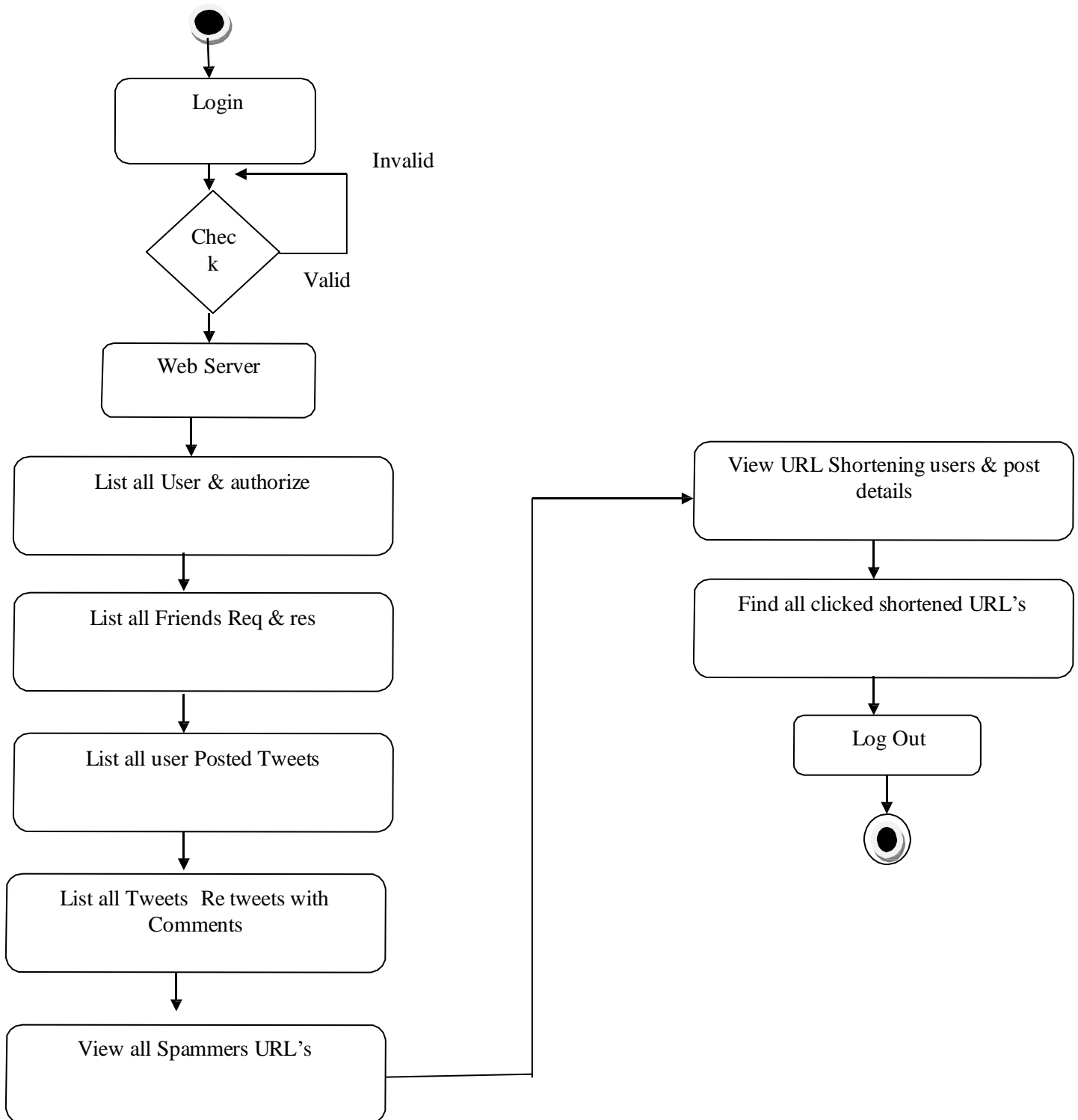


Fig 8.2.1.2 Activity Diagram for Webserver

### 8.2.2 Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

#### 8.2.2.1 Use case Diagram for Enduser

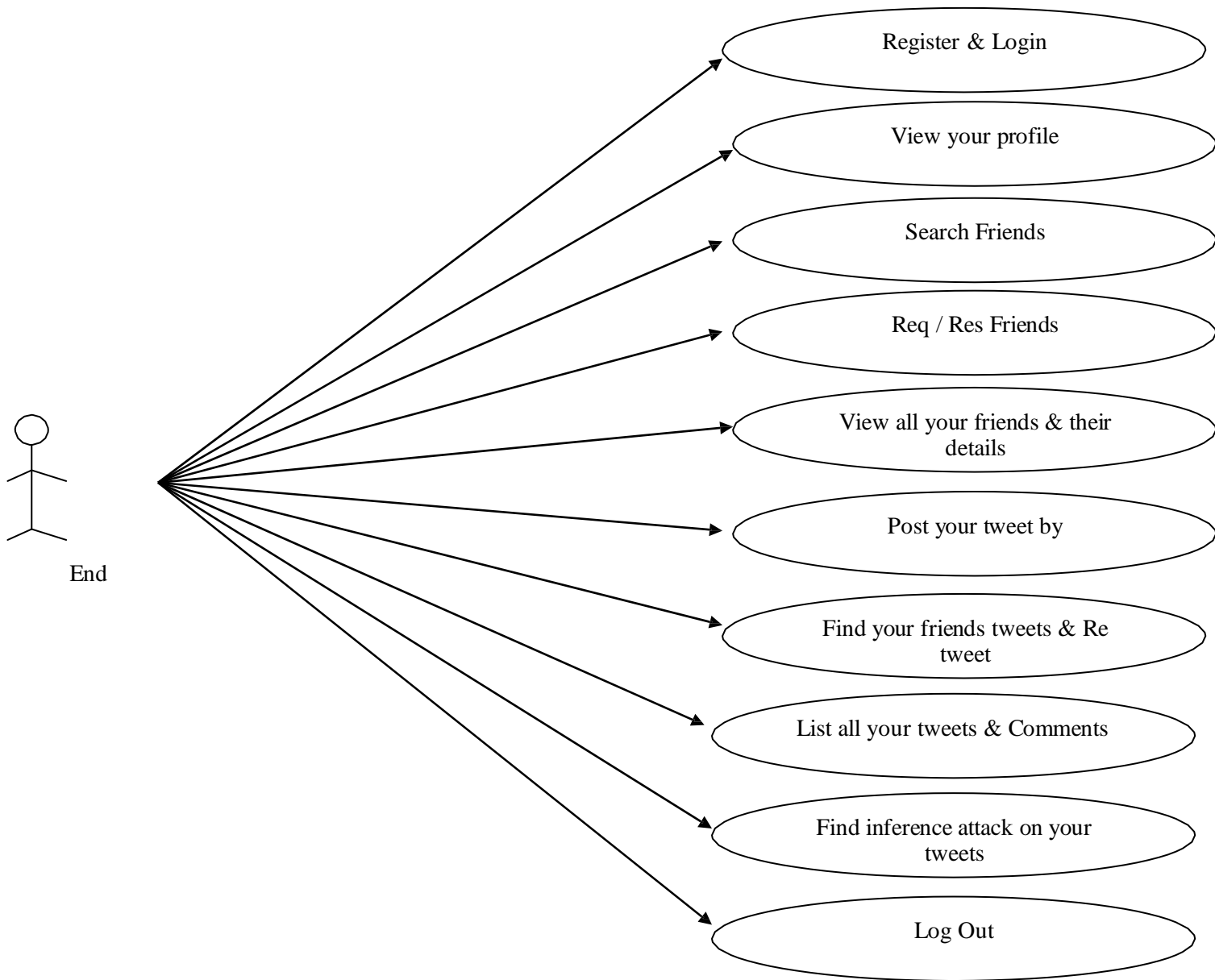


Fig 8.2.2.1 Use case Diagram for Enduser

### 8.2.2.2 Use case Diagram for Webservice

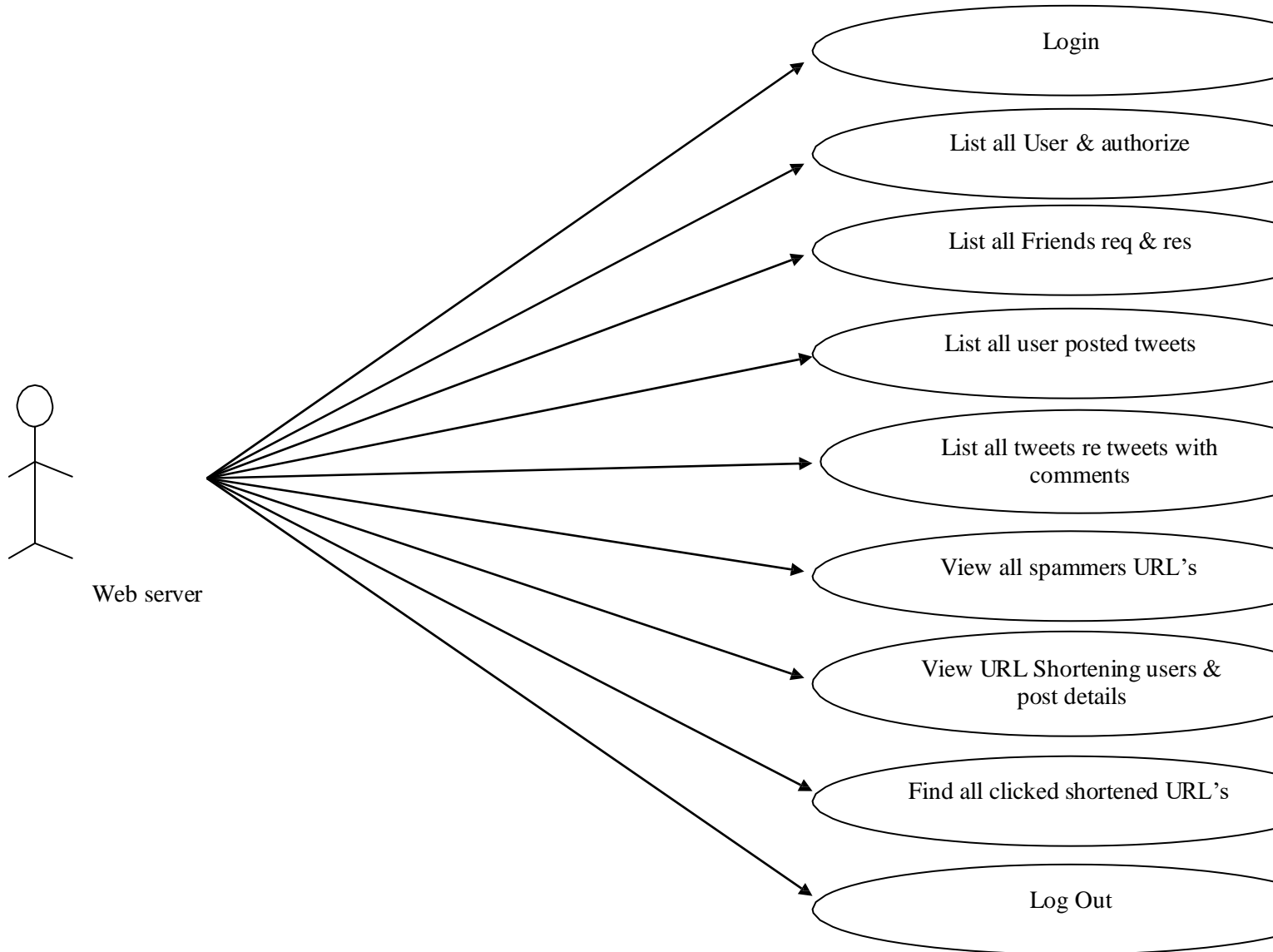


Fig 8.2.2.2 Use case Diagram for Webservice

### 8.2.3 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

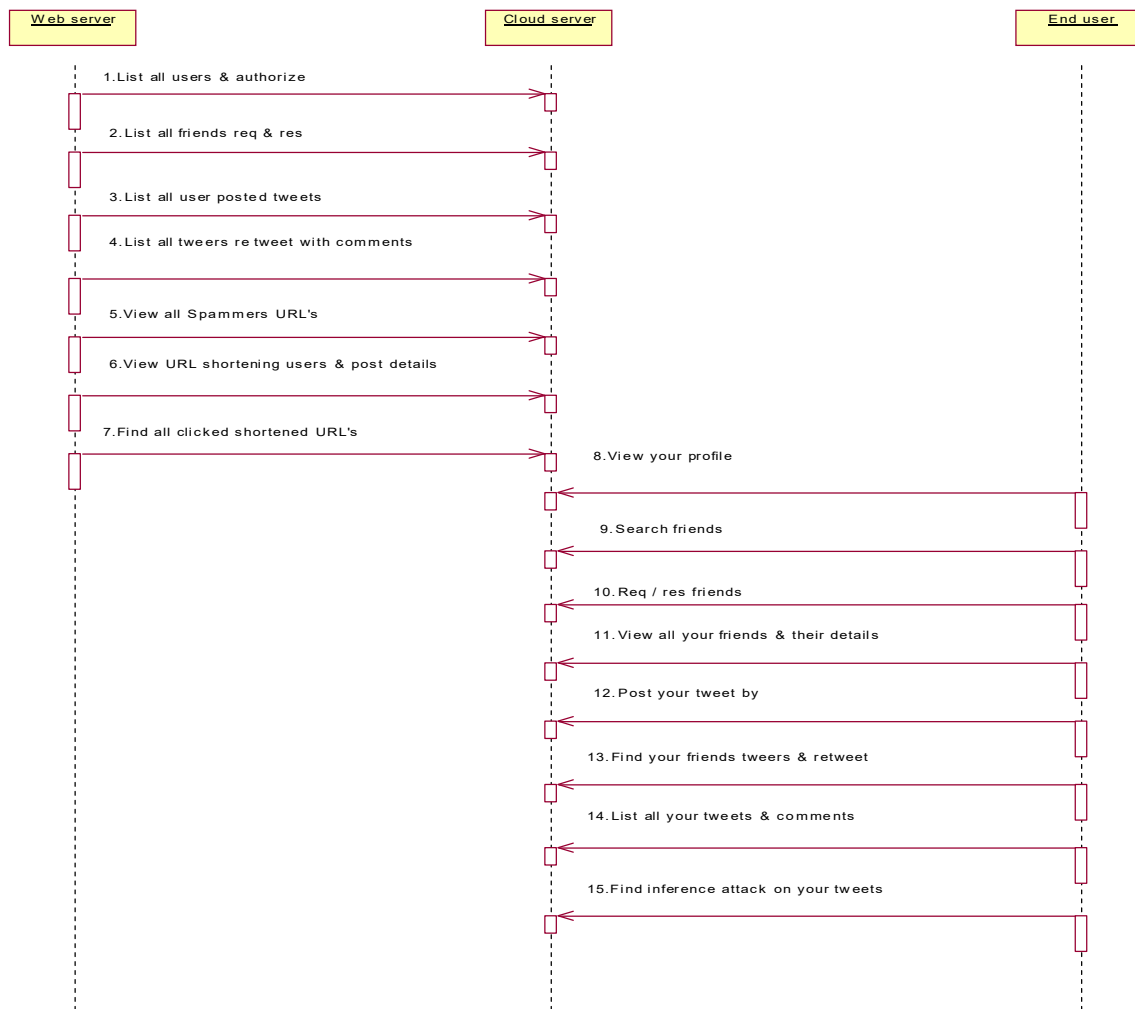
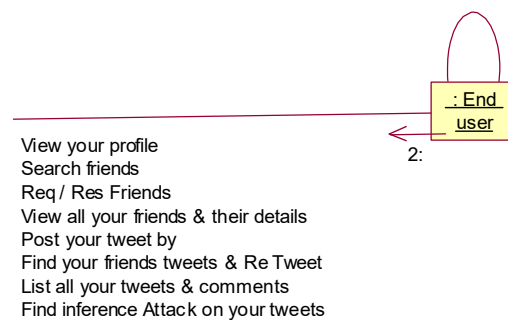


Fig 8.2.3 Sequence Diagram



### 8.2.4 Collaboration Diagram

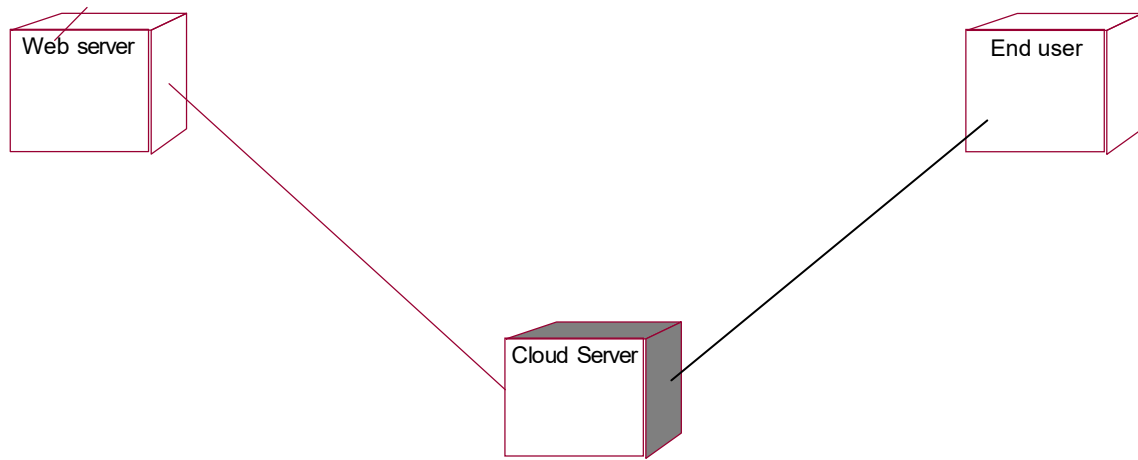
A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.



**Fig 8.2.4 Collaboration Diagram**

### 8.2.5 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.



**Fig 8.2.5 Deployment diagram**

### 8.2.6 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items. There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.

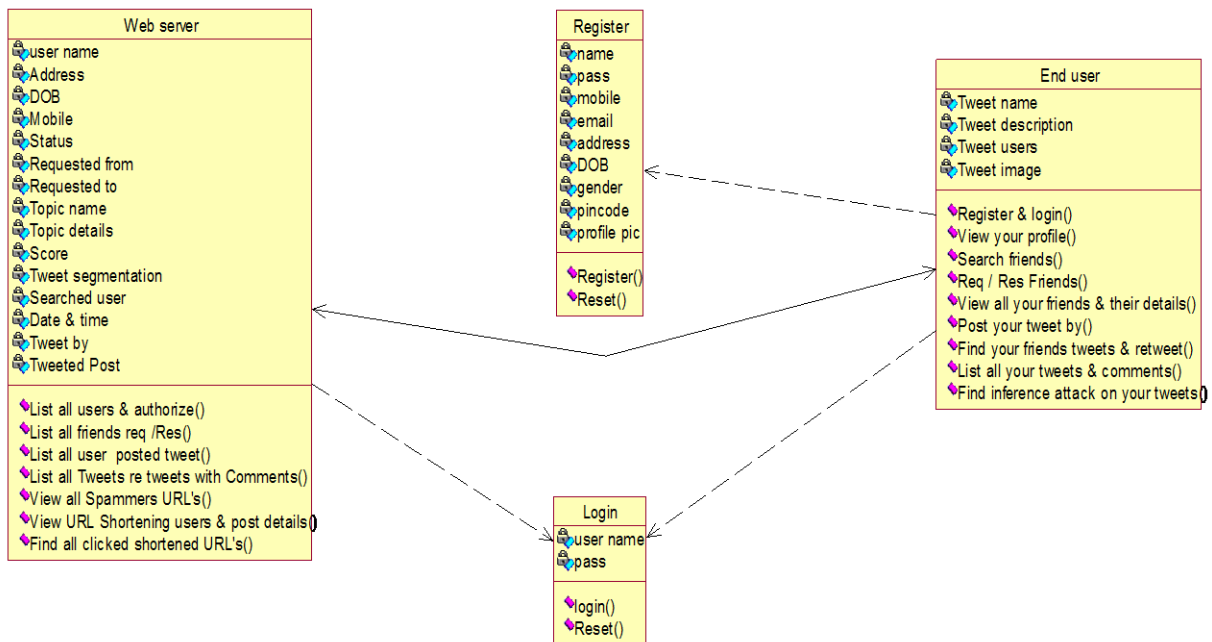
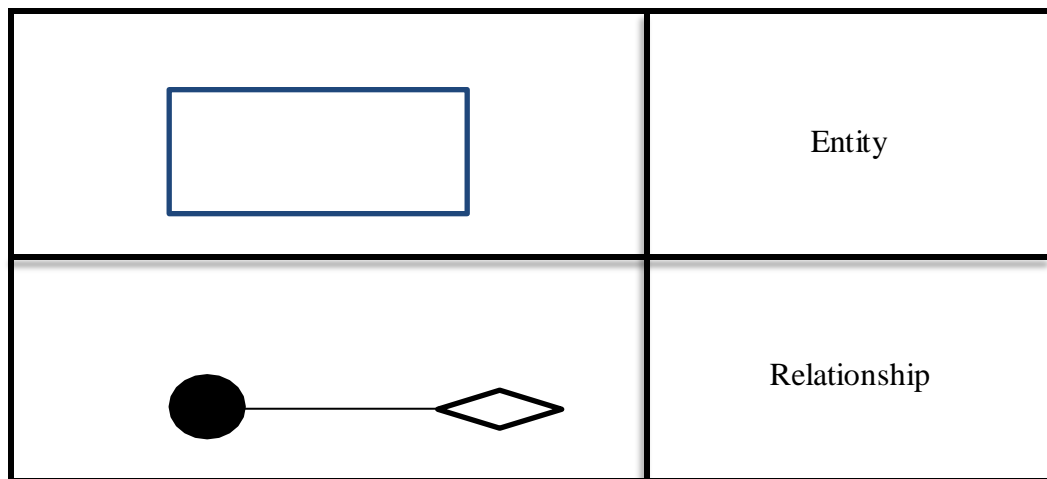


Fig 8.2.6 Class Diagram

### 8.3 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.



**Fig 8.3.1: E-R Notations**

## 9.IMPLEMENTATION

### 9.1. INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.2. OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### 9.3. OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections of the
  - Future.
  - Signal important events, opportunities, problems, or warnings.

## 9.4 CODING

### Index.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>HOME</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style25 { color: #FF0000;
 font-weight: bold;
}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>
 </div>
 </div>
</div>
```

```
</table>
</div>

</div> <!-- end of header -->
<div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet_Server

 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
 </div>

</div> <!-- end of middle -->
</div> <!-- end of top -->
</div> <!-- end of top wrapper -->

<div id="templatemo_main">

 <div class="col_w600 float_l">
 <div class="content_box">
 <h2>Twitter - Detection of Malicious Social Bots</h2>
 <div class="image_wrapper image_fl">

 </div>
 <p align="justify">Malicious social bots generate fake tweets and
automate their social relationships either by pretending like a follower or by creating multiple
fake accounts with malicious activities. Moreover, malicious social bots post shortened
malicious URLs in the tweet in order to redirect the requests of online social networking
participants to some malicious servers. Hence, distinguishing malicious social bots from
legitimate users is one of the most important tasks in the Twitter network. To detect malicious
social bots, extracting URL-based features (such as URL redirection, frequency of shared URLs,
and spam content in URL) consumes less amount of time in comparison with social graph-based
features (which rely on the social interactions of users). Furthermore, malicious social bots
cannot easily manipulate URL redirection chains. In this article, a learning automata-based
malicious social bot detection (LA-MSBD) algorithm is proposed by integrating a trust
computation model with URL-based features for identifying trustworthy participants (users) in
the Twitter network. The proposed trust computation model contains two parameters, namely,
```



direct trust and indirect trust. Moreover, the direct trust is derived from Bayes' theorem, and the indirect trust is derived from the Dempster– Shafer theory (DST) to determine the trustworthiness of each participant accurately. Experimentation has been performed on two Twitter data sets, and the results illustrate that the proposed algorithm achieves improvement in precision, recall, F-measure, and accuracy compared with existing approaches for MSBD.

```

 <div class="cleaner"></div>
</div>

<div class="cleaner"></div>
</div>

<div class="col_w300 float_r">
 <h2>Sidebar Menu </h2>
 <p>Home
 <p>Users</p>
 <p>Tweet Server</p>

 <p class="news_box"></p>
 <h2 class="news_box">Concepts</h2>
 <p>Learning automata (LA),

 malicious social bots,

 online social networks (OSNs),

 trust.

</p>
 <div class="twit_rss">

 </div>
</div>
 <div class="cleaner"></div>
</div> <!-- end of main -->

<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>
Connect.jsp
<title></title>
<% @ page import="java.sql.*"%>
<% @ page import="java.util.*" %>
<%
 Connection connection = null;
 try {

```

```
 Class.forName("com.mysql.jdbc.Driver");
 connection =
DriverManager.getConnection("jdbc:mysql://localhost:3306/Social_Bots","root","root");
 String sql="";

 }
 catch(Exception e)
 {
 System.out.println(e);
 }
%>
```

### **ServerMain.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Tweet Server Main Page.</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style12 {color: #6633FF;
 font-size: 24px;
}
.style23 {font-size: 26px;
 color: #FF00FF;
}
.style24 {font-size: 28px}
.style3 {color: #FF00FF}
```

```
.style25 {
 color: #FF0000;
 font-weight: bold;
}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet Server

 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
 </div>

 </div> <!-- end of middle -->
 </div> <!-- end of top -->
 </div> <!-- end of top wrapper -->

 <div id="templatemo_main">
```

```
<div class="col_w600 float_l">
 <div class="content_box">
 <h2>Welcome to Tweet Server Page
..</h2>
 <div class="image_wrapper image_fl">

 </div>
 <p align="justify" class="style25">Malicious social bots generate fake tweets and
automate their social relationships either by pretending like a follower or by creating multiple
fake accounts with malicious activities. Moreover, malicious social bots post shortened
malicious URLs in the tweet in order to redirect the requests of online social networking
participants to some malicious servers. Hence, distinguishing malicious social bots from
legitimate users is one of the most important tasks in the Twitter network. To detect malicious
social bots, extracting URL-based features (such as URL redirection, frequency of shared URLs,
and spam content in URL) consumes less amount of time in comparison with social graph-based
features (which rely on the social interactions of users). Furthermore, malicious social bots
cannot easily manipulate URL redirection chains. In this article, a learning automata-based
malicious social bot detection (LA-MSBD) algorithm is proposed by integrating a trust
computation model with URL-based features for identifying trustworthy participants (users) in
the Twitter network. The proposed trust computation model contains two parameters, namely,
direct trust and indirect trust. Moreover, the direct trust is derived from Bayes' theorem, and the
indirect trust is derived from the Dempster– Shafer theory (DST) to determine the
trustworthiness of each participant accurately. Experimentation has been performed on two
Twitter data sets, and the results illustrate that the proposed algorithm achieves improvement in
precision, recall, F-measure, and accuracy compared with existing approaches for MSBD.</p>
 <div class="cleaner"></div>
</div>
```

```
<div class="cleaner"></div>
</div>
```

```
<div class="col_w300 float_r">
 <h2>Server Menu </h2>
 <p>Home</p>
 <p>View and Authorize
Users</p>
 <p>View/Add Short URLs</p>
 <p>View All User Posted
Tweets</p>
 <p>View All
Spammer URLs </p>
 <p>View Friend
Request/Response</p>
 <p>View All Re-Tweets and
Comments</p>
```

```
<p>View All URL Shortening Bots
Users</p>
<p>View NO.of time Posted URL Shortening
Bots Users </p>
<p>View Clicked URLs Shortened Bots
Users</p>
<p>View NO.of Time URL Shortening Bots
Users</p>
<p>Log Out</p>
<h2 class="news_box"> </h2>
</div>
<div class="cleaner"></div>
</div> <!-- end of main -->

<div id="templatemo_footer_wrapper_01">
<div id="templatemo_footer_wrapper_02"></div>
<!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>
```

### **ServerAuthentication.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Tweet Server Main Page.</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style12 {color: #6633FF;
```

```
 font-size: 24px;
 }
 .style23 { font-size: 26px;
 color: #FF00FF;
 }
 .style24 { font-size: 28px }
 .style3 {color: #FF00FF}
 .style25 {
 color: #FF0000;
 font-weight: bold;
 }
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet Server

 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
```

```
</div>

</div> <!-- end of middle -->
 </div> <!-- end of top -->
</div> <!-- end of top wrapper -->

<div id="templatemo_main">

 <div class="col_w600 float_l">
 <div class="content_box">
 <h2>Welcome to Tweet Server Page
..</h2>
 <div class="image_wrapper image_fl">

 </div>
 <p align="justify" class="style25">Malicious social bots generate fake tweets and
automate their social relationships either by pretending like a follower or by creating multiple
fake accounts with malicious activities. Moreover, malicious social bots post shortened
malicious URLs in the tweet in order to redirect the requests of online social networking
participants to some malicious servers. Hence, distinguishing malicious social bots from
legitimate users is one of the most important tasks in the Twitter network. To detect malicious
social bots, extracting URL-based features (such as URL redirection, frequency of shared URLs,
and spam content in URL) consumes less amount of time in comparison with social graph-based
features (which rely on the social interactions of users). Furthermore, malicious social bots
cannot easily manipulate URL redirection chains. In this article, a learning automata-based
malicious social bot detection (LA-MSBD) algorithm is proposed by integrating a trust
computation model with URL-based features for identifying trustworthy participants (users) in
the Twitter network. The proposed trust computation model contains two parameters, namely,
direct trust and indirect trust. Moreover, the direct trust is derived from Bayes' theorem, and the
indirect trust is derived from the Dempster– Shafer theory (DST) to determine the
trustworthiness of each participant accurately. Experimentation has been performed on two
Twitter data sets, and the results illustrate that the proposed algorithm achieves improvement in
precision, recall, F-measure, and accuracy compared with existing approaches for MSBD.</p>
 <div class="cleaner"></div>
 </div>

 <div class="cleaner"></div>
 </div>

 <div class="col_w300 float_r">
 <h2>Server Menu </h2>
 <p>Home</p>
 <p>View and Authorize
Users</p>
 <p>View/Add Short URLs</p>
 <p>View All User Posted
```

```

Tweets</p>
 <p>View All
Spammer URLs </p>
 <p>View Friend
Request/Response</p>
 <p>View All Re-Tweets and
Comments</p>
 <p>View All URL Shortening Bots
Users</p>
 <p>View NO.of time Posted URL Shortening
Bots Users </p>
 <p>View Clicked URLs Shortened Bots
Users</p>
 <p>View NO.of Time URL Shortening Bots
Users</p>
 <p>Log Out</p>
 <h2 class="news_box"> </h2>
</div>
 <div class="cleaner"></div>
</div> <!-- end of main -->

```

```

<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>

```

### **Serverlogin.jsp**

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Tweet Server Login Page.</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>

```



```
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style18 {color: #FF00FF}
.style19 {color: #FF0000; font-weight: bold; }
.style20 {color: #FF00FF; font-weight: bold; }
.style21 {color: #0000FF; font-weight: bold; }
.style25 {color: #FF00FF;
 font-size: 20px;
}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet Server

 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
```

```
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
```

```
 </div>
```

```
</div> <!-- end of middle -->
```

```
 </div> <!-- end of top -->
```

```
</div> <!-- end of top wrapper -->
```

```
<div id="templatemo_main">
```

```
 <div class="col_w600 float_l">
```

```
 <div class="content_box">
```

```
 <h2>Welcome to Tweet Server Login Page.</h2>
```

```
 <div class="image_wrapper image_fl">
```

```

```

```
 </div>
```

```
 <form id="form1" name="form1" method="post" action="ServerAuthentication.jsp">
```

```
 <table width="423" border="0" cellspacing="2" cellpadding="2">
```

```
 <tr>
```

```
 <td width="197" height="46" align="center">
```

```
 <label for="name">Server Name (required)</label>
```

```
 </td>
```

```
 <td width="212"><input id="name" name="userid" class="text" /></td>
```

```
 </tr>
```

```
 <tr>
```

```
 <td height="72" align="center">Password
(required)</td>
```

```
 <td><input type="password" id="pass" name="pass" class="text" /></td>
```

```
 </tr>
```

```
 <tr>
```

```
 <td> </td>
```

```
 <td><input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" /></td>
```

```
 </tr>
```

```
 </table>
```

```
 <p align="right">Back</p>
```

```
 </form>
```

```
 </div>
```

```
 <div class="cleaner"></div>
```

```
</div>
```

```
<div class="col_w300 float_r">
```

```
 <h2>Sidebar Menu </h2>
```

```
 <p>Home</p>
```

```
<p>Index Page</p>
<p class="news_box"> </p>
</div>
<div class="cleaner"></div>
</div> <!-- end of main -->
```

```
<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>
```

### **UserMain.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>User Main Page.</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />
```

```
<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style12 {color: #6633FF;
 font-size: 24px;
}
.style19 {color: #009900}
.style22 {color: #00CC00}
.style23 {font-size: 26px;
 color: #FF00FF;
}
.style24 {font-size: 28px }
```

```
.style3 {color: #FF00FF}
.style25 { color: #FF0000;
 font-weight: bold;
}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet Server

 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
 </div>

 </div> <!-- end of middle -->
 </div> <!-- end of top -->
 </div> <!-- end of top wrapper -->

 <div id="templatemo_main">
```

```
<div class="col_w600 float_l">
 <div class="content_box">
 <h2>Welcome User <%= (String)application.getAttribute("uname")%> .</h2>
 <div class="image_wrapper image_fl">

 </div>
 <p align="justify">Malicious social bots generate fake tweets and
automate their social relationships either by pretending like a follower or by creating multiple
fake accounts with malicious activities. Moreover, malicious social bots post shortened
malicious URLs in the tweet in order to redirect the requests of online social networking
participants to some malicious servers. Hence, distinguishing malicious social bots from
legitimate users is one of the most important tasks in the Twitter network. To detect malicious
social bots, extracting URL-based features (such as URL redirection, frequency of shared URLs,
and spam content in URL) consumes less amount of time in comparison with social graph-based
features (which rely on the social interactions of users). Furthermore, malicious social bots
cannot easily manipulate URL redirection chains. In this article, a learning automata-based
malicious social bot detection (LA-MSBD) algorithm is proposed by integrating a trust
computation model with URL-based features for identifying trustworthy participants (users) in
the Twitter network. The proposed trust computation model contains two parameters, namely,
direct trust and indirect trust. Moreover, the direct trust is derived from Bayes' theorem, and the
indirect trust is derived from the Dempster– Shafer theory (DST) to determine the
trustworthiness of each participant accurately. Experimentation has been performed on two
Twitter data sets, and the results illustrate that the proposed algorithm achieves improvement in
precision, recall, F-measure, and accuracy compared with existing approaches for
MSBD.</p>
 <div class="cleaner"></div>
 </div>

 <div class="cleaner"></div>
</div>

<div class="col_w300 float_r">
 <h2>User Menu </h2>
 <p>Home</p>
 <p>My Profile</p>
 <p>Search Friends</p>
 <p>Create Tweets</p>
 <p>View My Friends</p>
 <p>View Friend Requests</p>
 <p>Search Tweets and Comment
</p>
 <p>View My Tweets and
```

```
Comments</p>
 <p>View Shortening Bots on My
Tweets</p>
 <p>View Friends Tweets and Re-
Tweet</p>
 <p>Log Out</p>
 <p class="news_box"></p>
 <h2 class="news_box"> </h2>
</div>
 <div class="cleaner"></div>
</div> <!-- end of main -->
```

```
<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>
```

### **UserProfile.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>User Profile Details..</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style20 {color: #FF00FF; font-weight: bold; }
.style41 {font-size: 28px }
.style22 {color: #009900}
```

```
.style24 {font-size: 28px; color: #FF00FF; }
.style26 {font-size: 14px }
.style26 {color: #3366FF}
.style40 {color: #FF00FF}
.style43 {color: #FFFF00}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet Server

 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
 </div>

 </div> <!-- end of middle -->
 </div> <!-- end of top -->
</div> <!-- end of top wrapper -->
```

```

<div id="templatemo_main">

 <div class="col_w600 float_1">
 <div class="content_box">
 <h2>User <%= (String) application.getAttribute("uname") %>'s Profile.</h2>
 <p> </p>
 <form id="form1" name="form1" method="post" action="UserAuthentication.jsp">
 <table width="547" border="1.5" align="center" cellpadding="0" cellspacing="0" >
 <% @ include file="connect.jsp" %>
 <% @ page import="org.bouncycastle.util.encoders.Base64"%>
 <%
 String user=(String
)application.getAttribute("uname");

 String s1,s2,s3,s4,s5;
 int i=0;
 try
 {
 String query="select * from user where

username='"+user+"'";

 Statement st=connection.createStatement();
 ResultSet rs=st.executeQuery(query);
 if (rs.next())
 {
 i=rs.getInt(1);
 s1=rs.getString(4);
 s2=rs.getString(5);
 s3=rs.getString(6);
 s5=rs.getString(7);
 s4=rs.getString(9);

 %>
 </tr>
 <td width="230" rowspan="6" ><div class="style7 style26" style="margin:10px 13px
10px 13px;" >
 <input name="image" type="image" src="user_Pic.jsp?id=<%=i%>"
style="width:200px; height:200px;" />
 </div></td>

```



```
</tr>
<tr>
 <td width="145" height="40" valign="middle" bgcolor="#FF0000" style="color:
#2c83b0;"><div align="left" class="style15 style7 style4 style3 style26 style43" style="margin-
left:20px;">E-Mail</div></td>
 <td width="164" valign="middle" height="40" style="color:#000000;"><div
align="left" class="style40 style10" style="margin-left:20px;">
 <%out.println(s1);%>
 </div></td>
</tr>
<tr>
 <td width="145" height="40" valign="middle" bgcolor="#FF0000" style="color:
#2c83b0;"><div align="left" class="style15 style7 style4 style3 style26 style43" style="margin-
left:20px;">Mobile</div></td>
 <td width="164" valign="middle" height="40"><div align="left" class="style40
style10" style="margin-left:20px;">
 <%out.println(s2);%>
 </div></td>
</tr>
<tr>
 <td width="145" height="40" align="left" valign="middle" bgcolor="#FF0000"
style="color: #2c83b0;"><div align="left" class="style15 style7 style4 style3 style26 style43"
style="margin-left:20px;">Address</div></td>
 <td width="164" align="left" valign="middle" height="40"><div align="left"
class="style40 style10" style="margin-left:20px;">
 <%out.println(s3);%>
 </div></td>
</tr>
<tr>
 <td width="145" height="40" align="left" valign="middle" bgcolor="#FF0000"
style="color: #2c83b0;"><div align="left" class="style15 style7 style4 style3 style26 style43"
style="margin-left:20px;">Date of Birth</div></td>
 <td width="164" align="left" valign="middle" height="40"><div align="left"
class="style40 style10" style="margin-left:20px;">
 <%out.println(s5);%>
 </div></td>
</tr>
<tr>
 <td width="145" height="51" align="left" valign="middle" bgcolor="#FF0000"
style="color: #2c83b0;"><div align="left" class="style15 style7 style4 style3 style43 style26"
style="margin-left:20px;">Status</div>
 <td width="164" align="left" valign="middle" height="51" style="color:
#2c83b0;"><div align="left">
 <div align="left" class="style22 style10" style="margin-left:20px;">
 <%out.println(s4);%>
 </div></td>
```

```

 </tr>
 <%
 }
 connection.close();
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
 %>
 </table>
 <p> </p>
 <p align="right"><a href="UserMain.jsp"
class="style20">Back</p>
 </form>
</div>

 <div class="cleaner"></div>
</div>

<div class="col_w300 float_r">
 <h2>Sidebar Menu </h2>
 <p>Home</p>
 <p>Log Out </p>
 <p class="news_box"></p>
 <h2 class="news_box"> </h2>
</div>
 <div class="cleaner"></div>
</div> <!-- end of main -->

<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>

```

### UserRegister.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>User Registration Page.</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />

```

```
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style22 {color: #FF00FF}
.style45 { color: #FF0000;
 font-weight: bold;
}
.style11 {
 color: #000000;
 font-weight: bold;
 font-size: 14px;
}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">
```

```

 Home
 User
 Tweet Server

<div class="cleaner"></div>
</div> <!-- end of templatemo_menu -->

<div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
</div>

</div> <!-- end of middle -->
</div> <!-- end of top -->
</div> <!-- end of top wrapper -->

<div id="templatemo_main">

 <div class="col_w600 float_l">
 <div class="content_box">
 <h2 class="style22">Welcome to User Registration..</h2>
 <form action="UserRegisterAuthentication.jsp" method="post" id=""
enctype="multipart/form-data">
 <label for="name">User Name (required)</label>
 <p class="style45">
 <input id="name" name="userid" class="text" />
 </p>

 <label for="password">Password (required)</label>

 <p class="style45">
 <input type="password" id="password" name="pass" class="text" />
 </p>

 <label for="email">Email Address (required)</label>

 <p class="style45">
 <input id="email" name="email" class="text" />
 </p>

 <label for="mobile">Mobile Number (required)</label>

 <p class="style45">
```

```
<input id="mobile" name="mobile" class="text" />
</p>

<label for="address">Your Address</label>

<p class="style45">
 <textarea id="address" name="address" rows="3" cols="50"></textarea>
</p>

<label for="dob">Date of Birth (required)

</label>

<p class="style45">
 <input id="dob" name="dob" class="text" />
</p>

<label for="gender">Select Gender (required)</label>

<p class="style45">
 <select id="s1" name="gender" style="width:480px;" class="text">
 <option>--Select--</option>
 <option>MALE</option>
 <option>FEMALE</option>
 </select>
</p>
<p class="style45"> </p>

<label for="pincode"></label>
<label for="location"></label>

<p class="style45">
 <label for="pic">Select Profile Picture (required)</label>

 <input type="file" id="pic" name="pic" class="text" />
</p>
<p>

 <input name="submit" type="submit" value="REGISTER" />
</p>
</form>
 <div align="center"><a href="index.html"
class="style11">Back</div>
</div>

<div class="cleaner"></div>
</div>
```

```
<div class="col_w300 float_r">
 <h2>Sidebar Menu </h2>
 <p>Home</p>
 <p>User Login </p>
 <p class="news_box"> </p>
</div>
<div class="cleaner"></div>
</div> <!-- end of main -->
```

```
<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>
```

### ViewRequest.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>View Friends Requests.</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style20 {color: #FF00FF; font-weight: bold; }
.style41 {font-size: 28px }
.style22 {color: #009900}
.style24 {font-size: 28px; color: #FF00FF; }
.style9 {color: #FF0000; font-weight: bold; }
.style52 {color: #FF0000}
```

```
.style53 { color: #FF0000; font-weight: bold; font-size: 13px; }
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet Server

 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
 </div>

 </div> <!-- end of middle -->
 </div> <!-- end of top -->
</div> <!-- end of top wrapper -->

<div id="templatemo_main">

 <div class="col_w600 float_l">
 <div class="content_box">
```

```
<h2>Friend Requests To
<%= (String) application.getAttribute("uname") %>..</h2>
<p> </p>
<form id="form1" name="form1" method="post" action="UserAuthentication.jsp">
 <table width="933" border="2" align="center" cellpadding="0" cellspacing="0"
style="border-collapse: collapse; margin:10px 0px 0px 10px; font-family:Verdana, Arial,
Helvetica, sans-serif; font-size:14px;">
 <tr>
 <td width="157" height="30" align="center" valign="bottom" bgcolor="#FFFF00"
style="color: #2c83b0;"><div align="center" class="style9">Username</div></td>
 <td width="165" align="center" valign="bottom" bgcolor="#FFFF00" style="color:
#2c83b0;"><div align="center" class="style9">E-mail</div></td>
 <td width="134" height="30" align="center" valign="bottom" bgcolor="#FFFF00"
style="color: #2c83b0;"><div align="center" class="style9">Mobile</div></td>
 <td width="216" height="30" align="center" valign="bottom" bgcolor="#FFFF00"
style="color: #2c83b0;"><div align="center" class="style9">Address</div></td>
 <td width="109" height="30" align="center" valign="bottom" bgcolor="#FFFF00"
style="color: #2c83b0;"><div align="center" class="style9">Gender</div></td>
 <td width="111" height="30" align="center" valign="bottom" bgcolor="#FFFF00"
style="color: #2c83b0;"><div align="center" class="style9">Status</div></td>
 </tr>
<% @page
import="com.oreilly.servlet.*,java.sql.*,java.lang.*,java.text.SimpleDateFormat,java.util.*,java.i
o.*,javax.servlet.*, javax.servlet.http.*" %>
<% @ page import="java.sql.*"%>
<% @ include file="connect.jsp" %>
<% @ page import="java.util.Date" %>
<%
```

```
(String) application.getAttribute("uname");
```

```
frequest where requestto="" +uname+""; st1=connection.createStatement();
```

```
rs1=st1.executeQuery(query1);
```





```

 <%
 }
 else
 {
 %>
 <td width="23" height="54"align="center" valign="middle"
class="style52">
 <%out.println(status);%>
 </td>
 <%
 }
 %>
</tr>
<%
 }
 }
 connection.close();
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
 %>
</table>
<p> </p>
<p align="center"></p>
<table width="470" border="0" cellspacing="2" cellpadding="2">
<tr>
<td width="462"><div align="right"><a href="UserMain.jsp"
class="style20">Back</div></td>
</tr>
</table>
</form>
</div>

<div class="cleaner"></div>
</div>

<div class="cleaner"></div>
</div> <!-- end of main -->

<div id="templatemo_footer_wrapper_01">
<div id="templatemo_footer_wrapper_02"></div>
<!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>

```

</html>

### U CreateTweet.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Posting Tweets..</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style20 {color: #FF00FF; font-weight: bold; }
.style41 {font-size: 28px }
.style22 {color: #009900}
.style43 {color: #FFFFFF; font-weight: bold; }
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

<div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
```

```
</table>
</div>

</div> <!-- end of header -->
<div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet Server

 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
 </div>

</div> <!-- end of middle -->
</div> <!-- end of top -->
</div> <!-- end of top wrapper -->

<div id="templatemo_main">

 <div class="col_w600 float_l">
 <div class="content_box">
 <h2>Posting Tweets..
</h2>
 <p> </p>
 <form action="U_CreateTweetStatus.jsp" method="post" enctype="multipart/form-data"
name="form1">
 <table width="450" height="354" align="center" cellpadding="0" cellspacing="0" >
 <tr>
 <td height="40" valign="middle" bgcolor="#FF0000" style="color: #2c83b0;">Tweet Name </td>
 <td valign="middle" height="40" style="color:#000000;"><label>
 <input name="tname" type="text" size="39" />
 </label></td>
 </tr>
 <tr>
 <td width="191" height="118" valign="middle" bgcolor="#FF0000" style="color:
#2c83b0;">Tweet Description </td>
 <td width="257" valign="middle" height="118"><label>
```

```

 <textarea name="des" cols="40" rows="6"></textarea>
 </label></td>
</tr>
<tr>
 <td width="191" height="40" align="left" valign="middle" bgcolor="#FF0000"
style="color: #2c83b0;">Tweet Uses </td>
 <td width="257" align="left" valign="middle" height="40"><textarea name="uses"
cols="40" rows="4"></textarea></td>
</tr>
<tr>
 <td height="54" valign="middle" bgcolor="#FF0000" style="color: #2c83b0;">Select Tweet Image </td>
 <td valign="middle" height="54" style="color:#000000;"><label>
 <input type="file" name="file" />
 </label></td>
</tr>
<tr>
 <td width="191" align="left" valign="middle" height="70" style="color:
#2c83b0;"> </td>
 <td width="257" align="left" valign="middle" height="70"><label>
 <div align="center">
 <input type="submit" name="Submit" value=" Post Tweet "
style="height:35px; color:#000000; background-color:#00FF33" />
 </div>
 </label></td>
</tr>
</table>
<p> </p>
<p align="right"><a href="UserMain.jsp"
class="style20">Back</p>
</form>
</div>

 <div class="cleaner"></div>
</div>

<div class="col_w300 float_r">
 <h2>Sidebar Menu </h2>
 <p>Home</p>
 <p>Log Out </p>
 <p class="news_box"></p>
 <h2 class="news_box"> </h2>
</div>
 <div class="cleaner"></div>
</div> <!-- end of main -->

```

```
<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>
```

### **Results.jsp**

```
<% @ include file="connect.jsp"% >
```

```
<%
try
{
```

```
%><html>
<head>
<title>Transaction Results</title>
<script type="text/javascript" src="sources/jscharts.js"></script>
</head>
<body>
<div id="graph">Loading graph...</div>
<script type="text/javascript">
var myData=new Array();
var colors=[];
```

```
<%
```

```
 int i=0;
```

```
 String s1=null;
```

```
 String query="select distinct(username) from user_url_count";
 Statement st=connection.createStatement();
 ResultSet rs=st.executeQuery(query);
 while (rs.next())
 {
```

```
 //int i=rs.getInt(1);
```

```
 String username=rs.getString(1);
```

```
 //age=Integer.parseInt(age1);
```

```
 int count=0;
```

```
 String query1="select used_count from user_url_count
```

```
where username='"+username+"'";
```

```
 Statement st1=connection.createStatement();
```

```
ResultSet rs1=st1.executeQuery(query1);
while (rs1.next())
{
 count=count+rs1.getInt(1);
}

%>
myData["<%=i%>"]=["<%=username
%>",<%=count%>];

<%
i++;
}

%>

var myChart = new JSChart('graph', 'bar');
myChart.setDataArray(myData);
myChart.setBarColor('#42aBdB');
myChart.setBarOpacity(0.8);
myChart.setBarBorderColor('#D9EDF7');
myChart.setBarValues(true);
myChart.setTitleColor('#8C8383');
myChart.setAxisColor('#777E89');
myChart.setSize(800,350);
myChart.setAxisValuesColor('#777E81');
myChart.draw();

</script>

</body>
</html>
<%
}
catch(Exception e)
{
e.printStackTrace();
}
%>
```

### **S PostDetails.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Tweet Post Details..</title>
```

```
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style20 {color: #FF00FF; font-weight: bold; }
.style41 {font-size: 28px }
.style22 {color: #009900}
.style24 {font-size: 28px; color: #FF00FF; }
.style40 {color: #FF00FF}
.style15 {color: #FF0000}
.style5 {color: #66CCFF;
 font-size: 21px;
 font-weight: bold;
}
.style70 { color: #FF6600;
 font-weight: bold;
}
.style73 {color: #FF6600}
.style81 {font-size: 11px}
.style82 {
 color: #FF00FF;
 font-size: 11px;
 font-weight: bold;
}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">
```



```
<div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
</div>

</div> <!-- end of header -->
<div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User
 Tweet Server

 <div id="search_box">
 <form action="#" method="post">
 <input type="text" value="Enter keyword here..." name="q" size="10"
id="searchfield" title="searchfield" onfocus="clearText(this)" onblur="clearText(this)" />
 <input type="submit" name="Search" value="" id="searchbutton" title="Search"
/>
 </form>
 </div>
 <div class="cleaner"></div>
 </div> <!-- end of templatemo_menu -->

 <div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
 </div>

</div> <!-- end of middle -->
</div> <!-- end of top -->
</div> <!-- end of top wrapper -->

<div id="templatemo_main">

 <div class="col_w600 float_l">
 <div class="content_box">
 <h2>Tweet Post
```

```

<%=request.getParameter("tname")%>'s Details..</h2>
 <% @ include file="connect.jsp" %>
 <%

String tname=request.getParameter("tname");
int a=0;
String str2="select * from ttopic where

tname="" +tname+ "" ";

Statement st2=connection.createStatement();
ResultSet rs2=st2.executeQuery(str2);
if (rs2.next())
{
 int id=rs2.getInt(1);
 String des = rs2.getString(3);
 String uses = rs2.getString(4);
 String creator = rs2.getString(7);
 String date= rs2.getString(6);

 %>
 <table width="620" border="1" align="center" cellpadding="0" cellspacing="0" >
 <tr >
 <td width="183" rowspan="4" ><div class="style22 style4 style5" style="margin:10px
13px 10px 13px;" >
 <div align="center">
 <input name="image" type="image" src="tweet_Pic.jsp?id=<%=id%>"
style="width:160px; height:180px;" />
 </div>
 </div></td>
 <td height="47" ><div align="center" class="style70 style73">Tweet Posted By
</div></td>
 <td width="257"><div align="center" class="style40"><%=
creator%></div></td>
 </tr>
 <tr >
 <td height="77" ><div align="center" class="style70"> Tweet Description </div></td>
 <td>
 <textarea name="textarea" cols="40" rows="5"><%= des%></textarea> </td>
 </tr>
 <tr >
 <td height="72" ><div align="center" class="style70">Tweet Uses </div></td>
 <td><div align="center" class="style40 style81"><%=
uses%></div></td>
 </tr>
 <tr >

```

```

 <td width="172" height="39" ><div align="center" class="style70">Date </div></td>
 <td><div align="center" class="style82"><%= date%></div></td>
</tr>
<p> </p>
</table>
 <% }
 %>
<p> </p>
 <p align="right"><a href="S_RetweetsWithComments.jsp"
class="style20">Back</p>
</div>

```

```

<div class="cleaner"></div>
</div>

```

```

<div class="col_w300 float_r">
 <h2>Sidebar Menu </h2>
 <p>Home</p>
 <p>Log Out </p>
 <p class="news_box"></p>
 <h2 class="news_box">

</h2>
 <div class="twit_rss">

 </div>
</div>
<div class="cleaner"></div>
</div> <!-- end of main -->

```

```

<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>

```

### User\_Relogin.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>User Re-Login Page.</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua

```

```
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style18 {color: #FF00FF}
.style19 {color: #FF0000; font-weight: bold; }
.style20 {color: #FF00FF; font-weight: bold; }
.style21 {color: #0000FF; font-weight: bold; }
.style25 {color: #FF00FF;
 font-size: 20px;
}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">

```

```
Home
User
Tweet Server

<div class="cleaner"></div>
</div> <!-- end of templatemo_menu -->

<div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
</div>

</div> <!-- end of middle -->
</div> <!-- end of top -->
</div> <!-- end of top wrapper -->

<div id="templatemo_main">

<div class="col_w600 float_l">
 <div class="content_box">
 <h2>Invalid Login Details, Please Try Again!!</h2>
 <div class="image_wrapper image_fl">

 </div>
 <form id="form1" name="form1" method="post" action="UserAuthentication.jsp">
 <table width="403" border="0" cellpadding="2" cellspacing="2">
 <tr>
 <td width="149" height="62" align="center"><div align="center" class="style19">
 <div align="left">Name (required)</div>
 </div></td>
 <td width="240"><input id="name" name="userid" class="text" /></td>
 </tr>
 <tr>
 <td height="46" align="center"><div align="center" class="style19">
 <div align="left">Password (required)</div>
 </div></td>
 <td><input type="password" id="pass" name="pass" class="text" /></td>
 </tr>
 <tr>
 <td> </td>
 <td> </td>
 </tr>
 <tr>
 <td> </td>
 <td> </td>
 </tr>
 </table>
 </form>
 </div>
</div>
```

```

 <td>
 <input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" />
 New User? Register </td>
 </tr>
 <tr>
 <td height="26"> </td>
 <td> </td>
 </tr>
 </table>
 <p align="right"><a href="index.html"
class="style21">Back</p>
</form>
</div>

```

```

<div class="cleaner"></div>
</div>

```

```

<div class="col_w300 float_r">
 <h2>Sidebar Menu </h2>
 <p>Home</p>
 <p>Index Page</p>
 <p class="news_box"></p>
 <h2 class="news_box"> </h2>
</div>
<div class="cleaner"></div>
</div> <!-- end of main -->

```

```

<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>

```

### UserProfile.jsp

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>User Profile Details..</title>
<meta name="keywords" content="Holiday, free CSS template, clean, neat, aqua, white" />
<meta name="description" content="Holiday is a clean and neat free CSS template using aqua
and white colors." />
<link href="templatemo_style.css" rel="stylesheet" type="text/css" />

```

```
<script language="javascript" type="text/javascript">
function clearText(field)
{
 if (field.defaultValue == field.value) field.value = "";
 else if (field.value == "") field.value = field.defaultValue;
}
</script>
<style type="text/css">
<!--
.style4 {
 color: #9933FF;
 font-size: 25px;
}
.style20 {color: #FF00FF; font-weight: bold; }
.style41 {font-size: 28px }
.style22 {color: #009900}
.style24 {font-size: 28px; color: #FF00FF; }
.style26 {font-size: 14px }
.style26 {color: #3366FF}
.style40 {color: #FF00FF}
.style43 {color: #FFFF00}
-->
</style>
</head>
<body>

<div id="templatemo_top_wrapper">
 <div id="templatemo_top">
 <div id="templatemo_header">

 <div>
 <table width="965" border="0" cellspacing="2" cellpadding="2">
 <tr>
 <td width="957"><p>Detection of Malicious Social Bots
Using Learning Automata With URL Features </p>
 <p align="center"> in Twitter Network</p></td>
 </tr>
 </table>
 </div>

 </div> <!-- end of header -->
 <div id="templatemo_middle">
 <div id="templatemo_menu">

 Home
 User

 </div>
 </div>
 </div>
</div>
```

```
Tweet Server

<div class="cleaner"></div>
</div> <!-- end of templatemo_menu -->

<div id="mid_content">
 <h2>Twitter - Online Social Network </h2>
 <p>Twitter is a popular online social network service for sharing short messages
(tweets) among friends.</p>
</div>

</div> <!-- end of middle -->
</div> <!-- end of top -->
</div> <!-- end of top wrapper -->

<div id="templatemo_main">

 <div class="col_w600 float_1">
 <div class="content_box">
 <h2>User <%= (String) application.getAttribute("uname") %>'s Profile..</h2>
 <p> </p>
 <form id="form1" name="form1" method="post" action="UserAuthentication.jsp">
 <table width="547" border="1.5" align="center" cellpadding="0" cellspacing="0" >
 <% @ include file="connect.jsp" %>
 <% @ page import="org.bouncycastle.util.encoders.Base64"%>
 <%
 String user=(String
)application.getAttribute("uname");

 String s1,s2,s3,s4,s5;
 int i=0;
 try
 {
 username="" +user+"";

```



```
s3=rs.getString(6);
s5=rs.getString(7);
s4=rs.getString(9);

%>
<tr>
 <td width="230" rowspan="6" ><div class="style7 style26" style="margin:10px 13px
10px 13px;" >
 <input name="image" type="image" src="user_Pic.jsp?id=<%=i%>"
style="width:200px; height:200px;" />
 </div></td>
</tr>
<tr>
 <td width="145" height="40" valign="middle" bgcolor="#FF0000" style="color:
#2c83b0;"><div align="left" class="style15 style7 style4 style3 style26 style43" style="margin-
left:20px;">E-Mail</div></td>
 <td width="164" valign="middle" height="40" style="color:#000000;"><div
align="left" class="style40 style10" style="margin-left:20px;">
 <% out.println(s1);%>
 </div></td>
</tr>
<tr>
 <td width="145" height="40" valign="middle" bgcolor="#FF0000" style="color:
#2c83b0;"><div align="left" class="style15 style7 style4 style3 style26 style43" style="margin-
left:20px;">Mobile</div></td>
 <td width="164" valign="middle" height="40"><div align="left" class="style40
style10" style="margin-left:20px;">
 <% out.println(s2);%>
 </div></td>
</tr>
<tr>
 <td width="145" height="40" align="left" valign="middle" bgcolor="#FF0000"
style="color: #2c83b0;"><div align="left" class="style15 style7 style4 style3 style26 style43"
style="margin-left:20px;">Address</div></td>
 <td width="164" align="left" valign="middle" height="40"><div align="left"
class="style40 style10" style="margin-left:20px;">
 <% out.println(s3);%>
 </div></td>
</tr>
<tr>
 <td width="145" height="40" align="left" valign="middle" bgcolor="#FF0000"
```

```

style="color: #2c83b0;"><div align="left" class="style15 style7 style4 style3 style26 style43"
style="margin-left:20px;">Date of Birth</div></td>
 <td width="164" align="left" valign="middle" height="40"><div align="left"
class="style40 style10" style="margin-left:20px;">
 <%out.println(s5);%>
 </div></td>
</tr>
<tr>
 <td width="145" height="51" align="left" valign="middle" bgcolor="#FF0000"
style="color: #2c83b0;"><div align="left" class="style15 style7 style4 style3 style43 style26"
style="margin-left:20px;">Status</div
 ></td>
 <td width="164" align="left" valign="middle" height="51" style="color:
#2c83b0;"><div align="left">
 <div align="left" class="style22 style10" style="margin-left:20px;">
 <%out.println(s4);%>
 </div></td>
</tr>
<%
 }
 connection.close();
}
catch(Exception e)
{
 out.println(e.getMessage());
}
%>
</table>
<p> </p>
<p align="right"><a href="UserMain.jsp"
class="style20">Back</p>
</form>
</div>

<div class="cleaner"></div>
</div>

<div class="col_w300 float_r">
 <h2>Sidebar Menu </h2>
 <p>Home</p>
 <p>Log Out </p>
 <p class="news_box"></p>
 <h2 class="news_box"> </h2>
</div>
<div class="cleaner"></div>
</div> <!-- end of main -->

```

```
<div id="templatemo_footer_wrapper_01">
 <div id="templatemo_footer_wrapper_02"></div>
 <!-- end of footer wrapper -->
</div> <!-- end of footer wrapper 01 -->
</body>
</html>
```

## **10. SYSTEM TESTING**

### **10.1 SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### **10.2 TYPES OF TESTING**

#### **Unit Testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration.

#### **Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

#### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals. Functional testing is centered on the following items

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

### **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## 10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

### Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

### Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

### Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## 11.SCREENSHOTS



Home page



Home page





Registration page for user



User registration status





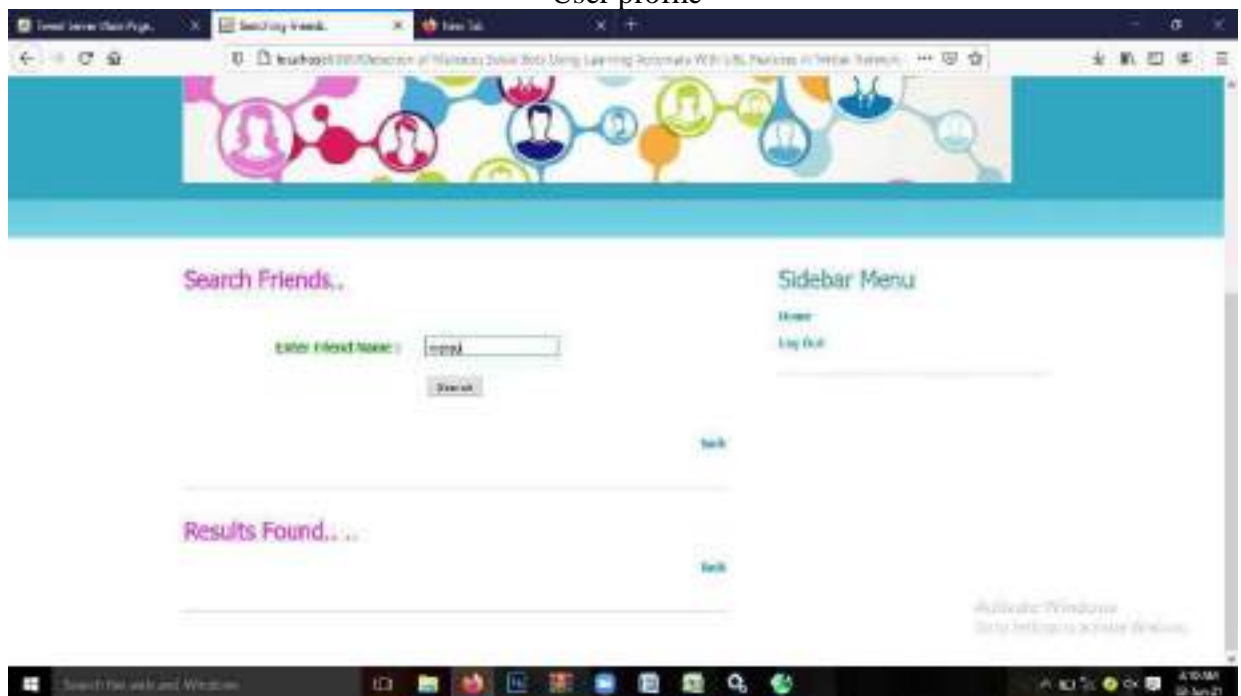
User login page



User home page



User profile



Search friends



Results found



Posting tweets



Posting tweets status



View friends list





View all my posted tweet



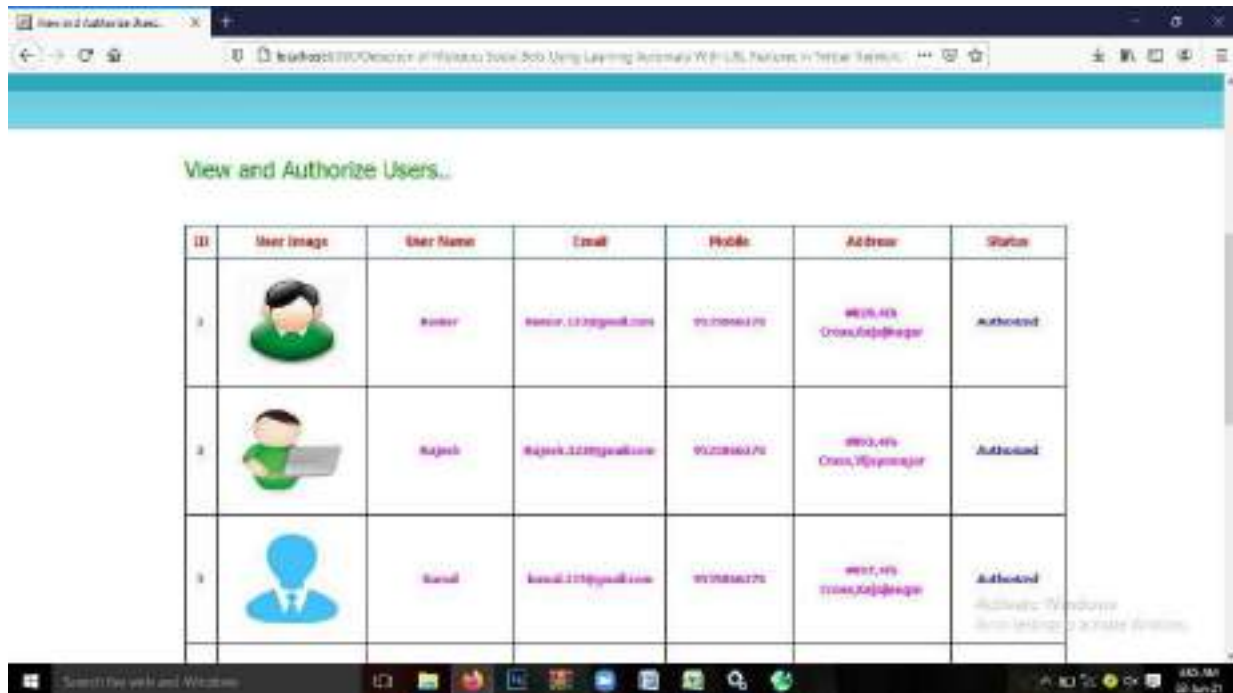
url shortening Bots



View friends tweets



Tweet server home page



View and authorize users



View and authorize users

1		akansa	akansa.123@gmail.com	952866278	952866278	Authorized
5		Katkaad	Katkaad.123@gmail.com	952866278	952866278	Authorized
6		Neerajsinh	Neerajsinh123@gmail.com	952866278	952866278	Authorized
7		vijay	vijay1234@gmail.com	952866278	952866278	Authorized

View and authorized users



Add short URLS

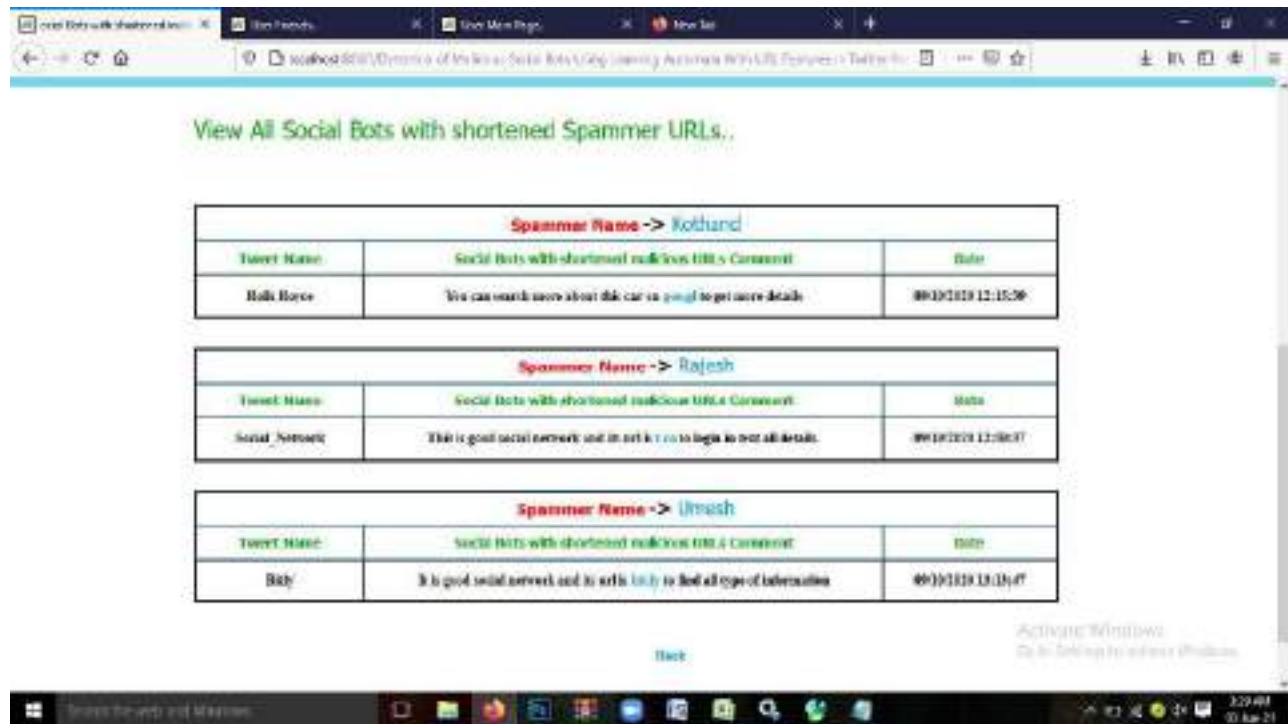




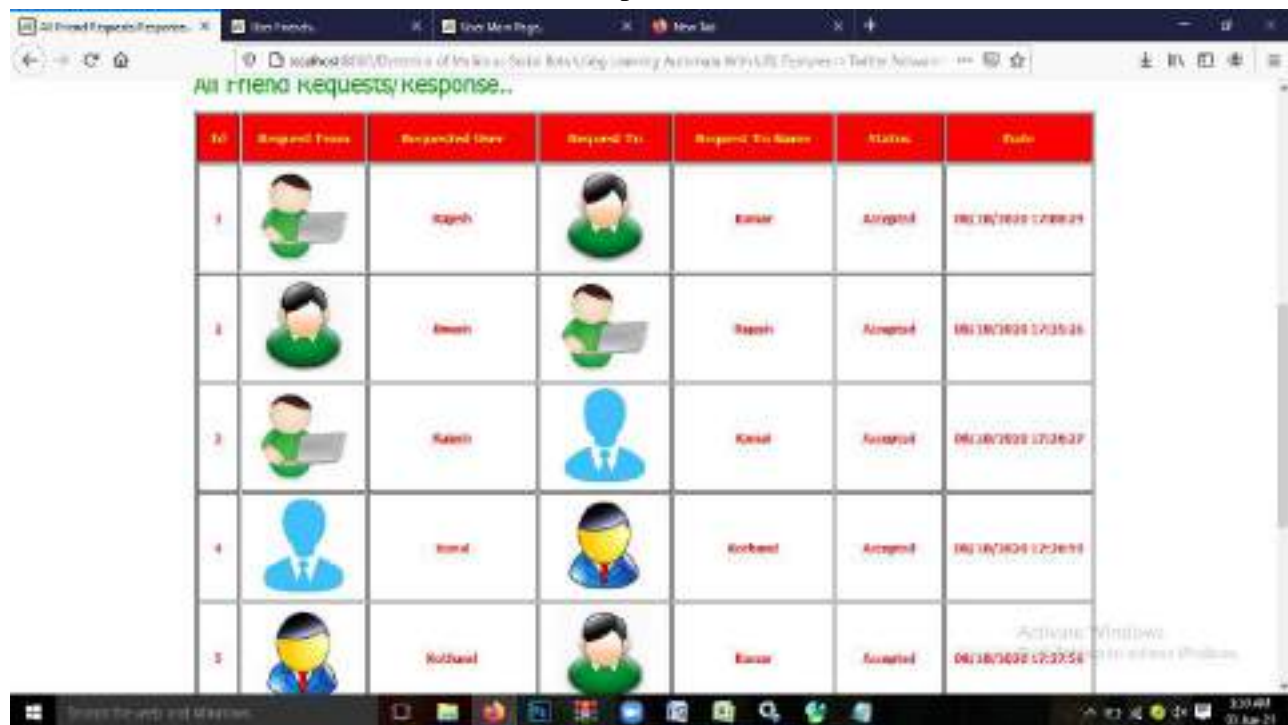
Added short urls



View all user tweets



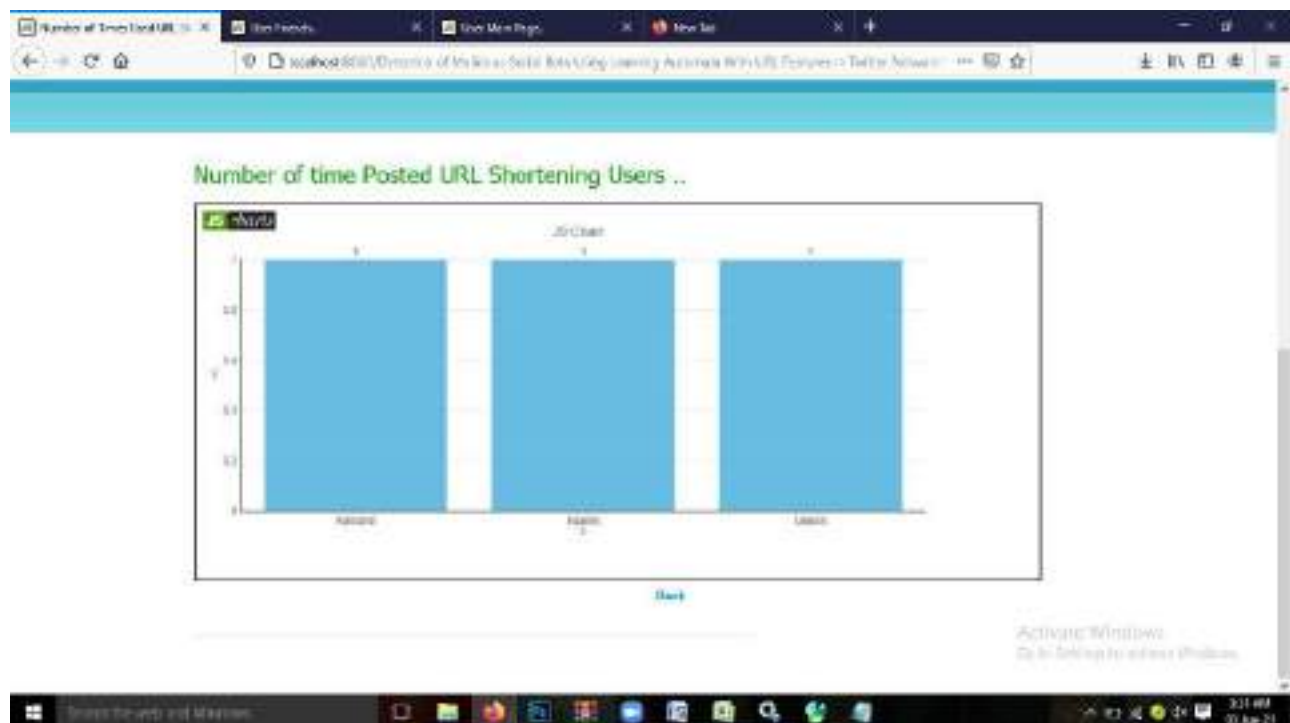
View all spammer url's



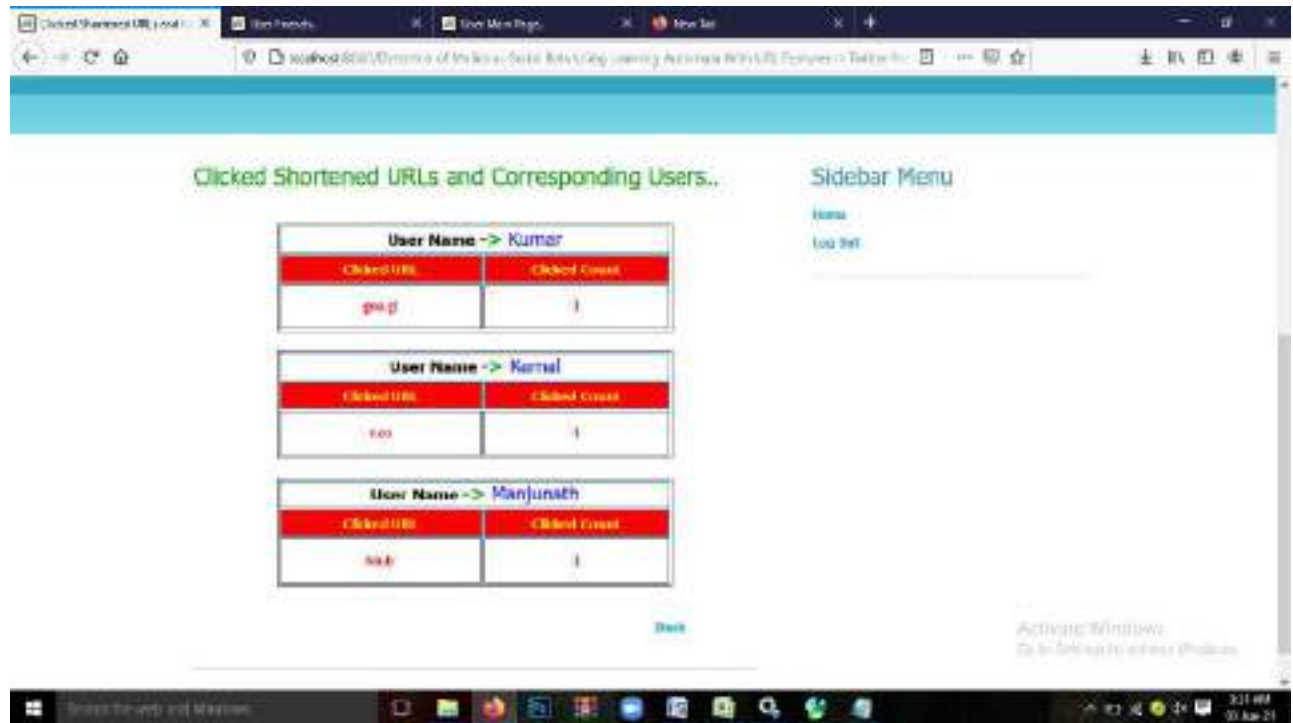
View all friend requests and responses



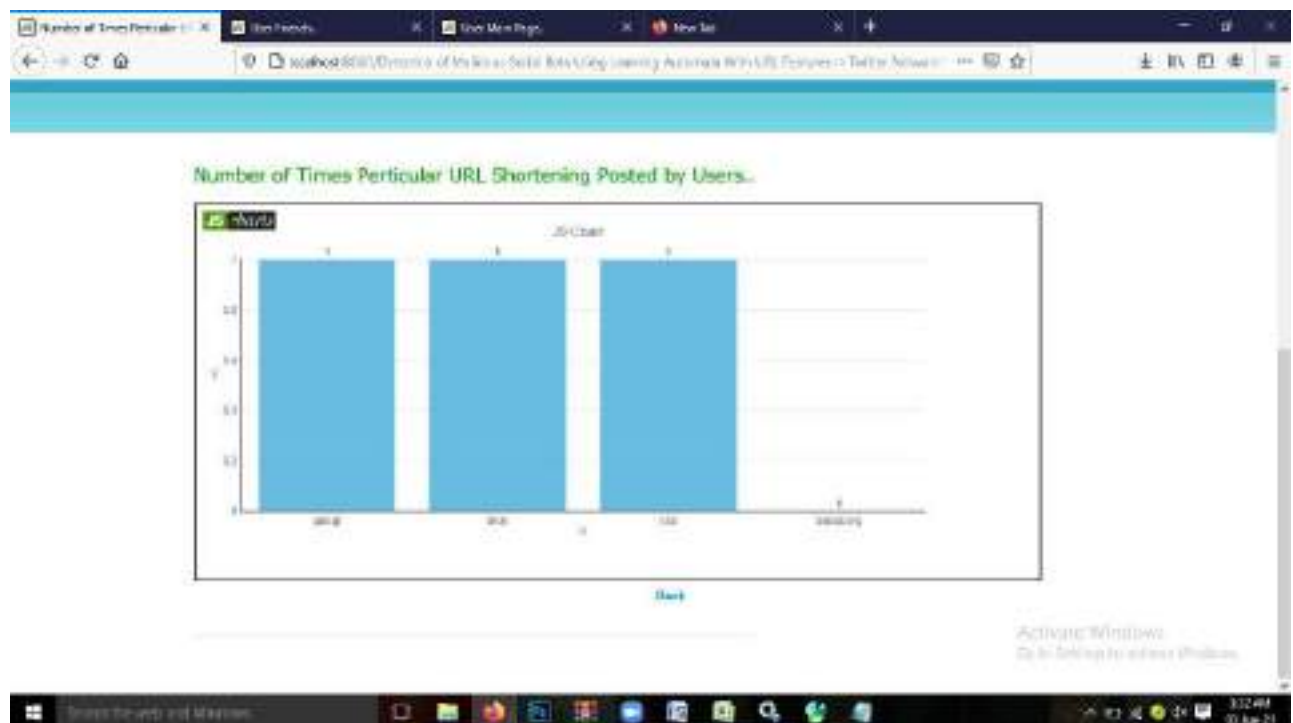
View all re-tweets



No. of times posted url



clicked shortened url's



View url shortening posted by users

## CONCLUSION

This project presents an LA-MSBD algorithm by integrating a trust computational model with a set of URL-based features for MSBD. In addition, we evaluate the trustworthiness of tweets (posted by each participant) by using the Bayesian learning and DST. Moreover, the proposed LA-MSBD algorithm executes a finite set of learning actions to update action probability value (i.e., probability of a participant posting malicious URLs in the tweets). The proposed LA-MSBD algorithm achieves the advantages of incremental learning. Two Twitter data sets are used to evaluate the performance of our proposed LA-MSBD algorithm. The experimental results show that the proposed LA-MSBD algorithm achieves up to 7% improvement of accuracy compared with other existing algorithms. For The Fake Project and Social Honey pot data sets, the proposed LA-MSBD algorithm has achieved precisions of 95.37% and 91.77% for MSBD, respectively.

## **FUTURE ENHANCEMENT**

As a future research challenge, we would like to investigate the dependence among the features and its impact on MSBD. So in the upcoming research, we will continue to optimize our proposal by considering more context factors and more complex multi criterion recommendation application scenarios. How to improve the recommendation success rate will be studied in our future work.

## REFERENCES

- [1] P. Shi, Z. Zhang, and K.-K.-R. Choo, "Detecting malicious social bots based on clickstream sequences," *IEEE Access*, vol. 7, pp. 28855–28862, 2019.
- [2] G. Lingam, R. R. Rout, and D. V. L. N. Somayajulu, "Adaptive deep Q-learning model for detecting social bots and influential users in online social networks," *Appl. Intell.*, vol. 49, no. 11, pp. 3947–3964, Nov. 2019.
- [3] D. Choi, J. Han, S. Chun, E. Rappos, S. Robert, and T. T. Kwon, "Bit.ly/practice: Uncovering content publishing and sharing through URL shortening services," *Telematics Inform.*, vol. 35, no. 5, pp. 1310–1323, 2018.
- [4] S. Lee and J. Kim, "Fluxing botnet command and control channels with URL shortening services," *Comput. Commun.*, vol. 36, no. 3, pp. 320–332, Feb. 2013.
- [5] S. Madisetty and M. S. Desarkar, "A neural network-based ensemble approach for spam detection in Twitter," *IEEE Trans. Comput. Social Syst.*, vol. 5, no. 4, pp. 973–984, Dec. 2018.
- [6] H. B. Kazemian and S. Ahmed, "Comparisons of machine learning techniques for detecting malicious webpages," *Expert Syst. Appl.*, vol. 42, no. 3, pp. 1166–1177, Feb. 2015.

**A**

**Project Report**

**on**

**PRIVACY-PRESERVING OUTSOURCED SUPPORT VECTOR MACHINE  
DESIGN FOR SECURE DRUG DISCOVERY**

*Submitted in partial fulfillment for the award of the degree*

**of**

**Master of Computer Applications**

*Submitted by*

**A JAGADEESH**

**(Reg.No.19F65F0010)**

*Under the esteemed guidance of*

**Mr.P.BALAJI, MCA.,M.Tech**

**Associate Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**

**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**(2020-2021)**



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583,A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled "PRIVACY-PRESERVING OUTSOURCED SUPPORT VECTOR MACHINE DESIGNED FOR SECURE DRUG DISCOVERY" that is being submitted by A JAGADEESH (Reg.No. 19F65F0010) in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications to JNTUA ,ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **A JAGADEESH** hereby declare that the project report entitled “**PRIVACY –PRESERVING OUTSOURCED SUPPORT VECTOR MACHINE DESIGN FOR SECURE DRUG DISCOVERY**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr.P.BALAJI, MCA.,M.Tech**, Associate Professor in MCA Department., **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY(AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University forward of any degree.

**Place: Puttur**

**Date:**

**A JAGADEESH**

**Reg.No:19F65F0010**

## **ACKNOWLEDGEMENT**

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thank full to My Guide **Mr.P.BALAJI, MCA., M.Tech,** AssociateProfessor, Department of **MASTER OF COMPUTER APPLICATIONS,** for him valuable guidance and suggestion sin analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA.,M.E.,HOD,** Department of **MASTER OF COMPUTERAPPLICATIONS,** for him valuable guidance of make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved Chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to Project Coordinator and all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

**(A JAGADEESH)**

# CONTENTS

S. No.	CHAPTERS	PAGE No
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1
2	SYSTEM STUDY	5
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	7
	3.2 DISADVANTAGES	7
	3.3 PROPOSED SYSTEM	7
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9
5	SYSTEM ARCHITECTURE	10
6	SOFTWARE ENVIRONMENT	13
7	SYSTEM REQUIREMENTS	28
8	SYSTEM DESIGN	29
9	IMPLEMENTATION	43
10	SYSTEM TESTING	102
11	SCREEN SHOTS	105
	CONCLUSION	123
	FUTURE ENHANCEMENT	124
	REFERENCES	125

## **ABSTRACT**

In this project, we propose a framework for privacy-preserving outsourced drug discovery in the cloud, which we refer to as POD. Specifically, POD is designed to allow the cloud to securely use multiple drug formula providers' drug formulas to train Support Vector Machine (SVM) provided by the analytical model provider. In our approach, we design secure computation protocols to allow the cloud server to perform commonly used integer and fraction computations. To securely train the SVM, we design a secure SVM parameter selection protocol to select two SVM parameters and construct a secure sequential minimal optimization protocol to privately refresh both selected SVM parameters. The trained SVM classifier can be used to determine whether a drug chemical compound is active or not in a privacy-preserving way. Lastly, we prove that the proposed POD achieves the goal of SVM training and chemical compound classification without privacy leakage to unauthorized parties, as well as demonstrating its utility and efficiency using three real-world drug datasets.

## LIST OF FIGURES

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1	1.1. Structure of Service models	4
2	5.1. System Architecture	11
3	5.2. Block Diagram	12
4	6.1. Compilation & Interpretation	14
5	6.2. Execution for different platforms	14
6	6.3. Java Platform	15
7	6.4. Java IDE	17
8	6.5. TCP Connection	26
9	6.6. The 32 bit address	28
10	6.7. General J2ME Architecture	25
11	8.1. Data Flow Diagram	30
12	8.2. Class Diagram	41
13	8.3. Use Case Diagram	35
14	8.4. Sequence Diagram	38
15	8.5. Collaboration Diagram	39
16	8.6. E-R Notations	42
17	Screen Shots	102

## LIST OF ABBREVIATIONS

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modeling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	SVM	Support Vector Machine
11	DBMS	Database Management System
12	OCS	Outsourced Cloud Storage
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

## 1. INTRODUCTION

Data mining is one of the most useful techniques that help entrepreneurs, researchers, and individuals to extract valuable information from huge sets of data. Data mining is also called *Knowledge Discovery in Database (KDD)*. The knowledge discovery process includes Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern evaluation, and Knowledge presentation.

Our Data mining tutorial includes all topics of Data mining such as applications, Data mining vs Machine learning, Data mining tools, Social Media Data mining, Data mining techniques, Clustering in data mining, Challenges in Data mining, etc.

### 1.1 What is Data Mining?

The process of extracting information to identify patterns, trends, and useful data that would allow the business to take the data-driven decision from huge sets of data is called Data Mining.

In other words, we can say that Data Mining is the process of investigating hidden patterns of information to various perspectives for categorization into useful data, which is collected and assembled in particular areas such as data warehouses, efficient analysis, data mining algorithm, helping decision making and other data requirement to eventually cost-cutting and generating revenue.

Data mining is the act of automatically searching for large stores of information to find trends and patterns that go beyond simple analysis procedures. Data mining utilizes complex mathematical algorithms for data segments and evaluates the probability of future events. Data Mining is also called Knowledge Discovery of Data (KDD).

Data Mining is a process used by organizations to extract specific data from huge databases to solve business problems. It primarily turns raw data into useful information.

Data Mining is similar to Data Science carried out by a person, in a specific situation, on a particular data set, with an objective. This process includes various types of services such as text



mining, web mining, audio and video mining, pictorial data mining, and social media mining. It is done through software that is simple or highly specific. By outsourcing data mining, all the work can be done faster with low operation costs. Specialized firms can also use new technologies to collect data that is impossible to locate manually. There are tonnes of information available on various platforms, but very little knowledge is accessible. The biggest challenge is to analyze the data to extract important information that can be used to solve a problem or for company development. There are many powerful instruments and techniques available to mine data and find better insight from it.

## **1.2 Types of Data Mining**

Data mining can be performed on the following types of data:

### **Relational Database**

A relational database is a collection of multiple data sets formally organized by tables, records, and columns from which data can be accessed in various ways without having to recognize the database tables. Tables convey and share information, which facilitates data searchability, reporting, and organization.

### **Data Repositories**

The Data Repository generally refers to a destination for data storage. However, many IT professionals utilize the term more clearly to refer to a specific kind of setup within an IT structure. For example, a group of databases, where an organization has kept various kinds of information.

### **Object-Relational Database**

A combination of an object-oriented database model and relational database model is called an object-relational model. It supports Classes, Objects, Inheritance, etc.

## 1.3 Advantages of Data Mining

- The Data Mining technique enables organizations to obtain knowledge-based data.
- Data mining enables organizations to make lucrative modifications in operation and production.
- Compared with other statistical data applications, data mining is a cost-efficient.
- Data Mining helps the decision-making process of an organization.
- It Facilitates the automated discovery of hidden patterns as well as the prediction of trends and behaviors.
- It can be induced in the new system as well as the existing platforms.
- It is a quick process that makes it easy for new users to analyze enormous amounts of data in a short time.

## 1.4 Applications of Data Mining

### Data mining in Education

Education data mining is a newly emerging field, concerned with developing techniques that explore knowledge from the data generated from educational Environments. EDM objectives are recognized as affirming student's future learning behavior, studying the impact of educational support, and promoting learning science. An organization can use data mining to make precise decisions and also to predict the results of the student. With the results, the institution can concentrate on what to teach and how to teach.

### Data Mining in Manufacturing Engineering

Knowledge is the best asset possessed by a manufacturing company. Data mining tools can be beneficial to find patterns in a complex manufacturing process. Data mining can be used in system-level designing to obtain the relationships between product architecture, product portfolio, and data needs of the customers. It can also be used to forecast the product development period, cost, and expectations among the other tasks.

## **Data Mining Financial Banking**

The Digitalization of the banking system is supposed to generate an enormous amount of data with every new transaction. The data mining technique can help bankers by solving business- related problems in banking and finance by identifying trends, casualties, and correlations in business information and market costs that are not instantly evident to managers or executives because the data volume is too large or are produced too rapidly on the screen by experts. The manager may find these data for better targeting, acquiring, retaining, segmenting, and maintain a profitable customer.

## 2. SYSTEMSTUDY

### FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

#### 2.1.1 ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

#### 2.1.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high

demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must

have a modest requirement, as only minimal or null changes are required for implementing this system.

### **2.1.3 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

## 3. SYSTEM ANALYSIS

### 3.1 EXISTING SYSTEM

Machine learning is one of the several technologies that can be used in drug discovery. For example, machine learning tools can be used to evaluate the potential biological activity and to provide predictions about the physicochemical and pharmacokinetic properties of chemical structures. Of the data mining tools, Support Vector Machine (SVM) has a relatively high decision rate and has been widely used in recent times to predict ligand-based chemical compounds in drug discovery.

In approaches using SVMs, we use existing datasets of known drug formulas to train the SVM classifier, and the trained SVM classifier can be used for new drug compound visual scanning. Due to the significant investments and high commercial values involved in drug discovery, privacy is an important factor. For example, how can we minimize the risk of unauthorized disclosure during the SVM training phase? In this context, when a researcher sends some chemical compounds to the cloud for SVM classification, it is important to ensure that the potential new drug compounds will not be leaked to a third-party, such as a competing pharmaceutical corporation.

Furthermore, to train the SVM, multiple pharmaceutical corporations may collaborate in order to increase the SVM decision rate. At the same time, these corporations do not wish to reveal their datasets. How to achieve secure SVM training and decision under multiple data sources without compromising the privacy of each individual party remains a research and operational challenge.

### 3.2 DISADVANTAGES OF EXISTING SYSTEM

- Classification is not accurate
- Inefficient
- Non-Scalability
- Cannot Support Large datasets
- Non-Robust

### 3.3 PROPOSED SYSTEM

In this project, we propose a Privacy preserving Outsourced Support Vector Machine Design for Secure Drug discovery in the cloud environment, hereafter referred to as POD. The

## Privacy preserving outsourced SVM for drug discovery

---

proposed POD system comprises six types of parties, namely: Drug Formula Providers (DPs), Drug Formula Tester (DT), Key Generation Center (KGC), Cloud Platform (CP), Computation Service Provider (CSP), and Analytical Model Provider (AP).

- The KGC is trusted by all other entities in the system, and is tasked with distributing and managing all public/private key pairs for the system.
- The CP has almost 'unlimited' data storage spaces, and stores and manages data outsourced from all registered parties in the system. It can also perform certain calculations on cipher texts.
- CSP is able to partially decrypt cipher texts sent by the CP, perform certain calculations, and then reencrypt the calculated results.
- Each DP can be an individual commercial pharmaceutical corporation, which encrypts and forwards its drug formulary to CP for storage. Also, DP can authorize a specific party for outsourced formula processing on-the-fly.
- A DT can be a researcher who needs to test some compounds (e.g. determine whether compounds are active for a disease or not). The authorized DT can encrypt these compounds, and send them to the CP for secure classification. Once the encrypted results are received, the authorized DT can decrypt and obtain the classification result.
- An AP can be a commercial corporation that provides secure classification model for DT. If the AP is authorized by a DP, then the DP's outsourced formulas can be used for secure model training on the-fly.

### **3.4 ADVANTAGES OF PROPOSED SYSTEM**

- Accurate Classification
- Efficient
- Scalability
- Support Large datasets
- Robust

## 4.SOFTWARE MODULES

### 4.1 MODULES

- Drug Formula Tester
- KGC
- Drug Formula Provider
- CSP

### 4.2 MODULES DESCRIPTION

#### **Drug Formula Tester**

In this module, the doctor performs operations such as View Profile, View Drug Formula TestingRequest and Give Testing Result, View all Testing Solutions Given for Drugs.

#### **KGC**

In this module, he logs in by using his/her user name and password. After Login receiver will perform operations like View My Profile, Create Drug Formula Record, View all Your Drug Formulas, Request Public key, Request Private key, View All Drug Formula Providers Results, Request Tested Results From Drug Formula Testers.

#### **Drug Formula Provider**

In this module, the sector can do following operations such as View your Profile, Search Friends, View Friend Request and Response, View My Friends, Create your Health Record, View all Your Symptoms with Comments, Request Public key , Enter your public key and View All Your Friends Symptoms and give comments, give solution, Request Private, Enter your private key and View All Your Symptoms-Matching with your Friends Symptoms and give comments, give solution , Request solution by selection hospital name and doctor name and view the solution with Doctor Profile by hospital name

#### **CSP**

The CSP manages a server to provide data storage service and can also do the following operations such as View all Drug Formula Provider and Authorize, View all Drug Formula Testers and Authorize, View and Monitor all Drug Formula Providers Disease, View Public Key Request and Response, View Private Key Request and Response, View Solution Request and Response with Drug Formula Tester Details, View No. of Drug Formula Providers having Same Symptoms, View No. of Drug Formula Providers got Solution from Drug Formula Tester



### 5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

## 5.1 SYSTEM ARCHITECTURE

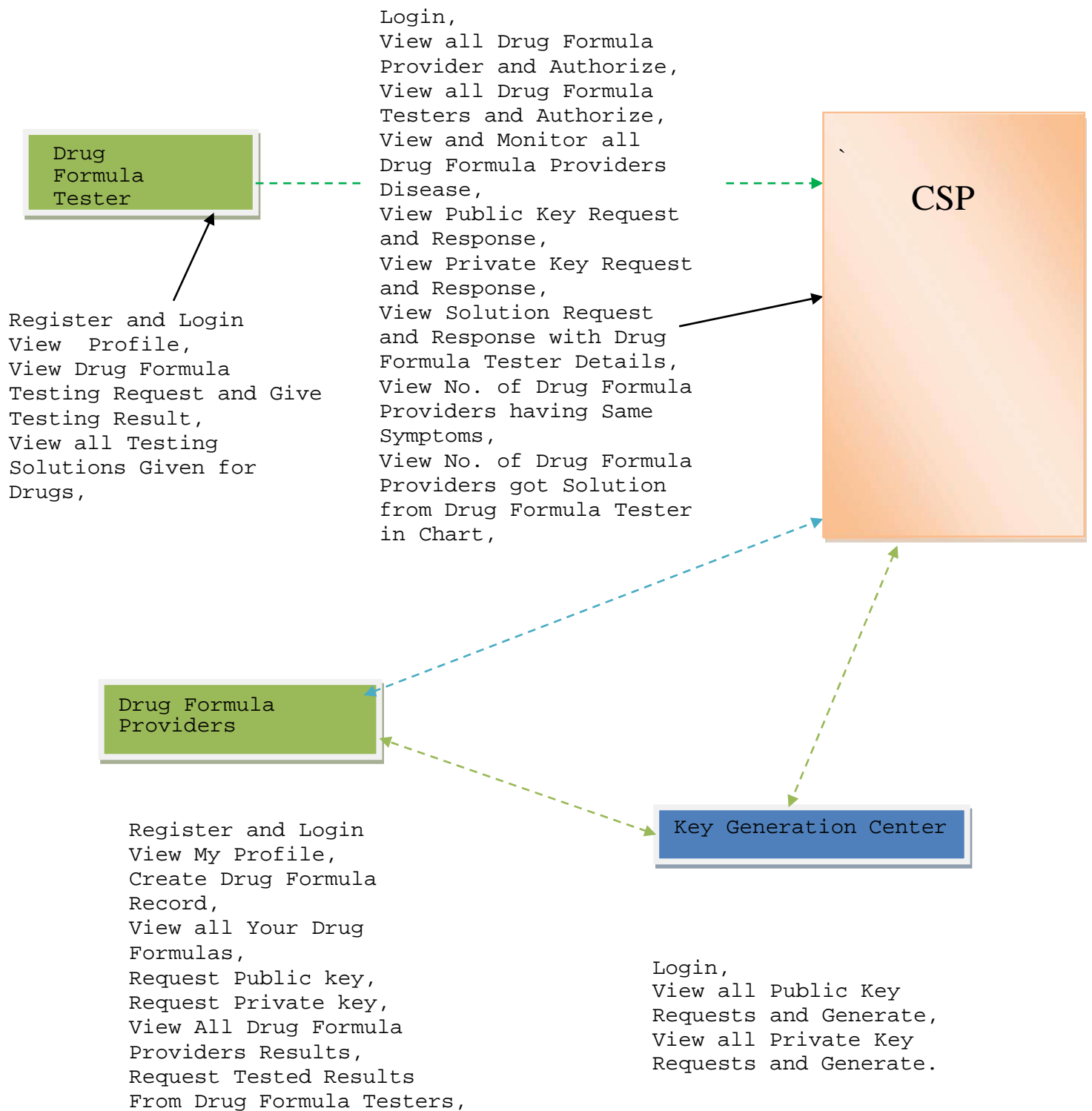


Fig 5.1 SYSTEM ARCHITECTURE



## 6. SOFTWARE ENVIRONMENT

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.



## 6.2. The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and Mac OS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, *What Can Java Technology Do?* Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

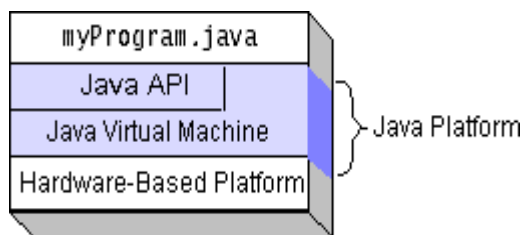


Fig 6.3: Java Platform

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance close to that

of native code without threatening portability.

### 6.3 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.

## Privacy preserving outsourced SVM for drug discovery

- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.
- **Software components:** Known as Java Beans, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

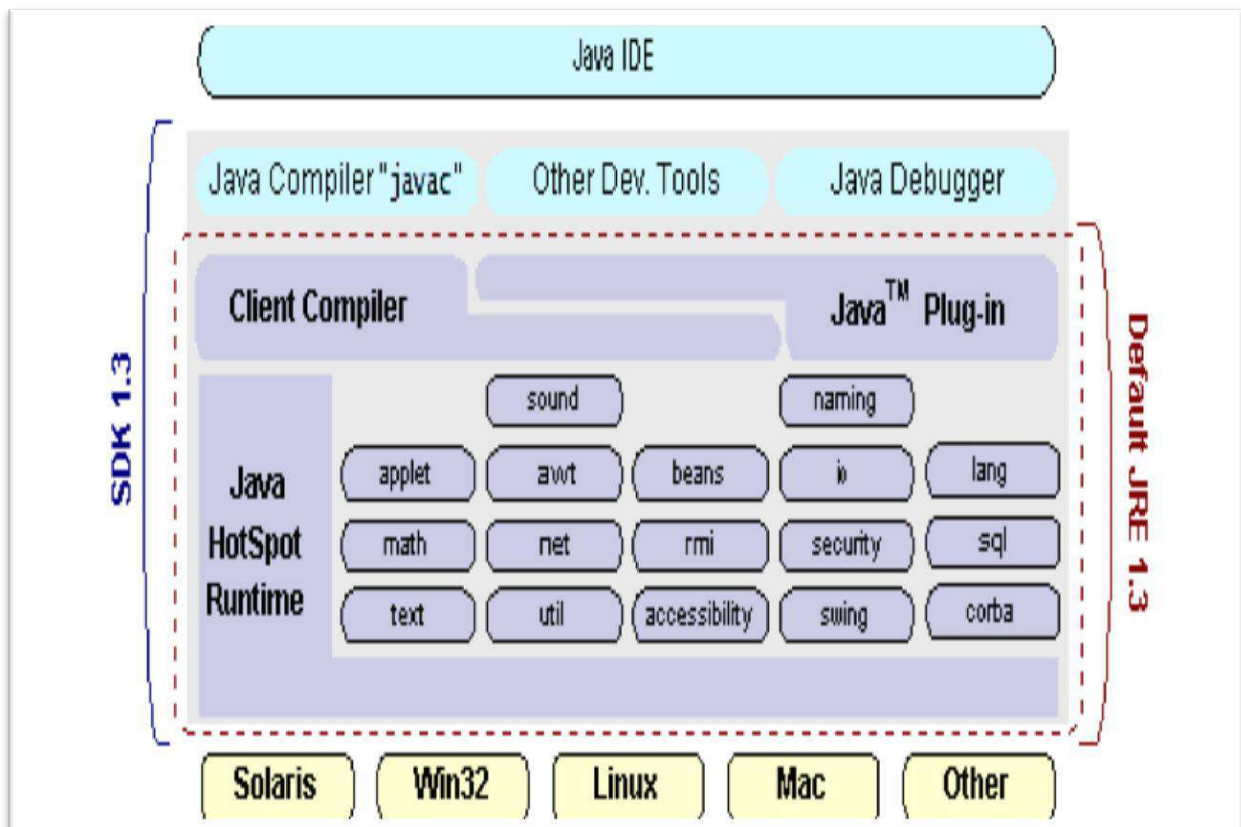


Fig 6.4: Java IDE



### 6.3. How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.

## Privacy preserving outsourced SVM for drug discovery

---

- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded “on the fly,” without recompiling the entire program.

### 6.4. ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There

is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

### **6.5. JDBC**

In an effort to set an independent database standard API for Java, Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and

Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

### 6.6. JDB

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC's complexities from the end user.

#### SQL Conformance

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows

## Privacy preserving outsourced SVM for drug discovery

---

connectivity module to handle non- standard functionality in a manner that is suitable for its users.

### **JDBC must be implemental on top of common database interfaces**

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

### **Provide a Java interface that is consistent with the rest of the Java system**

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

### **Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

### **Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java ha two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

### 6.7. SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h
> #include
<sys/socket.
h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

### 6.8. JFREE CHART

JFree Chart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file

# Privacy preserving outsourced SVM for drug discovery

---

formats (including PDF, EPS and SVG), JFree Chart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

## **Map Visualizations**

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting somemore.

## **Time Series Chart Interactivity**

Implement a new (to JFreeChart) feature for interactive time series charts --  
- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

## **Dashboards**

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

## **Property Editors**

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

## 6.9. J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the Java One Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

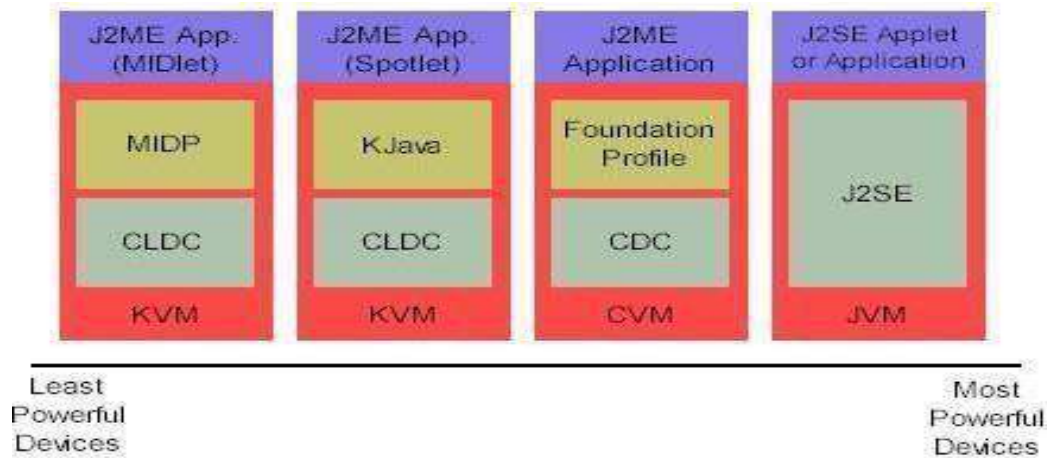


Fig 6.7: General J2ME Architecture

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It



also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

### **Developing J2ME applications**

**Introduction** In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other

# Privacy preserving outsourced SVM for drug discovery

---

ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

## Configurations overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.
- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box

## 7. SYSTEM REQUIREMENTS

### 7.1 HARDWARE REQUIREMENTS

- Processor : Intel (R) Core (TM) i3-4200U
- CPU :1.6GHz
- RAM :4 GB
- Hard Disk : 40 GB.

### 7.2 SOFTWARE REQUIREMENTS

- Operating System : Windows 7 / 8.1 / 10
- Server : Apache Tomcat
- Database : MYSQL Server 5.0
- Frontend : HTML, CSS, JS
- Backend : JSP

## 8. SYSTEM DESIGN

### 8.1 DATAFLOWDIAGRAM

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

8.1 DATA FLOW DIAGRAM

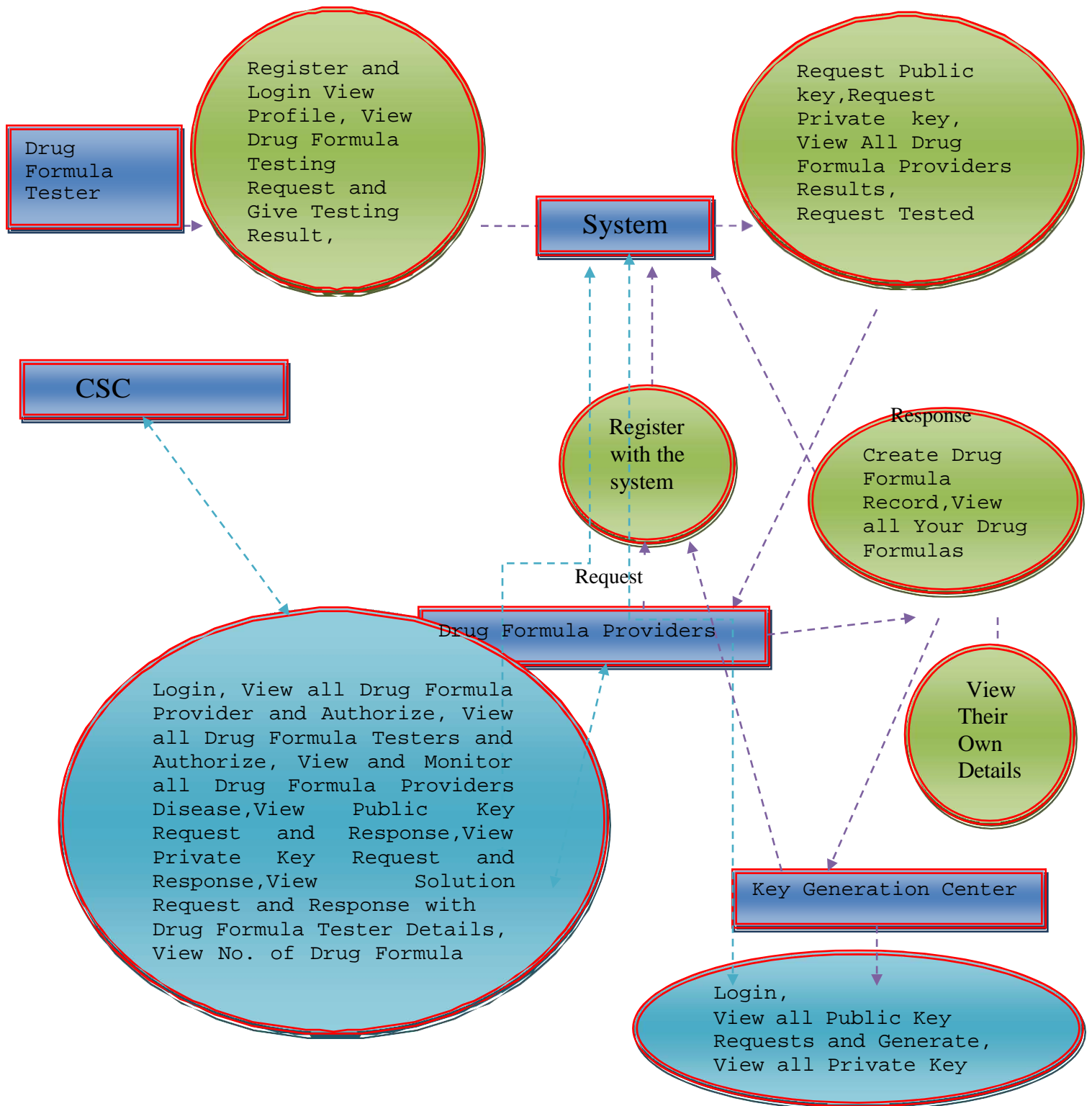


Fig 8.1 Data Flow Diagram

## 8.2 UML DIAGRAMS

### 8.2.1 Activity Diagram

Activity diagram are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language , activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the over all flow of control.

#### 8.2.1.1 Activity Diagram for CSP

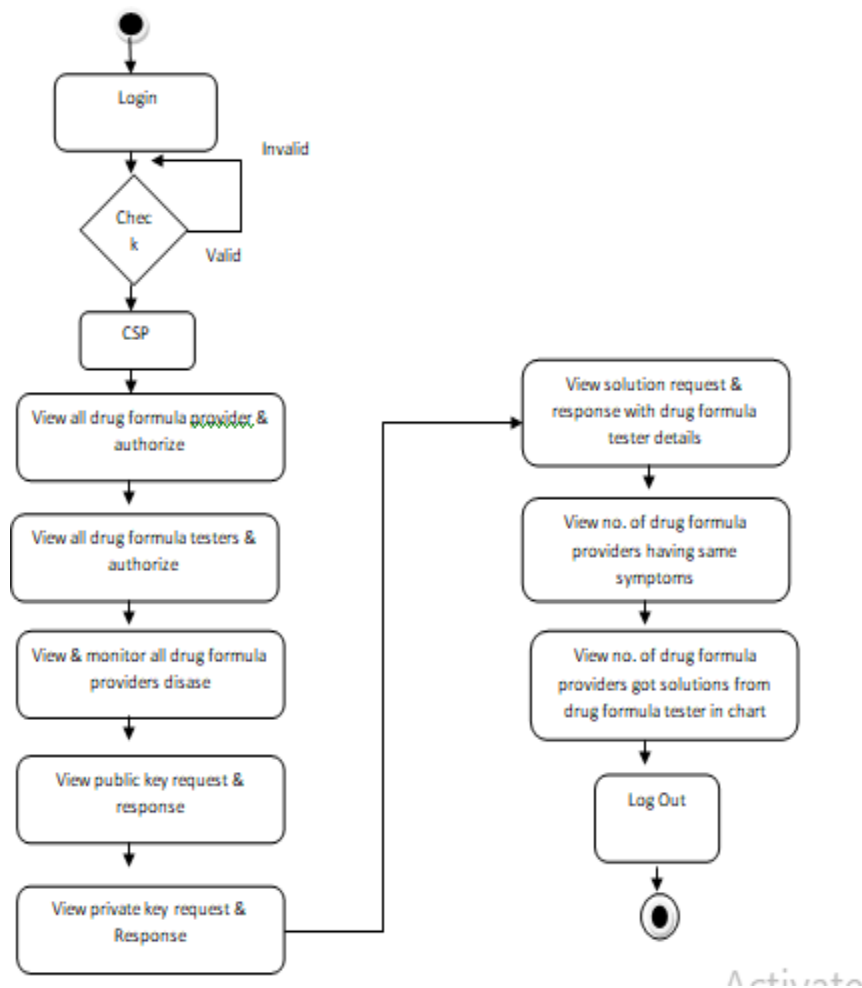


Fig 8.2.1.1 Activity Diagram for CSP

## 8.2.1.2 Activity Diagram for Key generation center

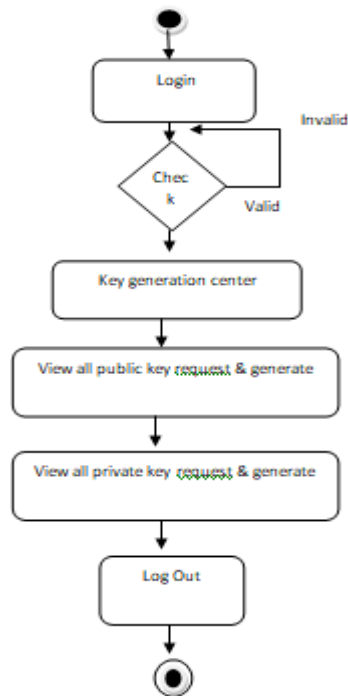


Fig 8.2.1.2 Activity Diagram for Key generation center

## 8.2.1.3 Activity Diagram for Drug formula provider

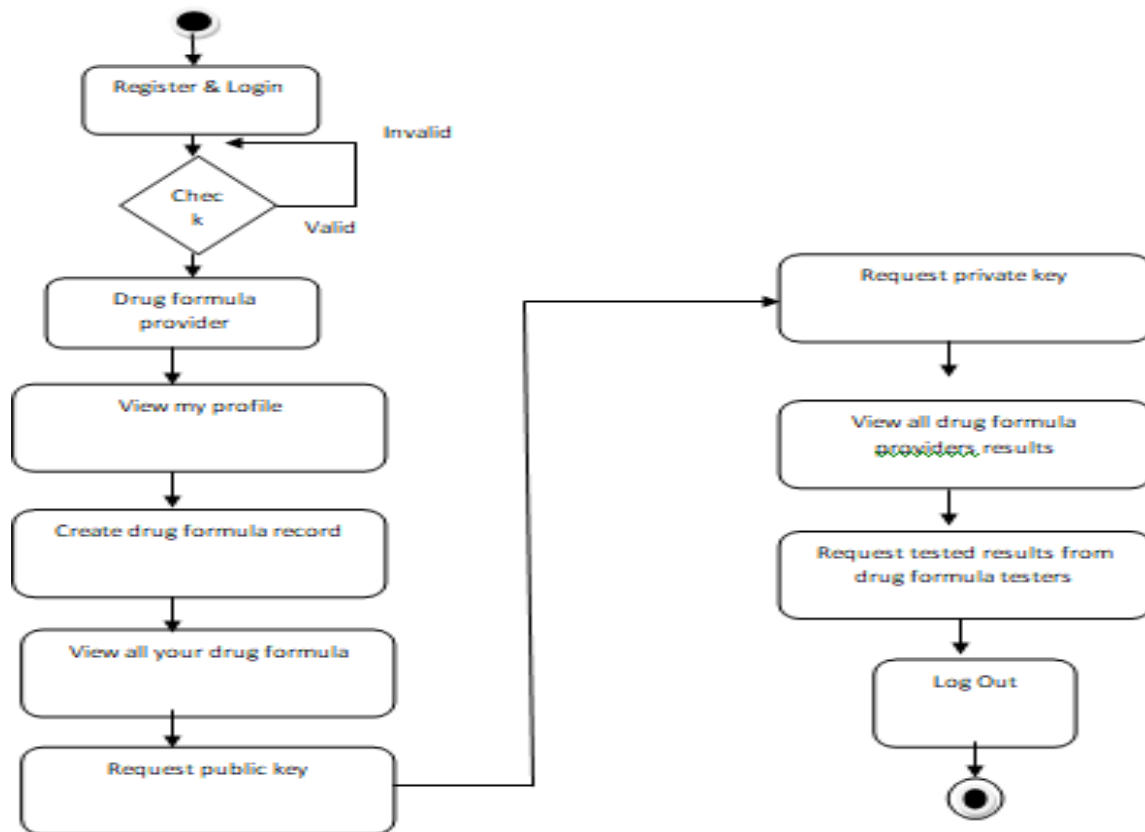


Fig 8.2.1.3 Activity Diagram for Drug formula provider



## 8.2.1.4 Activity Diagram for End Drug formula tester

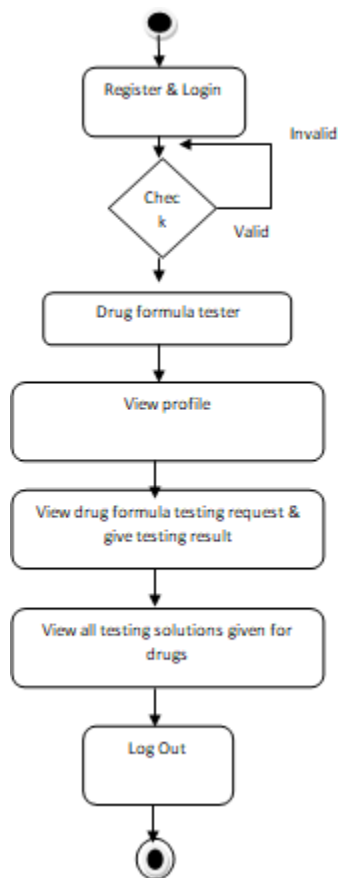


Fig 8.2.1.4 Activity Diagram for End Drug formula tester

## 8.2.2 Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

### 8.2.2.1 Use case Diagram for CSP



Fig 8.2.2.1 Use case Diagram for CSP

## 8.2.2.2 Use Case Diagram for Key generation center

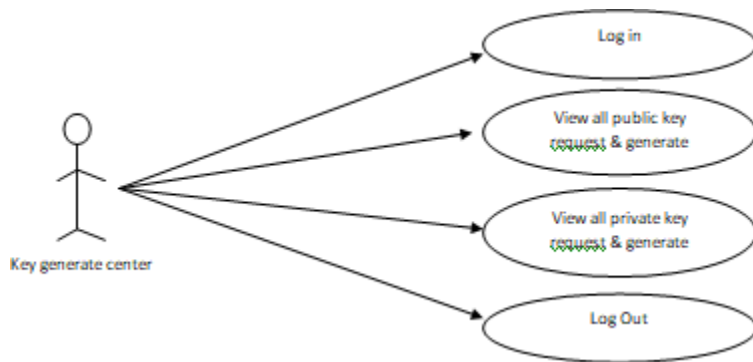


Fig 8.2.2.2 Use Case Diagram for Key generation center

## 8.2.2.3 Use Case Diagram for Drug formula tester

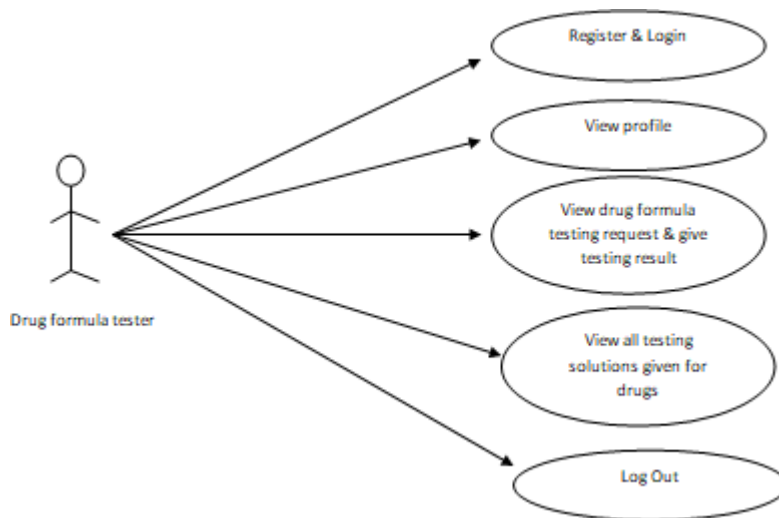


Fig 8.2.2.3 Use Case Diagram for Drug formula tester

## 8.2.2.4 Use Case Diagram for Drug formula provider

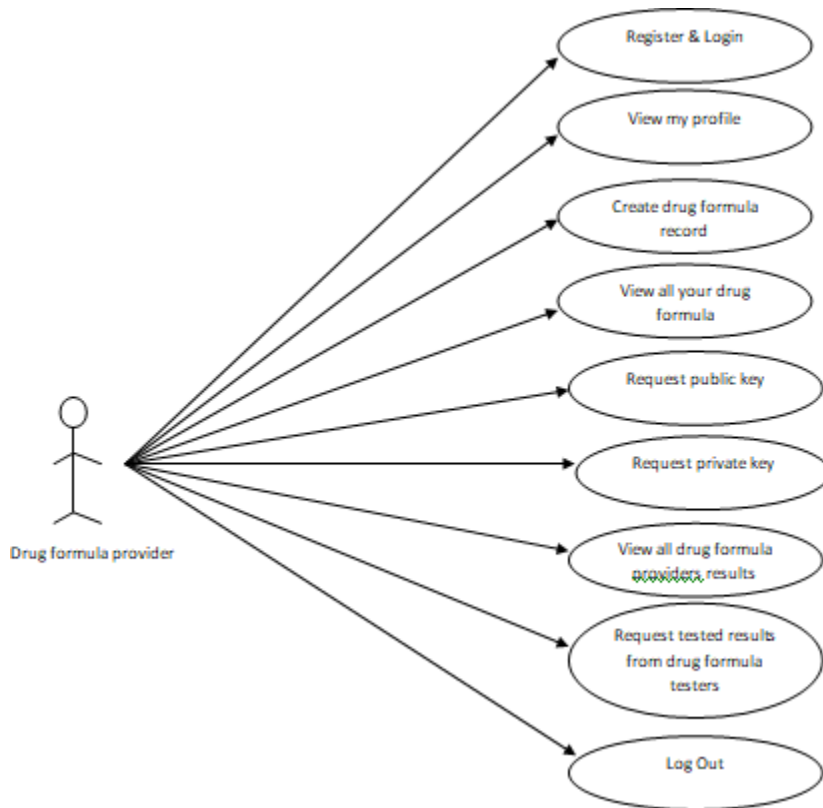


Fig 8.2.2.4 Use Case Diagram for Drug formula provider

## 8.2.3 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

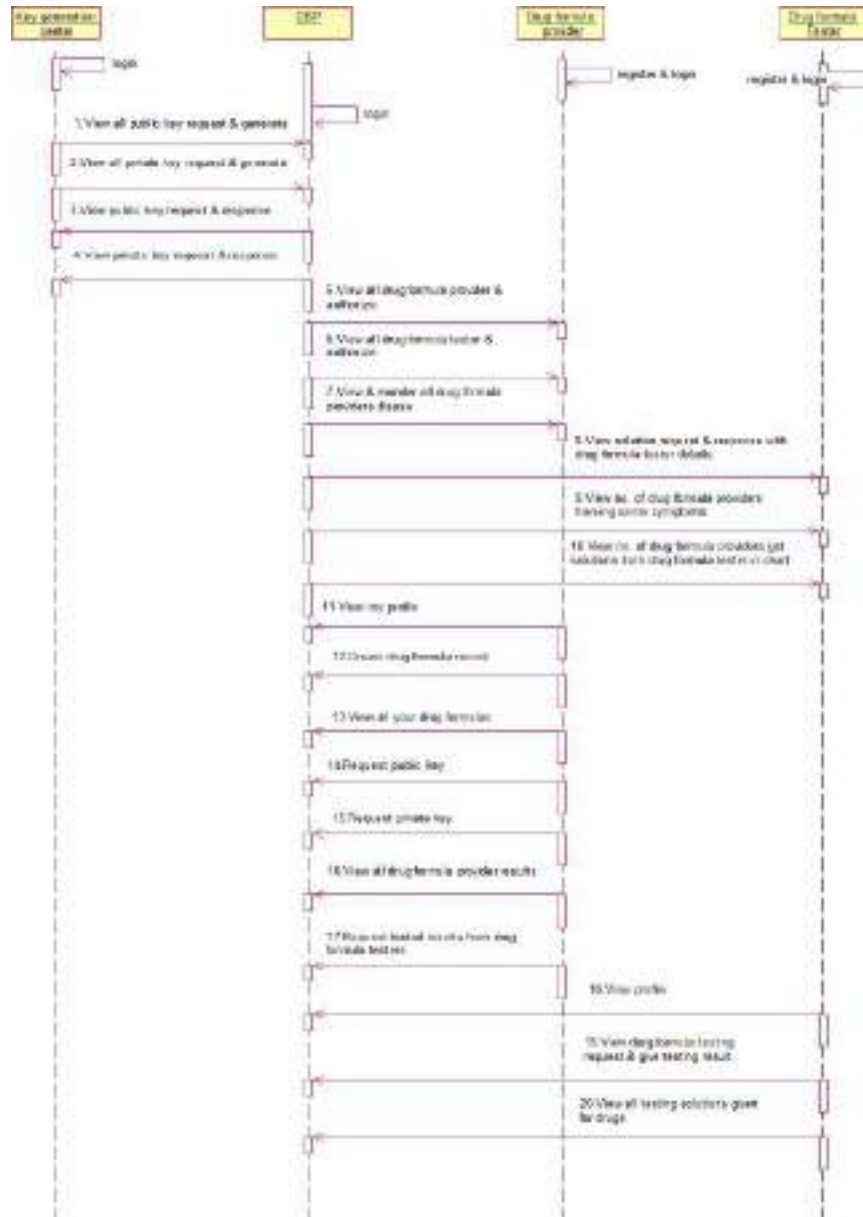


Fig 8.2.3 Sequence Diagram

## 8.2.4 Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

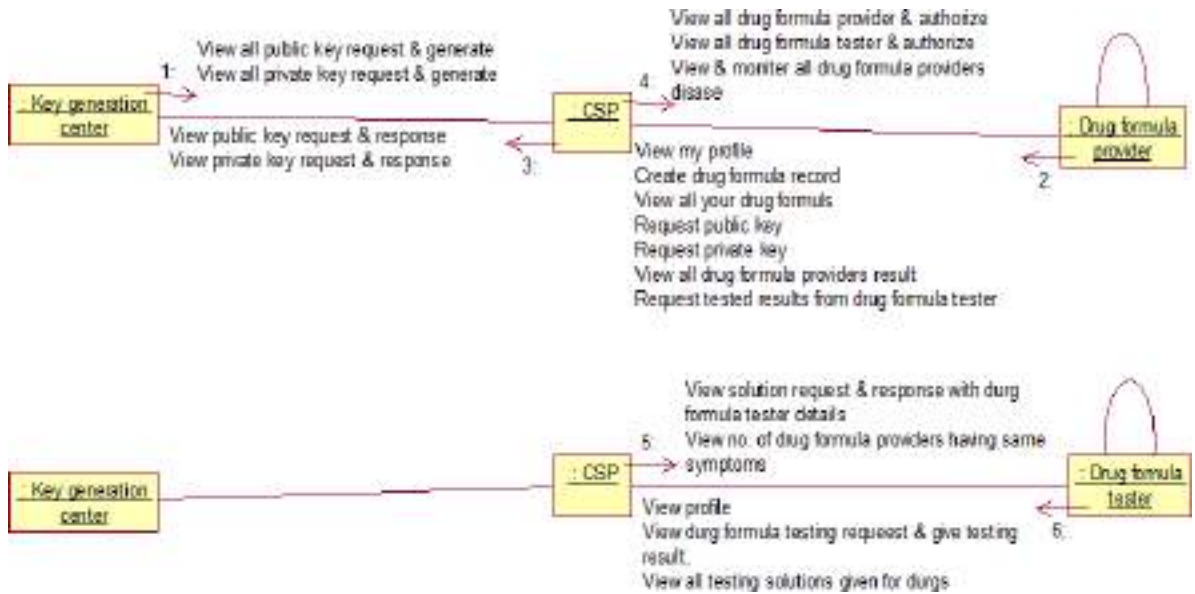


Fig 8.2.4 Collaboration Diagram

## 8.2.5 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.

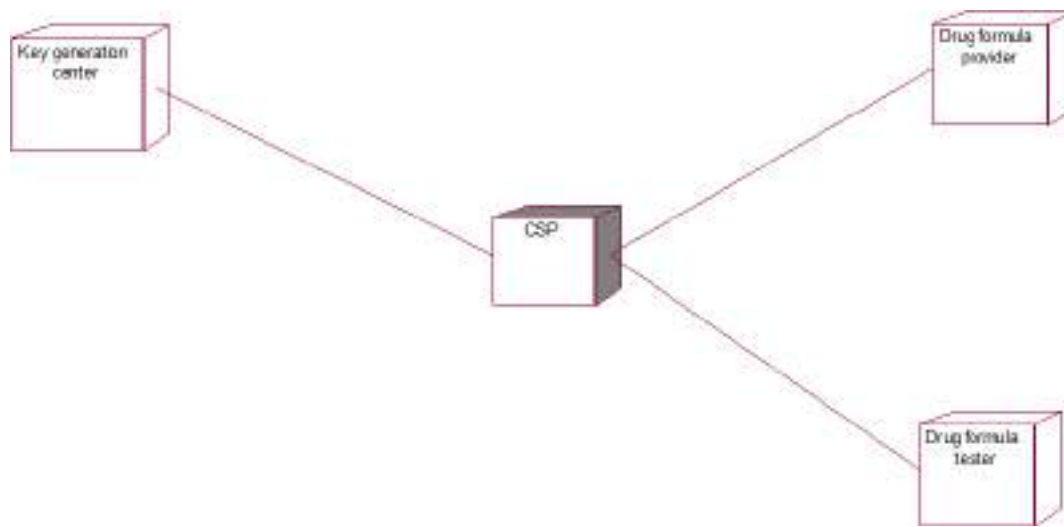


Fig 8.2.5 Deployment diagram

## 8.2.6 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.

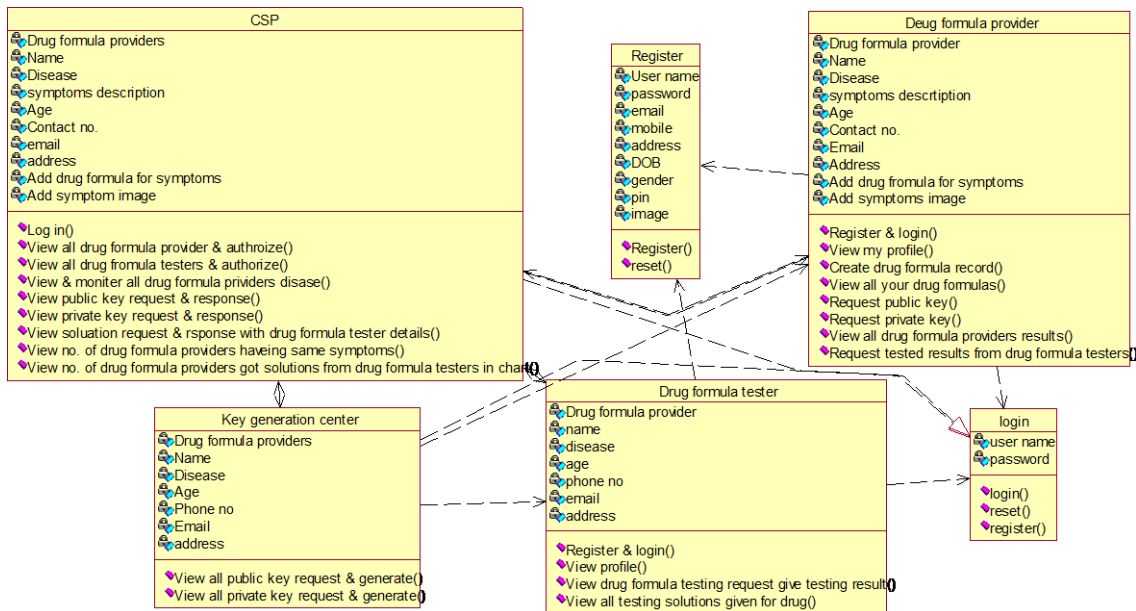


Fig 8.2.6 Class Diagram



## 8. 3 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-Rdiagram.

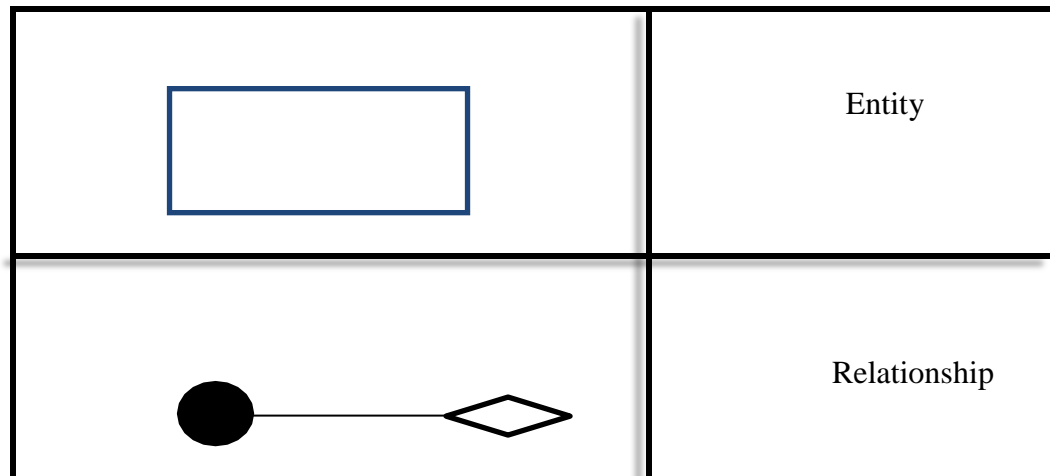


Fig 8.3.1: E-R Notations

## 9. IMPLEMENTATION

### 9.1. INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.1. OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### 9.2. OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections of the
  - Future.
  - Signal important events, opportunities, problems, or warnings.

## 9.4 CODING

### INDEX.HTML

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Home</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style6 { color: #FF0000; font-weight: bold; }
.style7 { color: #0000FF }
.style9 { font-size: 16px }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">

<li class="active">Home Page
CSP
Drug Formula
Providers
Drug Formula
Tester
Key Generation Center

</div>
<div class="logo">
```

```
<h1 class="style2">Privacy Preserving
Outsourced Support Vector Machine

 Design for Secure Drug Discovery

</h1>
</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
</div>
<div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 align="center" class="style4">Privacy Preserving Outsourced Support Vector
Machine Design for Secure Drug Discovery </h2>
 <p class="infopost style7">Cloud-supported Drug Discovery; Privacy-Preserving; Support
Vector Machine; Sequential Minimal Optimization.</p>
 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify" class="style6">In this paper, we propose a framework for privacy-
preserving outsourced drug discovery in the cloud, which we refer to as POD. Specifically, POD
is designed to allow the cloud to securely use multiple drug formula providers' drug formulas to
train Support Vector Machine (SVM) provided by the analytical model provider. In our
approach, we design secure computation protocols to allow the cloud server to perform
commonly used integer and fraction computations. To securely train the SVM, we design a
secure SVM parameter selection protocol to select two SVM parameters and construct a secure
sequential minimal optimization protocol to privately refresh both selected SVM parameters. The
trained SVM classifier can be used to determine whether a drug chemical compound is active or
not in a privacy-preserving way. Lastly, we prove that the proposed POD achieves the goal of
SVM training and chemical compound classification without privacy leakage to unauthorized
parties, as well as demonstrating its utility and efficiency using three real-world drug
datasets..</p>
 <p align="justify" class="style6"> </p>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 </div>
<div class="sidebar">
```

# Privacy preserving outsourced SVM for drug discovery

---

```
<div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
</div>
<div class="clr"></div>
<div class="gadget">
 <h2 class="star">Home Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 CSP
 Drug Formula Providers
 Drug Formula Tester
 Key Generation Center

</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

## **AuthorityMain**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Authority Main</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
```

```
<!--
.style2 {font-size: 14px}
.style3 {color: #FF0000}
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style6 {color: #000000}
.style8 {color: #000000; font-size: 18px; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 <li class="active">Home Page
 CSP
 Drug Formula Providers
 Drug Formula
Tester
 Key Generation Center

 </div>
 <div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

 Design for Secure Drug Discovery

 </h1>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
```

# Privacy preserving outsourced SVM for drug discovery

---

```
<h2 align="center" class="style4">Welcome To Key Generation Center..</h2>
<div class="clr"></div>
<div class="post_content">
 <p> </p>
 <p></p>
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">KGC Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 View all Public Key
Requests and Generate
 View all Private Key
Requests and Generate
 Logout

 </div>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
AuthorityLogin
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
```



```
<head>
<title>Authority Login</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style8 {
 color: #FFFFFF;
 font-size: 18px;
 font-weight: bold;
}
.style9 {
 color: #FFFFFF;
 font-weight: bold;
}
.style10 { font-size: 18px }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">

<li class="active">Home Page
CSP
Drug Formula
Providers
Drug Formula
Tester
Key Generation Center

</div>
</div>
```



# Privacy preserving outsourced SVM for drug discovery

---

```
 <input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" /></td>
 </tr>
</table>
</form>

</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">

<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

<input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
<h2 class="star">Sidebar Menu</h2>
<div class="clr"></div>
<ul class="sb_menu">
Home

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
AuthorityAuthentication
<% @ include file="connect.jsp" %>
```

```
<%
 try
 {
 String authid=request.getParameter("authid");
 String Password=request.getParameter("pass");

 application.setAttribute("authority",authid);

 String sql="SELECT * FROM authority where name='"+authid+"' and
pass='"+Password+"'";
 Statement stmt = connection.createStatement();
 ResultSet rs =stmt.executeQuery(sql);

 if(rs.next())
 {
 response.sendRedirect("AuthorityMain.jsp");
 }
 else
 {
 response.sendRedirect("AuthorityRe-Login.jsp");
 }
 }
 catch(Exception e)
 {
 out.print(e);
 }
%>
```

### **Authority GeneratePrivateKey**

```
<% @ page
import="java.sql.*,java.util.Random,java.security.KeyPairGenerator,javax.crypto.Cipher,java.se
curity.Key,java.security.KeyPair,java.util.*,java.util.Date,java.text.SimpleDateFormat" %>
<% @ include file="connect.jsp" %>
<html><style type="text/css">
<!--
body {
 background-color: #FFFFFF;
}
-->
</style>
<body>
<center> </center>
```

## Privacy preserving outsourced SVM for drug discovery

---

```


<%
 int id = Integer.parseInt(request.getParameter("id"));

 SimpleDateFormat sdfDate = new SimpleDateFormat("dd/MM/yyyy");

 SimpleDateFormat sdfTime = new SimpleDateFormat("HH:mm:ss");

 Date now = new Date();

 String strDate = sdfDate.format(now);

 String strTime = sdfTime.format(now);

 String dt = strDate + " " + strTime;

try {

 Key prKey;
 Key pubKey;

 Cipher encoder = null;

 KeyPairGenerator kg = KeyPairGenerator.getInstance("RSA");
 encoder = Cipher.getInstance("RSA");
 KeyPair kp = kg.generateKeyPair();
 prKey = kp.getPrivate();

 pubKey = kp.getPublic();
 byte[] pub = pubKey.getEncoded();
 byte[] priv = prKey.getEncoded();

 Statement st1 = connection.createStatement();
 String query1 = "update pvkey_req set pvkey='"+String.valueOf(priv)+"',resdt='"+dt+"'
where id="+id+" ";
 st1.executeUpdate (query1);

 connection.close();
```

```
 }

 catch(Exception e)
 {
 out.println(e.getMessage());
 }

 response.sendRedirect("Authority_PvKeyRequests.jsp");

%>

</body></html>
```

## **AuthorityRe-Login.Jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Authority Re-Login</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style6 { color: #000000 }
.style8 { color: #000000; font-size: 18px; }
```

```
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 <li class="active">Home Page
 CSP
 Drug Formula Providers
 Drug Formula
Tester
 Key Generation Center

 </div>
 <div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

Design for Secure Drug Discovery

</h1>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 align="center" class="style4">Invalid Login Details, Please Try Again!!..</h2>
 <div class="clr"></div>
 <div class="post_content">
 <p> </p>
 <form id="form1" name="form1" method="post" action="AuthorityAuthentication.jsp">
 <table width="464" border="0" cellspacing="2"
cellpadding="2">
 <tr>
 <td width="197" height="46" align="justify">
```

## Privacy preserving outsourced SVM for drug discovery

---

```
 <label for="name">Name (required)</label>
 </td>
 <td width="253"><input id="name" name="authid" class="text" /></td>
 </tr>
 <tr>
 <td height="40" align="justify">Password
(required)</td>
 <td><input type="password" id="pass" name="pass" class="text" /></td>
 </tr>
 <tr>
 <td> </td>
 <td> </td>
 </tr>
 <tr>
 <td> </td>
 <td>
 <input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" /></td>
 </tr>
</table>

</form>
```

```
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
```



```
<ul class="sb_menu">
 Home

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

### **doctor Pic.jsp**

```
<% @ include file="connect.jsp" %>
<% @ page import="java.sql.*,java.io.*,java.util.*" %>

<%

 try{

 int id = Integer.parseInt(request.getParameter("id"));
 Statement st=connection.createStatement();
 String strQuery = "select image from doctor where id="+id+"";
 ResultSet rs = st.executeQuery(strQuery);
 String imgLen="";
 if(rs.next())
 {
 imgLen = rs.getString(1);
 }

 rs = st.executeQuery(strQuery);
 if(rs.next())
 {
 int len = imgLen.length();
 byte [] rb = new byte[len];
 InputStream readImg = rs.getBinaryStream(1);
 int index=readImg.read(rb, 0, len);
 st.close();
 response.reset();
 response.getOutputStream().write(rb,0,len);
 response.getOutputStream().flush();
 }

 }
```

```
 }
 catch (Exception e){
 e.printStackTrace();
 }
%>

</body>
</html>
DrugFormulaProviders_CreateHealthRecord.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Create Health Record</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 {font-size: 14px}
.style3 {color: #FF0000}
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style6 {color: #000000;
 font-size:14px;}
.style9 {font-size: 18px}
-->
</style>
</head>
<body>
<div class="main">
```

# Privacy preserving outsourced SVM for drug discovery

---

```
<div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 <li class="active">Home Page
 CSP
 Drug Formula
Providers
 Drug Formula
Tester
 Key Generation Center

 </div>
 <div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

 Design for Secure Drug Discovery

 </h1>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 align="center" class="style4">Create Drug Formula Record.</h2>
 <div class="clr"></div>
 <div class="post_content">
 <%
 String pname=(String)application.getAttribute("pname");
 String s0,s1,s2;

 try{

 String query="select email,mobile,address
from patient where patientname='"+pname+"' ";
 Statement st=connection.createStatement();
 ResultSet rs=st.executeQuery(query);
```

## Privacy preserving outsourced SVM for drug discovery

---

```
 if (rs.next())
 {
 s0=rs.getString(1);
 s1=rs.getString(2);
 s2=rs.getString(3);

 }

 %>
 <form name="s" action="DrugFormulaProviders_CreateHealthRecord1.jsp"
method="post" id="" enctype="multipart/form-data" onsubmit="return valid()">

 <label for="dtype">DrugFormulaProviders Name
(required)</label>

 <p class="style33">
 <input id="ptname" name="ptname" value="<%=ptname%>" readonly />
 </p>

 <label for="name">Disease (required)</label>

 <p class="style33">
 <input id="symp" name="symp" class="text" />
 </p>

 <label for="duration">Symptoms Description
(required)</label>

 <p class="style33">
 <textarea id="sdesc" name="sdesc" rows="3" cols="16"></textarea>
 </p>

 <label for="description">Age (required)</label>

 <p class="style33">
 <input id="age" name="age" class="text" />
 </p>

 <label for="ecg">Contact No</label>

 <p class="style33">
```

## Privacy preserving outsourced SVM for drug discovery

---

```
<input id="cno" name="cno" value="<%=s1%">" readonly />
</p>

 <label for="otest">Email

</label>

<p class="style33">
 <input id="mail" name="mail" value="<%=s0%">" readonly />
</p>

 <label for="bplevel">Address

</label>

<p class="style33">
 <textarea id="address" name="address" rows="3"
cols="16"><%=s2%"></textarea>
</p>

 <label for="sugarlevel">Add Drug Fomula For
Symptoms

</label>

<p class="style33">
 <textarea id="ameasure" name="ameasure" rows="3" cols="16"></textarea>
</p>

 <label for="pic">Add Symptom Image</label>

<p class="style33">
 <input type="file" id="pic" name="pic" class="text" />
</p>
<p>

 <input name="submit" type="submit" value="Upload Details" />
</p>
<p> </p>
<p align="left" class="style64">Back</p>
</form>
<%
}
```

```
 connection.close();
 }

 catch(Exception e)
 {
 out.println(e.getMessage());
 }
%>
```

```

 </div>
 <div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 Logout

 </div>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

## DrugFormulaProviders CreateHealthRecord.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Create Health Record</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style6 { color: #000000;
 font-size: 14px; }
.style9 { font-size: 18px }
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="menu_nav">

<li class="active">Home Page
CSP
Drug Formula
Providers
Drug Formula
Tester
Key Generation Center

</div>
</div>
</div>
</div>
```

# Privacy preserving outsourced SVM for drug discovery

---

```
<div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

 Design for Secure Drug Discovery

 </h1>
</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 align="center" class="style4">Create Drug Formula Record.</h2>
 <div class="clr"></div>
 <div class="post_content">
 <%
 String pname=(String)application.getAttribute("pname");
 String s0,s1,s2;

 try{

 String query="select email,mobile,address
from patient where patientname='"+pname+"' ";
 Statement st=connection.createStatement();
 ResultSet rs=st.executeQuery(query);
 if (rs.next())
 {
 s0=rs.getString(1);
 s1=rs.getString(2);
 s2=rs.getString(3);

 }

 }
 %>
 <form name="s" action="DrugFormulaProviders_CreateHealthRecord1.jsp"
method="post" id="" enctype="multipart/form-data" onsubmit="return valid()">
```



## Privacy preserving outsourced SVM for drug discovery

---

```


 <label for="dtype">DrugFormulaProviders Name
(required)</label>

 <p class="style33">
 <input id="ptname" name="ptname" value="<%=ptname%>" readonly />
 </p>

 <label for="name">Disease (required)</label>

 <p class="style33">
 <input id="symp" name="symp" class="text" />
 </p>

 <label for="duration">Symptoms Description
(required)</label>

 <p class="style33">
 <textarea id="sdesc" name="sdesc" rows="3" cols="16"></textarea>
 </p>

 <label for="description">Age (required)</label>

 <p class="style33">
 <input id="age" name="age" class="text" />
</p>

 <label for="ecg">Contact No</label>

 <p class="style33">
 <input id="cno" name="cno" value="<%=s1%>" readonly />
 </p>

 <label for="otest">Email

</label>

 <p class="style33">
 <input id="mail" name="mail" value="<%=s0%>" readonly />
 </p>

 <label for="bplevel">Address

</label>

```

## Privacy preserving outsourced SVM for drug discovery

---

```
<p class="style33">
 <textarea id="address" name="address" rows="3"
cols="16"><%=s2%></textarea>
</p>

 <label for="sugarlevel">Add Drug Fomula For
Symptoms

</label>

 <p class="style33">
 <textarea id="ameasure" name="ameasure" rows="3" cols="16"></textarea>
</p>

 <label for="pic">Add Symptom Image</label>

 <p class="style33">
 <input type="file" id="pic" name="pic" class="text" />
</p>
 <p>

 <input name="submit" type="submit" value="Upload Details" />
</p>
 <p> </p>
 <p align="left" class="style64">Back</p>
</form>

 <%
 }
 connection.close();
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
%>
```

```
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 Logout

 </div>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

## **DrugFormulaProviders CreateHealthRecord1.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
<% @ page import="java.io.*" %>
<% @ page import="java.util.*" %>
<% @ page import="com.oreilly.servlet.*" %>
<% @ page import="java.text.SimpleDateFormat" %>
<% @ page import="org.bouncycastle.util.encoders.Base64" %>
<% @ page import="java.util.Date" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Create Health Record</title>
```

## Privacy preserving outsourced SVM for drug discovery

---

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style9 { font-size: 18px }
.style10 { font-size: 18px; color: #FF0000; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 <li class="active">Home Page
 CSP
 Drug Formula
Providers
 Drug Formula
Tester
 Key Generation Center

 </div>
 <div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

 Design for Secure Drug Discovery

 </h1>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="content">
<div class="content_resize">
<div class="mainbar">
<div class="article">
<h2 align="center" class="style4">Drug Formula Record Creation Status..</h2>
<div class="clr"></div>
<div class="post_content">

<%

SimpleDateFormat sdfDate = new SimpleDateFormat("dd/MM/yyyy");

SimpleDateFormat sdfTime = new SimpleDateFormat("HH:mm:ss");

Date now = new Date();

String strDate = sdfDate.format(now);

String strTime = sdfTime.format(now);

String dt = strDate + " " + strTime;

ArrayList list = new ArrayList();

ServletContext context = getServletContext();

String dirName =context.getRealPath("Gallery/");

String
paramname=null,ptname=null,symp=null,sdesc=null,age=null,cno=null,mail=null,address=null,a
measure=null,image=null,cloud=null,bin = "";

FileInputStream fs=null;

File file1 = null;
```

## Privacy preserving outsourced SVM for drug discovery

---

```
try {
 MultipartRequest multi = new
MultipartRequest(request, dirName, 10 * 1024 * 1024);

 Enumeration params = multi.getParameterNames();

 while (params.hasMoreElements())
 {
 paramname = (String)
params.nextElement();

 if(paramname.equalsIgnoreCase("ptname"))
 {
 ptname=multi.getParameter(paramname);
 }
 if(paramname.equalsIgnoreCase("symp"))
 {
 symp=multi.getParameter(paramname);
 }
 if(paramname.equalsIgnoreCase("sdesc"))
 {
 sdesc=multi.getParameter(paramname);
 }
 if(paramname.equalsIgnoreCase("age"))
 {
 age=multi.getParameter(paramname);
 }
 if(paramname.equalsIgnoreCase("cno"))
 {
 cno=multi.getParameter(paramname);
 }
 if(paramname.equalsIgnoreCase("mail"))
 {
 mail=multi.getParameter(paramname);
 }
 if(paramname.equalsIgnoreCase("address"))
 {
 address=multi.getParameter(paramname);
 }
 }
}
```

## Privacy preserving outsourced SVM for drug discovery

---

```
if(paramname.equalsIgnoreCase("ameasure"))
 {
 ameasure=multi.getParameter(paramname);
 }

}

int f = 0;
Enumeration files = multi.getFileNames();
while (files.hasMoreElements())
{
 paramname = (String) files.nextElement();

 if(paramname != null)
 {
 f = 1;
 image =

multi.getFilesystemName(paramname);

 String fPath =

context.getRealPath("Gallery\\"+image);

 file1 = new File(fPath);
 fs = new FileInputStream(file1);
 list.add(fs);

 String ss=fPath;
 FileInputStream fis = new

FileInputStream(ss);

 StringBuffer sb1=new

StringBuffer();

 int i = 0;
 while ((i = fis.read()) != -1)
 {
 if (i != -1)
 {

 //System.out.println(i);

 String hex =

 Integer.toHexString(i);

 //

 session.put("hex",hex);

 sb1.append(hex);
 }
 }
 }
}
```

```
"";

hex.length(); i1++)

Integer.parseInt(""+hex.charAt(i1),16);

Integer.toBinaryString(iHex);

 while(binFragment.length() < 4)

 binFragment = "0" + binFragment;

binFragment;

 }
 }
}

String symp1 = new
String sdesc1 = new
String age1 = new
String cno1 = new
String mail1 = new
String address1 = new
String ameaure1 = new

String(Base64.encode(symp.getBytes()));
String(Base64.encode(sdesc.getBytes()));
String(Base64.encode(age.getBytes()));
String(Base64.encode(cno.getBytes()));
String(Base64.encode(mail.getBytes()));
String(Base64.encode(address.getBytes()));
String(Base64.encode(ameaure.getBytes()));
```



## Privacy preserving outsourced SVM for drug discovery

---

```
FileInputStream fs1 = null;
String query1="select * from health_record where
ptname='"+ptname+"' and symp='"+symp1+"' ";
Statement st1=connection.createStatement();
ResultSet rs1=st1.executeQuery(query1);
```

```
if (rs1.next())
{
 %>
```

```
</p>
</label>
```

```
<p align="center" class="style4" style="color:#000000"> Details Already Uploaded for the Symptom <%=symp%>.</p>
```

```
<p align="center"><a
href="DrugFormulaProviders_CreateHealthRecord.jsp" class="style5 style16
style35">Back</p>
<%
```

```
}
else
{
```

```
PreparedStatement ps=connection.prepareStatement("insert into
health_record(ptname,symp,sdesc,age,cno,mail,address,ameasure,dt,image)
values(?,?,?,?,?,?,?,?,?)");
```

```
ps.setString(1,ptname);
ps.setString(2,symp1);
ps.setString(3,sdesc1);
ps.setString(4,age1);
ps.setString(5,cno1);
ps.setString(6,mail1);
ps.setString(7,address1);
```

```
ps.setString(8,ameasure1);
```

```
ps.setString(9,dt);
```

## Privacy preserving outsourced SVM for drug discovery

---

```
(int)(file1.length());

ps.setBinaryStream(10, (InputStream)fs,

if(f == 0)
 ps.setObject(10,null);
else if(f == 12)
{
 fs1 = (FileInputStream)list.get(0);
 ps.setBinaryStream(10,fs1,fs1.available());
}

int x=ps.executeUpdate();
if(x>0)
{
 %>
 <p> </p>
 <p align="center" class="style10" style="color:#000000">Drug Formula Record
Created Successfully.</p>
 <p class="style19"> </p>
 <p align="center"><a href="DrugFormulaProvidersMain.jsp"
class="style16">Back</p>
 <%
 }}}
 catch (Exception e)
 {
 out.println(e.getMessage());
 }
 %>

</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">

<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />
```

```

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 Logout

</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

## **DrugFormulaProviders DrugFormulaTesterProfile.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Drug Formula Tester Profile</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
 color: #FF0000;
}
```

```
.style7 {
 color: #000000;
 font-size: 16px;
}
.style7 {
 color: #660033;
 font-size: 14px;
}
.style8 {font-size: 18px}
.style9 {
 color: #000000;
 font-weight: bold;
}
.style15 {color:#c26a03;
 font-size:18px;}
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 <li class="active">Home Page
 CSP
 Drug Formula
Providers
 Drug Formula
Tester
 Key Generation Center

 </div>
 <div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

 Design for Secure Drug Discovery

 </h1>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 </div>
 </div>

```

# Privacy preserving outsourced SVM for drug discovery

---

```
<div class="clr"></div>
</div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 align="center" class="style4">Drug Formula Tester
<%=request.getParameter("doctor")%>'s Profile.</h2>
 <div class="clr"></div>
 <div class="post_content">
 <p> </p>
 <table width="547" border="1.5" align="center" cellpadding="0"
cellspacing="0" >
 <%
 String type=request.getParameter("type");
 String doctor=request.getParameter("doctor");
 String hname=request.getParameter("hname");
 String ptname=request.getParameter("ptname");
 String symp=request.getParameter("symp");

 String s1,s2,s3,s4,s5,s6,s7;
 int i=0;
 try
 {
 String query="select * from doctor where
 username='"+doctor+"'";

 Statement st=connection.createStatement();
 ResultSet rs=st.executeQuery(query);
 if (rs.next())
 {
 i=rs.getInt(1);
 s1=rs.getString(2);
 s2=rs.getString(5);
 s3=rs.getString(6);

 s4=rs.getString(7);
 s5=rs.getString(8);
 s6=rs.getString(10)
 }
 }
 %>
```

## Privacy preserving outsourced SVM for drug discovery

---

```
<tr>
 <td width="222" rowspan="8" ><div class="style7 style26" style="margin:10px
13px 10px 13px;" >
 <input name="image" type="image" src="doctor_Pic.jsp?id=%=i%"
style="width:170px; height:150px;" />
 </div></td>
</tr>
 <tr>
 <td width="184" valign="middle" height="20" style="color: #2c83b0;"><div
align="left" class="style7" style="margin-left:20px;">Hospital
Name</div></td>
 <td width="133" valign="middle" height="40" style="color:#006600;"><div
align="left" class="style38" style="margin-left:20px;">
 <%out.println(s1);%>
 </div></td>
 </tr>
 <tr>
 <td width="184" valign="middle" height="20" style="color: #2c83b0;"><div
align="left" class="style7" style="margin-left:20px;">E-
Mail</div></td>
 <td width="133" valign="middle" height="40" style="color:#FF8800;"><div
align="left" class="style38" style="margin-left:20px;">
 <%out.println(s2);%>
 </div></td>
 </tr>
 <tr>
 <td width="184" valign="middle" height="40" style="color: #2c83b0;"><div
align="left" class="style7" style="margin-left:20px;">Mobile</div></td>
 <td width="133" valign="middle" height="40" style="color: #000000;"><div
align="left" class="style9 style10 style22 style38" style="margin-left:20px;">
 <%out.println(s3);%>
 </div></td>
 </tr>
 <tr>
 <td width="184" align="left" valign="middle" height="40" style="color:
#2c83b0;"><div align="left" class="style7" style="margin-
left:20px;">Address</div></td>
 <td width="133" align="left" valign="middle" height="40" style="color:
#000000;"><div align="left" class="style9 style10 style22 style38" style="margin-left:20px;">
 <%out.println(s4);%>
 </div></td>
 </tr>
 <tr>
 <td width="184" align="left" valign="middle" height="40" style="color:
#2c83b0;"><div align="left" class="style7" style="margin-left:20px;">Date of
Birth</div></td>
```

# Privacy preserving outsourced SVM for drug discovery

---

```
<td width="133" align="left" valign="middle" height="40" style="color:
#000000;"><div align="left" class="style9 style10 style22 style38" style="margin-left:20px;">
 <%out.println(s5);%>
</div></td>
</tr>
<tr>
 <td width="184" align="left" valign="middle" height="51" style="color:
#2c83b0;"><div align="left" class="style7" style="margin-
left:20px;">Status</div></td>

 <td width="133" align="left" valign="middle" height="51" style="color:
#000000;"><div align="left">
 <div align="left" class="style9 style10 style22 style38" style="margin-
left:20px;">
 <%out.println(s6);%>
 </div></td>

</tr>

<%
 }
 connection.close();
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
 %>
</table>

 <p> </p>
 <h2 align="right"> </h2>
 <%
 if(type.equalsIgnoreCase("DrugFormulaProviders_Drug Formula
TesterProfile")){ %>
 <h2 align="right"><a
href="DrugFormulaProviders_ViewDrSoln.jsp?ptname=<%=ptname%>&symp=<%=symp%>"
class="style15">Back</h2>
 <% }
 else if(type.equalsIgnoreCase("DrugFormulaProviders_Sample")){ %>
 <h2 align="right"><a href="DrugFormulaProviders_ViewSample.jsp"
class="style15">Back</h2>
 <% }

 %>
```

# Privacy preserving outsourced SVM for drug discovery

---

```
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 Logout

 </div>
</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

## **DrugFormulaProviders\_EnterPbKey.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
<% @ page import="org.bouncycastle.util.encoders.Base64" %>
<html xmlns="http://www.w3.org/1999/xhtml">
```



# Privacy preserving outsourced SVM for drug discovery

---

```
<head>
<title>Friends Symptoms</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style5 { color:#000000 }
.style6 { color: #660033;
 font-size:14px;}
.style7 { color:#CC0033 }
.style9 { font-size: 18px }
.style10 { color:#006633 }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 <li class="active">Home Page
 CSP
 Drug Formula
Providers
 Drug Formula
Tester
 Key Generation Center

 </div>
 <div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

 Design for Secure Drug Discovery

```

# Privacy preserving outsourced SVM for drug discovery

---

```
</h1>
</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
 </div>
<div class="clr"></div>
</div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 align="center" class="style4">All Friends Symptoms.</h2>
 <div class="clr"></div>
 <div class="post_content">
 <p> </p>
 <%
 String pname=(String)application.getAttribute("pname");
 String pbkey=request.getParameter("pbkey");

 try
 {

 String query1="select * from pbkey_req where pbkey='"+pbkey+"' and
pname='"+pname+"' ";
 Statement st1=connection.createStatement();
 ResultSet rs1=st1.executeQuery(query1);
 if (rs1.next()==true)
 {

 %>

 <table width="700" border="1" align="center" cellpadding="0" cellspacing="0"
>
 <tr>
 <td width="25" height="34" valign="baseline" style="color: #2c83b0;"><div
align="center" class="style6" >SI NO</div></td>
 <td width="110" height="34" valign="baseline" style="color:
#2c83b0;"><div align="center" class="style6" > Friend Name </div></td>
```

## Privacy preserving outsourced SVM for drug discovery

---

```
<td width="110" height="34" valign="baseline" style="color: #2c83b0;"><div align="center" class="style6" > Symptom </div></td>
<td width="60" height="34" valign="baseline" style="color: #2c83b0;"><div align="center" class="style6" > Image</div></td>
<td width="81" height="34" valign="baseline" style="color: #2c83b0;"><div align="center" class="style6" >Symptom Description </div></td>
<td width="230" height="34" valign="baseline" style="color: #2c83b0;"><div align="center" class="style6" >Age </div></td>
<td width="105" height="34" valign="baseline" style="color: #2c83b0;"><div align="center" class="style6" >Measurements Level </div></td>
<td width="105" height="34" valign="baseline" style="color: #2c83b0;"><div align="center" class="style6" >Upload Date </div></td>
<td width="105" height="34" valign="baseline" style="color: #2c83b0;"><div align="center" class="style6" >Comments</div></td>
<td width="105" height="34" valign="baseline" style="color: #2c83b0;"><div align="center" class="style6" >Solutions</div></td>
</tr>
```

<%

```
String
ptname1="",symp="",sdesc="",age="",cno="",mail="",address="",ameasure="",date="";
int i=1,j=0,count=0,r=0;
```

```
try
{
```

```
String query="select * from health_record
where ptname!= '"+ptname+" ";

Statement st=connection.createStatement();
ResultSet rs=st.executeQuery(query);
while (rs.next())
{
 j=rs.getInt(1);
 ptname1=rs.getString(2);
 symp=rs.getString(3);
 sdesc=rs.getString(4);
 age=rs.getString(5);
 cno=rs.getString(6);
 mail=rs.getString(7);
 address=rs.getString(8);
 ameasure=rs.getString(9);
```

## Privacy preserving outsourced SVM for drug discovery

---

```
date=rs.getString(10);
```

```
String(Base64.decode(symp.getBytes())); String symp1 = new
String(Base64.decode(sdesc.getBytes())); String sdesc1 = new
String(Base64.decode(age.getBytes())); String age1 = new
String(Base64.decode(cno.getBytes())); String cno1 = new
String(Base64.decode(mail.getBytes())); String mail1 = new
String(Base64.decode(address.getBytes())); String address1 = new
String(Base64.decode(ameasure.getBytes())); String ameasure1 = new
```

```
count++;
```

```
String str2="select * from frequest where
((requestfrom="+ptname1+"&&requestto="+ptname+"))
(requestfrom="+ptname+"&&requestto="+ptname1+"))&& status='Accepted'";
Statement st2=connection.createStatement();
ResultSet rs2=st2.executeQuery(str2);
if (rs2.next())
{
```

```
%>
```

```
<tr>
<td height="23" valign="middle">
<div align="center" class="style5" >
<div align="center">
<%out.println(i);%>
</div>
</div></td>
<td height="23" valign="middle">
<div align="center" class="style10" >
<div align="center">
```

## Privacy preserving outsourced SVM for drug discovery

---

```
<%out.println(ptname1);%> </div>
</div></td>
 <td height="23" valign="middle">
 <div align="center" class="style7" >

 <%out.println(symp1);%> </div></td>
 <td width="120" valign="middle" bgcolor="#FFFFFF"><div
class="style3 style7 style9 style9" style="margin:10px 13px 10px 13px;" >
 <input name="image" type="image" src="symp_Pic.jsp?&id=<%=j%>"
style="width:80px; height:80px;" />
 </div></td>

 <td height="23" valign="middle">
 <div align="center" class="style5" >

 <%out.println(sdesc1);%>
 </div></td>

 <td height="23" valign="middle">
 <div align="center" class="style5" >
 <%out.println(age1);%>
 </div></td>

 <td height="23" valign="middle">
 <div align="center" class="style5" >
 <%out.println(ameasure1);%>
 </div></td>

 <td height="23" valign="middle">
 <div align="center" class="style5" >
 <%out.println(date);%>
 </div></td>

 <td width="105" align="left" valign="middle" height="23"><a
href="DrugFormulaProviders_GiveComments.jsp?ptname=<%=ptname1%>&symp=<%=symp1%>
&pbkey=<%=pbkey%>" class="style8" style="color:#660033">Give Comment
 </td>

 <td width="105" align="left" valign="middle" height="23"><a
href="DrugFormulaProviders_GiveSolution.jsp?ptname=<%=ptname1%>&symp=<%=symp1%>
&pbkey=<%=pbkey%>" class="style8" style="color:#006633">Give Solution
 </td>
 </tr>
 <%

 }

 i=i+1;

 }

 connection.close();
```

## Privacy preserving outsourced SVM for drug discovery

---

```
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }

 if(count==0){out.print("Your Friends Symptom Details not
Found");}

 %>
</table>
 <%
 }
 else
 {
 %><p align="center">Please Enter
Correct Public Key !! </p>
 <%
 }
 connection.close();
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
 }
 %>

 <p> </p>
 <div align="center" class="style22"><a href="DrugFormulaProvidersMain.jsp"
class="style2">Back</div>

</div>
<div class="clr"></div>
```

```
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 Logout

 </div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

## ServerLogin.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Server Login</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
```

# Privacy preserving outsourced SVM for drug discovery

---

```
<!--
.style2 {font-size: 14px}
.style3 {color: #FF0000}
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style8 {color: #FFFFFF; font-size: 18px; }
.style9 {color: #FFFFFF}
.style10 {font-size: 18px}
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 <li class="active">Home Page
 CSP
 Drug Formula
Providers
 Drug Formula
Tester
 Key Generation Center

 </div>
 <div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

 Design for Secure Drug Discovery

 </h1>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
```



## Privacy preserving outsourced SVM for drug discovery

---

```
<div class="mainbar">
 <div class="article">
 <h2 align="center" class="style4">Welcome To CSP Login.</h2>
 <div class="clr"></div>
 <div class="post_content">
 <p></p>
 <form id="form1" name="form1" method="post" action="ServerAuthentication.jsp">
 <table width="464" border="0" cellspacing="2"
cellpadding="2">
 <tr>
 <td width="197" height="46" align="justify" bgcolor="#0000FF">
 <label for="name">Name (required)</label>
 </td>
 <td width="253"><input id="name" name="serverid" class="text" /></td>
 </tr>
 <tr>
 <td height="40" align="justify" bgcolor="#0000FF">Password (required)</td>
 <td><input type="password" id="pass" name="pass" class="text" /></td>
 </tr>
 <tr>
 <td> </td>
 <td> </td>
 </tr>
 <tr>
 <td> </td>
 <td>
 <input name="imageField" type="submit" class="LOGIN" id="imageField"
value="Login" /></td>
 </tr>
 </table>
 </form>

 </div>
 <div class="clr"></div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">
```

# Privacy preserving outsourced SVM for drug discovery

---

```

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

## Server main.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Server Main</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
```

# Privacy preserving outsourced SVM for drug discovery

---

```
 color: #FF0000;
 }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="menu_nav">

 <li class="active">Home Page
 CSP
 Drug Formula Providers
 Drug Formula
Tester
 Key Generation Center

 </div>
 <div class="logo">
 <h1 class="style2">Privacy Preserving Outsourced Support Vector
Machine

 Design for Secure Drug Discovery

 </h1>
 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 align="center" class="style4">Welcome To CSP..</h2>
 <div class="clr"></div>
 <div class="post_content">
 <p> </p>
 <p>

 <p></p>
 </div>
 </div>
 </div>
 </div>
 </div>
</div>
</body>
</html>
```

# Privacy preserving outsourced SVM for drug discovery

---

```
<p></p>
<p> </p>
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">CSP Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 View all Drug
Formula Provider and Authorize
 View
all Drug Formula Testers and Authorize
 View and
Monitor all Drug Formula Providers Disease
 View Public
Key Request and Response
 View Private
Key Request and Response
 View Solution
Request and Response with Drug Formula Tester Details
 View No. of Drug Formula
Providers having Same Symptoms
 View No. of
Drug Formula Providers got Solution from Drug Formula Tester in Chart
 Logout

 </div>
 </div>
</div>
```

```
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

### **Server Userstatus.jsp**

```
<% @ include file="connect.jsp" %>
<%

try {

 String id=request.getParameter("id");
 String str = "Authorized";
 Statement st1 = connection.createStatement();
 String query1 ="update patient set status='"+str+"' where id="+id+" ";
 st1.executeUpdate (query1);
 connection.close();
 response.sendRedirect("Server_AuthorizeUsers.jsp");

 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }

%>
```

### **user Pic.jsp**

```
<% @ include file="connect.jsp" %>
<%

try {

 String id=request.getParameter("id");
 String str = "Authorized";
 Statement st1 = connection.createStatement();
 String query1 ="update patient set status='"+str+"' where id="+id+" ";
 st1.executeUpdate (query1);
```

## Privacy preserving outsourced SVM for drug discovery

---

```
 connection.close();
 response.sendRedirect("Server_AuthorizeUsers.jsp");

 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }

%>
```

### **ServerAuthentication.jsp**

```
<% @ include file="connect.jsp" %>

<%

 try
 {

 String serverid=request.getParameter("serverid");
 String Password=request.getParameter("pass");

 application.setAttribute("server",serverid);

 String sql="SELECT * FROM server where name='"+serverid+"' and
pass='"+Password+"'";
 Statement stmt = connection.createStatement();
 ResultSet rs =stmt.executeQuery(sql);

 if(rs.next())
 {
 response.sendRedirect("ServerMain.jsp");
 }
 else
 {
 response.sendRedirect("ServerRe-Login.jsp");
 }

 }
 catch(Exception e)
 {
 out.print(e);
 }
}
```

```
}
%>
```

## **Server\_DoctorProfile.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ include file="connect.jsp" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Drug Formula Tester Profile Main</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-aller.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 { font-size: 14px }
.style3 { color: #FF0000 }
.style4 {
 font-size: 24px;
 color: #FF0000;
}
.style7 {
 color: #000000;
 font-size: 16px;
}
.style7 {
 color: #660033;
 font-size: 14px;
}
.style8 { font-size: 18px }
.style9 {
 color: #000000;
 font-weight: bold;
}
.style15 { color:#c26a03;
 font-size:18px;}
-->
</style>
</head>
<body>
```





## Privacy preserving outsourced SVM for drug discovery

---

```
String s1,s2,s3,s4,s5,s6,s7;
int i=0;
try
{
 String query="select * from doctor where
username='"+doctor+"'";

 Statement st=connection.createStatement();
 ResultSet rs=st.executeQuery(query);
 if (rs.next())
 {
 i=rs.getInt(1);
 s1=rs.getString(2);
 s2=rs.getString(5);
 s3=rs.getString(6);

 s4=rs.getString(7);
 s5=rs.getString(8);
 s6=rs.getString(10);

 %>
 }
}

<tr>
 <td width="222" rowspan="8" ><div class="style7 style26" style="margin:10px
13px 10px 13px;" >
 <input name="image" type="image" src="doctor_Pic.jsp?id=<%=i%>"
style="width:170px; height:150px;" />
 </div></td>
</tr>
<tr>
 <td width="184" valign="middle" height="20" style="color: #2c83b0;"><div
align="left" class="style7" style="margin-left:20px;">Hospital
Name</div></td>
 <td width="133" valign="middle" height="40" style="color:#006600;"><div
align="left" class="style38" style="margin-left:20px;">
 <%out.println(s1);%>
 </div></td>
</tr>
<tr>
 <td width="184" valign="middle" height="20" style="color: #2c83b0;"><div
align="left" class="style7" style="margin-left:20px;">E-
Mail</div></td>
 <td width="133" valign="middle" height="40" style="color:#FF8800;"><div
align="left" class="style38" style="margin-left:20px;">
 <%out.println(s2);%>
```

## Privacy preserving outsourced SVM for drug discovery

---

```

 </div></td>
 </tr>
 <tr>
 <td width="184" valign="middle" height="40" style="color: #2c83b0;"><div
align="left" class="style7" style="margin-left:20px;">Mobile</div></td>
 <td width="133" valign="middle" height="40" style="color: #000000;"><div
align="left" class="style9 style10 style22 style38" style="margin-left:20px;">
 <%out.println(s3);%>
 </div></td>
 </tr>
 <tr>
 <td width="184" align="left" valign="middle" height="40" style="color:
#2c83b0;"><div align="left" class="style7" style="margin-
left:20px;">Address</div></td>
 <td width="133" align="left" valign="middle" height="40" style="color:
#000000;"><div align="left" class="style9 style10 style22 style38" style="margin-left:20px;">
 <%out.println(s4);%>
 </div></td>
 </tr>
 <tr>
 <td width="184" align="left" valign="middle" height="40" style="color:
#2c83b0;"><div align="left" class="style7" style="margin-left:20px;">Date of
Birth</div></td>
 <td width="133" align="left" valign="middle" height="40" style="color:
#000000;"><div align="left" class="style9 style10 style22 style38" style="margin-left:20px;">
 <%out.println(s5);%>
 </div></td>
 </tr>
 <tr>
 <td width="184" align="left" valign="middle" height="51" style="color:
#2c83b0;"><div align="left" class="style7" style="margin-
left:20px;">Status</div></td>
 <td width="133" align="left" valign="middle" height="51" style="color:
#000000;"><div align="left">
 <div align="left" class="style9 style10 style22 style38" style="margin-
left:20px;">
 <%out.println(s6);%>
 </div></td>
 </tr>

 <%
 }
 connection.close();
```

# Privacy preserving outsourced SVM for drug discovery

---

```
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
 %>
</table>

 <p> </p>
 <h2 align="right"> </h2>
 <%
 if(type.equalsIgnoreCase("Server_Drug Formula TesterProfile")){ %>
 <h2 align="right"><a href="Server_ViewSolnReqRes.jsp"
class="style15">Back</h2>
 <% }
 else if(type.equalsIgnoreCase("Patient_Sample")){ %>
 <h2 align="right">Back</h2>
 <% }

 %>

 </div>
 <div class="clr"></div>
 </div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home
 Logout

 </div>
</div>
```

```
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"> </div>
</div>
</body>
</html>
```

## **10. SYSTEM TESTING**

### **10.1 SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### **10.2 TYPES OF TESTING**

#### **Unit Testing**

Unit Testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### **Integration Testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

#### **Functional Test**

Functional Tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **White Box Testing**

White Box Testing is a testing in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is used to test areas that cannot be reached from a black box level.

### **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## 10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

### Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

### Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

### Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

## 11. SCREENSHOTS

### SCREEN 1: Home Page



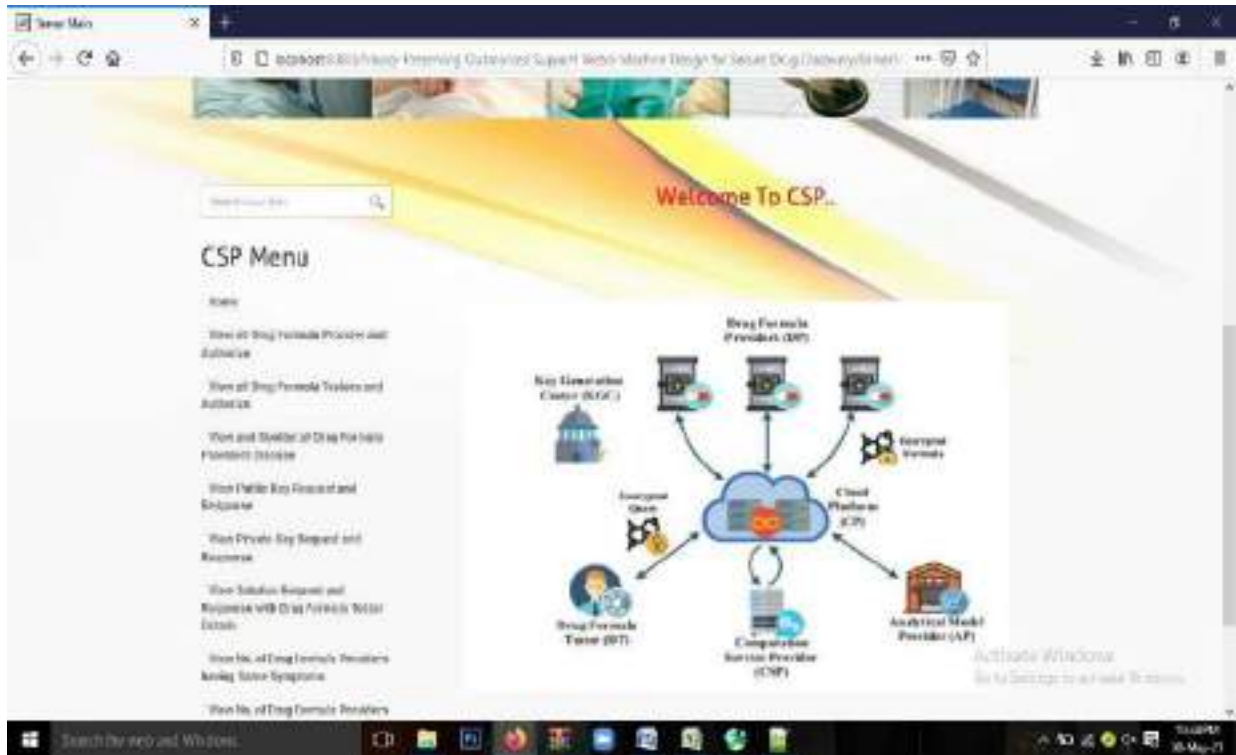
Home page

**Description:** The above screen represents home page



# Privacy preserving outsourced SVM for drug discovery

## SCREEN 2: Cloud server provider home page



Cloud server provider Home page

**Description:** The above screen represents Cloud server provider home page

# Privacy preserving outsourced SVM for drug discovery

## SCREEN 3: View all drug formula testers



View all drug formula testers

**Description:** The above screen represents view all drug formula testers

# Privacy preserving outsourced SVM for drug discovery

## SCREEN 4: View all symptoms with comments



The screenshot displays a web application interface for viewing patient symptoms. The main heading is "All Patient Symptoms with Comments". On the left, there is a "Sidebar Menu" with options for "Home" and "Logout". A search bar is located above the table. The table contains the following data:

ID	Drug Name/Provider Name	Disease	Image	Symptom Description	Age	Drug Formula	Date
1	Aspirin	Blood Pressure		Heart palpitations/Anxiety	35	Aspirin-001-001400	2022-05-15 15:30:15
2	Aspirin	Blood Sugar		Headache/Blurred vision	45	Aspirin-001-001400	2022-05-15 17:30:45

View all symptoms with comments

**Description:** The above screen represents view all symptoms with comments.

# Privacy preserving outsourced SVM for drug discovery

## SCREEN 5: View solution request and response



The screenshot displays a web application interface for viewing solution requests and responses. The main heading is "Solution Request and Response by Drug Formula Tester". Below this heading is a table with the following data:

ID	Drug Formula Provider Name	Disease	Hospital Name	Drug Formula Tester	Requested Date	Tested Result
1	prasad	Blood Pressure	Apollo Hospital	prasad	00/02/2011 02:28:22	Yes
2	prasad	Blood Pressure	Apollo Hospital	prasad	00/02/2011 02:28:25	Yes

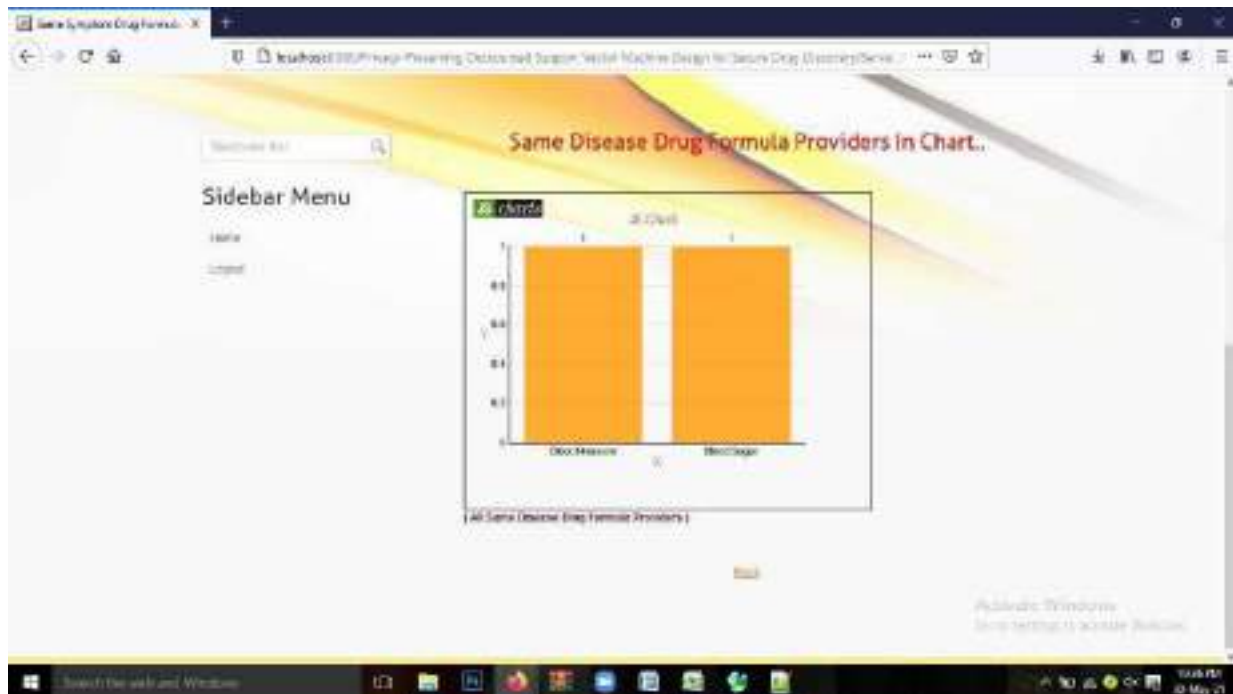
The interface also features a sidebar menu on the left with options like "Home" and "Logout". At the bottom right, there is a "Logout" button and a "Welcome" message.

View solution request and response

Description : The above screen represents View solution request and response

# Privacy preserving outsourced SVM for drug discovery

## SCREEN 6: View same disease drug chart



View same disease drug chart

**Description:** The above screen represents View same disease drug chart

# Privacy preserving outsourced SVM for drug discovery

## SCREEN 7: Drug formula providers registration



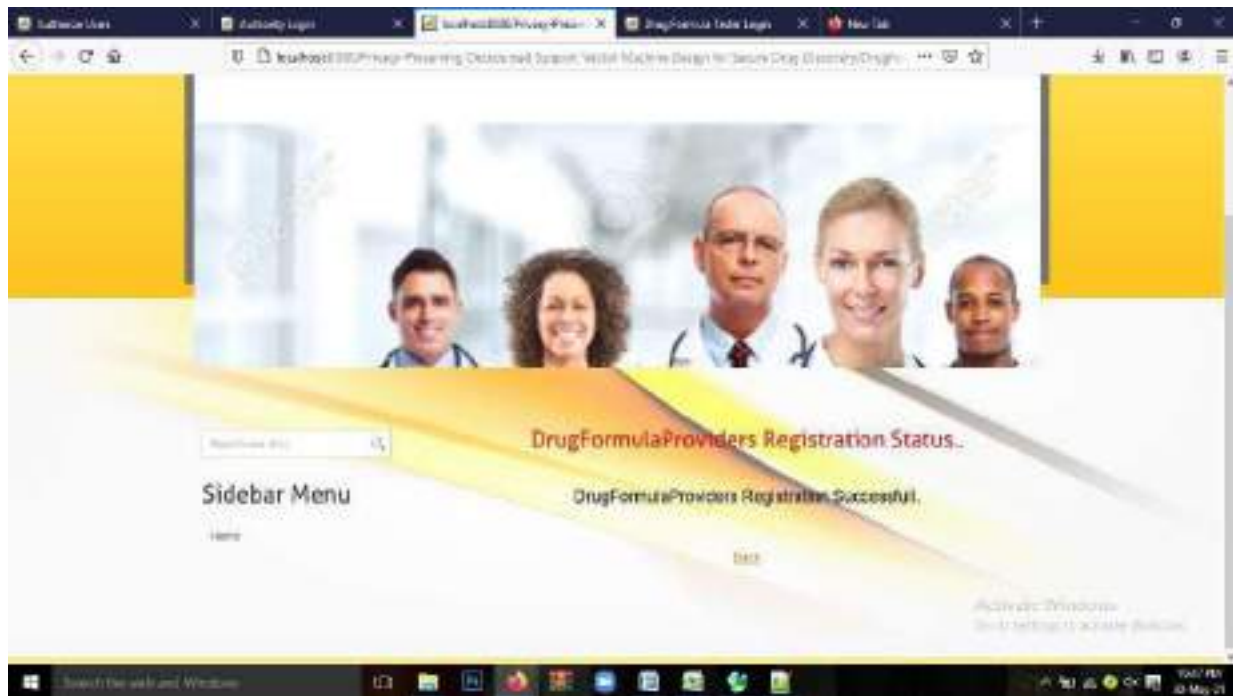
Drug formula providers registration

**Description:** The above screen represents Drug formula providers registration

# Privacy preserving outsourced SVM for drug discovery

---

## SCREEN 7: Registration status



Registration status

**Description:** The above screen represents Registration status



## SCREEN 8: View profile



View profile

**Description:** The above screen represents View profile



# Privacy preserving outsourced SVM for drug discovery

## SCREEN 9: Create Drug formula record



Create drug formula record

**Description:** The above screen represents Create drug formula record

## SCREEN 10: created status

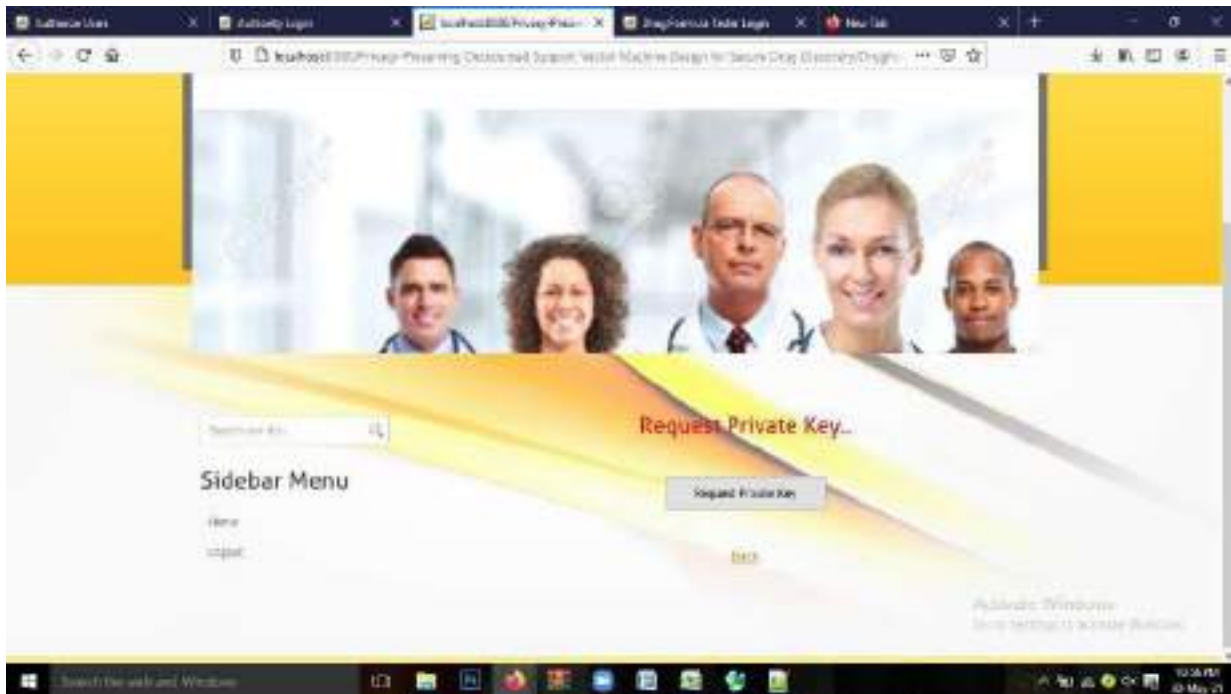


Created status

**Description:** The above screen represents Created status

# Privacy preserving outsourced SVM for drug discovery

## SCREEN 11: Request private key



Request private key

**Description:** The above screen represents Request private key

# Privacy preserving outsourced SVM for drug discovery

## SCREEN 12: Request drug formula by selecting hospital



Request drug formula by selecting hospital

**Description:** The above screen represents drug formula by selecting hospital.

# Privacy preserving outsourced SVM for drug discovery

## SCREEN 13: Request successfully



Request successfully

**Description:** The above screen represents Request successfully

## SCREEN 14: Registration for testers



### REGISTRATION FOR TESTERS

**Description:** The above screen represents Registration for testers

## SCREEN 15: Authority login



Authority login

**Description:** The Above screen represents Authority login



# Privacy preserving outsourced SVM for drug discovery

## SCREEN 16: Public key Request



Public key requests

**Description:** The above screen represents Public key request



### CONCLUSION

We proposed POD, a new privacy preserving outsourced drug discovery in the cloud. POD is designed to facilitate drug manufacturers to securely outsource their formulas to the cloud for storage and SVM training. The trained SVM model could be used for authorized client's compound classification in a privacy-preserving way. Specifically, we designed a secure domain transformation protocol and several basic secure computation components for secure outsourced computation across different parties. We also built two key secure components (i.e. secure parameter selection and secure sequential minimal optimization) to achieve privacy-preserving SVM training in drug discovery.

## **FUTURE ENHANCEMENT**

In the future, we will be extending our approach to support more sophisticated data mining method in order to support very large dataset in drug discovery. Acknowledgment: The authors thank the associate editor and reviewers for their constructive and generous feedback. This research is supported in part by the AXA Research Fund.

## REFERENCES

- [1] J. P. Hughes, S. Rees, S. B. Kalindjian, and K. L. Philpott, “Principles of early drug discovery,” *British journal of pharmacology*, vol. 162, no. 6, pp. 1239–1249, 2011.
- [2] “The price of health: the cost of developing new medicines,” <https://www.theguardian.com/healthcarenetwork/2016/mar/30/new-drugs-development-costs-pharma>.
- [3] I. Khanna, “Drug discovery in pharmaceutical industry: productivity challenges and trends,” *Drug discovery today*, vol. 17, no. 19 pp. 1088–1102, 2012.
- [4] M. A. Lill and M. L. Danielson, “Computer-aided drug design platform using pymol,” *Journal of computer-aided molecular design*, vol. 25, no. 1, pp. 13–19, 2011.
- [5] “Research and markets, global drug discovery technologies market analysis & trends - industry forecast to 2025,” <http://www.researchandmarkets.com/research/n5klnq/globaldrug>.
- [6] Y. Zhang and J. C. Rajapakse, *Machine learning in bioinformatics*. John Wiley & Sons, 2009, vol. 4.
- [7] J. B. Mitchell, “Machine learning methods in chemoinformatics,” *Wiley Interdisciplinary Reviews: Computational Molecular Science*, vol. 4, no. 5, pp. 468–481, 2014.

**A**  
**Project Report**  
**on**  
**DUAL SERVER PUBLIC-KEY AUTHENTICATED ENCRYPTION**  
**WITH KEYWORD SEARCH**

*Submitted in partial fulfilment for the award of the degree*

**of**  
**Master of Computer Applications**

*Submitted by*

**V M JANANI**

**(Reg. No. 19F65F0011)**

*Under the esteemed guidance of*

**Mr. J S ANANDA KUMAR, MCA.**

**Assistant Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**2020 - 2021**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled **“DUAL SERVER PUBLIC-KEY AUTHENTICATED ENCRYPTION WITH KEYWORD SEARCH”** That is being submitted by **VM JANANI (Reg. No. 19F65F0011)** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to **JNTUA, ANANTHAPURAMU**. This record is a bonafide work carried out by her under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **V.M. JANANI**, hereby declare that the project report entitled “**DUAL SERVER PUBLIC-KEY AUTHENTICATED ENCRYPTION WITH KEYWORD SEARCH**”, is original and independent record of research work, submitted to JNTUA, Anantapuramu, is taken under the guidance of **Mr. J S ANANDA KUMAR**, MCA., Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APPLICATIONS**. The results embodied in this project report have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**VM JANANI**

**Reg. No.: 19F65F0011**

## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide **Mr. J S ANANDA KUMAR, MCA.**, Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., ME. HOD**, Department of **MASTER OF COMPUTER APPLICATIONS**, for his valuable guidance to make this project as successful one.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere heartfelt thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(V M JANANI)

# CONTENTS

S. No.	CHAPTERS	PAGE No
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
	LIST OF SCREENS	iii
1	INTRODUCTION	1
2	SYSTEM STUDY	7
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	9
	3.2 DISADVANTAGES	9
	3.3 PROPOSED SYSTEM	9
	3.4 ADVANTAGES	9
4	SOFTWARE MODULES	10
5	SYSTEM ARCHITECTURE	13
6	SOFTWARE ENVIRONMENT	15
7	SYSTEM REQUIREMENTS	30
8	SYSTEM DESIGN	31
9	IMPLEMENTATION	39
10	SYSTEM TESTING	68
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	



## ABSTRACT

Cloud-based data storage service has drawn increasing interests from both academic and industry in the recent years due to its efficient and low - cost management. Since it provides services in an open network, it is urgent for service providers to make use of secure data storage and sharing mechanism to ensure data confidentiality and service user privacy. To protect sensitive data from being compromised, the most widely used method is encryption. However, simply encrypting data (e.g., via AES) cannot fully address the practical need of data management. Besides, an effective access control over download request also needs to be considered so that Economic Denial of Sustainability attacks cannot be launched to hinder users from enjoying service. In this paper, we consider the dual access control, in the context of cloud-based storage, in the sense that we design a control mechanism over both data access and download request without loss of security and efficiency. Two dual access control systems are designed in this paper, where each of them is for a distinct designed setting. The security and experimental analysis for the systems are also presented.

**Keywords:** Cloud Computing, Data Owner Module, Data User Module, Server 1 and Server 2, Encryption Module, keyword Search Module.

# LIST OF FIGURES

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1	1.1. Structure of Cloud Computing	1
2	1.2. Characteristics of Cloud Computing	3
3	1.3. Structure of Service models	4
4	4.1. User Interface Design	10
5	4.2. File Upload and Storing	11
6	4.3. Requesting File	11
7	4.4. Accepting Request	11
8	4.5. Downloading File	12
9	5.1. System Architecture	13
10	5.2. Block Diagram	14
11	6.1. Compilation & Interpretation	16
12	6.2. Execution for different platforms	16
13	6.3. Java Platform	17
14	6.4. Java IDE	19
15	6.5. TCP Connection	25
16	6.6. The 32 bit address	27
17	8.1. Data Flow Diagram	32
18	8.2. Class Diagram	34
19	8.3. Use Case Diagram	35
20	8.4. Sequence Diagram	36
21	8.5. Collaboration Diagram	37
22	8.6. E-R Notations	38

## LIST OF ABBREVIATIONS

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1.	DPAEKS	Dual Server Public Key Authenticated Encryption using Keyword Search
2.	IKGA	Inside Keyword Guessing Attack
3.	PEKS	Public Key Encryption with Keyword Search
4.	DB	Database
5.	JVM	Java Virtual Machine
6.	JSP	Java Server Page
7.	CB	Collective Behavior
8.	SD	Social Dimension
9.	JRE	Java Runtime Environment
10.	SSD	Sparse Social Dimension
11.	LGP	Line Graph Partition

## LIST OF SCREENS

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1.	Screen – 1: Home Page	71
2.	Screen – 2: Registration Page for Data Owner	72
3.	Screen – 3: Login Page for Data Owner	73
4.	Screen – 4: Registration Page for Data User	74
5.	Screen – 5: Login Page for Data User	75
6.	Screen – 6: Login Page for Admin 1	76
7.	Screen – 7: Login Page for Admin 2	77
8.	Screen – 8: File Details	78
9.	Screen – 9: File Upload by Owner	79
10.	Screen – 10: Encrypted File Details	80
11.	Screen – 11: Requesting File	81
12.	Screen – 12: Accepting File by Admin1	82
13.	Screen – 13: Accepting File by Admin2	83
14.	Screen – 14: File Accepted	84
15.	Screen – 15: Downloading File	85

# **INTRODUCTION**

## 1. INTRODUCTION

### 1.1. What is cloud computing?

**Cloud computing** is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced.

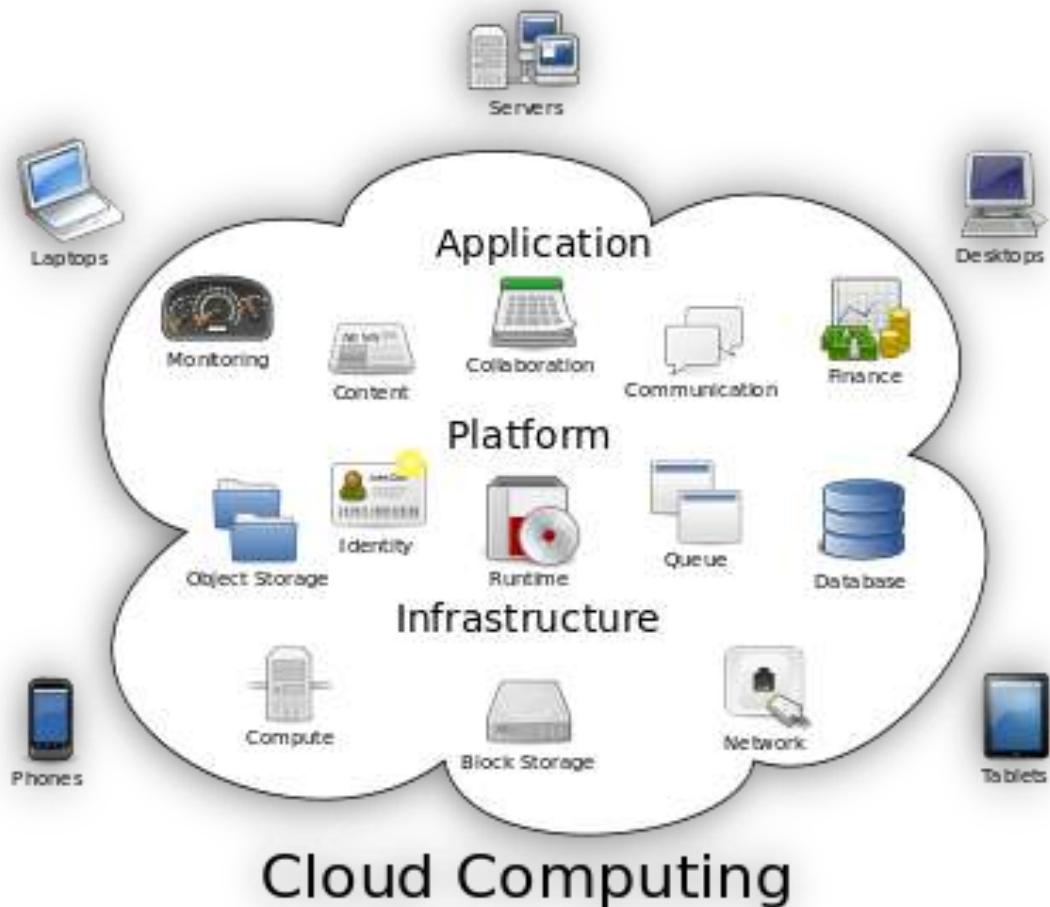


Fig 1.2: Characteristics of cloud computing

## 1.2. How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.

The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

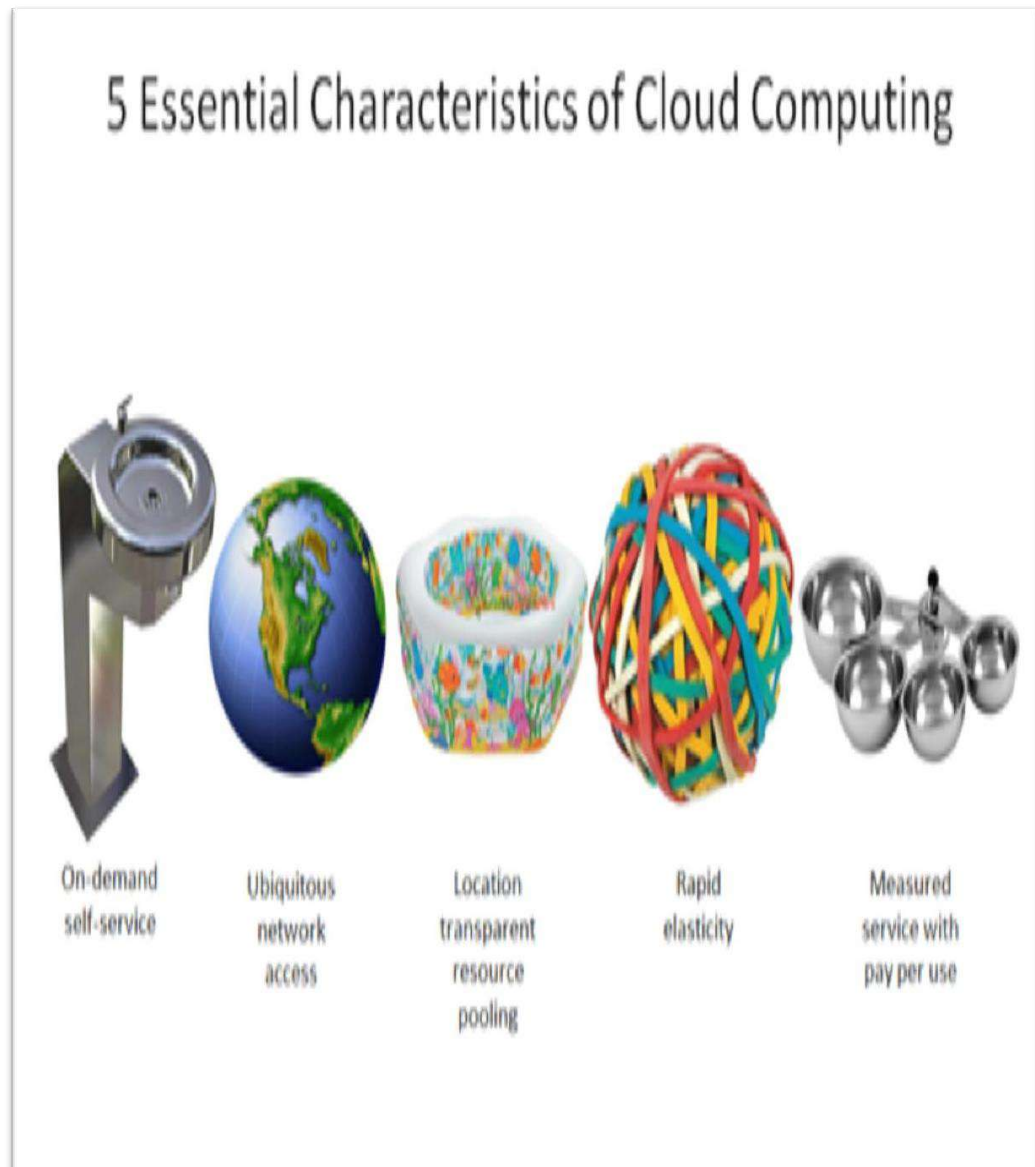
## 1.3. Characteristics and Services Models:

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

- **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.
- **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).
- **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.
- **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in.

To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

- **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

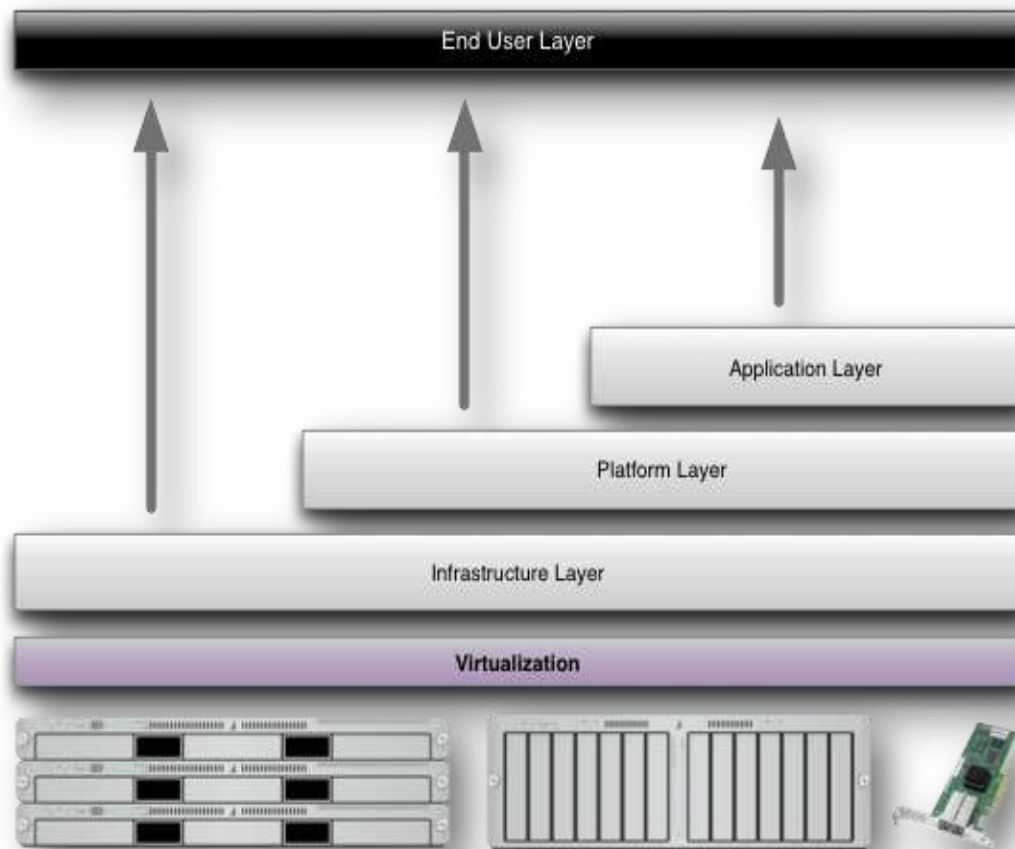


**Fig 1.2: Characteristics of cloud computing**



## 1.4. Services Models:

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layer are completed by an end user layer that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.



**Fig 1.3: Structure of service models**

## 1.5. Benefits of cloud computing:

1. **Achieve economies of scale** – increase volume output or productivity with fewer people. Your cost per unit, project or product plummets.
2. **Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
3. **Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
4. **Streamline processes.** Get more work done in less time with less people.
5. **Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
6. **Improve accessibility.** You have access anytime, anywhere, making your life so much easier!
7. **Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
8. **Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
9. **Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
10. **Improve flexibility.** You can change direction without serious “people” or “financial” issues at stake.

## 1.6. Advantages:

- **Price:** Pay for only the resources used.
- **Security:** Cloud instances are isolated in the network from other instances for improved security.
- **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud's core hardware.
- **Scalability:** Auto-deploy cloud instances when needed.
- **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
- **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
- **Traffic:** Deals with spike in traffic with quick deployment of additional instances to handle the load.

# **SYSTEM STUDY**

## **2. SYSTEM STUDY**

### **2.1. FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

### **2.2. ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

### **2.3. TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

## 2.4. SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

# **SYSTEM ANALYSIS**

## **3. SYSTEM ANALYSIS**

### **3.1. EXISTING SYSTEM**

1. In existing, the unquestionable SSE plans supporting information dynamic update are altogether founded on deviated key cryptography confirmation, which includes tedious activities.
2. The overhead of check may turn into a critical weight because of the sheer measure of cloud information.

#### **3.1.1. DIS-ADVANTAGES**

1. It is very difficult or impossible to learn.
2. The data loss is high.

### **3.2. PROPOSED SYSTEM**

In the proposed framework, we characterize the thought of Dual-server Public-key Authenticated Encryption with Keyword Search, which ensures against IKGA by utilizing two servers that don't participate, and bolsters the validation property.

#### **3.2.1. ADVANTAGES**

1. Multi-key formation allows multiple data with different secret keys.
2. To transfer the data without data loss.



# **SOFTWARE MODULES**

## 4. SOFTWARE MODULE

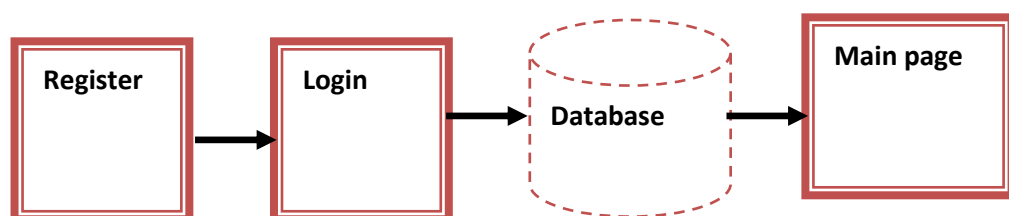
### 4.1 MODULES

- User interface design
- File upload and store those file in DB1 and key in DB2
- Request a file that the user needs
- Both admin should accept the request from user
- Download the file

### 4.2 MODULES DESCRIPTION

#### 4.2.1 USER INTERFACE DESIGN

This is the first module of our project. The important role for the user is to move login window to user window. This module has created for the security purpose. In this login page we have to enter login user id and password. It will check username and password is match or not (valid user id and valid password). If we enter any invalid username or password we can't enter into login window to user window it will shows error message. So we are preventing from unauthorized user entering into the login window to user window. It will provide a good security for our project. So server contain user id and password server also check the authentication of the user. It well improves the security and preventing from unauthorized user enters into the network. In our project we are using JSP for creating design. Here we validate the login user and server authentication



**Fig 4.1: User Interface Design**

#### 4.2.2 FILE UPLOAD AND STORE THOSE FILE IN DB1 AND KEY IN DB2

In this module, the owner will be uploading the file and the file will be storing the database1 and the key will be storing the database2.

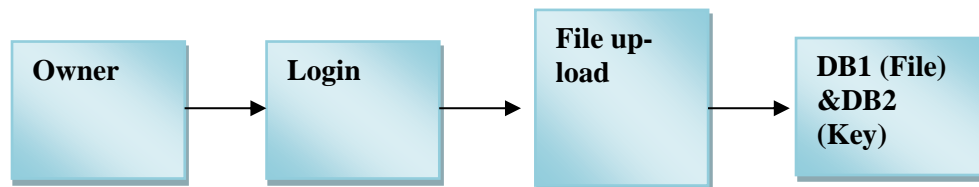


Fig 4.2: File upload and Storing in DB1 And DB2

#### 4.2.3 REQUEST A FILE THAT THE USER NEEDS

If this module, the user will be requesting the file which the user needs. If the owner uploads four to five files means, if he wants the particular file means user can send the request to admin.

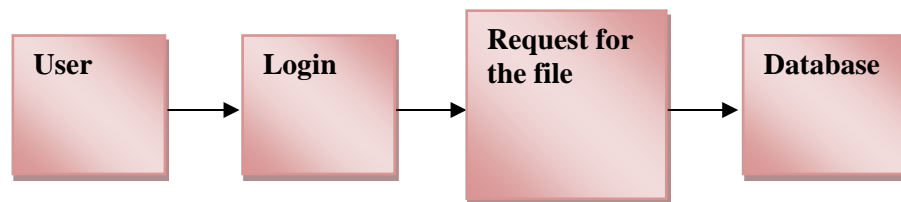


Fig 4.3: Requesting File by User

#### 4.2.4 BOTH ADMIN SHOULD ACCEPT THE REQUEST FROM USER

In this module, after requesting the file to the admin, the both admin should accept the request from which the user is requested after that only the user will be receiving the key.

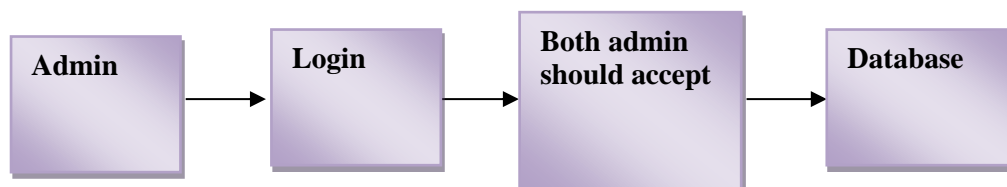
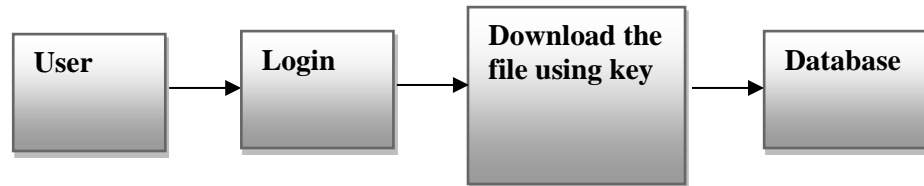


Fig 4.4: Accepting request by both Admin

#### **4.2.5 DOWNLOAD THE FILE**

In this module, after the both admin accepts the request from the user, the admin will send the key to the user whose needs the access for the file.



**Fig 4.5: Downloading File**

# **SYSTEM ARCHITECTURE**

## 5. SYSTEM ARCHITECTURE

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user.

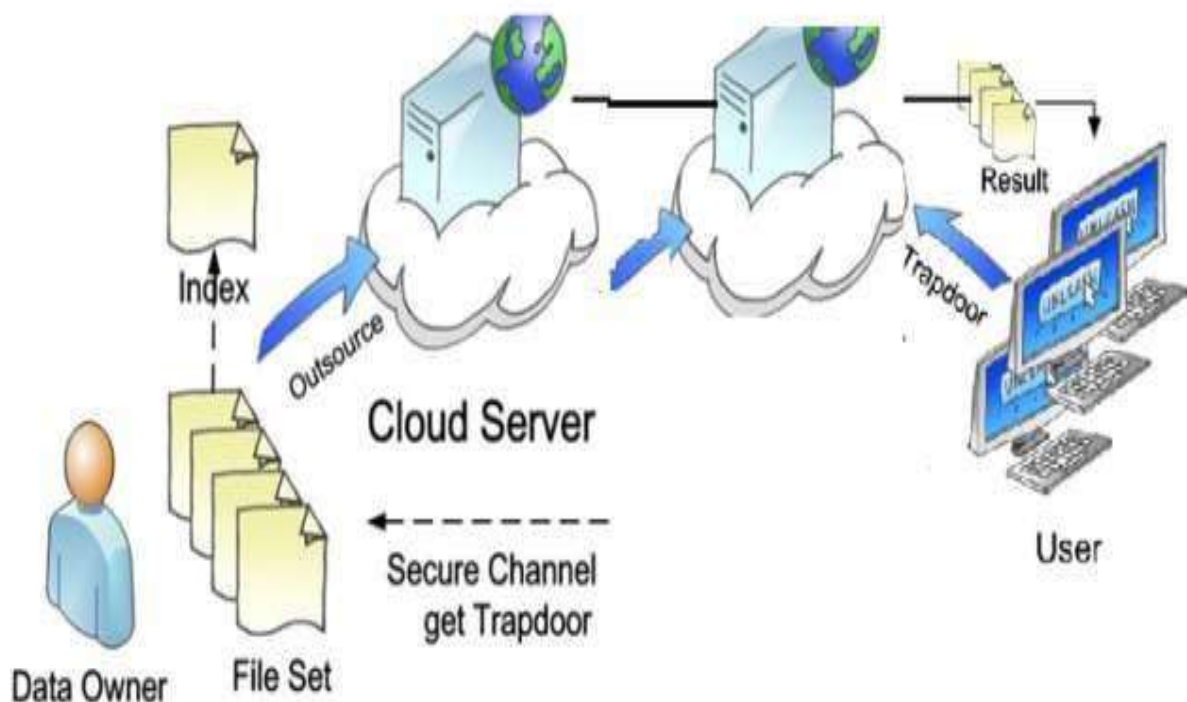


Fig 5.1: System Architecture

### 5.1 BLOCK DIAGRAM

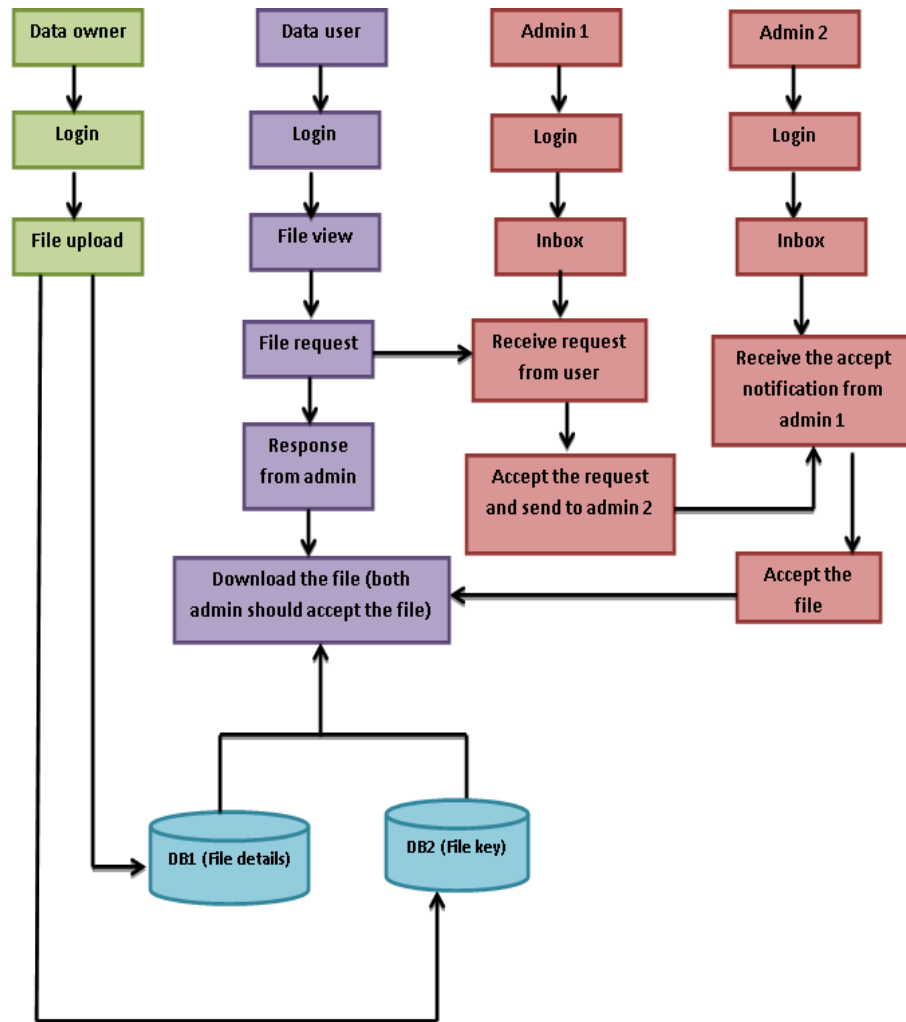


Fig. 5.2: Block Diagram

# **SOFTWARE ENVIRONMENT**



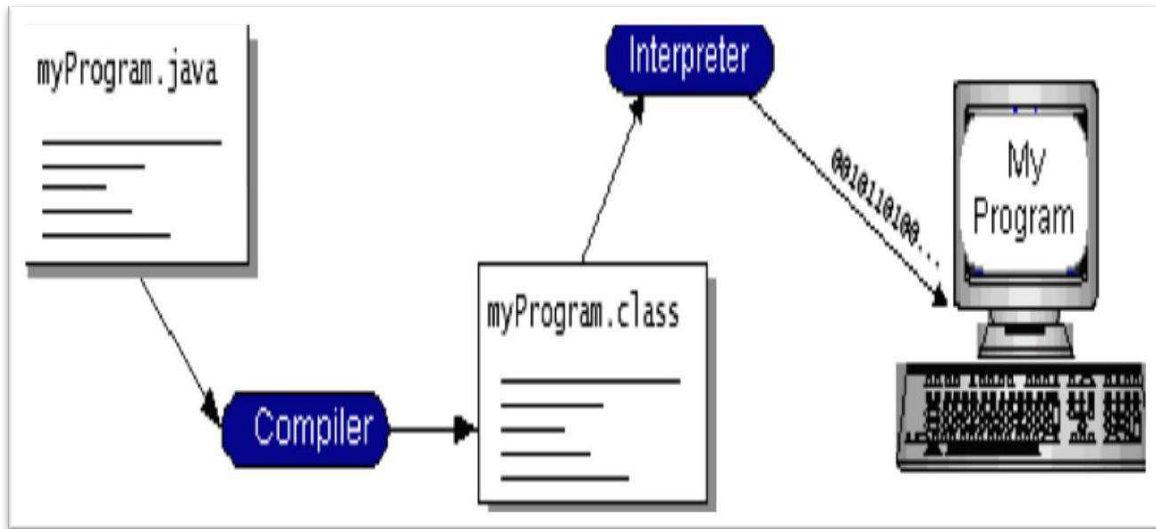
## 6. SOFTWARE ENVIRONMENT

### 6.1. Java Technology

Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

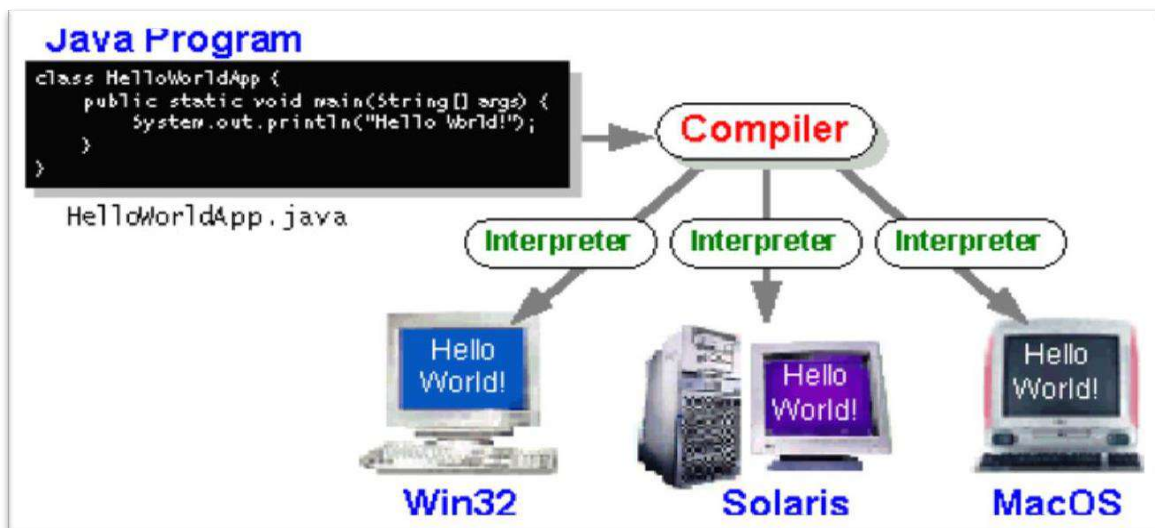
- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.



**Fig 6.1: Program Compilation and Interpretation**

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.



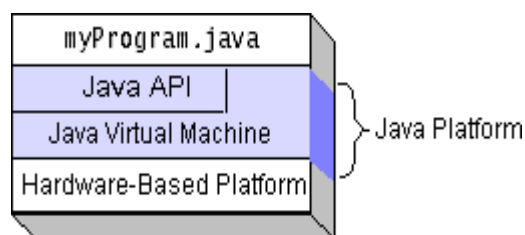
**Fig 6.2: Execution for different platform**

## 6.2. The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.



**Fig 6.3: Java Platform**

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance close to that of native code without threatening portability.

### 6.3. What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

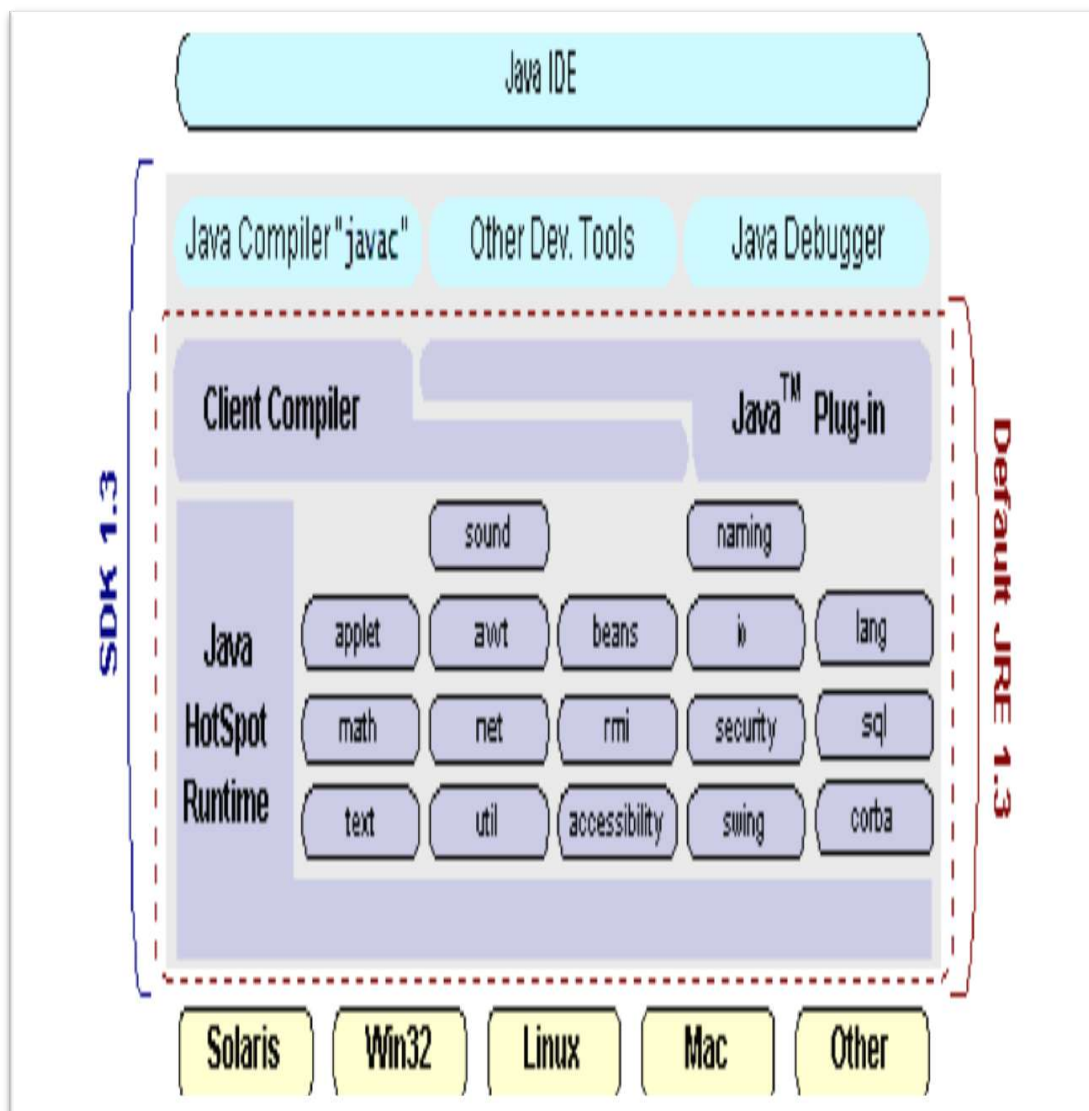
How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.
- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.

**Software components:** Known as JavaBeans™, can plug into existing component architectures.

- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.



**Fig 6.4: Java IDE**

## 6.4. How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded "on the fly," without recompiling the entire program.

## 6.5. ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there

must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

## 6.6. JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of "plug-in" database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC's framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.



## 6.7. JDBC GOALS

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

➤ **SQL Level API**

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.

➤ **SQL Conformance**

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

➤ **JDBC must be implemental on top of common database interfaces**

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

➤ **Provide a Java interface that is consistent with the rest of the Java system**

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

➤ **Keep it simple**

This goal probably appears in all software design goal listings. JDBC is no exception. Sun felt that the design of JDBC should be very simple, allowing for only one method of completing a task per mechanism. Allowing duplicate functionality only serves to confuse the users of the API.

➤ **Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

➤ **Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT's, INSERT's, DELETE's and UPDATE's, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

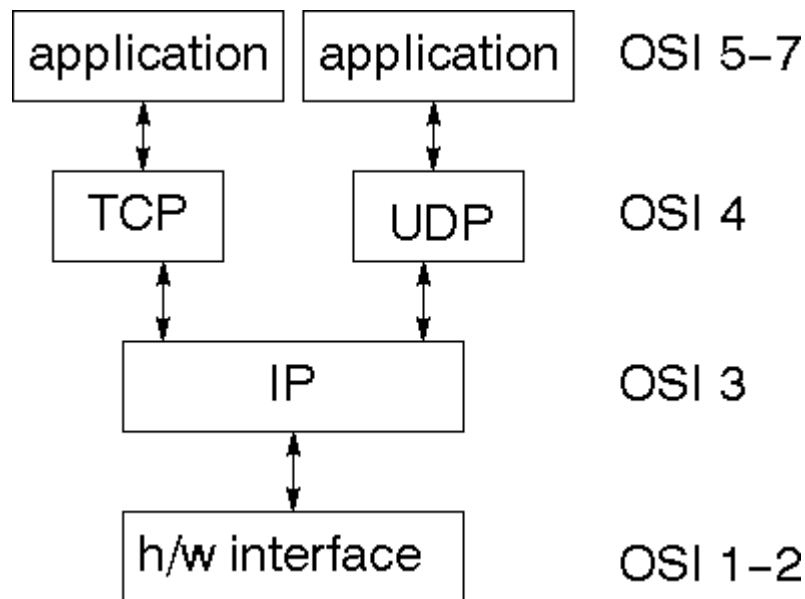
Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java has two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compiler you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

## 6.8. Networking

### 6.8.1. TCP/IP stack

The TCP/IP stack is shorter than the OSI one:



**Fig 6.5: TCP is a connection-oriented protocol, UDP (User Datagram Protocol) is a connectionless protocol.**

### 6.8.2. IP datagram's

The IP layer provides a connectionless and unreliable delivery system. It considers each datagram independently of the others. Any association between datagram must be supplied by the higher layers. The IP layer supplies a checksum that includes its own header. The header includes the source and destination addresses. The IP layer handles routing through an Internet. It is also responsible for breaking up large datagram into smaller ones for transmission and reassembling them at the other end.

### **6.8.3.UDP**

UDP is also connectionless and unreliable. What it adds to IP is a checksum for the contents of the datagram and port numbers. These are used to give a client/server model - see later.

### **6.8.4. TCP**

TCP supplies logic to give a reliable connection-oriented protocol above IP. It provides a virtual circuit that two processes can use to communicate.

### **6.8.5. Internet addresses**

In order to use a service, you must be able to find it. The Internet uses an address scheme for machines so that they can be located. The address is a 32 bit integer which gives the IP address. This encodes a network ID and more addressing. The network ID falls into various classes according to the size of the network address.

### **6.8.6. Network address**

Class A uses 8 bits for the network address with 24 bits left over for other addressing. Class B uses 16 bit network addressing. Class C uses 24 bit network addressing and class D uses all 32.

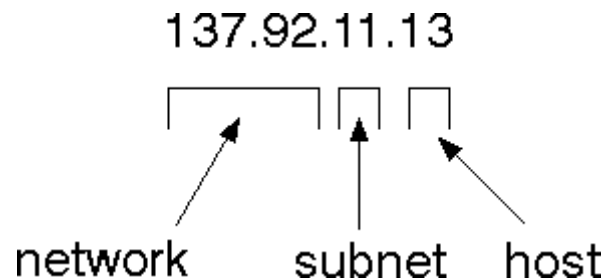
### **6.8.7. Subnet address**

Internally, the UNIX network is divided into sub networks. Building 11 is currently on one sub network and uses 10-bit addressing, allowing 1024 different hosts.

### **6.8.8. Host address**

8 bits are finally used for host addresses within our subnet. This places a limit of 256 machines that can be on the subnet.

### 6.8.9. Total address



**Fig 6.6:** The 32 bit address is usually written as 4 integers separated by dots.

### 6.8.10. Port addresses

A service exists on a host, and is identified by its port. This is a 16 bit number. To send a message to a server, you send it to the port for that service of the host that it is running on. This is not location transparency! Certain of these ports are "well known".

## 6.9. SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include <sys/types.h>
#include <sys/socket.h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

## 6.10. JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

### 6.10.1. Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting some more.

### 6.10.2. Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts --- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

### 6.10.3. Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both

Java Web Start and an applet.

#### **6.10.4. Property Editors**

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

# **SYSTEM REQUIREMENTS**



## 7. SYSTEM REQUIREMENTS

### 7.1. HARDWARE REQUIREMENTS

- System : Intel I3 or other.
- Hard Disk : 250 GB.
- Ram : 4 GB DD RAM

### 7.2. SOFTWARE REQUIREMENTS

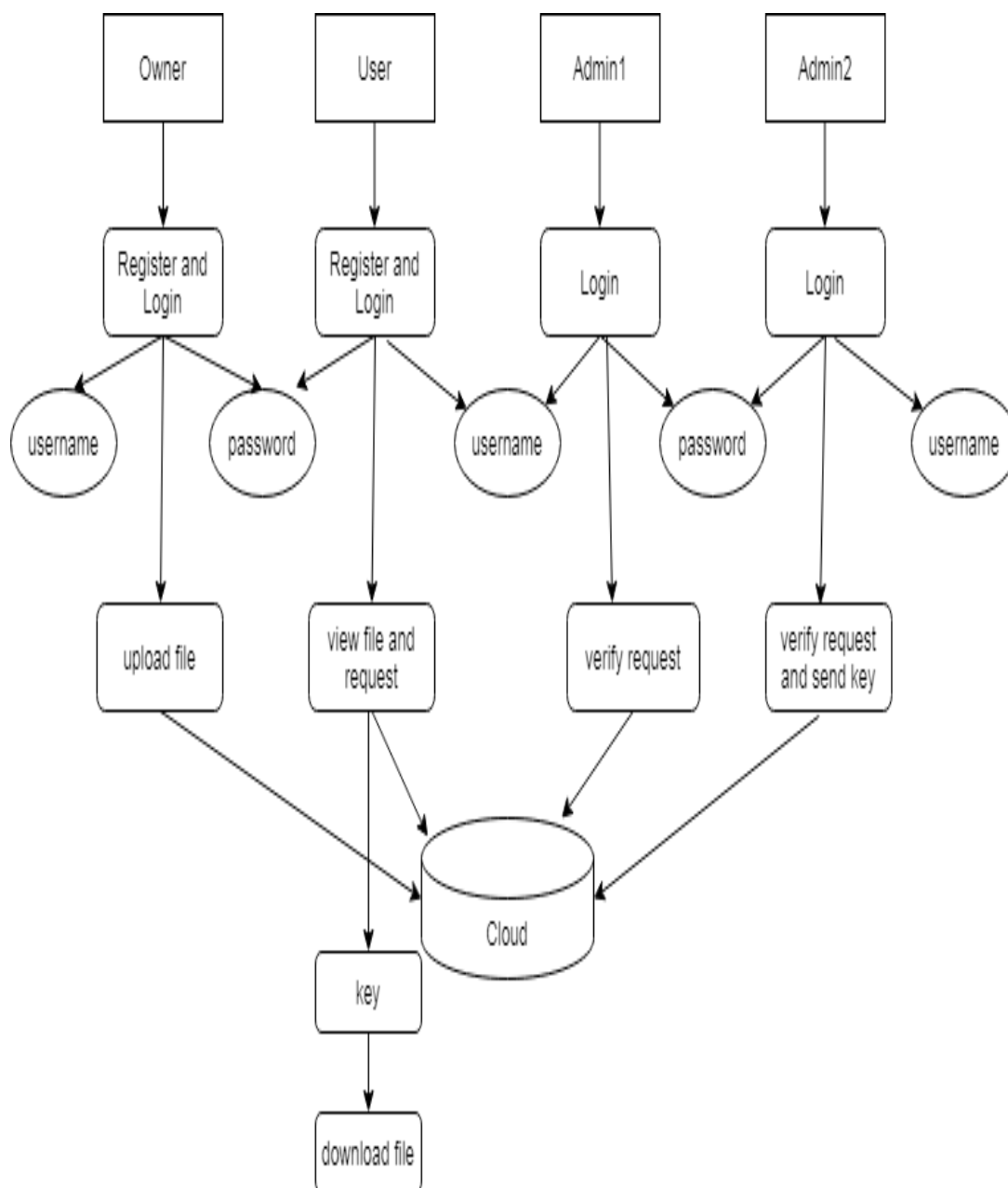
- Operating System : Windows 7/10
- Coding Language : J2EE, JAVASCRIPT
- Database : MYSQL 5.5
- IDE : Eclipse

# **SYSTEM DESIGN**

## 8. SYSTEM DESIGN

### 8.1. DATA FLOW DIAGRAM

The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction. DFD may be partitioned into levels that represent increasing information flow and functional detail.



**Fig 8.1: Data Flow Diagram**

## 8.2. UML DIAGRAMS

UML stands for Unified Modelling Language. UML is a standardized general-purpose modelling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group. The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artefacts of software system, as well as for business modeling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems. The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

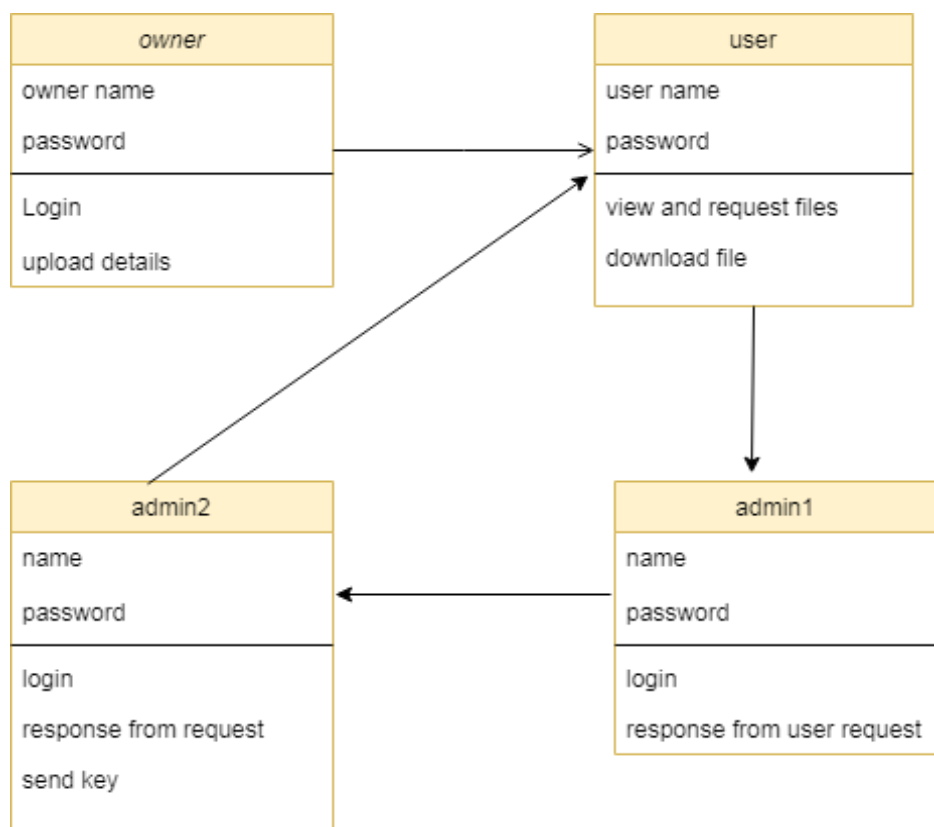
### 8.2.1. Goals

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.

### 8.2.2. CLASS DIAGRAM

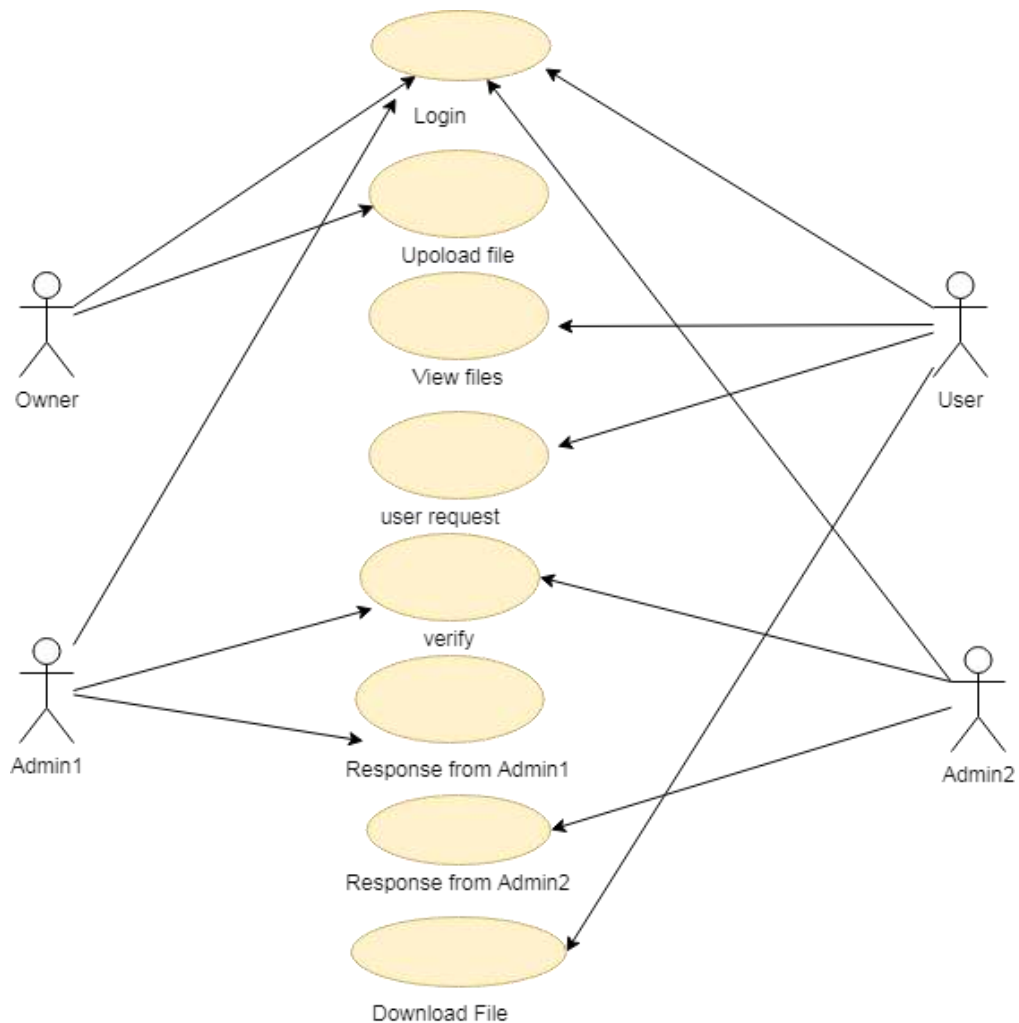
In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.



**Fig 8.2: Class Diagram**

### 8.2.3. USE CASE DIAGRAM

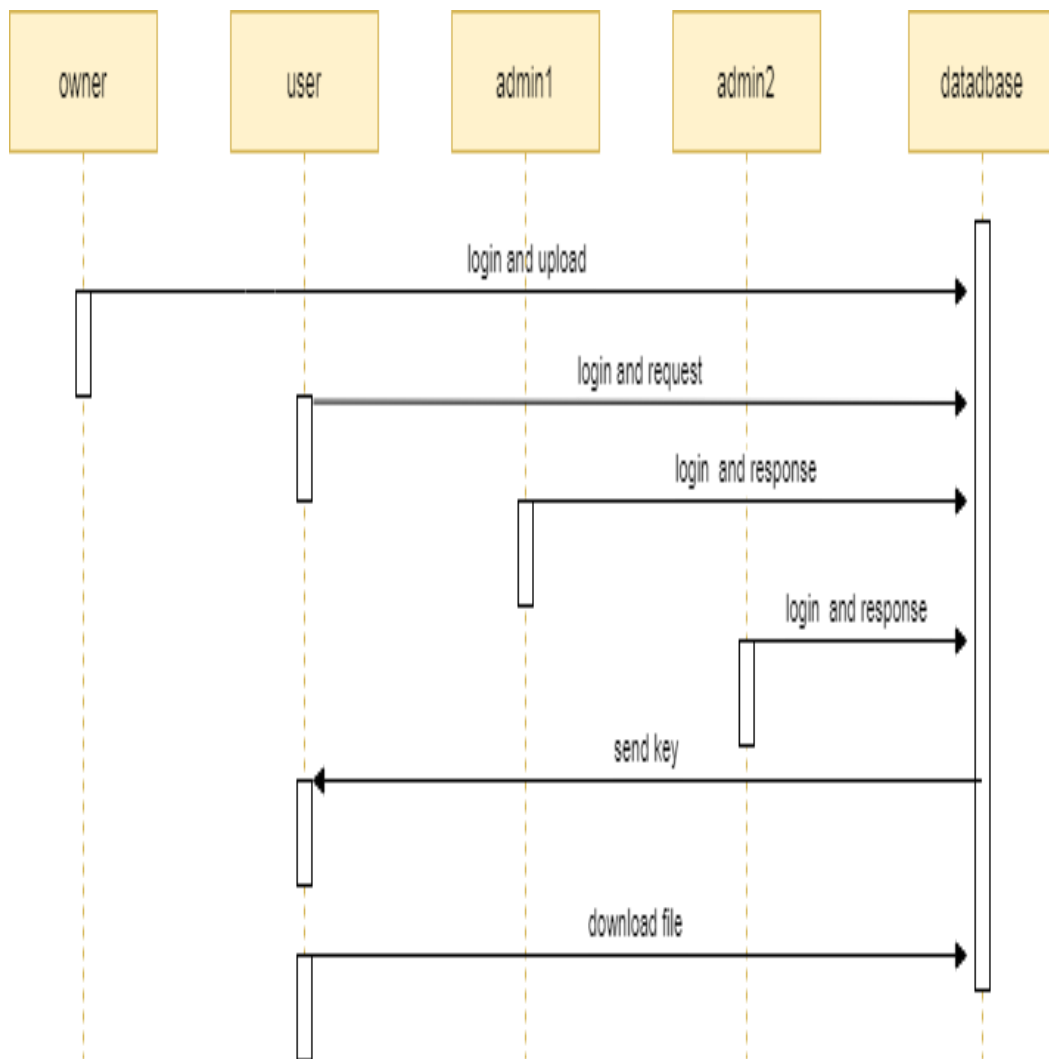
A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.



**Fig 8.3: USE CASE DIAGRAM**

### 8.2.4. SEQUENCE DIAGRAM

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

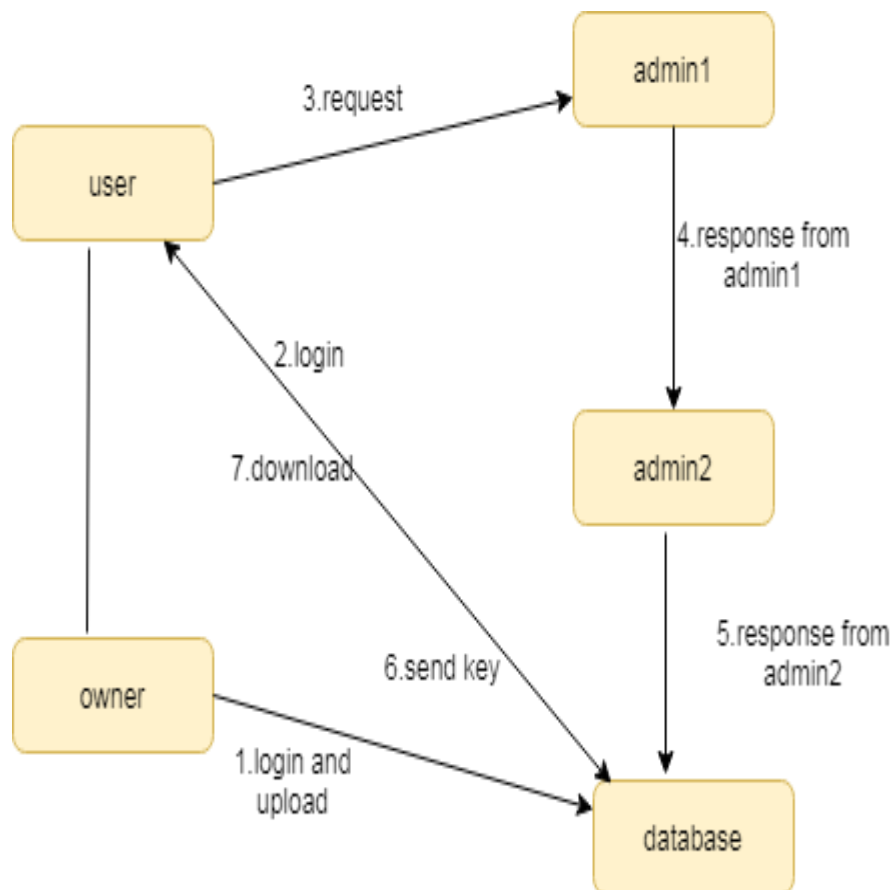


**Fig 8.4: Sequence Diagram**



### 8.2.5. Collaboration Diagram:

Collaboration diagram, also called a communication diagram or interaction diagram is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). The concept is more than a decade old although it has been refined as modeling paradigms have evolved. Objects are shown as rectangles with naming labels inside. These labels are preceded by colons and may be underlined. The relationships between the objects are shown as lines connecting the rectangles.

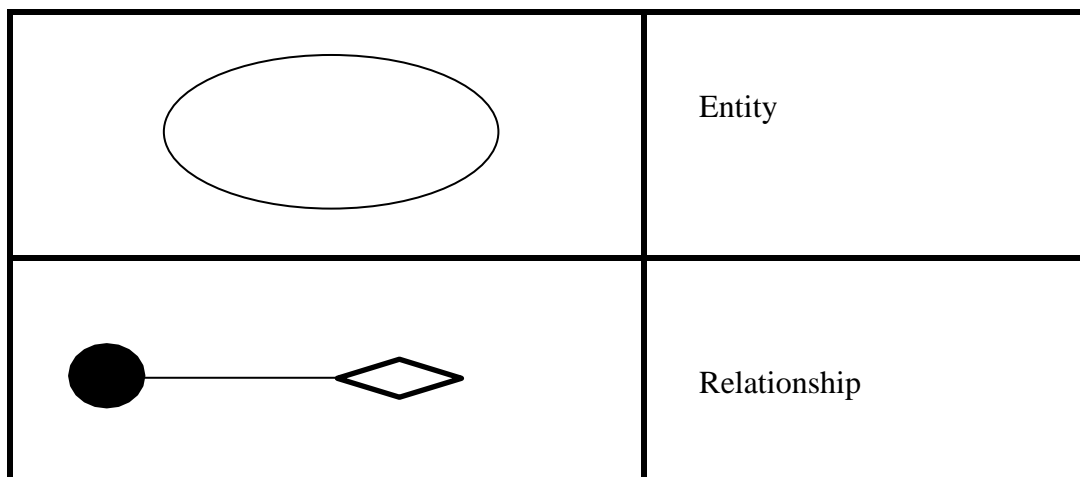


**Fig 8.5: Collaboration Diagram**

This is the Collaboration Diagram which represents the inflow and out-flow of a particular one

### 8.3.E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.



**Fig 8.6: E-R Notations**

# **IMPLEMENTATION**

## 9. IMPLEMENTATION

### 9.1. INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.2. OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

4. When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### 9.3. OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections of the
  - Future.
  - Signal important events, opportunities, problems, or warnings.
  - Trigger an action.
  - Confirm an action.

## 9.4. CODING

### 9.4.1. JSP Coding

#### Index.jsp

```
<!DOCTYPE HTML>
<html>
<head>
<title>Konnect A Hosting Category Flat Bootstarp Responsive Website Template
| Home :: w3layouts</title>
<meta name="viewport" content="width=device-width, initial-scale=1">
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<meta name="keywords" content="Konnect Responsive web template, Boot-
strap Web Templates, Flat Web Templates, Andriod Compatible web template,
Smartphone Compatible web template, free webdesigns for Nokia, Samsung,
LG, SonyEricsson, Motorola web design" />
<script type="application/x-javascript"> addEventListener("load", function() {
 setTimeout(hideURLbar, 0); }, false); function hideURLbar(){ win-
dow.scrollTo(0,1); } </script>
<link href="css/bootstrap.css" rel='stylesheet' type='text/css' />
<script src="js/jquery-1.11.1.min.js"></script>
<link href="css/style.css" rel='stylesheet' type='text/css' />
<link href='http://fonts.googleapis.com/css?family=Lato:100,300,400,700,900'
rel='stylesheet' type='text/css'>
<script src="js/jquery.easymdropdown.js"></script>
<script src="js/jquery.magnific-popup.js" type="text/javascript"></script>
<link href="css/popup.css" rel="stylesheet" type="text/css">
<script>
 $(document).ready(function() {
 $('#popup-with-zoom-anim').magnificPopup({
 type: 'inline',
 fixedContentPos: false,
 fixedBgPos: true,
 overflowY: 'auto',
 closeBtnInside: true,
 preloader: false,
 midClick: true,
 removalDelay: 300,
 mainClass: 'my-mfp-zoom-in'
 });
```

```

});
</script>
</head>
<body>
<div class="header">

<div class="container">
<div class="header_bottom">
<div class="col-xs-3 logo">

</div>
<div class="col-xs-9 header_nav">
<div class="col-xs-9 menu">

<ul class="nav" id="nav">
Data
Owner
Data
User
Admin
1
Admin
2

<script type="text/javascript" src="js/respon-
sive-nav.js"></script>
</div>
<div class="clearfix"></div>
</div>
<div class="clearfix"></div>
</div>
<div class="header_bot_grid">
<h1>Share the data with Konnect for better Protection</h1>

</div>
</div>
</body>
</html>

```

**Datauserreg.jsp:**

```
<!DOCTYPE HTML>
<html lang="zxx">
<head>
 <title>Photography Form Responsive Widget Template :: w3layouts</title>
 <meta name="viewport" content="width=device-width, initial-scale=1">
 <meta charset="UTF-8" />
 <meta name="keywords" content="Photography Form Responsive
Widget,Login form widgets,"/>
 <script>
 addEventListener("load", function () {
 setTimeout(hideURLbar, 0);
 }, false);

 function hideURLbar() {
 window.scrollTo(0, 1);
 }
 </script>
 <script src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.1/jquery.min.js"></script>
 <link rel="stylesheet" href="css2/style.css" type="text/css" media="all" />
 <link href="//fonts.googleapis.com/css?family=Londrina+Outline"
rel="stylesheet">
 <link href="//fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i,800,800i"
rel="stylesheet">
</head>
<body>
 <h1>
 Data
 User
 Register
 Form</h1>
 <div class="main-content-agile">
 <div class="sub-main-w3">
 <form action="Datauserreg" method="post">
 <div class="form-style-agile">
 <label>Your Name</label>
 <input placeholder="Your Name" name="name"
type="text" required="">
 </div>
 <div class="w3layouts-grids">
```



```

 <div class="form-style-agile form-grids-w3l">
 <label>Your Email</label>
 <input placeholder="Your Email"
name="email" onblur="validateEmail(this);" type="email" required="">
 </div>
 <div class="form-style-agile form-grids-w3l">
 <label>Contact Number</label>
 <input placeholder="Contact Number"
name="number" pattern="\d{10}$" title="Enter a 10 digit mobile number"
type="tel" required="">
 </div>
 </div>
 <div class="w3layouts-grids">
 <div class="form-style-agile form-grids-w3l">
 <label>Create Password</label>
 <input type="password" name="pass-
word" id="password" placeholder="Password" required="">
 </div>
 <div class="form-style-agile form-grids-w3l">
 <label>Confirm Password</label>
 <input type="password" name="con-
password" id="confirm_password" placeholder="Confirm Password" re-
quired="">

 </div>
 </div>
 <input type="submit" value="Submit">
</form>
</div>
<div>
<script>
 function validateEmail(emailField){
 var reg = /^[A-Za-z0-9_-\.\.]+\@([A-Za-z0-9_-\.\.]+\.[A-Za-
z]{2,4})$/;
 if (reg.test(emailField.value) == false)
 {
 alert('Invalid Email Address');
 return false;
 }
 return true;
 }
</script>
 <script>
 $('#password,

```

```

#confirm_password').on('keyup', function () {
 if ($('#password').val() ==
$('#confirm_password').val()) {
 $('#message').html('Match-
ing').css('color', 'green');
 } else
 $('#message').html('Not
Matching').css('color', 'red');
});
</script>

<script type="text/javascript">
function validateForm() {
 return checkPhone();
}
function checkPhone() {
 var phone = document.forms["myForm"]["phone"].value;
 var phoneNum = /^[0-9]{3}\)?[-.]?[0-9]{3}[-.]?[0-9]{4}$/;
 if(phone.value.match(phoneNum)) {
 return true;
 }
 else {
 document.getElementById("phone").className = document.getEle-
mentById("phone").className + " error";
 return false;
 }
}
</script>
<script src="js2/jquery-2.1.4.min.js"></script>
<link rel="stylesheet" href="css2/jquery-ui.css" />
<script src="js2/jquery-ui.js"></script>
<script>
 $(function () {
 $("#datepicker,#datepicker1").datepicker();
 });
</script>
<script src="js2/wickedpicker.js"></script>
<script>
 $('timepicker').wickedpicker({
 twentyFour: false
 });
</script>
<link href="css2/wickedpicker.css" rel="stylesheet" type='text/css' me-
dia="all" />

```

```
</body>
</html>
```

### Datauserlogin.jsp:

```
<!DOCTYPE HTML>
<html lang="zxx">
<head>
 <title>Video Login Form Responsive Widget Template :: w3layouts</title>
 <meta name="viewport" content="width=device-width, initial-scale=1">
 <meta charset="UTF-8" />
 <meta name="keywords" content="Video Login Form Responsive
Widget,Login form widgets,News letter Forms,Elements"/>
 <script>
 addEventListener("load", function () {
 setTimeout(hideURLbar, 0);
 }, false);

 function hideURLbar() {
 window.scrollTo(0, 1);
 }
 </script>
 <link rel="stylesheet" href="css4/style.css" type="text/css" media="all" />
 <link rel="stylesheet" href="css4/fontawesome-all.css">
 <link href="//fonts.googleapis.com/css?family=Marck+Script&subset=cyrillic,latin-ext" rel="stylesheet">
 <link href="//fonts.googleapis.com/css?family=Montserrat:100,100i,200,200i,300,300i,400,400i,500,500i,600,600i,700,700i,800,800i,900,900i&subset=cyrillic,latin-ext"
 rel="stylesheet">
</head>
<style>
.id
{
color: white;
font-family:Castellar;
font-weight: bold;
}
a
{
color: white;
font-family: Castellar;
font-weight: bold;
```

```

}
</style>
<body>
 <div class="video-w3l" data-vide-bg="video4/1">
 <h1>
 Data
 User
 Login
 Form</h1>
 <div class="sub-main-w3">
 <form action="Datauserlog" method="post">
 <div class="form-style-agile">
 <label>
 <i class="fas fa-user"></i>Email</la-
 bel>
 <input placeholder="Enter your email"
 name="email" type="email" required="">
 </div>
 <div class="form-style-agile">
 <label>
 <i class="fas fa-unlock-alt"></i>Pass-
 word</label>
 <input placeholder="Password" name="pass-
 word" type="password" required="">
 </div>
 <input type="submit" value="Log In">
 <div class="footer-social">
 <h2>Or Login With</h2>

 <i class="fab fa-facebook-
 f icon_facebook"></i>

 <i class="fab fa-twitter
 icon_twitter"></i>


```

```

 <i class="fab fa-dribbble
icon_dribbble"></i>

 <i class="fab fa-google-
plus-g icon_g_plus"></i>

</div>
NEW USER? REGISTER HERE...!!!
</form>
</div>
</div>
<script src="js4/jquery-2.2.3.min.js"></script>
<script src="js4/jquery.vide.min.js"></script>
</body>
</html>

```

**Datausermain.jsp:**

```

<!DOCTYPE html>
<html lang="zxx">
<head>
 <title>Medically a Medical Category Flat Bootstrap Responsive Web Tem-
plate | Home :: w3layouts</title>
 <meta charset="UTF-8">
 <meta name="viewport" content="width=device-width, initial-scale=1">
 <meta name="keywords" content="Medically Responsive web template, Boot-
strap Web Templates, Flat Web Templates, Android Compatible web template,
Smartphone Compatible web template, free webdesigns for Nokia, Samsung,
LG, SonyEricsson, Motorola web design" />
 <script type="application/x-javascript">
 addEventListener("load", function() { setTimeout(hideURLbar, 0); },
false);
 function hideURLbar(){ window.scrollTo(0,1); }
 </script>
 <link href="css11/bootstrap.css" rel="stylesheet" type="text/css" me-
dia="all">
 <link href="css11/font-awesome.css" rel="stylesheet">
 <link rel="stylesheet" href="css11/chocolat.css" type="text/css"

```

```

media="screen" />
<link rel="stylesheet" href="css11/owl.carousel.css" type="text/css" me-
dia="all">
<link rel="stylesheet" href="css11/flexslider.css" type="text/css" me-
dia="screen" />
<link href="css11/style.css" rel='stylesheet' type='text/css' media="all">
<link href="//fonts.googleapis.com/css?family=Barlow+Con-
densed:300,400,500,600" rel="stylesheet">
</head>
<body>
<div class="banner-w3" id="home">
<div class="w3-agile-logo">
<div class=" head-wl">
<div class="w3-header-top-right">
<div class="email-right">
<p><span class="fa fa-envelope" aria-
hidden="true">
data@yahoo.in</p>
</div>
<div class="w3-header-top-right-text">
<p><span class="fa fa-phone" aria-hid-
den="true"> (91)987 65 432 10</p>
</div>
<div class="clearfix"> </div>
</div>
<div class="clearfix"> </div>
</div>
<div class="header-w3layouts">
<nav class="navbar navbar-default navbar-fixed-top">
<div class="navbar-header page-scroll">
<button type="button" class="navbar-toggle"
data-toggle="collapse" data-target=".navbar-ex1-collapse">

</button>
<h1>Data
Protection</h1>
</div>

```

```

 <div class="collapse navbar-collapse">
 <ul class="nav navbar-nav navbar-right">
 <li class="hidden"><a class="page-
 scroll" href="#page-top">
 <a class="page-scroll" href="View-
 file1.jsp">View files
 <a class="page-scroll" href="Re-
 quest.jsp">Request
 In-
 box
 <a class="page-scroll" href="Down-
 load.jsp">Download
 <a class="page-scroll" href="Log-
 out.jsp">Logout

 </div>
 </nav>
</div>

<div class="container">
 <header>

 <div class="flexslider-info">
 <section class="slider">
 <div class="flexslider">
 <ul class="slides">

 <div class="w3l-
 info">
 <div
 class="col-md-8 info-lleft-side">
 <h4>Welcome To Data protection</h4>
 <p>It's dangerous when people are willing to give up their privacy.</p>
 </div>
 <div
 class="col-md-4 w3layouts_more-buttn">
 </div>
 </div>


```

```


 <div class=" w3l-
info">
 <div
class="col-md-8 info-lleft-side">
 <h4>Better Security for your data</h4>
 <p>I drive myself to and from work. I love the privacy.</p>
 </div>
 <div
class=" col-md-4 w3layouts_more-buttn">
 </div>
 </div>

 <div class=" w3l-
info">
 <div
class="col-md-8 info-lleft-side">
 <h4>Get Yourself Fixed</h4>
 <p>Once you've lost your privacy, you realize you've lost an extremely valua-
ble thing.</p>
 </div>
 <div
class=" col-md-4 w3layouts_more-buttn">
 </div>
 </div>

 </div>
 </section>
 </div>
 </header>
 </div>
 <div class="clearfix"> </div>
 </div>
 <script type='text/javascript' src='js11/jquery-2.2.3.min.js'></script>
 <script src="js11/bootstrap.js"></script>
 <script defer src="js11/jquery.flexslider.js"></script>
 <script type="text/javascript">

```



```

$(window).load(function () {
 $('.flexslider').flexslider({
 animation: "slide",
 start: function (slider) {
 $('body').removeClass('loading');
 }
 });
});
</script>
<script src="js11/jquery.waypoints.min.js"></script>
<script src="js11/jquery.countup.js"></script>
<script>
 $('.counter').countUp();
</script>
<script src="js11/jquery.chocolat.js"></script>

<script type="text/javascript">
 $(function () {
 $('.w3_agile_gallery_grid a').Chocolat();
 });
</script>
<script src="js11/owl.carousel.js"></script>
<script>
 $(document).ready(function () {
 $("#owl-demo").owlCarousel({
 items: 1,
 itemsDesktop: [768, 1],
 itemsDesktopSmall: [414, 1],
 lazyLoad: true,
 autoPlay: true,
 navigation: true,

 navigationText: false,
 pagination: true,

 });
 });
</script>
<script type="text/javascript" src="js11/move-top.js"></script>
<script type="text/javascript" src="js11/easing.js"></script>
<script type="text/javascript">
 jQuery(document).ready(function ($) {
 $(".scroll").click(function (event) {

```

```

 event.preventDefault();
 $('html,body').animate({ scrollTop: $(this.hash).off-
set().top }, 1000);
 });
});
</script>
<script type="text/javascript">
 $(document).ready(function () {
 /*
 var defaults = {
 containerID: 'toTop', // fading element id
 containerHoverID: 'toTopHover', // fading element
 hover id
 scrollSpeed: 1200,
 easingType: 'linear'
 };
 */

 $.UItoTop({ easingType: 'easeOutQuart' });

 });
</script>
</body>
</html>

```

### Dataownermain.jsp:

```

<!DOCTYPE html>
<html lang="en">
<head>
<title>Surgeon a Medical Category Flat Bootstrap Responsive website Template
| Home :: w3layouts</title>
<meta name="viewport" content="width=device-width, initial-scale=1">
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<meta name="keywords" content="Surgeon Responsive web template, Boot-
strap Web Templates, Flat Web Templates, Android Compatible web template,
SmartPhone Compatible web template, free WebDesigns for Nokia, Samsung,
LG, Sony Ericsson, Motorola web design" />
<script type="application/x-javascript"> addEventListener("load", function() {
setTimeout(hideURLbar, 0); }, false); function hideURLbar(){ win-
dow.scrollTo(0,1); } </script>
<link href="css8/bootstrap.css" type="text/css" rel="stylesheet" media="all">
<link href="css8/style.css" type="text/css" rel="stylesheet" media="all">

```

```
<link rel="stylesheet" href="css8/swipebox.css">
<link href="css8/animate.css" rel="stylesheet" type="text/css" media="all">
<link href="css8/font-awesome.css" rel="stylesheet">
<script src="js/jquery-2.2.3.min.js"></script>
<link href="//fonts.googleapis.com/css?family=Enriqueta:400,700"
rel="stylesheet">
<link href="//fonts.googleapis.com/css?family=Open+Sans:400,300,300italic,400italic,600,600italic,700,700italic,800,800
italic" rel="stylesheet" type="text/css">
</head>
<body>
 <div id="home" class="banner">
 <div class="container">
 <div class="wthree-header">
 <div class="agileits-logo navbar-left">
 <h1 class="wow swing animated" data-wow-de-
lay=".5s">Protection</h1>
 </div>
```

### 9.4.2. JAVA Coding:

```
Dataowner.java:
package servlet;

import imple.Imple;
import inter.Inter;

import java.io.IOException;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

import bean.Ownerbean;

/**
 * Servlet implementation class Dataownerreg
 */
@WebServlet("/Dataownerreg")
public class Dataownerreg extends HttpServlet {
```

```

 private static final long serialVersionUID = 1L;

 /**
 * @see HttpServlet#HttpServlet()
 */
 public Dataownerreg() {
 super();
 // TODO Auto-generated constructor stub
 }

 /**
 * @see HttpServlet#doGet(HttpServletRequest request, HttpS-
 ervletResponse response)
 */
 protected void doGet(HttpServletRequest request, HttpS-
 ervletResponse response) throws ServletException, IOException {
 // TODO Auto-generated method stub
 }

 /**
 * @see HttpServlet#doPost(HttpServletRequest request,
 HttpServletResponse response)
 */
 protected void doPost(HttpServletRequest request, HttpS-
 ervletResponse response) throws ServletException, IOException {

 String name=request.getParameter("name");
 System.out.println("Name"+name);

 String mail=request.getParameter("email");
 System.out.println("Email"+mail);

 String num=request.getParameter("number");
 System.out.println("Mobile"+num);

 String pass=request.getParameter("password");
 System.out.println("Pass"+pass);

 String cpass=request.getParameter("conpassword");
 System.out.println("Conpass"+cpass);

 Ownerbean i=new Ownerbean();
 i.setName(name);
 i.setEmail(mail);
 }

```

```
 i.setNumber(num);
 i.setPass(pass);
 i.setConpass(cpass);

 Inter ii=new Imple();
 int d=ii.oreg(i);
 if(d==1)
 {
 response.sendRedirect("Dataownerlogin.jsp");
 }
 else
 {
 response.sendRedirect("Error");
 }
 }
}
```

Dataownerlogin.jsp:

```
package servlet;
```

```
import imple.Imple;
```

```
import inter.Inter;
```

```
import java.io.IOException;
```

```
import javax.servlet.ServletException;
```

```
import javax.servlet.annotation.WebServlet;
```

```
import javax.servlet.http.HttpServlet;
```

```
import javax.servlet.http.HttpServletRequest;
```

```
import javax.servlet.http.HttpServletResponse;
```

```
import javax.servlet.http.HttpSession;
```

```
import bean.Ownerbean;
```

```
/**
```

```
 * Servlet implementation class Dataownerlog
```

```
 */
```

```
@WebServlet("/Dataownerlog")
```

```
public class Dataownerlog extends HttpServlet {
```

```
 private static final long serialVersionUID = 1L;
```

```

/**
 * @see HttpServlet#HttpServlet()
 */
public Dataownerlog() {
 super();
 // TODO Auto-generated constructor stub
}

/**
 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
 */
protected void doGet(HttpServletRequest request, HttpServletResponse re-
sponse) throws ServletException, IOException {
 // TODO Auto-generated method stub
}

/**
 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
 */
protected void doPost(HttpServletRequest request, HttpServletResponse re-
sponse) throws ServletException, IOException {

 String email1=request.getParameter("email");
 HttpSession session=request.getSession();
 response.setContentType();
 session.setAttribute("email1", email1);

 System.out.println("Email:"+email1);

 String pass=request.getParameter("password");
 System.out.println("Password"+pass);

 Ownerbean l=new Ownerbean();
 l.setEmail(email1);
 l.setPass(pass);

 Inter u=new Imple();
 boolean r=u.olog(l);
 if(r==true)
 {
 response.sendRedirect("Dataownermain.jsp");
 }
}

```

```
 else
 {
 response.sendRedirect("Error");
 }
 }
}
```

Datauserreg.java:

```
package servlet;
```

```
import imple.Imple;
```

```
import inter.Inter;
```

```
import java.io.IOException;
```

```
import javax.servlet.ServletException;
```

```
import javax.servlet.annotation.WebServlet;
```

```
import javax.servlet.http.HttpServlet;
```

```
import javax.servlet.http.HttpServletRequest;
```

```
import javax.servlet.http.HttpServletResponse;
```

```
import bean.Userbean;
```

```
/**
```

```
 * Servlet implementation class Datauserreg
```

```
 */
```

```
@WebServlet("/Datauserreg")
```

```
public class Datauserreg extends HttpServlet {
```

```
 private static final long serialVersionUID = 1L;
```

```
/**
```

```
 * @see HttpServlet#HttpServlet()
```

```
 */
```

```
 public Datauserreg() {
```

```
 super();
```

```
 // TODO Auto-generated constructor stub
```

```
 }
```

```
/**
```

```
 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
```

```
 */
```

```
 protected void doGet(HttpServletRequest request, HttpServletResponse
```

```
response) throws ServletException, IOException {
 // TODO Auto-generated method stub
}

/**
 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
 */
protected void doPost(HttpServletRequest request, HttpServletResponse re-
sponse) throws ServletException, IOException {

 String name=request.getParameter("name");
 System.out.println("Name"+name);

 String mail=request.getParameter("email");
 System.out.println("Name"+mail);

 String numb=request.getParameter("number");
 System.out.println("Name"+numb);

 String pswd=request.getParameter("password");
 System.out.println("Name"+pswd);

 String cpswd=request.getParameter("conpassword");
 System.out.println("Name"+cpswd);

 Userbean u=new Userbean();
 u.setName(name);
 u.setEmail(mail);
 u.setNumber(numb);
 u.setPass(pswd);
 u.setCpass(cpswd);

 Inter r=new Imple();
 int p=r.ureg(u);
 if(p==1)
 {
 response.sendRedirect("Datauserlogin.jsp");
 }
 else
 {
 response.sendRedirect("Error");
 }
}
```



```

 }

}

Download.java:

package servlet;

import java.io.FileInputStream;
import java.io.IOException;
import java.io.PrintWriter;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
import javax.swing.JDialog;
import javax.swing.JOptionPane;

/**
 * Servlet implementation class Download
 */
@WebServlet("/Download")
public class Download extends HttpServlet {
 private static final long serialVersionUID = 1L;

 /**
 * @see HttpServlet#HttpServlet()
 */
 public Download() {
 super();
 // TODO Auto-generated constructor stub
 }

 /**
 * @see HttpServlet#doGet(HttpServletRequest request, HttpS-
 ervletResponse response)
 */
 protected void doGet(HttpServletRequest request, HttpS-
 ervletResponse response) throws ServletException, IOException {
 doPost(request, response);
 }
}

```

```
/**
 * @see HttpServlet#doPost(HttpServletRequest request, HttpS-
ervletResponse response)
 */
protected void doPost(HttpServletRequest request, HttpS-
ervletResponse response) throws ServletException, IOException {
 // TODO Auto-generated method stub
 {

 HttpSession session=request.getSession();

 response.setContentType();

 String key2=request.getParameter("key");

 System.out.println("down-
load00000000000000000000000000000000===="+key2);
 JOptionPane joptionpane =new JOptionPane("CLICK
OK");

 JDialog jdialog= joptionpane.createDialog("Alert");

 jdialog.setAlwaysOnTop(true);

 jdialog.show();

 String newkey =JOptionPane.showInputDialog("Enter
Your filekey");

 if(newkey.equals(key2))

 {
 try
 {
 PrintWriter out=response.getWriter();

 String realpath = getServletContext().getRealPath("/");
 String filepath = realpath.substring(0, realpath.in-
dexOf("."))
```

```

+ "Dual-server\\WebContent\\Local\\";

String filename=request.getParameter("filename");
System.out.println(filename);

/* String filepath="E:\\2016 Web\\ITJDM15\\WebCon-
tent\\compress\\"+compress+".zip";*/

response.setContentType("APPLICATION/OCTET-
STREAM");

response.setHeader("Content-Disposition","attach-
ment; filename=\"\" + filename + "\"");

FileInputStream fileInputStream=new FileIn-
putStream(filepath+filename);

int i;
while ((i=fileInputStream.read()) != -1) {
 out.write(i);
}
fileInputStream.close();
}
catch(Exception e)
{
 e.printStackTrace();
}

}

else
{
System.out.println("failed");

JOptionPane.showMessageDialog(null, "Sorry
Your key is wrong");

response.sendRedirect("Center.jsp");
}
}
}
}
}
}

```

```
Request.java:
package servlet;

import imple.Imple;
import inter.Inter;

import java.io.IOException;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

import bean.Uploadbean;

/**
 * Servlet implementation class Request
 */
@WebServlet("/Request")
public class Request extends HttpServlet {
 private static final long serialVersionUID = 1L;

 /**
 * @see HttpServlet#HttpServlet()
 */
 public Request() {
 super();
 // TODO Auto-generated constructor stub
 }

 /**
 * @see HttpServlet#doGet(HttpServletRequest request, HttpS-
 ervletResponse response)
 */
 protected void doGet(HttpServletRequest request, HttpS-
 ervletResponse response) throws ServletException, IOException {

 doPost(request,response);

 }
}
```

```
/**
 * @see HttpServlet#doPost(HttpServletRequest request, HttpS-
ervletResponse response)
 */
protected void doPost(HttpServletRequest request, HttpS-
ervletResponse response) throws ServletException, IOException {
```

```
 String own=request.getParameter("ownername");
 System.out.println("Owner Name: "+own);
```

```
 String filename=request.getParameter("filename");
 System.out.println("Filename"+filename);
```

```
 String key=request.getParameter("filekey");
 System.out.println("Key"+key);
```

```
 Uploadbean rq=new Uploadbean();
 rq.setOwner(own);
 rq.setFilename(filename);
 rq.setFilekey(key);
```

```
 Inter jj=new Imple();
 int w=jj.req(rq);
 if(w==1)
 {
 response.sendRedirect("Reqssuccess.jsp");
 }
 else
 {
 response.sendRedirect("Fnf.jsp");
 }
}
```

```
}
```

```
}
```

```
Upload.java:
package servlet;
```

```
import imple.Imple;
import inter.Inter;
```

```
import java.io.BufferedWriter;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.FileWriter;
import java.io.IOException;
import java.util.ArrayList;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

import org.apache.poi.hwpf.HWPFDocument;
import org.apache.poi.hwpf.extractor.WordExtractor;

import bean.Uploadbean;

import com.itextpdf.text.Chunk;
import com.itextpdf.text.Document;
import com.itextpdf.text.Font;
import com.itextpdf.text.PageSize;
import com.itextpdf.text.Paragraph;
import com.itextpdf.text.pdf.PdfReader;
import com.itextpdf.text.pdf.PdfWriter;
import com.itextpdf.text.pdf.parser.PdfTextExtractor;

import com.lowagie.text.Element;

import com.oreilly.servlet.multipart.FilePart;
import com.oreilly.servlet.multipart.MultipartParser;
import com.oreilly.servlet.multipart.ParamPart;
import com.oreilly.servlet.multipart.Part;

/**
 * Servlet implementation class Upload
 */
@WebServlet("/Upload")
public class Upload extends HttpServlet {
 private static final long serialVersionUID = 1L;
```

```

/**
 * @see HttpServlet#HttpServlet()
 */
public Upload() {
 super();
 // TODO Auto-generated constructor stub
}

/**
 * @see HttpServlet#doGet(HttpServletRequest request, HttpS-
ervletResponse response)
 */
protected void doGet(HttpServletRequest request, HttpS-
ervletResponse response) throws ServletException, IOException {
 // TODO Auto-generated method stub
}

/**
 * @see HttpServlet#doPost(HttpServletRequest request, HttpS-
ervletResponse response)
 */
protected void doPost(HttpServletRequest request, HttpS-
ervletResponse response) throws ServletException, IOException {

 MultipartParser mp =new MultipartParser(re-
quest, 999999999);

 Part part = null;
 ArrayList paramValues = new ArrayList();

 HttpSession session=request.getSession();

 response.setContentType();

 String email=request.getSession().getAttrib-
ute("email1").toString();

 System.out.println("Email:"+email);

 FilePart filepart = null;
 ParamPart param=null;

```

```
File file1 = null;
String filepath1 = null;
String filetype=null;
String filepath2 = null;
String filename = null;

long size=0;
String path=getServletContext().getReal-
Path("");

System.out.println("path==" +path);

String editpath=path.substring(0, path.in-
dexOf("."));

System.out.println("edithpath=====" +edit-
path);

String fullpath=editpath+"Dual-server\\Web-
Content\\Local\\";
```



# **SYSTEM TESTING**

## 10. SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the

Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### 10.1. TYPES OF TESTS

#### i. Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### ii. Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

### **iii. Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **iv. System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. Systemtesting is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **v. White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its

purpose. It is purpose. It is used to test areas that cannot be reached from a blackbox level.

### **vi. Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box youcannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## 10.2. Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

### 10.2.1. Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

### 10.2.2. Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

### 10.2.3. Integration Test strategy

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects. The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level –interact without error.

**Test Results:** All the test cases mentioned above passed successfully.

No defects encountered.

### 10.2.4. Acceptance strategy

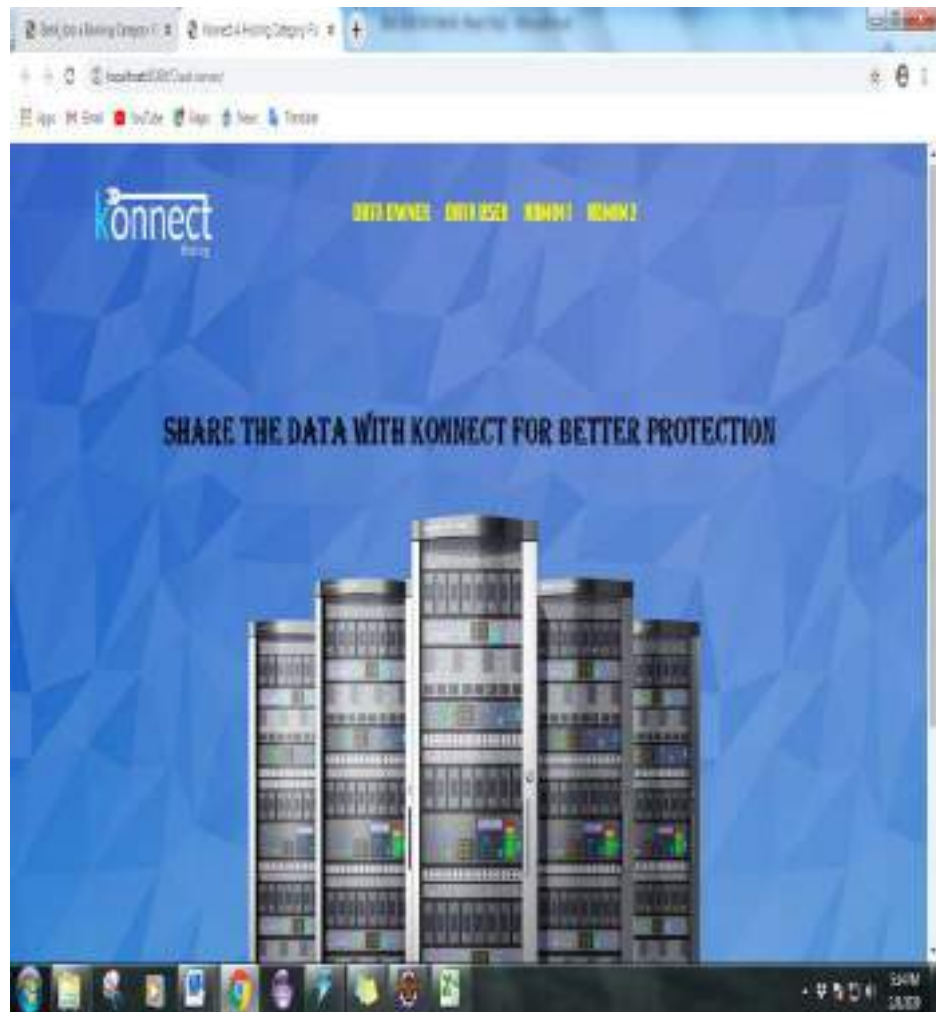
User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

# **OUTPUT SCREENS**

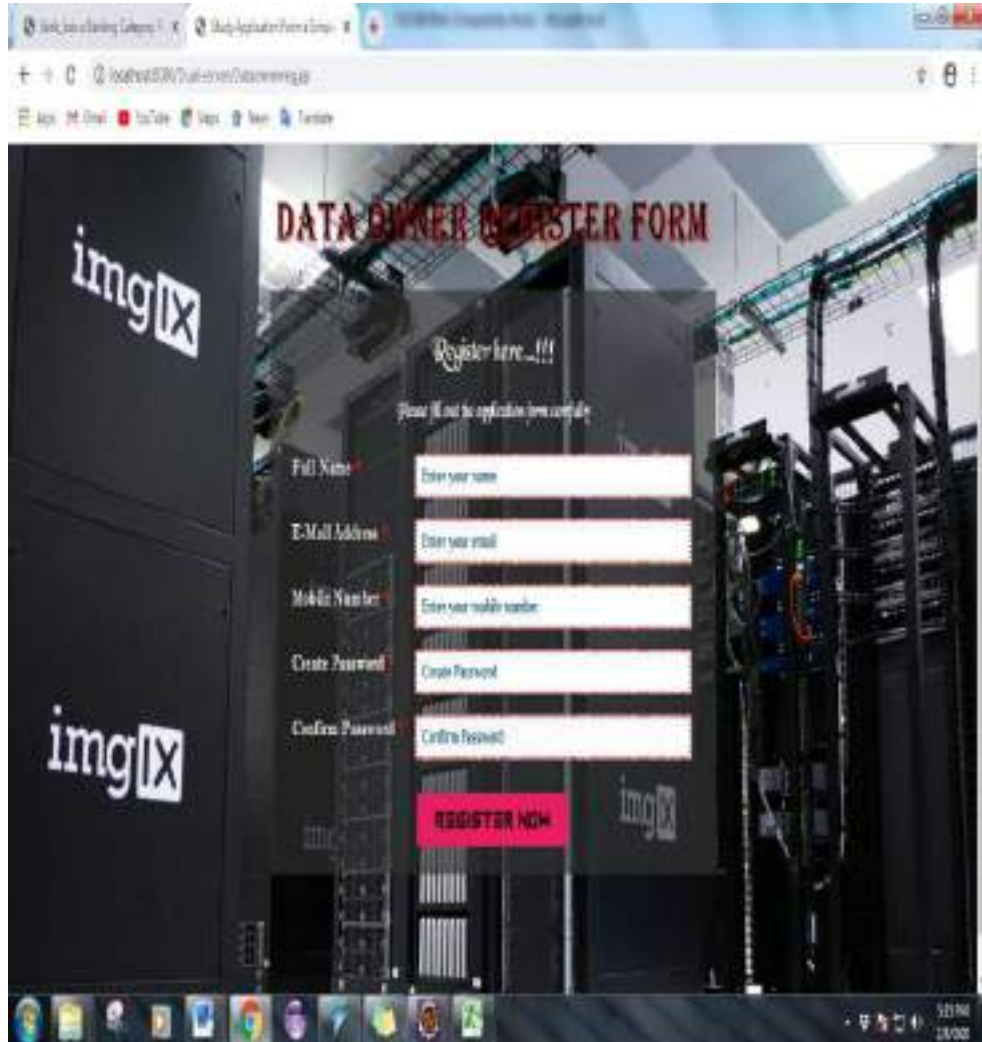
## 11. OUTPUT SCREENS

### Screen 1: Home Page



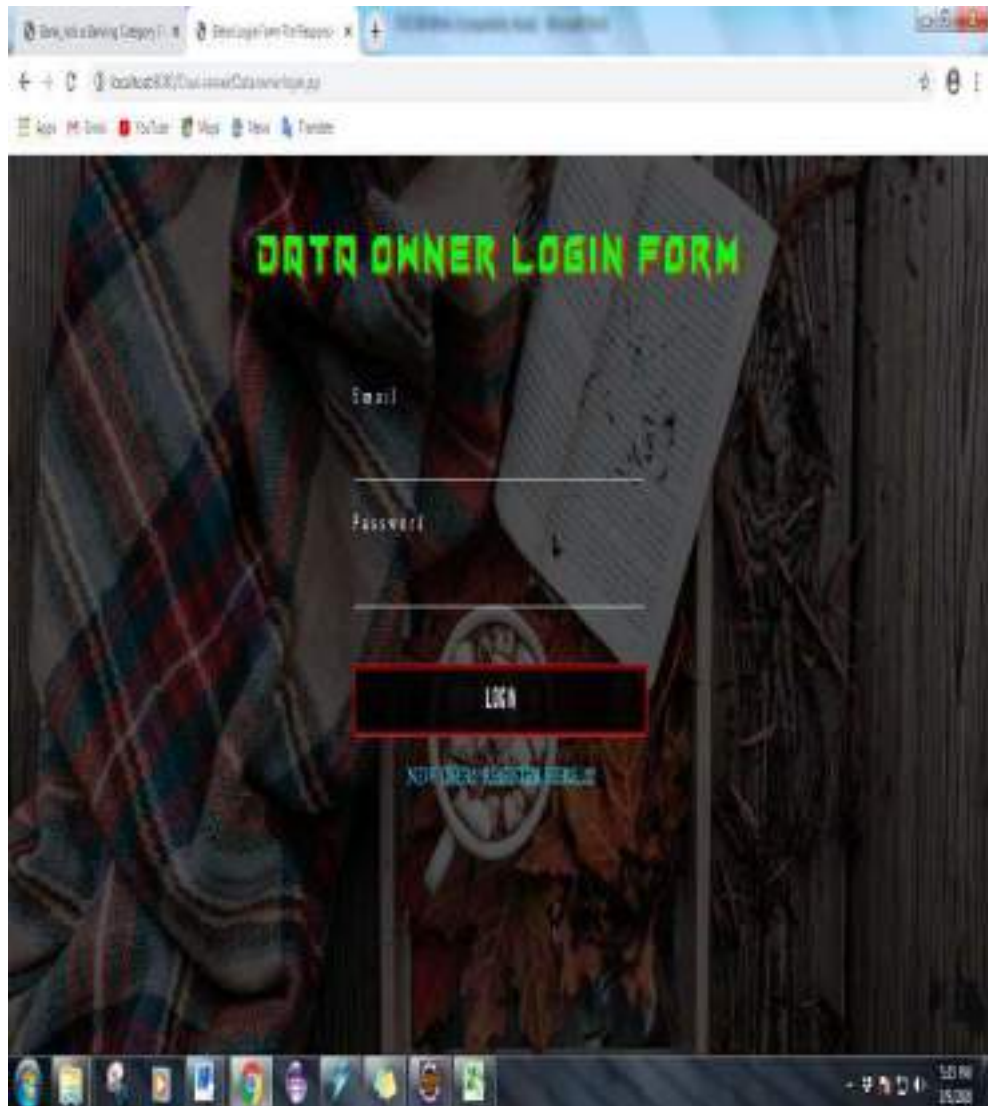
The above interface represents the home screen of the project.

## Screen 2: Registration Page for Data Owner



The given interface represents the registration for the Data owner where he can register his details for further login.

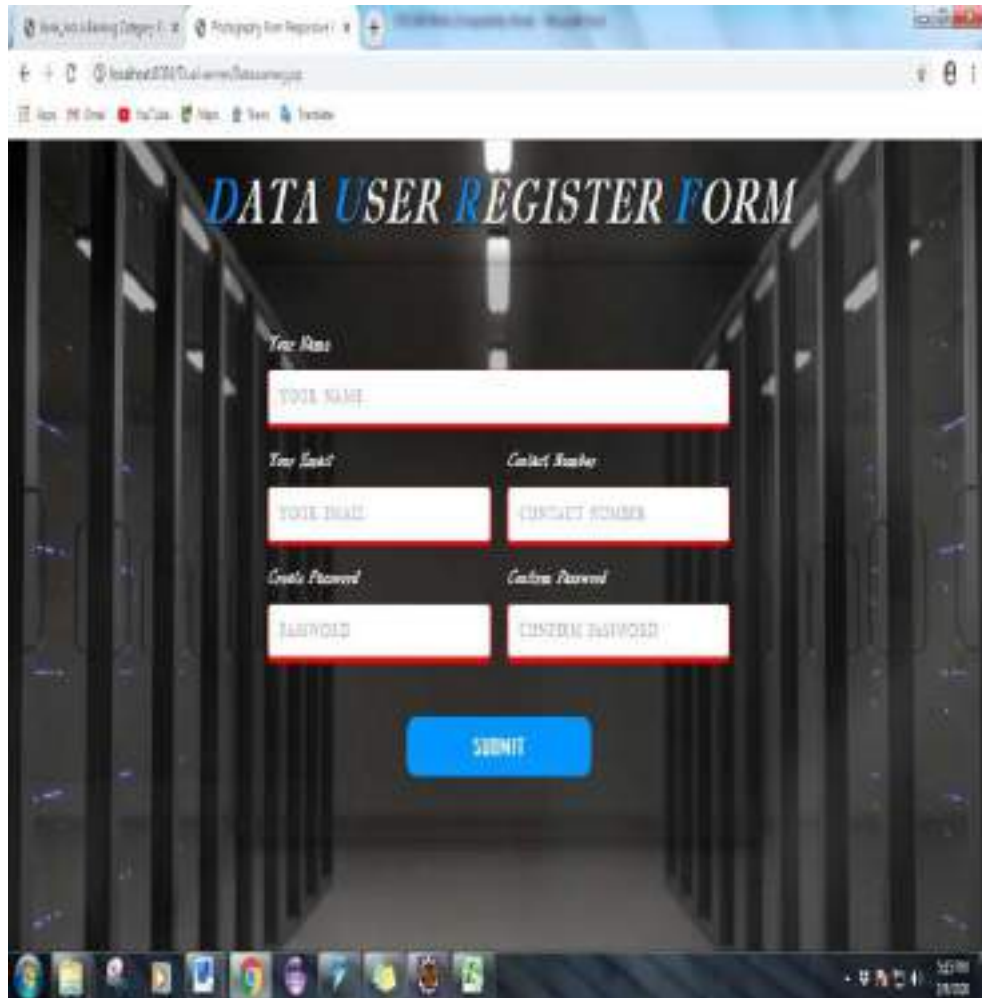
### Screen 3: Login Page for Data Owner



The given interface represents Owner Login Page where he can login to the page using their login credentials.

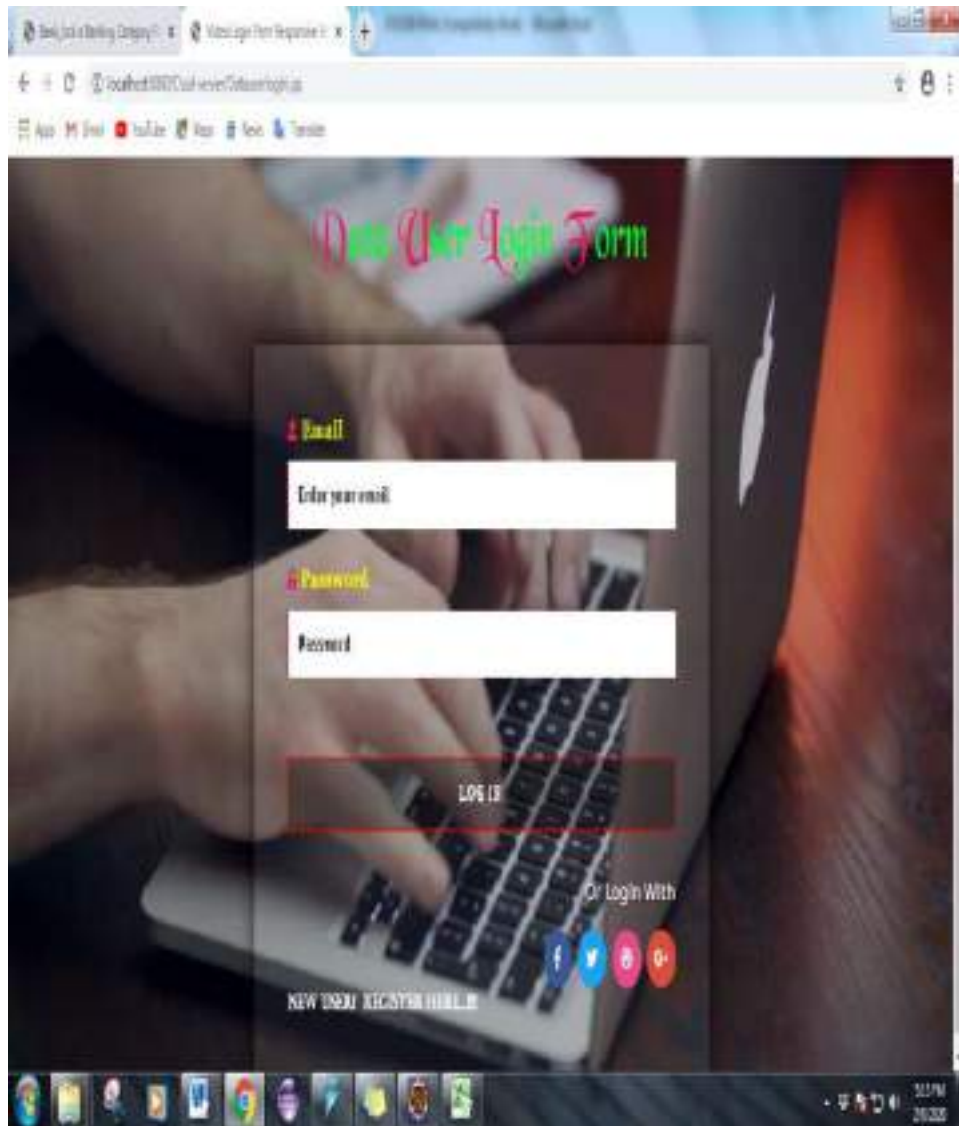


### Screen 4: Registration Page for Data User



The given interface represents the registration for the Data user where he can register his details for further login.

### Screen 5: Login Page for Data User



The given interface represents User Login Page where he can login to the page using their login credentials.

## Screen 6: Login Page for Admin1



The given interface represents Admin1 Login Page where he can login to the page using their login credentials.

## Screen 7: Login Page for Admin2



The given interface represents Admin2 Login Page where he can login to the page using their login credentials.

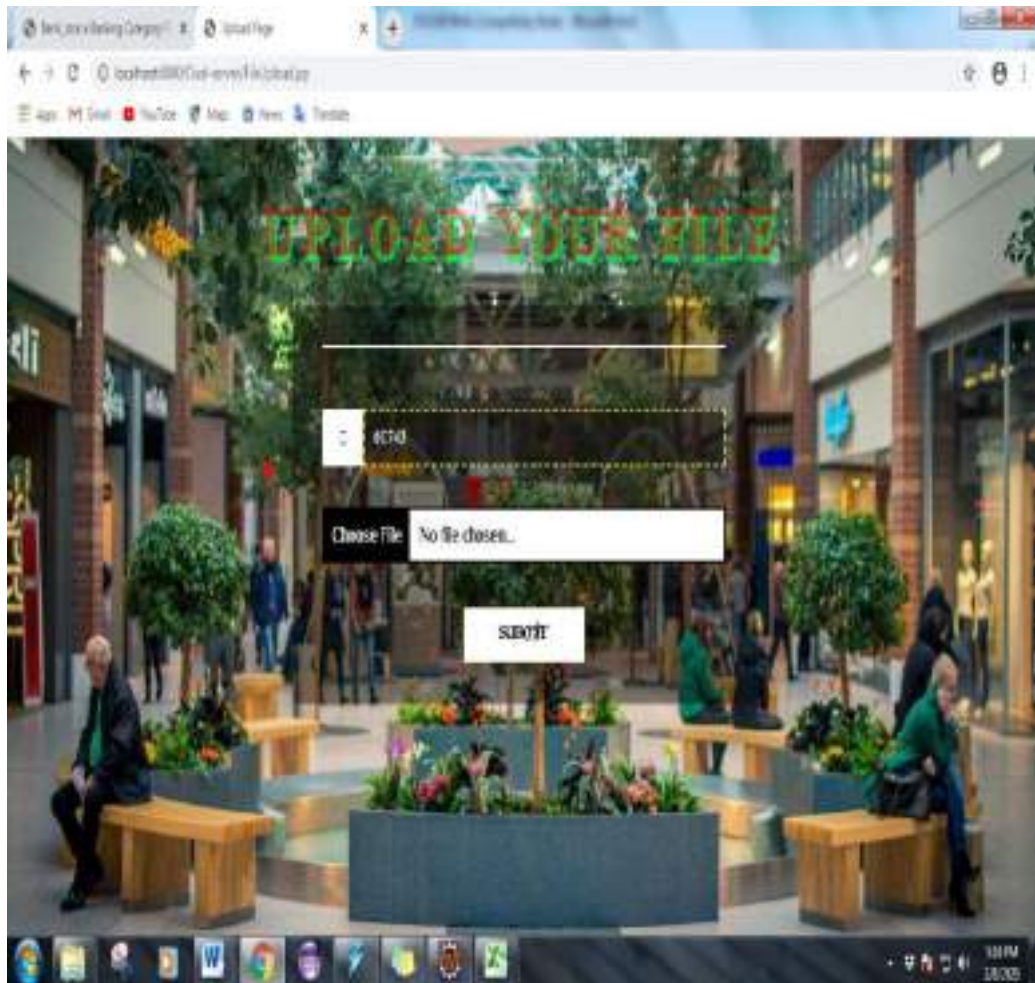
## Screen 8: File Details



The Given interface represents File Details such as Owner Can upload a File, Can view Encrypted Files, Can View Uploaded Files and can view Files Accessible by the User.

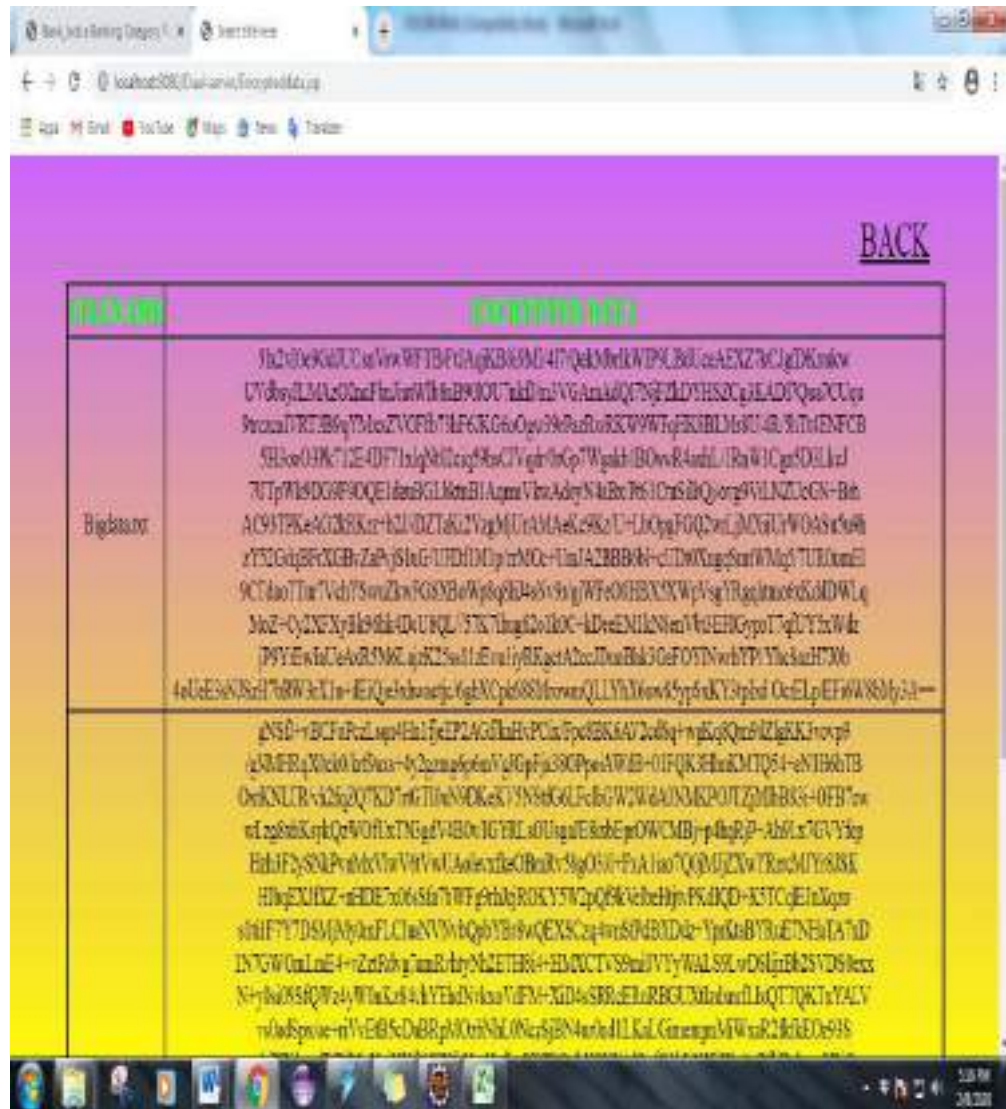


## Screen 9: File Upload by Owner



The given interface represents the File Upload by Owner by which the Owner can choose a file by using “Choose File ” option and by clicking on submit the file can be uploaded.

Screen 10: Encrypted File Details



The given interface represents Encrypted file details where the Owner can View his Uploaded file in encrypted form.

### Screen 11: Requesting File



The given interface represents Requesting file by User in which the user is seeking permission from the Admin to get access to that file.



## Screen 12: Accepting File by Admin1



The Given interface represents giving access by Admin1 in which the Admin1 verifies the User and then giving access to those files requested by that User.

### Screen 13: Accepting File by Admin2



The Given interface represents giving access by Admin2 in which the Admin2 verifies the User and then giving access to those files requested by that User.

## Screen 14: Accepting File



The Given interface represents Accepting File by both the Admins after verifying the valid user and giving access to the requested file.

## Screen 15: Downloading File



The given interface represents File download by User by entering the key which is generated after getting access from both Admins.

# **CONCLUSION**

## CONCLUSION

Combining protection against IKGA and efficiency is not trivial because the two properties are irreconcilable. In this paper, we have presented a new scheme called dual-server public key authenticated encryption with keyword search (DPAEKS). The features of DPAEKS include: two non-colluding servers that are used to protect against IKGA and the data owner should be distributed with a pair of keys to authenticate the data. We developed a concrete construction of DPAEKS and proved its security. Finally, we implemented and evaluated the performance of the proposed scheme. The empirical results we obtained demonstrate that it is suitable for deployment in practical applications.

# **FUTURE ENHANCEMENT**

## **FUTURE ENHANCEMENT**

In both existing PEKS schemes and our keyword privacy enhanced PEFKS scheme, the search takes time linear in the size of the database storing the keyword searchable ciphertexts. This is unaffordable if the database is large. Hence, it is an interesting to reduce the search time in both PEKS and PEFKS schemes. We leave this for future work.



# REFERENCES

## REFERENCES

- [1] D. X. Song, D. Wagner, and A. Perrig, "Practical techniques for searches on encrypted data," in *Security and Privacy, 2000. S&P 2000. Proceedings. 2000 IEEE Symposium on. IEEE, 2000*, pp. 44–55.
- [2] D. Boneh, G. Di Crescenzo, R. Ostrovsky, and G. Persiano, "Public key encryption with keyword search," in *Eurocrypt*, vol. 3027. Springer, 2004, pp. 506–522.
- [3] P. Xu, H. Jin, Q. Wu, and W. Wang, "Public-key encryption with fuzzy keyword search: A provably secure scheme under keyword guessing attack," *IEEE Transactions on computers*, vol. 62, no. 11, pp. 2266–2277, 2013.
- [4] R. Chen, Y. Mu, G. Yang, F. Guo, and X. Wang, "A new general framework for secure public key encryption with keyword search," in *Australasian Conference on Information Security and Privacy*. Springer, 2015, pp. 59–76.
- [5] Q. Huang and H. Li, "An efficient public-key searchable encryption scheme secure against inside keyword guessing attacks," *Information Sciences*, vol. 403, pp. 1–14, 2017.
- [6] D. Wang, N. Wang, P. Wang, and S. Qing, "Preserving privacy for free: Efficient and provably secure two-factor authentication scheme with user anonymity," *Information Sciences*, vol. 321, pp. 162–178, 2015.
- [7] C.-h. Wang and T.-y. Tu, "Keyword search encryption scheme resistant against keyword-guessing attack by the untrusted server," *Journal of Shanghai Jiaotong University (Science)*, vol. 19, no. 4, pp. 440–442, 2014.
- [8] J. Baek, R. Safavi-Naini, and W. Susilo, "Public key encryption with keyword search revisited," *Computational Science and Its Applications– ICCSA 2008*, pp. 1249–1259, 2008.
- [9] H. S. Rhee, J. H. Park, W. Susilo, and D. H. Lee, "Improved searchable public key encryption with designated tester," in *Proceedings of the 4th International Symposium on Information, Computer, and Communications Security*. ACM, 2009, pp. 376–379.
- [10] K. Emura, A. Miyaji, M. S. Rahman, and K. Omote, "Generic constructions of secure-channel free searchable encryption with adaptive security," *Security and communication networks*, vol. 8, no. 8, pp. 1547–1560, 2015.
- [11] J. Byun, H. Rhee, H.-A. Park, and D. Lee, "Off-line keyword guessing attacks on recent keyword search schemes over encrypted data," *Secure Data Management*, pp. 75–83, 2006.
- [12] W.-C. Yau, S.-H. Heng, and B.-M. Goi, "Off-line keyword guessing attacks on recent public key encryption with keyword search schemes," *Autonomic and Trusted Computing*, pp. 100–105, 2008.

- [13] H. S. Rhee, W. Susilo, and H.-J. Kim, "Secure searchable public key encryption scheme against keyword guessing attacks," *IEICE Electronics Express*, vol. 6, no. 5, pp. 237–243, 2009.
- [14] L. Fang, W. Susilo, C. Ge, and J. Wang, "Public key encryption with keyword search secure against keyword guessing attacks without random oracle," *Information Sciences*, vol. 238, pp. 221–241, 2013.
- [15] L. Guo and W.-C. Yau, "Efficient secure-channel free public key encryption with keyword search for emrs in cloud storage," *Journal of medical systems*, vol. 39, no. 2, p. 11, 2015.
- [16] A. Arriaga, Q. Tang, and P. Ryan, "Trapdoor privacy in asymmetric searchable encryption schemes," in *International Conference on Cryptology in Africa*. Springer, 2014, pp. 31–50.

**A**

**Project Report**

**on**

**SECURE KEYWORD SEARCH AND DATA SHARING MECHANISM FOR  
COLUD COMPUTING**

*Submitted in partial fulfillment for the award of the degree*

**of**

**Master of Computer Applications**

*Submitted by*

**D KARATHIK**

**(Reg.No.19F65F0012)**

*Under the esteemed guidance of*

**Mrs . P. SUKANYA, MCA.,**

**Assistant Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**

**(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**2020-2021**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with 'A' Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

This is to certify that this project report titled “**SECURE KEYWORD SEARCH AND DATA SHARING MECHANISM FOR CLOUD COMPUTING**” that is being submitted by **D KARTHIK (Reg.No.19F65F0012)** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA , ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **D KARTHIK** here by declare that the project report entitled “**SECURE KEYWORD SEARCH AND DATA SHARING MECHANISM FOR CLOUD COMPUTING**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mrs. P. SUKANYA, MCA.**, Assistant Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY(AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University forward of any degree.

**Place: Puttur**

**Date:**

**D KARTHIK**

**Reg.No.: 19F65F0012**

## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thank full to My Guide and Project Coordinator **Mrs. P. SUKANYA, MCA.,** Assistant Professor, Department of **MASTER OF COMPUTER APPLICATIONS,** for her valuable guidance and suggestion sin analyzing and testing throughout the period of project work.

I wish to convey my heartfelt thanks to Project Supervisor **Mr. P. KARTHIKEYAN, MCA., M.E.,** HOD, Department of **MASTER OF COMPUTER APPLICATIONS,** for his valuable guidance of make this project as successful one.

I wish to express my profound gratitude to our dynamic Principal **Dr. K. Chandrasekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I greatly convey my sincere thanks to our beloved Chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indraveni, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

**(D KARTHIK)**

# CONTENTS

S.No.	CHAPTERS	PAGENO.
	ABSTRACT	
	LIST OF FIGURES	I
	LIST OF ABBREVIATIONS	II
1	INTRODUCTION	1
2	SYSTEM STUDY	5
3	SYSTEM ANALYSIS	7
	3.1 EXISTING SYSTEM	7
	3.2 DISADVANTAGES	7
	3.3 PROPOSED SYSTEM	7
	3.4 ADVANTAGES	8
4	SOFTWARE MODULES	9
5	SYSTEM ARCHITECTURE	10
6	SOFTWARE ENVIRONMENT	13
7	SYSTEM REQUIREMENTS	27
8	SYSTEM DESIGN	28
9	IMPLEMENTATION	42
10	SYSTEM TESTING	81
11	SCREENSHOTS	84
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	



## ABSTRACT

The emergence of cloud infrastructure has significantly reduced the costs of hardware and software resources in computing infrastructure. To ensure security, the data is usually encrypted before it's outsourced to the cloud. Unlike searching and sharing the plain data, it is challenging to search and share the data after encryption. Nevertheless, it is a critical task for the cloud service provider as the users expect the cloud to conduct a quick search and return the result without losing data confidentiality. To overcome these problems, we propose a cipher text-policy attribute-based mechanism with keyword search and data sharing (CPAB-KSDS) for encrypted cloud data. The proposed solution not only supports attribute-based keyword search but also enables attribute-based data sharing at the same time, which is in contrast to the existing solutions that only support either one of two features. Additionally, the keyword in our scheme can be updated during the sharing phase without interacting with the PKG. In this project, we describe the notion of CPAB-KSDS as well as its security model. Besides, we propose a concrete scheme and prove that it is against chosen cipher text attack and chosen keyword attack secure in the random oracle model.

## LIST OF FIGURES

<b>S.No.</b>	<b>Name</b>	<b>Page No.</b>
1	1.1 Structure of Service models	3
2	5.1 System Architecture	11
3	5.2 Dataflow Diagram	12
4	6.1 Program Compilation & Interpretation	14
5	6.2 Execution For Different Platforms	14
6	6.3 Java Platform	15
7	6.4 Java IDE	17
8	8.1 Data Flow Diagram	29
9	8.2.6 Class Diagram	40
10	8.2.2 Use Case Diagram	34
11	8.2.3 Sequence Diagram	37
12	8.2.4 Collaboration Diagram	38
13	8.3.1 E-R Notation	41
14	Screen Shots	84

## LIST OF ABBREVIATIONS

<b>S.No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Data base Connectivity
10	DS	Data Sharing
10	KS	Keyword Search
11	DBMS	Data base Management System
12	RMI	Remote Method Invocation
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

## 1. INTRODUCTION

### 1.1 What is cloud computing?

**Cloud computing** is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced

### 1.2 How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.

The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

### 1.3 Characteristics and Services Models:

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

- **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.
- **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

client platforms (e.g., mobile phones, laptops, and PDAs).

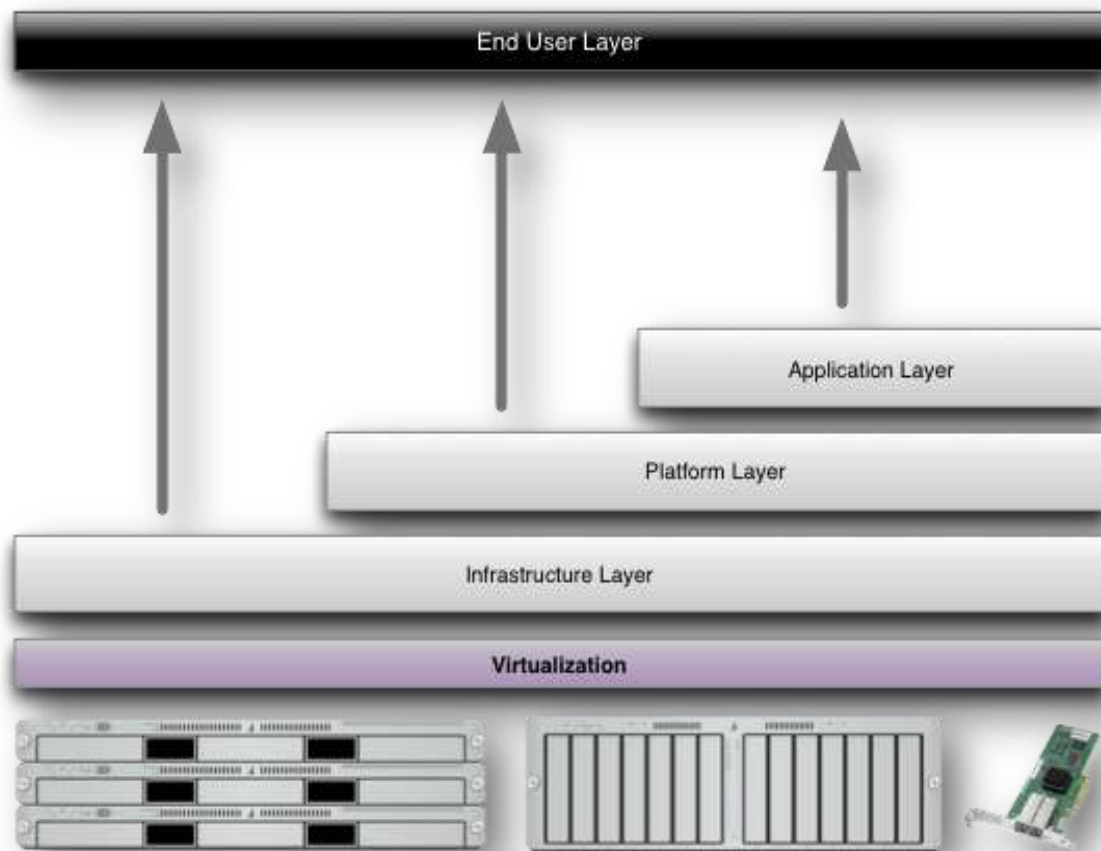
- **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.
- **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.
- **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

## 1.4 Services Models:

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layer are completed by an end user layer that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---



**Fig 1.1: Structure of service models**

## **1.5 Benefits of cloud computing:**

- 1. Achieve economies of scale** – increase volume output or productivity with fewer people. Your cost per unit, project or product plummets.
- 2. Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
- 3. Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
- 4. Streamline processes.** Get more work done in less time with less people.
- 5. Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

6. **Improve accessibility.** You have access anytime, anywhere, making your life so much easier!
7. **Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
8. **Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
9. **Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
10. **Improve flexibility.** You can change direction without serious “people” or “financial” issues at stake.

## 1.6 Advantages:

- **Price:** Pay for only the resources used.
- **Security:** Cloud instances are isolated in the network from other instances for improved security.
- **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud’s core hardware.
- **Scalability:** Auto-deploy cloud instances when needed.
- **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
- **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
- **Traffic:** Deals with spike in traffic with quick deployment of additional

## 2. SYSTEM STUDY

### 2.1 FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

#### 2.1.1 ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

#### 2.1.2 TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

#### 2.1.3 SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel



## Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

## 3. SYSTEM ANALYSIS

### 3.1 EXISTING SYSTEM

In an ABE, the users' identities are described by a list of attributes. After ABE's pioneering work, several scholars extended the notion of ABE. For example, key policy attribute-based encryption (KP-ABE), where the private key of a user is related to an access policy and the cipher text corresponds to an attribute set. In contrast, there is another example called cipher text-policy attribute-based encryption (CP-ABE), where the private key is generated with an attribute set and the cipher text is related to an access policy. In both KP-ABE and CP-ABE, the cipher text length is linear with the size of the access policy.

To reduce the cipher text length, Emura et al. proposed a cipher text-policy attribute-based encryption scheme with constant cipher text length. Although it supports the AND-gates on multi attributes, it doesn't support the monotonic expression on attributes. After that, a number of constructions have come out to enhance the efficiency, security and expressiveness. To illustrate the ABE's application, Li et al. adopted the notion of attribute-based encryption in the PHR system to achieve fine grained access control on personal health records.

A cipher text policy attribute-based encryption with hidden policy was proposed to hide the access policy which may leak the user's privacy in the PHR system. The concept of outsourcing decryption attribute-based encryption was introduced to enable a computation-constrained mobile device to outsource most of the decryption work to a service provider. However, there is no guarantee that the service provider could return the correct partial decryption cipher text. To overcome this issue, Lai and Li proposed attribute-based encryption with verifiable outsourced decryption schemes respectively.

### 3.2 DISADVANTAGES OF EXISTING SYSTEM

- In the existing work, the system does not provide **Data integrity proof**.
- This system is less performance due to lack of strong encryption techniques.

### 3.3 PROPOSED SYSTEM

The proposed system first introduces a ciphertext-policy attribute-based mechanism with keyword search and data sharing (CPAB-KSDS) for encrypted cloud data. The searching and sharing functionality are enabled in the ciphertext-policy setting.

Furthermore, our scheme supports the keyword to be updated during the sharing phase.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

After presenting the construction of our mechanism, we proof its chosen ciphertext attack (CCA) and chosen keyword attack (CKA) security in the random oracle model. The proposed construction is demonstrated practical and efficient in the performance and property comparison.

## **3.4 ADVANTAGES OF PROPOSED SYSTEM**

- Allows the data owner to search and share the encrypted health report without the unnecessary decryption process.
- Supports keyword updating during the data sharing phase. 3) more importantly, does not need the exist of the PKG, either in the phase of data sharing or keyword updating.
- The data owner can fully decide who could access the data he encrypted.

## 4. SOFTWARE MODULES

### 4.1 MODULES

- Data owner
- Delegator
- Cloud Server
- Delegatee

### 4.2 MODULES DESCRIPTION

- **Data Owner**

In this module, the provider requests for symmetric encryption key permission from OWNER and upload the patient details in ABE with the key. View & delete the uploaded patient details, and view the clinical report from the user.

- **Delegator**

In this module, Delegator register and logs in and request access control from the healthcare server and view the access control (1-access only the patient details and 2-accessing both patient details with the document), if the user has both the access permissions, user can provide the clinical report for the corresponding patient details.

- **Cloud Server**

The Cloud Server authorizes both user and owner, view all the uploaded patient details and give the access control permissions to the corresponding requested user. View the response from the OWNER about the key requested. After the clinical report is generated by the user forward it to the corresponding patient. And view the patient disease in chart.

- **Delegatee**

In this module, the Delegatee will generate the key requested by User. And also generates the symmetric encryption key and provides permission requested by the users.

## **5. SYSTEM ARCHITECTURE**

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output. It is the most important and direct source information to the user.

## 5.1 SYSTEM ARCHITECTURE

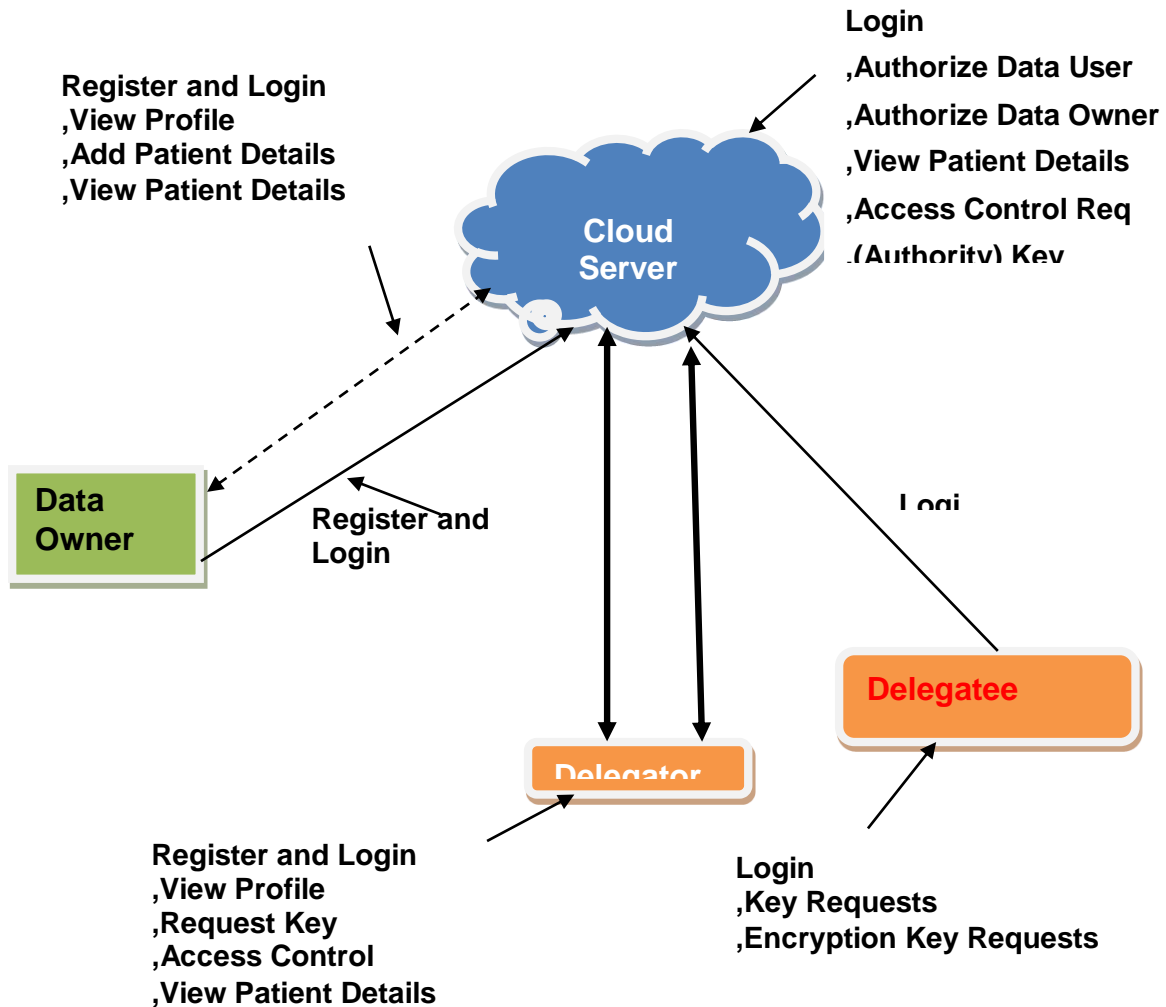


Fig 5.1 System Architecture

## 5.2 DATAFLOW DIAGRAM

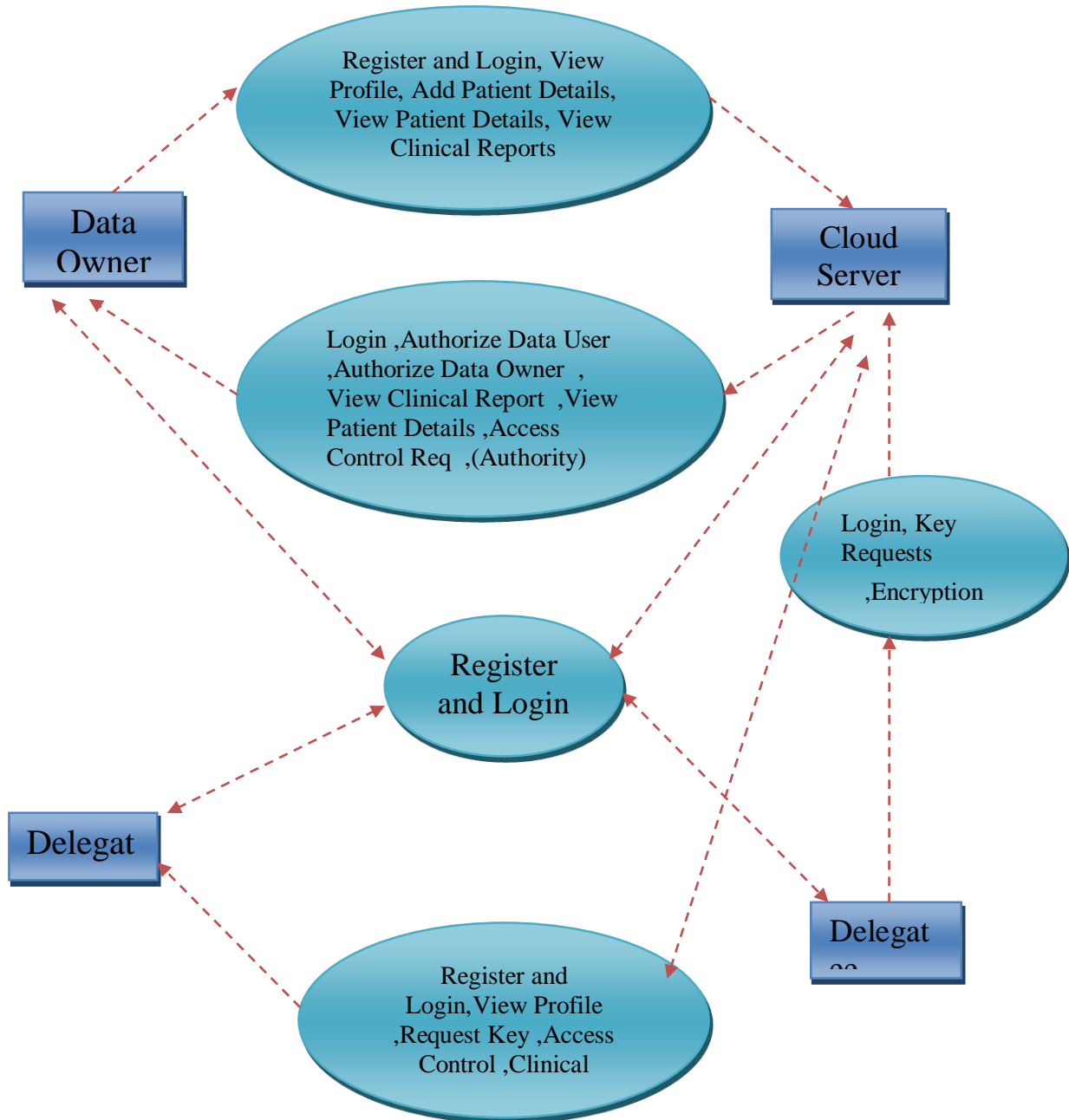


Fig 5.2 Dataflow Diagram

## 6. SOFTWARE ENVIRONMENT

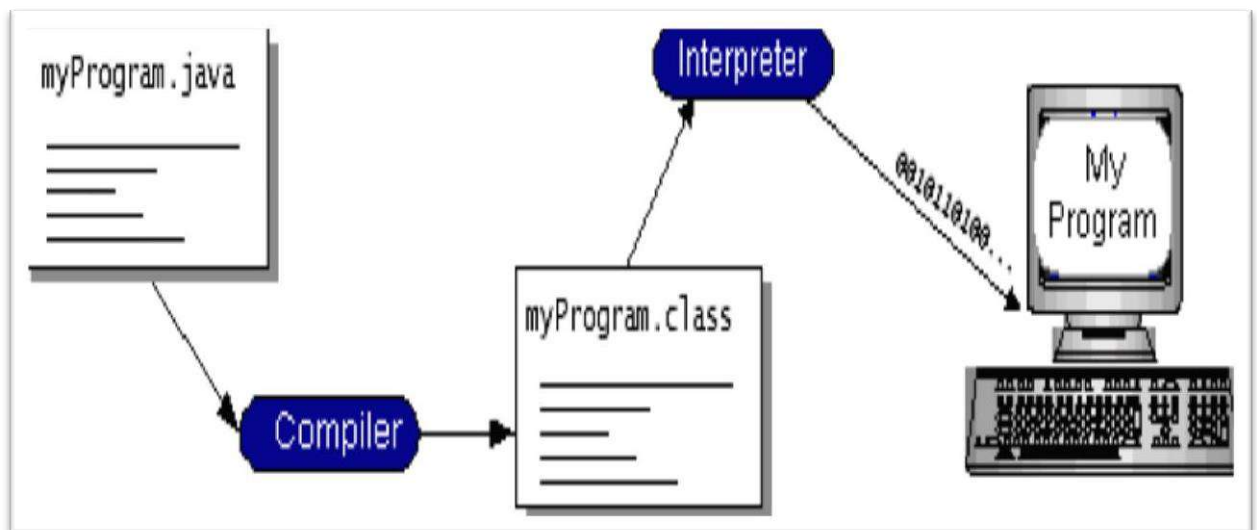
Java technology is both a programming language and a platform. The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

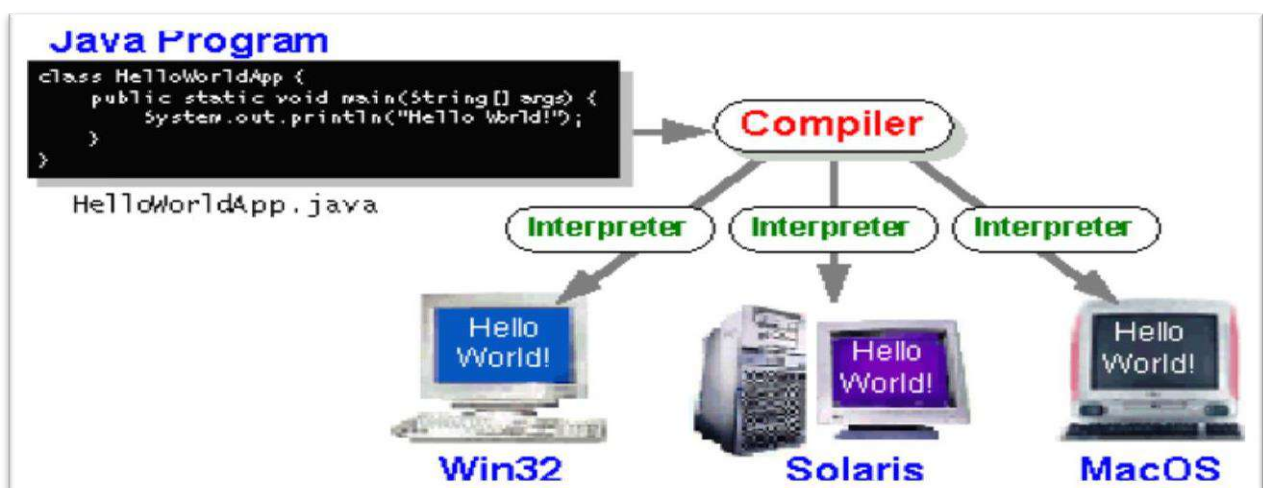


# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing



**Fig 6.1: Program Compilation and Interpretation**

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make “write once, run anywhere” possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM, the same program written in the Java programming language can run on Windows 2000, a Solaris workstation, or on an iMac.



**Fig 6.2: Execution for different platforms**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

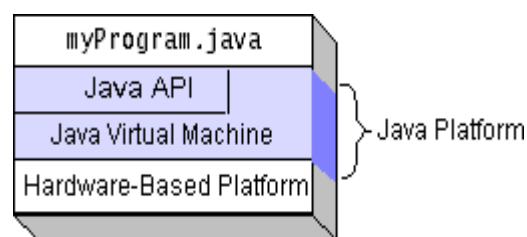
---

## The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.



**Fig 6.3: Java Platform**

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance close to that of native code without threatening portability.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.
- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

- **Software components:** Known as JavaBeans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a wide range of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.

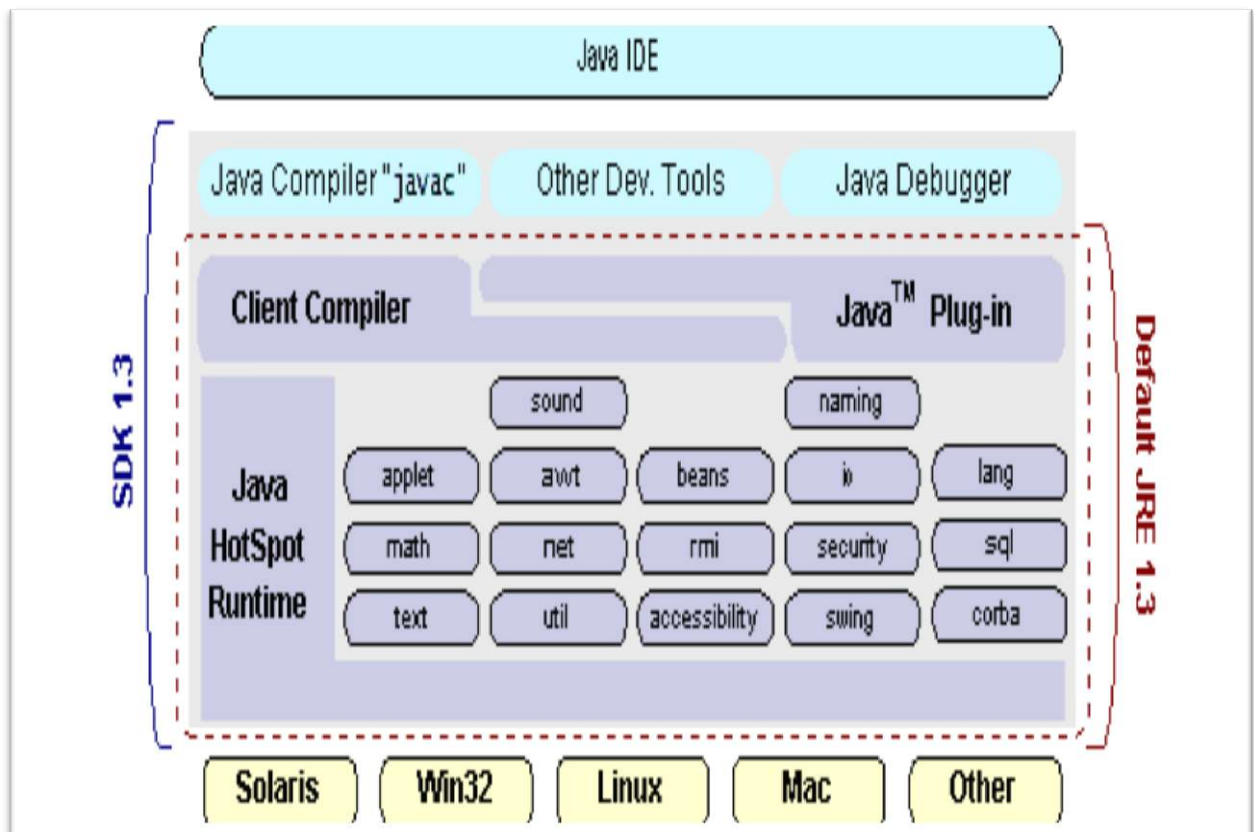


Fig 6.4: Java IDE

## 6.1. How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded "on the fly," without recompiling the entire program.

## 6.2. ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems, programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should

## Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

## 6.3. JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of “plug-in” database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC’s framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

## 6.4. JDB

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## **SQL Conformance**

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

## **JDBC must be implemental on top of common database interfaces**

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

## **Provide a Java interface that is consistent with the rest of the Java system**

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

## **Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

## **Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java ha two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The figure illustrates how this works.

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it’s a Java development tool or a Web



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make “write once, run anywhere” possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

## 6.5. SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/type
s.h>
#include
<sys/soc
ket.h>
int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

## 6.6. JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Map Visualizations

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting some more.

## Time Series Chart Interactivity

Implement a new (to JFreeChart) feature for interactive time series charts --- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

## Dashboards

There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

## Property Editors

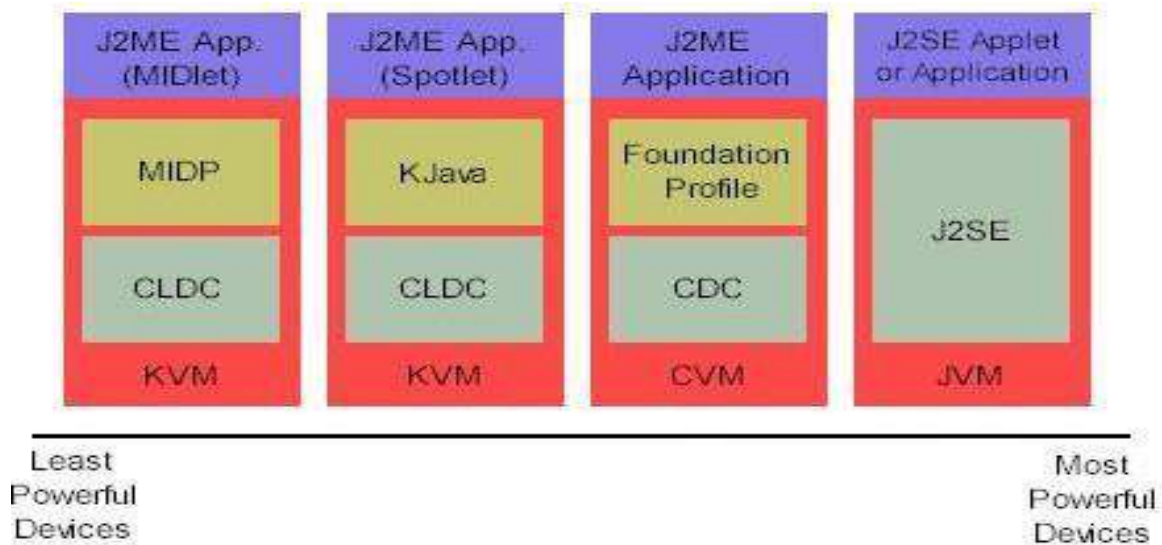
The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

## 6.6. J2ME (Java 2 Micro edition)

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the JavaOne Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---



**Fig 6.7: General J2ME Architecture**

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

## Developing J2ME applications

Introduction In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- **Keep it simple.** Remove unnecessary features, possibly making those features a separate, secondary application.
- **Smaller is better.** This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- **Minimize run-time memory use.** To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

## Configurations overview

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.

## Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

## 7. SYSTEM REQUIREMENTS

### 7.1 HARDWARE REQUIREMENTS

- Processor - Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM - 4 GB
- Hard Disk - 40 GB.

### 7.2 SOFTWARE REQUIREMENTS

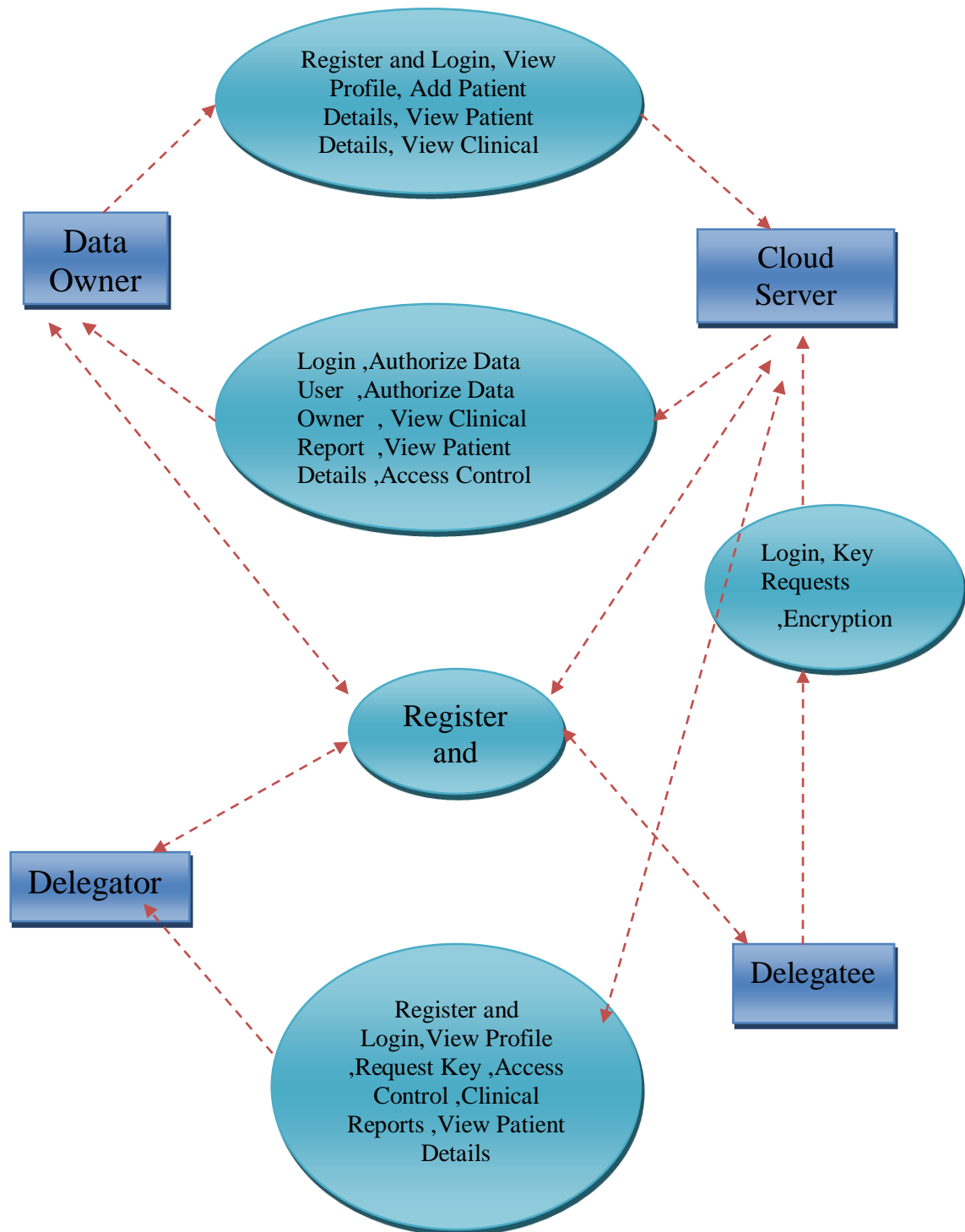
- Operating System - windows 7 / 8.1 / 10/
- Server - Apache Tomcat
- Database - MYSQL Server 5.0
- Frontend - HTML, CSS, JS
- Backend - JSP

## 8. SYSTEM DESIGN

### 8.1 DATAFLOWDIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

## 8.1 DATAFLOW DIAGRAM



**Fig 8.1 Dataflow Diagram**

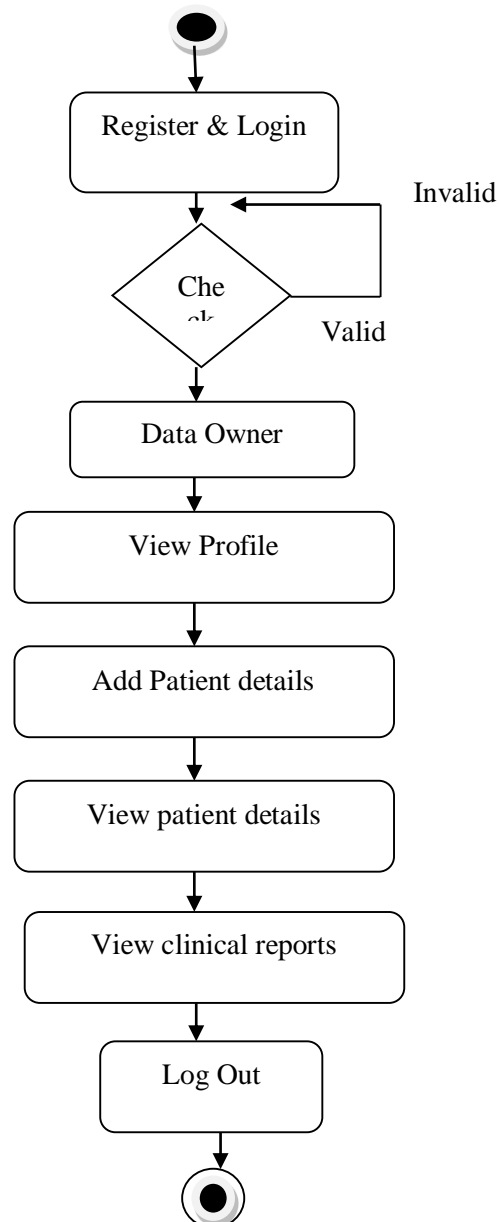


## 8.2 UML DIAGRAMS

### 8.2.1 Activity Diagram

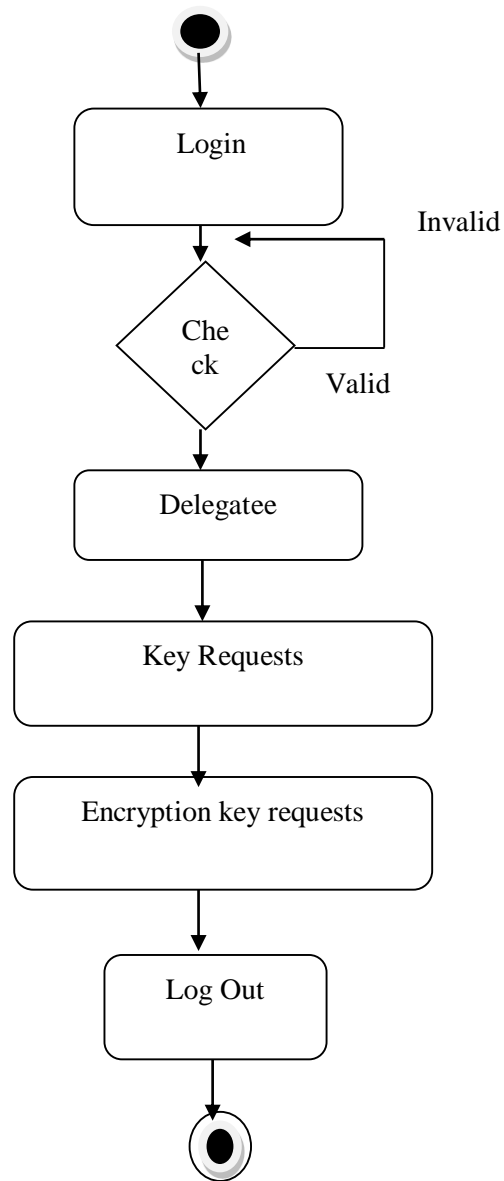
Activity diagrams are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language, activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the overall flow of control.

#### 8.2.1.1 Activity Diagram for Data Owner



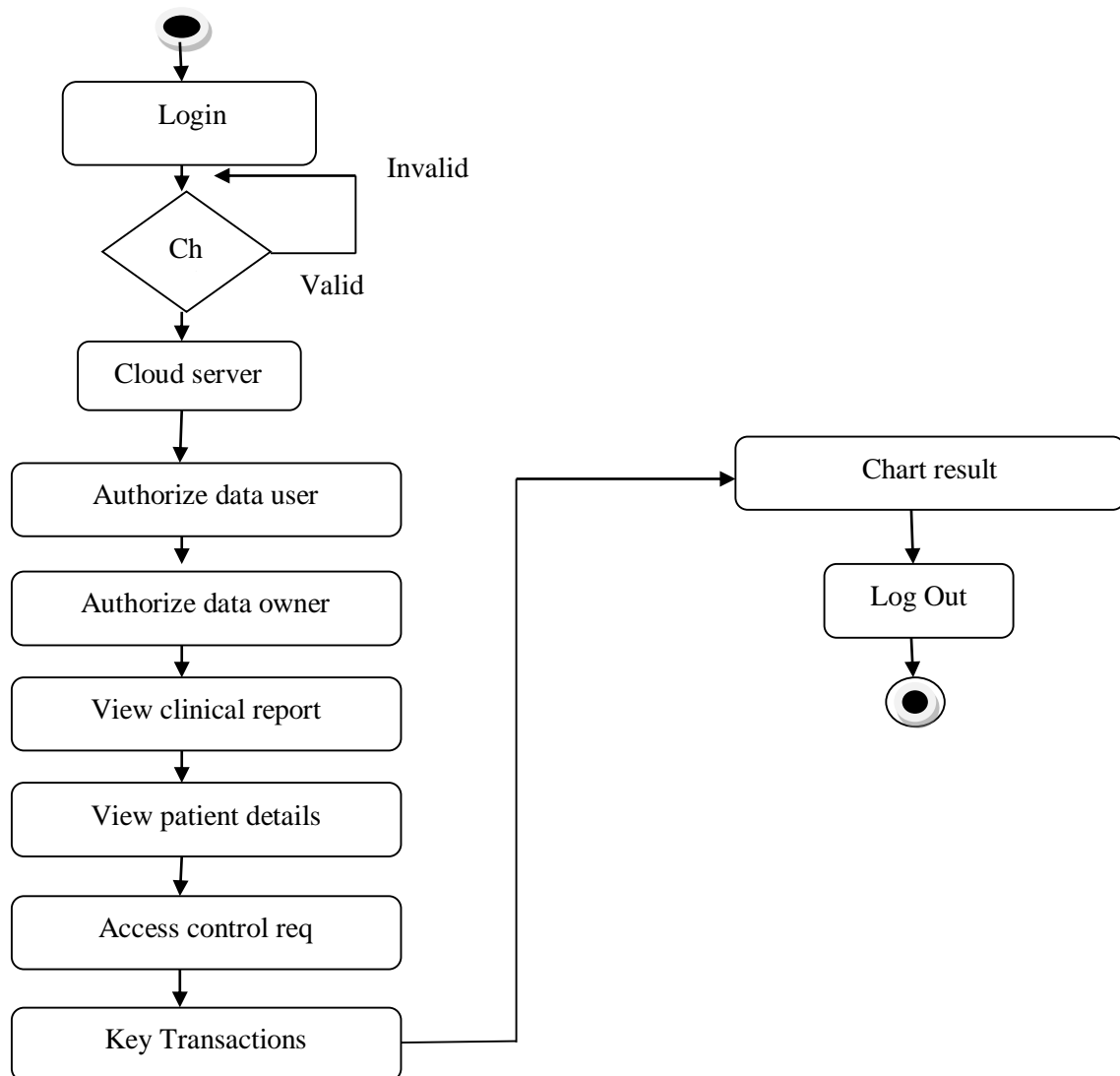
**Fig 8.2.1.1 Activity Diagram for Data Owner**

## 8.2.1.2 Activity Diagram for Delegator



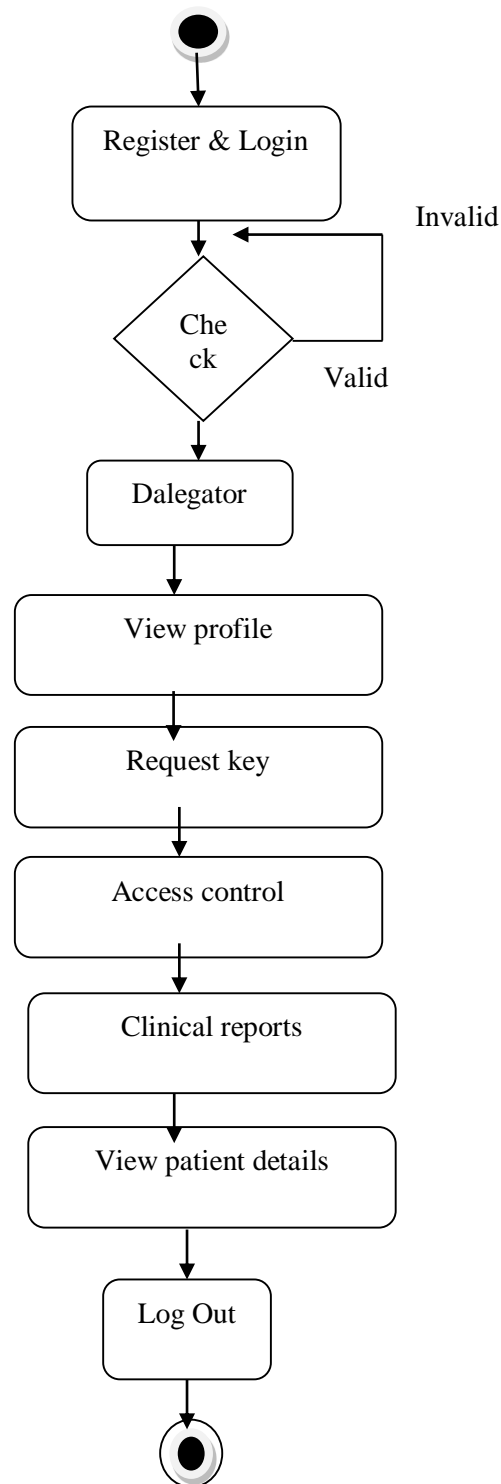
**Fig 8.2.1.2 Activity Diagram for Delegator**

## 8.2.1.3 Activity Diagram for Cloud Server



**Fig 8.2.1.3 Activity Diagram for Cloud Server**

## 8.2.1.4 Activity Diagram for Delegatee



**Fig 8.2.1.3 Activity Diagram for Delegatee**

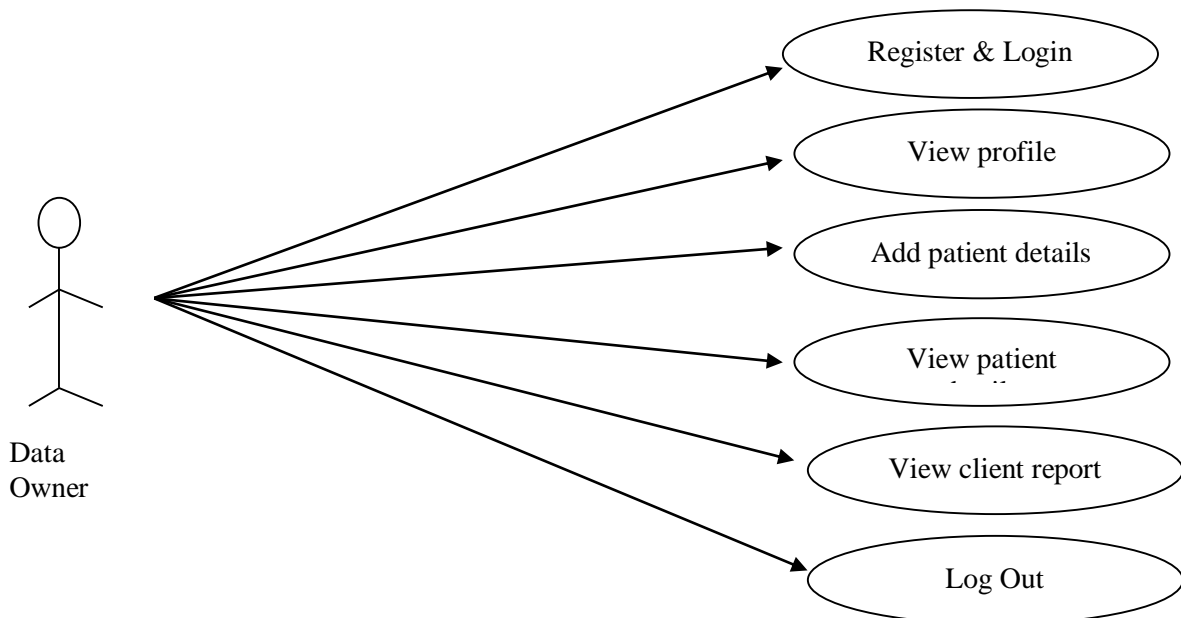
# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## 8.2.2 Use case Diagram

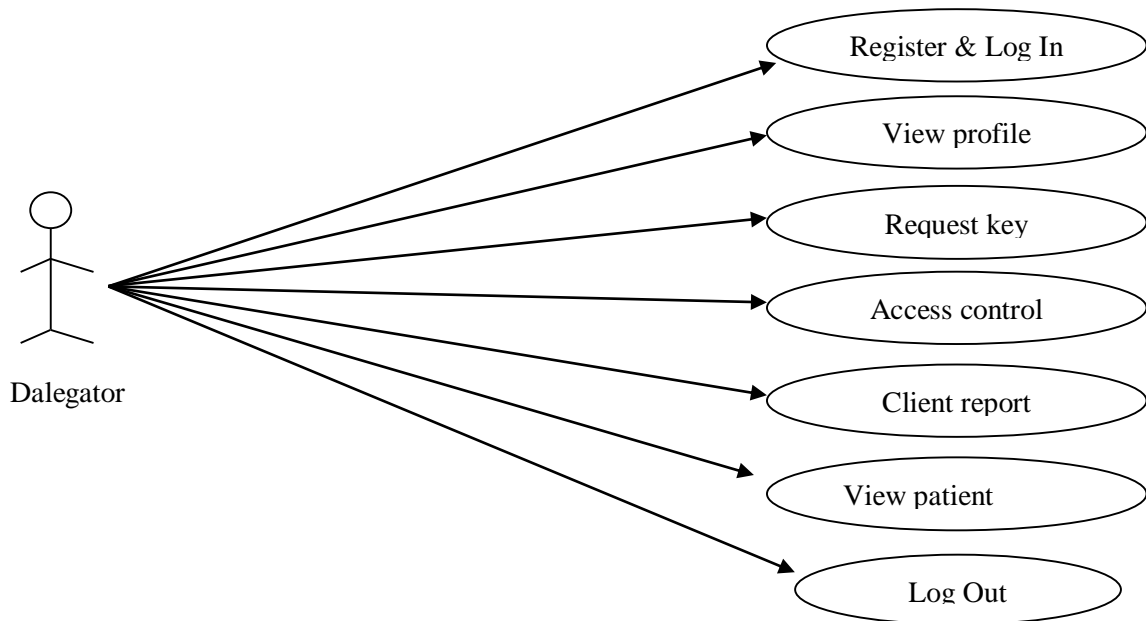
A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

### 8.2.2.1 Use case Diagram for Data owner



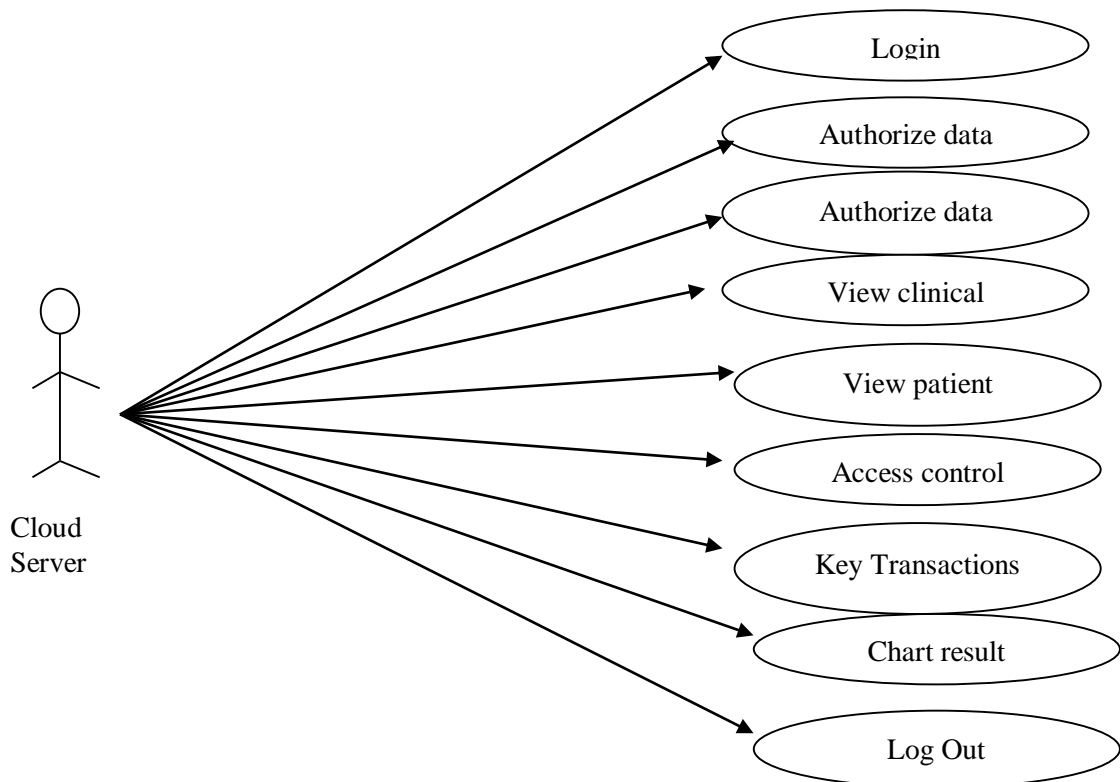
**Fig 8.2.2.1 Use case Diagram for Data Owner**

## 8.2.2.2 Use case Diagram for Delegator



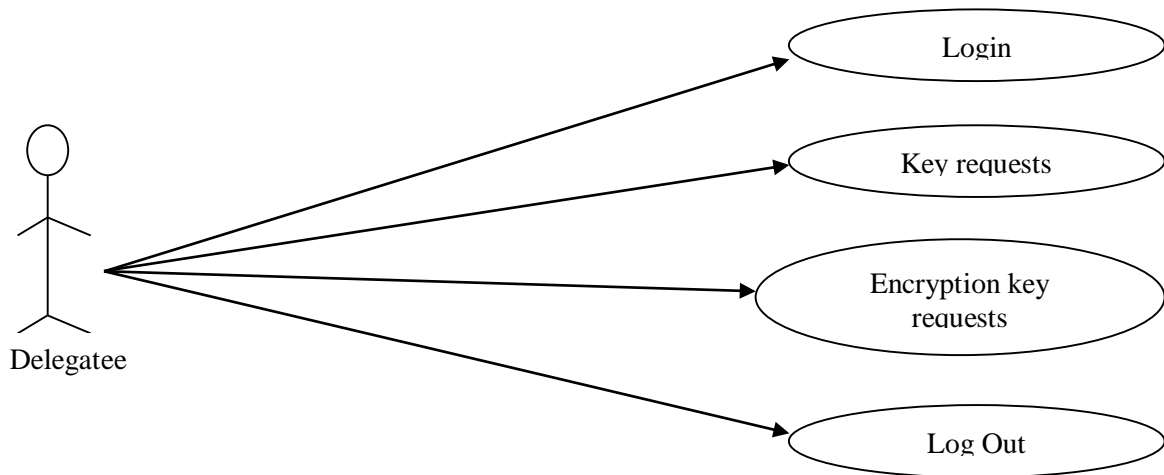
**Fig 8.2.2.2 Use case Diagram for Delegator**

## 8.2.2.3 Use case Diagram for Cloud Server



**Fig 8.2.2.3 Use case Diagram for Cloud Server**

## 8.2.2.4 Use case Diagram for Delegatee



**Fig 8.2.2.4 Use case Diagram for Delegatee**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## 8.2.3 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are sometimes called event diagram, event scenarios, and timing diagram.

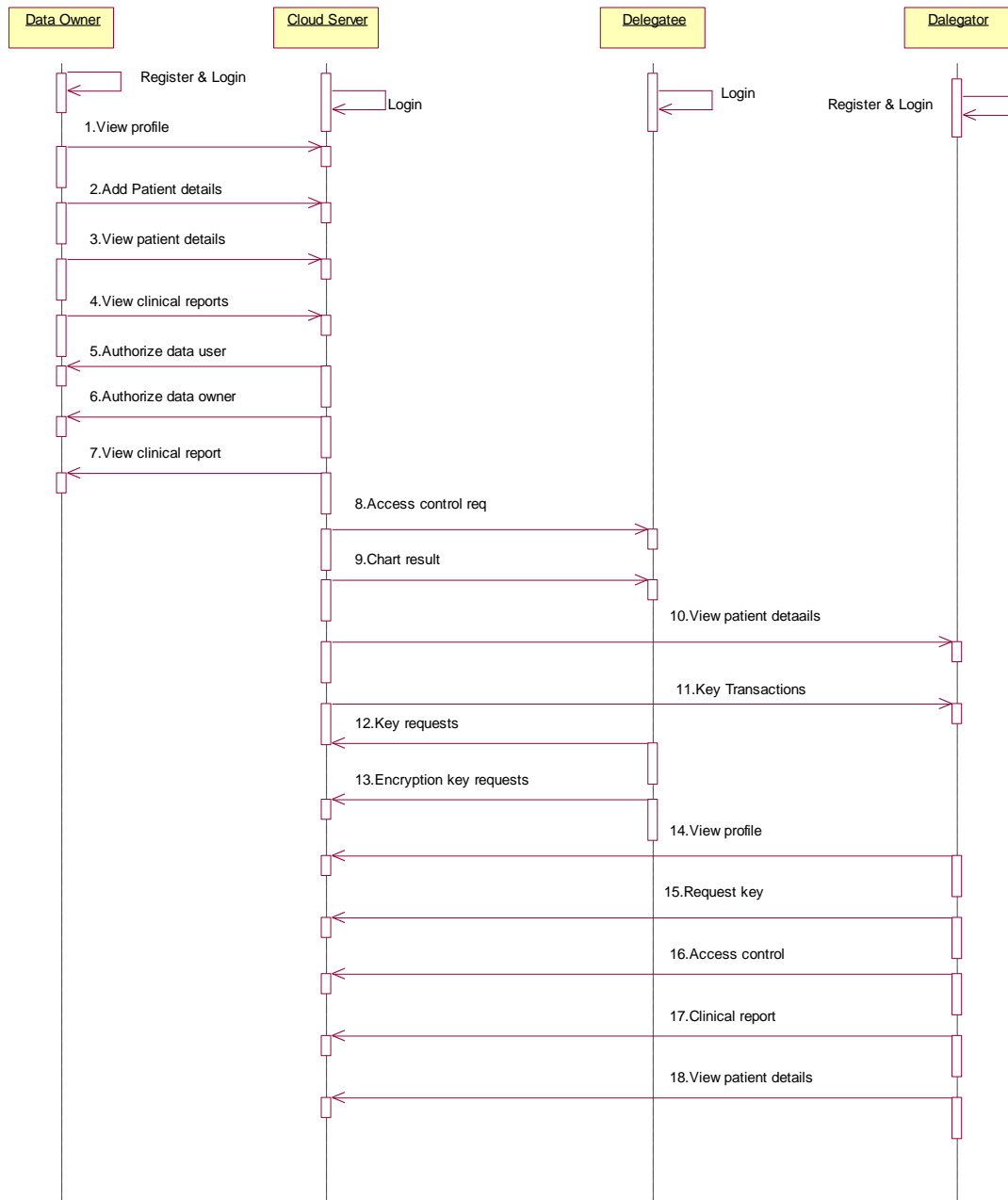


Fig 8.2.3 Sequence Diagram



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## 8.2.4 Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.

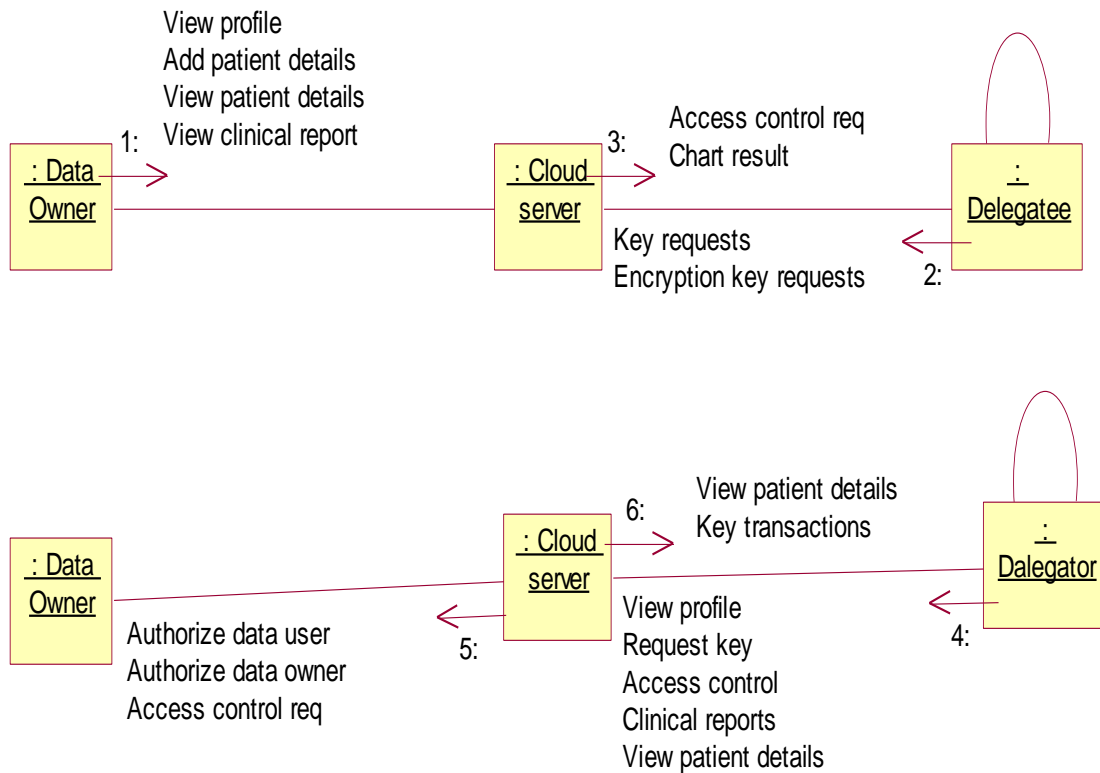


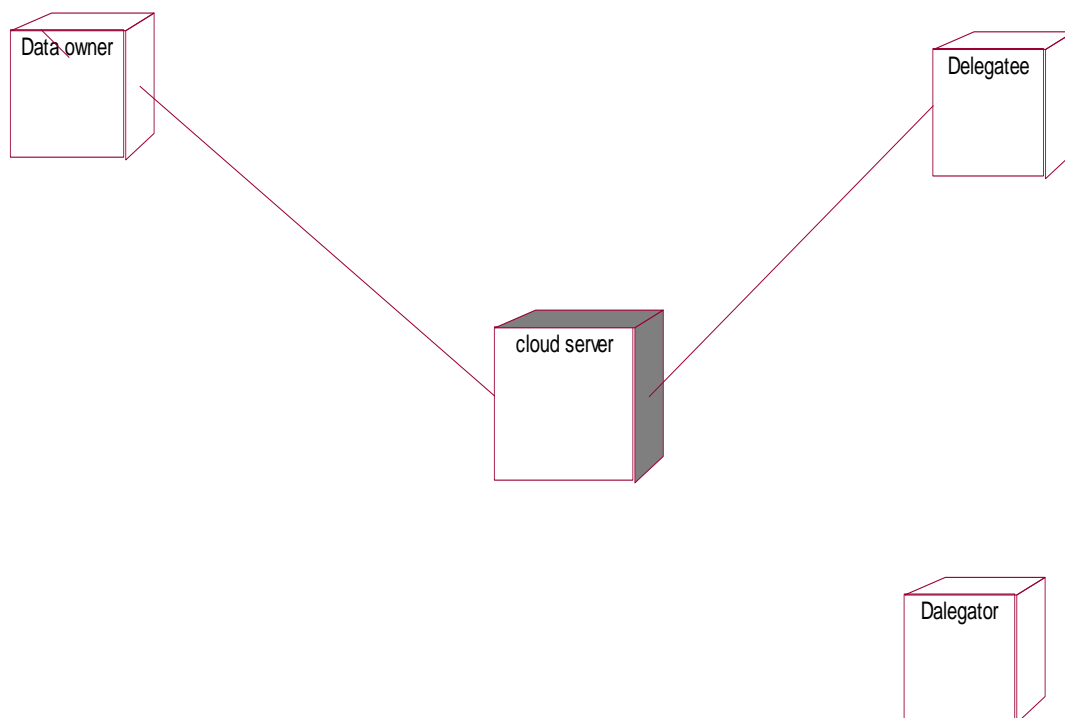
Fig 8.2.4 Collaboration Diagram

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## 8.2.5 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.



**Fig 8.2.5 Deployment diagram**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## 8.2.6 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes Responsibilities and Collaborators approach.

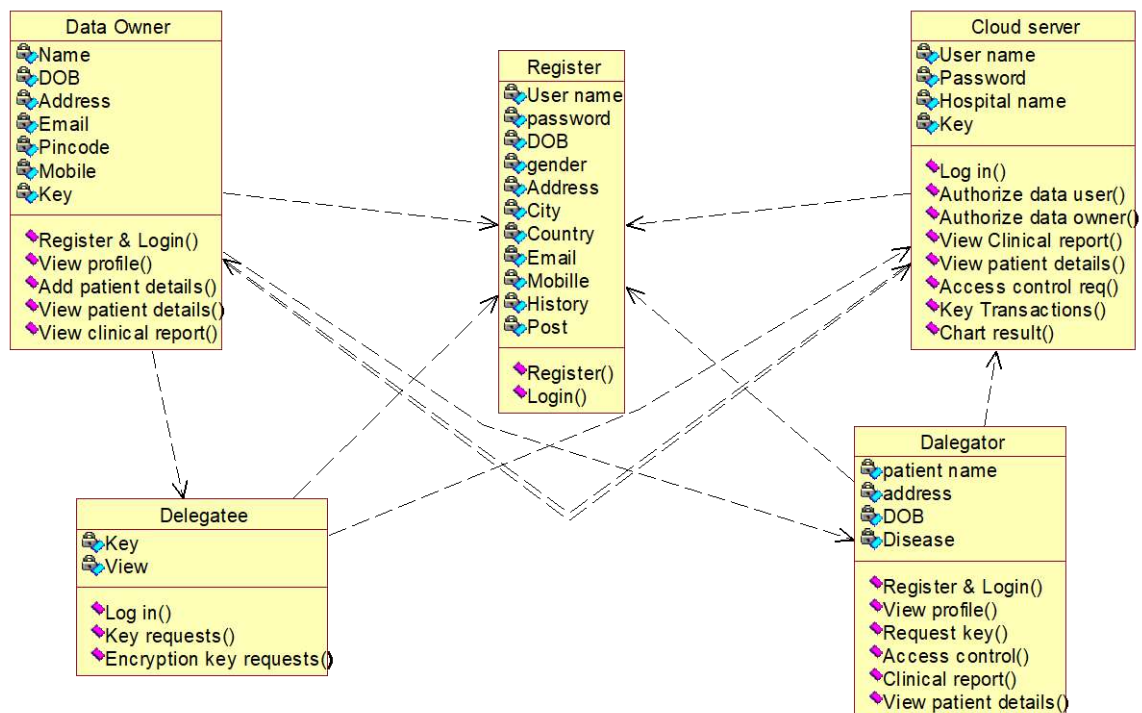


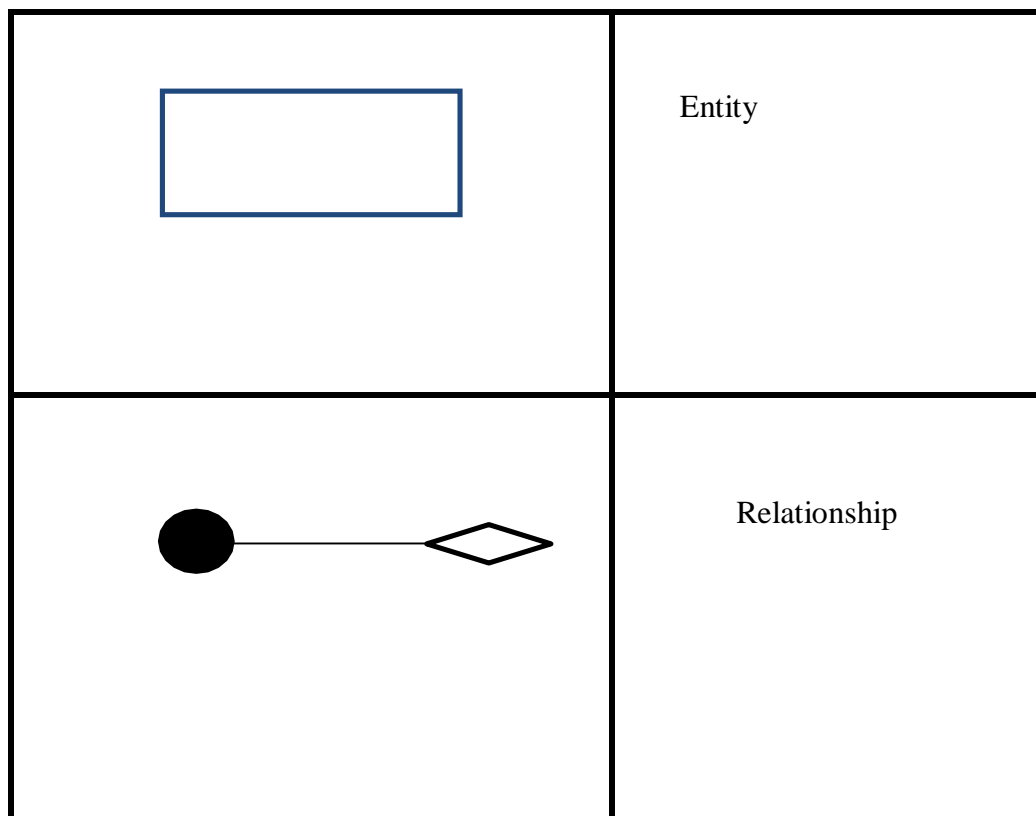
Fig 8.2.6 Class Diagram

## 8.3 E-R Diagrams

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.



**Fig 8.3.1: E-R Notations**

## 9. IMPLEMENTATION

### 9.1. INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### 9.2. OBJECTIVES

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.
4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

## 9.3. OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections of the
  - Future.
  - Signal important events, opportunities, problems, or warnings.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## 9.4 CODING

### Index.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Home Page</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style1 {
 color: #FF0000;
 font-weight: bold;
}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="logo">
<h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
</div>
<div class="menu_nav">

<li class="active">Home
Cloud Server
Data Owner
Delegator
Delgatee

</div>
<div class="clr"></div>
<div class="slider">
<div id="coin-slider"> </div>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<div class="clr"></div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Introduction</h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify" class="style1">The emergence of cloud infrastructure has
significantly reduced the costs of hardware and software resources in computing
infrastructure. To ensure security, the data is usually encrypted before it's outsourced to the
cloud. Unlike searching and sharing the plain data, it is challenging to search and share the
data after encryption. Nevertheless, it is a critical task for the cloud service provider as the
users expect the cloud to conduct a quick search and return the result without losing data
confidentiality. To overcome these problems, we propose a ciphertext-policy attribute-based
mechanism with keyword search and data sharing (CPAB-KSDS) for encrypted cloud data.
The proposed solution not only supports attribute-based keyword search but also enables
attribute-based data sharing at the same time, which is in contrast to the existing solutions
that only support either one of two features. Additionally, the keyword in our scheme can be
updated during the sharing phase without interacting with the PKG. In this paper, we describe
the notion of CPAB-KSDS as well as its security model. Besides, we propose a concrete
scheme and prove that it is against chosen ciphertext attack and chosen keyword attack secure
in the random oracle model. Finally, the proposed construction is demonstrated practical and
efficient in the performance and property comparison.</p>
 </div>
 <div class="clr"></div>
 </div>
 </div>
 </div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 </div>
</div>
```



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<div class="clr"></div>
<ul class="sb_menu">
 » Delgatee
 » Delegator
 » Cloud Server
 » Data Owner

</div>
<div class="gadget">
 <h2 class="star"> </h2>
</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
 <div class="footer_resize">
 <p class="lf"> </p>
 <p class="rf"> </p>
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
Ownprofileimage.jsp
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"% >
<% @ page import="java.sql.*,java.io.*,java.util.*" %>
<% @ include file="connect.jsp" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>PPI: Image display page</title>
</head>
<body>
<%
 int id = Integer.parseInt(request.getParameter("imgid"));
 String type=request.getParameter("type");
 try{

 Statement st=connection.createStatement();
 String strQuery = "select imagess from doctor where id="+id ;
 ResultSet rs = st.executeQuery(strQuery);
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
String imgLen="";
if(rs.next())
 {
 imgLen = rs.getString(1);
 }
rs = st.executeQuery(strQuery);
if(rs.next())
 {
 int len = imgLen.length();
 byte [] rb = new byte[len];
 InputStream readImg = rs.getBinaryStream(1);
 int index=readImg.read(rb, 0, len);
 st.close();
 response.reset();
 response.getOutputStream().write(rb,0,len);
 response.getOutputStream().flush();
 }
}
catch (Exception e){
 e.printStackTrace();
}
%>
```

```
</body>
</html>
```

## **Profileimage.jsp**

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
<% @ page import="java.sql.*,java.io.*,java.util.*" %>
<% @ include file="connect.jsp" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">

</head>
<body>
<%
 int id = Integer.parseInt(request.getParameter("imgid"));
 String type=request.getParameter("type");
 try{

 Statement st=connection.createStatement();
 String strQuery = "select imagess from healthcare_provider where
id="+id ;

 ResultSet rs = st.executeQuery(strQuery);

 String imgLen="";
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
 if(rs.next())
 {
 imgLen = rs.getString(1);
 }
 rs = st.executeQuery(strQuery);
 if(rs.next())
 {
 int len = imgLen.length();
 byte [] rb = new byte[len];
 InputStream readImg = rs.getBinaryStream(1);
 int index=readImg.read(rb, 0, len);
 st.close();
 response.reset();
 response.getOutputStream().write(rb,0,len);
 response.getOutputStream().flush();
 }
 }
 catch (Exception e){
 e.printStackTrace();
 }
%>
```

</body>

</html>

## Wronglogin.html

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<title>Secure Keyword Search and Data Sharing Mechanism for Cloud Computing

</title>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<link href="css/style.css" rel="stylesheet" type="text/css" />

<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />

<script type="text/javascript" src="js/cufon-yui.js"></script>

<script type="text/javascript" src="js/cufon-quicksand.js"></script>

<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>

<script type="text/javascript" src="js/script.js"></script>

<script type="text/javascript" src="js/coin-slider.min.js"></script>

<style type="text/css">

<!--

.style1 { color: #000000 }

.sb3 { font-family:arial;font-size:13px;text-decoration:none }

.sb4 { font-family:arial;font-size:18px;text-decoration:none }

.style8 { color: #CC0033 }

-->

</style>

</head>

<body>

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
 <h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
 </div>
 <div class="menu_nav">

 <li class="active">Home
 Cloud Server
 Data Owner
 Delegator
 Delgatee

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 <div class="clr"></div>
 </div>
 <div class="clr"></div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Login Failed </h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div >
 <p> </p>
 <table width="585" height="172" border="1.5" align="center" cellpadding="0"
cellspacing="0" bgcolor="#FFFFFF">
 <tr>
 <td width="637" align="center"><p> Sorry

 Your login failed.

 This happens due to - Incorrect Delegatorname / Incorrect
password

 In case you have forgotten your password,

 click here to re enter correct username or password on
homepage.

 Click here to go
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
back

 </p></td>
 </tr>
</table>
<p align="justify"> </p>
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 » Delgatee
 » Delegator
 » Cloud Server
 » Data Owner

 </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
```

## **HSP Main.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Data Owner</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style11 {color: #7BA7DB;
 font-weight: bold;
 font-size: 18px;
 }
.style18 {font-size: 16px;
 font-style: italic;
 }
.style19 {
 font-size: 18px;
 font-weight: bold;
 }
.style38 { color: #FF0000;
 font-weight: bold;
 font-size: 14px;
 }
.style1 { color: #FF0000;
 font-weight: bold;
 }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
 <h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
 </div>
 <div class="menu_nav">

 <li class="active">Home
 Logout

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 <div class="clr"></div>
</div>
 <div class="clr"></div>
</div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Welcome <%=application.getAttribute("pname")%> </h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify">The emergence of cloud infrastructure has
significantly reduced the costs of hardware and software resources in computing
infrastructure. To ensure security, the data is usually encrypted before it's outsourced to the
cloud. Unlike searching and sharing the plain data, it is challenging to search and share the
data after encryption. Nevertheless, it is a critical task for the cloud service provider as the
users expect the cloud to conduct a quick search and return the result without losing data
confidentiality. To overcome these problems, we propose a ciphertext-policy attribute-based
mechanism with keyword search and data sharing (CPAB-KSDS) for encrypted cloud data.
The proposed solution not only supports attribute-based keyword search but also enables
attribute-based data sharing at the same time, which is in contrast to the existing solutions
that only support either one of two features. Additionally, the keyword in our scheme can be
updated during the sharing phase without interacting with the PKG. In this paper, we describe
the notion of CPAB-KSDS as well as its security model. Besides, we propose a concrete
scheme and prove that it is against chosen ciphertext attack and chosen keyword attack secure
in the random oracle model. Finally, the proposed construction is demonstrated practical and
efficient in the performance and property comparison..</p>
 </div>
 <div class="clr"></div>
 </div>
 </div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<h2 class="star">Menu</h2>
<div class="clr"></div>
<ul class="sb_menu">
 » Home
 » View Profile
 » Add Patient Details
 » View Patient Details

 » Logout

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
```

## **HSP logn.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Data Owner</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 {
 color: #FF0000;
 font-weight: bold;
}
-->
</style>
</head>
<body>
<div class="main">
```







# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## HSP\_Register.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Data Owner</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style2 {
 color: #FFFF00;
 font-weight: bold;
}
.style3 {color: #FFFF00}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="logo">
<h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
</div>
<div class="menu_nav">

Home
Cloud Server
<li class="active">Data Owner
Delegator
Delgatee

</div>
<div class="clr"></div>
<div class="slider">
<div id="coin-slider"> </div>
<div class="clr"></div>
</div>
</div>
</div>
</div>
</div>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
</div>
<div class="clr"></div>
</div>
</div>
<div class="content">
<div class="content_resize">
<div class="mainbar">
<div class="article">
<h2>Data Owner Register </h2>
<p class="infopost"> </p>
<div class="clr"></div>
<div>
<p align="justify"> </p>
<form action="HSP_RegisterAuthentication.jsp" method="post" id=""
enctype="multipart/form-data">
<label for="name"> </label>
<table width="590" height="524" border="0" align="center" cellpadding="0"
cellspacing="0">
<tr>
<td width="259" bgcolor="#FF0000" scope="row"><div align="left"
class="style2"> Name (required) : </div></td>
<td width="343"><input id="name" name="userid" class="text" /></td>
</tr>
<tr>
<td bgcolor="#FF0000" ><div align="left" class="style2">Password (required) :
</div></td>
<td><input type="password" id="password" name="pass" class="text" /></td>
</tr>
<tr>
<td bgcolor="#FF0000" scope="row"><div align="left" class="style2">Email
Address (required) : </div></td>
<td><input id="email" name="email" class="text" /></td>
</tr>
<tr>
<td bgcolor="#FF0000" scope="row"><div align="left" class="style2">Mobile
Number (required) : </div></td>
<td><input id="mobile" name="mobile" class="text" /></td>
</tr>
<tr>
<td bgcolor="#FF0000" scope="row">
<label for="label"> </label>
<label for="label">

<div align="left" class="style3">Your Address : </div>

</label>
</td>
<td><textarea name="address" cols="45" id="address"></textarea></td>
```

## Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
</tr>
<tr>
 <td bgcolor="#FF0000" scope="row">
 <label for="label"> </label>
 <label for="label">

 <div align="left" class="style3">Date of Birth (required) :
</div>

 </label>
 </td>
 <td><input id="dob" name="dob" class="text" /></td>
</tr>
<tr>
 <td bgcolor="#FF0000" scope="row"><div align="left"
class="style3">Select Gender (required) : </div></td>
 <td><select id="s1" name="gender" class="text">
 <option>-Select-</option>
 <option>Male</option>
 <option>Female</option>
 </select></td>
</tr>
<tr>
 <td bgcolor="#FF0000" scope="row">
 <label for="label"> </label>
 <label for="label">

 <div align="left" class="style3">Enter Pincode (required) :
</div>

 </label>
 </td>
 <td><input id="pincode" name="pincode" class="text" /></td>
</tr>
<tr>
 <td bgcolor="#FF0000" scope="row">
 <label for="location"> </label>
 <label for="location">

 <div align="left" class="style3">Enter Location (required) :
</div>

 </label>
 </td>
 <td><input id="loc" name="location" class="text" /></td>
</tr>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<tr>
 <td bgcolor="#FF0000" scope="row">
 <label for="label"> </label>
 <label for="label">

 <div align="left" class="style3">Select Profile Picture (required) :
</div>

 </label>
 </td>
 <td><input type="file" id="pic" name="pic" class="text" /></td>
</tr>
<tr>
 <td height="79" scope="row"> </td>
 <td><input name="submit" type="submit" value="REGISTER" /></td>
</tr>
</table>
</form>
<p align="right">Back</p>
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 » Delgatee
 » Delegator
 » Cloud Server
 » Data Owner

 </div>
</div>
<div class="clr"></div>
</div>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
HS_Main.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Cloud Server</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style11 {color: #7BA7DB;
font-weight: bold;
font-size: 18px;
}
.style18 {font-size: 16px;
font-style: italic;
}
.style19 {
font-size: 18px;
font-weight: bold;
}
.style1 {color: #FF0000;
font-weight: bold;
}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="logo">
<h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
</div>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<div class="menu_nav">

 <li class="active">Home
 Logout

</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
 <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="mainbar">
 <div class="article">
 <h2>Welcome Cloud Server </h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify">The emergence of cloud infrastructure has
significantly reduced the costs of hardware and software resources in computing
infrastructure. To ensure security, the data is usually encrypted before it's outsourced to the
cloud. Unlike searching and sharing the plain data, it is challenging to search and share the
data after encryption. Nevertheless, it is a critical task for the cloud service provider as the
users expect the cloud to conduct a quick search and return the result without losing data
confidentiality. To overcome these problems, we propose a ciphertext-policy attribute-based
mechanism with keyword search and data sharing (CPAB-KSDS) for encrypted cloud data.
The proposed solution not only supports attribute-based keyword search but also enables
attribute-based data sharing at the same time, which is in contrast to the existing solutions
that only support either one of two features. Additionally, the keyword in our scheme can be
updated during the sharing phase without interacting with the PKG. In this paper, we describe
the notion of CPAB-KSDS as well as its security model. Besides, we propose a concrete
scheme and prove that it is against chosen ciphertext attack and chosen keyword attack secure
in the random oracle model. Finally, the proposed construction is demonstrated practical and
efficient in the performance and property comparison.</p>
 </div>
 </div>
 </div>
 </div>
 </div>
</div>
<div class="sidebar">
```



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
</div>
<div class="clr"></div>
<div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 » Home
 » View and Authorize
Delegator
 » View and Authorize Data Owner

 » View Patient Details
 »View Access Control Req

 » View Key Transactions
 » View Score Results
 » Logout

</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer">
 <div class="footer_resize">
 <p class="lf"> </p>
 <p class="rf"> </p>
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
HS_OwnerDetails.jsp
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
pageEncoding="ISO-8859-1"%>
 <% @page import ="java.util.*"%>
<% @ include file="connect.jsp" %>
 <% @page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.Secret
KeySpec,org.bouncycastle.util.encoders.Base64"%>
 <% @ page
import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io.Fil
eInputStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDi
gest,java.io.BufferedInputStream" %>
<% @ page import
="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto.Ciphe
r"%>
 <% @page import
="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java.io.FileO
utputStream,java.io.PrintStream"%>

<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Cloud Server</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style25 { color: #3f3f3f;
font-weight: bold;
}
.style38 {
color: #FF0000;
font-weight: bold;
font-size: 14px;
}
.style40 { color: #4EA4BA }
.style41 { color: #4EA4BA; font-weight: bold; }
.style42 { color: #000000; }
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
</div>
<div class="menu_nav">

<li class="active">Home
Logout

</div>
<div class="clr"></div>
<div class="slider">
<div id="coin-slider"> </div>
<div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
<div class="content_resize">
<div class="mainbar">
<div class="mainbar">
<div class="article">
<h2> Delegator Details</h2>
<p class="infopost"> </p>
<div class="clr"></div>
<div >
<p align="justify">
<%
String doname = request.getParameter("name");
//int uid = Integer.parseInt(mid);
String
s1,s2,s3,s4,s5,s6="",s7="",s8,s9,s10,s11,s12,s13;
int i=0;
try
{
String query="select * from doctor
Statement
ResultSet rs=st.executeQuery(query);
if (rs.next())
{
i=rs.getInt(1);
s1=rs.getString(2);
s2=rs.getString(4);
where name="" + doname + """;
st=connection.createStatement();
```



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<input type="reset" name="imageField" id="imageField" class="RESET" /></p>
</form>
<p align="right">Back</p>
</div>
<div class="clr"></div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">

<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

<input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
<h2 class="star">Menu</h2>
<div class="clr"></div>
<ul class="sb_menu">
» Delgatee
» Delegator
» Cloud Server
» Data Owner

</div>
</div>
<div class="clr"></div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
HS Provide Access DetailsPer.jsp
<% @ include file="connect.jsp" %>
<%
```

```
try {
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
String id=request.getParameter("id");

Statement st=connection.createStatement();
String query1="update hs_access_req set details_per='Permitted' where id='"+id+"'";
st.executeUpdate(query1);

connection.close();
response.sendRedirect("HS_ViewAccessControl_req.jsp");
}
catch(Exception e)
{
out.println(e);
}
```

%>

## **HK Main.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Delgatee</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style11 { color: #7BA7DB;
font-weight: bold;
font-size: 18px;
}
.style18 { font-size: 16px;
font-style: italic;
}
.style19 {
font-size: 18px;
font-weight: bold;
}
.style1 { color: #FF0000;
font-weight: bold;
}
-->
</style>
</head>
<body>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
 <h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
 </div>
 <div class="menu_nav">

 <li class="active">Home
 Logout

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 <div class="clr"></div>
 </div>
 <div class="clr"></div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="mainbar">
 <div class="article">
 <h2>Welcome To Delgatee</h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify">The emergence of cloud infrastructure has
significantly reduced the costs of hardware and software resources in computing
infrastructure. To ensure security, the data is usually encrypted before it's outsourced to the
cloud. Unlike searching and sharing the plain data, it is challenging to search and share the
data after encryption. Nevertheless, it is a critical task for the cloud service provider as the
users expect the cloud to conduct a quick search and return the result without losing data
confidentiality. To overcome these problems, we propose a ciphertext-policy attribute-based
mechanism with keyword search and data sharing (CPAB-KSDS) for encrypted cloud data.
The proposed solution not only supports attribute-based keyword search but also enables
attribute-based data sharing at the same time, which is in contrast to the existing solutions
that only support either one of two features. Additionally, the keyword in our scheme can be
updated during the sharing phase without interacting with the PKG. In this paper, we describe
the notion of CPAB-KSDS as well as its security model. Besides, we propose a concrete

```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

scheme and prove that it is against chosen ciphertext attack and chosen keyword attack secure in the random oracle model. Finally, the proposed construction is demonstrated practical and efficient in the performance and property comparison.

```
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
<div class="searchform">
<form id="formsearch" name="formsearch" method="post" action="#">

<input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

<input name="button_search" src="images/search.gif" class="button_search"
type="image" />
</form>
</div>
<div class="clr"></div>
<div class="gadget">
<h2 class="star">Menu</h2>
<div class="clr"></div>
<ul class="sb_menu">
» Home
» View Key Requests
» View Encryption Key Requests

» Logout

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
```

## **D ViewDetails.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
<% @page import ="java.util.*"%>
<% @ include file="connect.jsp" %>
```



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<% @page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.Secret
KeySpec,org.bouncycastle.util.encoders.Base64"%>
<% @ page
import="java.sql.*,java.lang.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream
,java.io.FileInputStream,java.security.DigestInputStream,java.math.BigInteger,java.security.
MessageDigest,java.io.BufferedInputStream" %>
<% @ page import
="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto.Ciphe
r"%>
<% @page import
="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java.io.FileO
utputStream,java.io.PrintStream"%>
<% @page
import="com.oreilly.servlet.*,java.sql.*,java.lang.*,java.util.*,java.io.*,javax.servlet.*,javax.
servlet.http.*" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Delegator</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style20 {
 color: #FF0000;
 font-size: 16;
}
.style24 { font-size: 14px}
.style25 { font-size: 16px}
.style28 { color: #FF0000}
.style29 { color: #FFFF00}
.style30 {
 font-size: 14px;
 color: #FFFF00;
 font-weight: bold;
}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<div class="logo">
 <h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
</div>
<div class="menu_nav">

 <li class="active">Home
 Logout

 </div>
 </div>
 }
 }
 if(al.isEmpty())
 {
 %>
 <h3>No Patient Records Found , Request For Access
Control

 (OR)

 Wait For Cloud Server To Provide Access Control </h3>
 <%
 }

 connection.close();
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
%>
 </table>
 <p align="right"> </p>
 <p align="right">Back</p>
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<div class="clr"></div>
<ul class="sb_menu">
 » Home
 » Logout

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
```

## **HK docterDetails.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
 pageEncoding="ISO-8859-1"%>
 <% @page import ="java.util.*"%>
<% @ include file="connect.jsp" %>
 <% @page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.Secret
KeySpec,org.bouncycastle.util.encoders.Base64"%>
 <% @ page
import="java.sql.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream,java.io.Fil
eInputStream,java.security.DigestInputStream,java.math.BigInteger,java.security.MessageDi
gest,java.io.BufferedInputStream" %>
<% @ page import
="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto.Ciphe
r"%>
 <% @page import
="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java.io.FileO
utputStream,java.io.PrintStream"%>

<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>(Delgatee)</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<!--
.style25 { color: #3f3f3f;
 font-weight: bold;
}
.style40 { color: #4EA4BA }
.style41 { color: #4EA4BA; font-weight: bold; }
.style42 { color: #000000; }
.style38 { color: #FF0000;
 font-weight: bold;
 font-size: 14px;
}
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
 <h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
 </div>
 <div class="menu_nav">

 <li class="active">Home
 Logout

 </div>
 <div class="clr"></div>
 <div class="slider">
 <div id="coin-slider"> </div>
 <div class="clr"></div>
 </div>
 <div class="clr"></div>
 </div>
 <div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="mainbar">
 <div class="article">
 <h2>Delegator Details </h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 </div>
 </div>
 </div>
 </div>
 </div>
</div>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<p align="justify">
 <%
 String doname = request.getParameter("name");
 //int uid = Integer.parseInt(mid);
 String
s1,s2,s3,s4,s5,s6="",s7="",s8,s9,s10,s11,s12,s13;
 int i=0;
 try
 {
 String query="select * from doctor
where name='"+doname+"'";
 Statement
st=connection.createStatement();
 ResultSet rs=st.executeQuery(query);
 if (rs.next())
 {
 i=rs.getInt(1);
 s1=rs.getString(2);
 s2=rs.getString(4);
 s3=rs.getString(5);
 s4=rs.getString(6);
 s5=rs.getString(7);

 s8=rs.getString(13);
 }
 }
 %>
</p>
<p align="left" class="style38">Role : <%=s8%> </p>
<table width="465" height="242" border="1" align="center" cellpadding="0"
cellspacing="0" style="border-collapse: collapse; margin:10px 10px 10px 10px; font-
family:Verdana, Arial, Helvetica, sans-serif; font-size:14px;">
 <tr>
 <td rowspan="8" ><div style="margin:10px 13px 10px 13px;" >
 <div align="center">
 <input name="image" type="image"
src="ownprofileimage.jsp?imgid=<%=i%>" style="width:150px; height:150px;" />
 </div>
 </div></td>
 </tr>
 <tr>
 <td width="150" valign="middle" height="40" style="color: #2c83b0;"><div
align="left" class="style25 style40" style="margin-left:20px;">Name:</div></td>
 <td width="300" valign="middle" height="40" style="color:#000000;"><div
align="left" class="style42" style="margin-left:20px;">
 <%=out.println(s1);%>
 </td>
 </tr>
 </table>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
</div></td>
</tr>
<tr>
 <td width="120" valign="middle" height="40" style="color: #2c83b0;"><div align="left" class="style41" style="margin-left:20px;">E-Mail:</div></td>
 <td width="72" valign="middle" height="40" style="color:#000000;"><div align="left" class="style42" style="margin-left:20px;">
 <%out.println(s2);%>
 </div></td>
</tr>
<tr>
 <td width="100" valign="middle" height="40" style="color: #2c83b0;"><div align="left" class="style41" style="margin-left:20px;">Mobile:</div></td>
 <td width="82" valign="middle" height="40"><div align="left" class="style42" style="margin-left:20px;">
 <%out.println(s3);%>
 </div></td>
</tr>
<tr>
 <td width="100" align="left" valign="middle" height="40" style="color: #2c83b0;"><div align="left" class="style41" style="margin-left:20px;">Date Of Birth:</div></td>
 <td width="82" align="left" valign="middle" height="40"><div align="left" class="style42" style="margin-left:20px;">
 <%out.println(s5);%>
 </div></td>
</tr>
<tr>
 <td width="100" align="left" valign="middle" height="40" style="color: #2c83b0;"><div align="left" class="style41" style="margin-left:20px;">Address:</div></td>
 <td width="82" align="left" valign="middle" height="40"><div align="left" class="style42" style="margin-left:20px;">
 <%out.println(s4);%>
 </div></td>
</tr>
<%
 }
 connection.close();
 }
 catch(Exception e)
 {
 out.println(e.getMessage());
 }
%>
</table>
<div align="right">Back</div>
</div>
<div class="clr"></div>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
</div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 » Home
 » Logout

 </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer"></div>
</div>
<div align=center></div>
</body>
</html>
```

## **D AccessControl.jsp**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
 <% @page import ="java.util.*"%>
<% @ include file="connect.jsp" %>
 <% @page import
="java.util.*,java.security.Key,java.util.Random,javax.crypto.Cipher,javax.crypto.spec.Secret
KeySpec,org.bouncycastle.util.encoders.Base64"%>
 <% @ page
import="java.sql.*,java.lang.*,java.util.Random,java.io.PrintStream,java.io.FileOutputStream
,java.io.FileInputStream,java.security.DigestInputStream,java.math.BigInteger,java.security.
MessageDigest,java.io.BufferedInputStream" %>
 <% @ page import
="java.security.Key,java.security.KeyPair,java.security.KeyPairGenerator,javax.crypto.Ciphe
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
r"%>
<% @page import
="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java.io.FileO
utputStream,java.io.PrintStream"%>
<% @page
import="com.oreilly.servlet.*,java.sql.*,java.lang.*,java.util.*,java.io.*,javax.servlet.*,javax.
servlet.http.*" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Delegator</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-quicksand.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<style type="text/css">
<!--
.style20 {
 color: #FF0000;
 font-size: 16;
}
.style24 { font-size: 14px}
.style26 {color: #FF0000}
.style27 {
 color: #333333;
 font-weight: bold;
}
.style28 {color: #FFFF00}
.style29 {
 font-size: 14px;
 color: #FFFF00;
 font-weight: bold;
}
-->
</style>
</head>
<body>
<div class="main">
<div class="header">
<div class="header_resize">
<div class="logo">
<h1>Secure Keyword Search and Data Sharing
Mechanism for Cloud Computing
</h1>
</div>
<div class="menu_nav">
```



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```

 <li class="active">Home
 Logout

</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
 <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2>Access Control </h2>
 <p class="infopost"> </p>
 <div class="clr"></div>
 <div class="clr"></div>
 <div >
 <p align="justify"> </p>
 <table width="620" border="1.5" style="border-collapse:collapse" cellpadding="0"
cellspacing="0" align="center">
 <%

String s1="",s2="",s3="",s4="",s5="",s6="",s7="",s8,s9="",s10,s11,s12,s13;
int i=0,j=0,k=0;
try
{

 %>
 <tr>
 <td width="25" height="30" bgcolor="#FF0000"><div align="center"
class="style24 style28"> ID </div></td>
 <td width="103" bgcolor="#FF0000"><div align="center" class="style29">Patient
Name </div></td>
 <td width="117" bgcolor="#FF0000"><div align="center"
class="style29">Provider Name </div></td>
 <td width="105" bgcolor="#FF0000"><div align="center"
class="style29">Hospital</div></td>
 <td width="199" bgcolor="#FF0000"><div align="center"
class="style29">Request </div></td>
 </tr>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<%
String docname=(String)application.getAttribute("docname");
String query="Select *from patient_details where
doctor='"+docname+"' ";
Statement st=connection.createStatement();
ResultSet rs=st.executeQuery(query);
while (rs.next())
{
 i=rs.getInt(1);
 s2=rs.getString(2);
 s3=rs.getString(17);
 s4=rs.getString(18);
 s5=rs.getString(11);
 s6=rs.getString(15);

 %>
<tr>
<td height="28"><div align="center"><%=i%></div></td>
<td><div align="center"><%=s2%></div></td>
<td><div align="center"><%=s6%></div></td>
<td><div align="center"><%=s3%></div></td>
<%ResultSet
rr=connection.createStatement().executeQuery("select * from hs_access_req where
doctor='"+s4+"' and patient_name='"+s2+"' and provider='"+s6+"' ");
if(rr.next())
{ String doc_per=rr.getString(5);
String details_per=rr.getString(6);%>
<td><div align="center">Only Doc : <%=doc_per%>

All Details :
<%=details_per%></div></td>
<% }else{ %>
<td width="57"><div align="center"><a
href="D_AccessControl1.jsp?fname=<%=s2%>">Send Request</div></td>
<% }%>
</tr>
<%
}
connection.close();
}
catch(Exception e)
{
out.println(e.getMessage());
}
%>
</table>
<p align="right"> </p>
```

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

```
<p align="right">Back</p>
</div>
<div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search"
maxlength="80" value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search"
type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 » Home
 » Logout

 </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
 <div class="footer_resize">
 <p class="lf"> </p>
 <p class="rf"> </p>
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
</html>
```

## 10. SYSTEM TESTING

### 10.1 SYSTEM TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, subassemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### 10.2 TYPES OF TESTING

#### **Unit testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### **Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

#### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

## **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

## **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

## **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## 10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

### Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

### Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

### Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## 11. SCREENSHOTS

### Screen 1:

The given interface shows home page

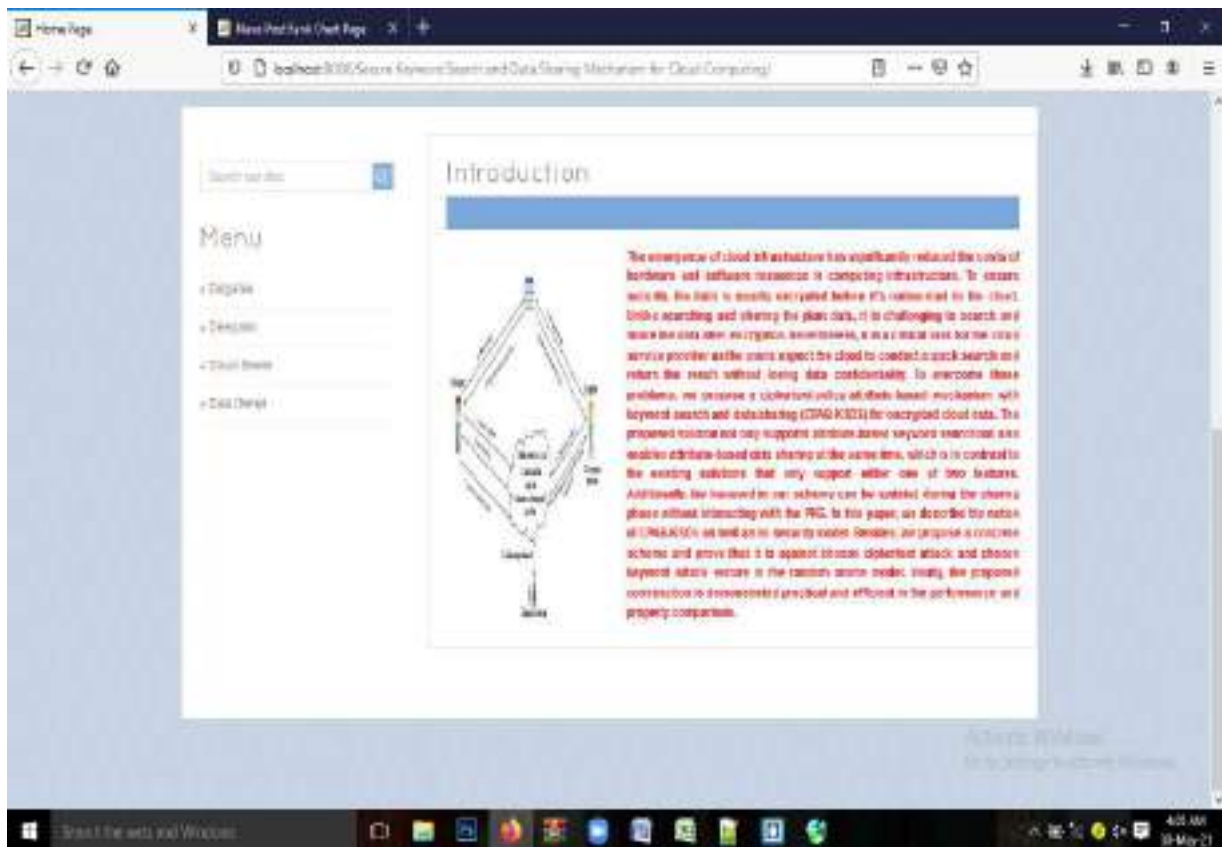


**Home page**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## Screen 2:

The below interface shows the introduction of home page



Home page



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 3:

User login the cloud server page

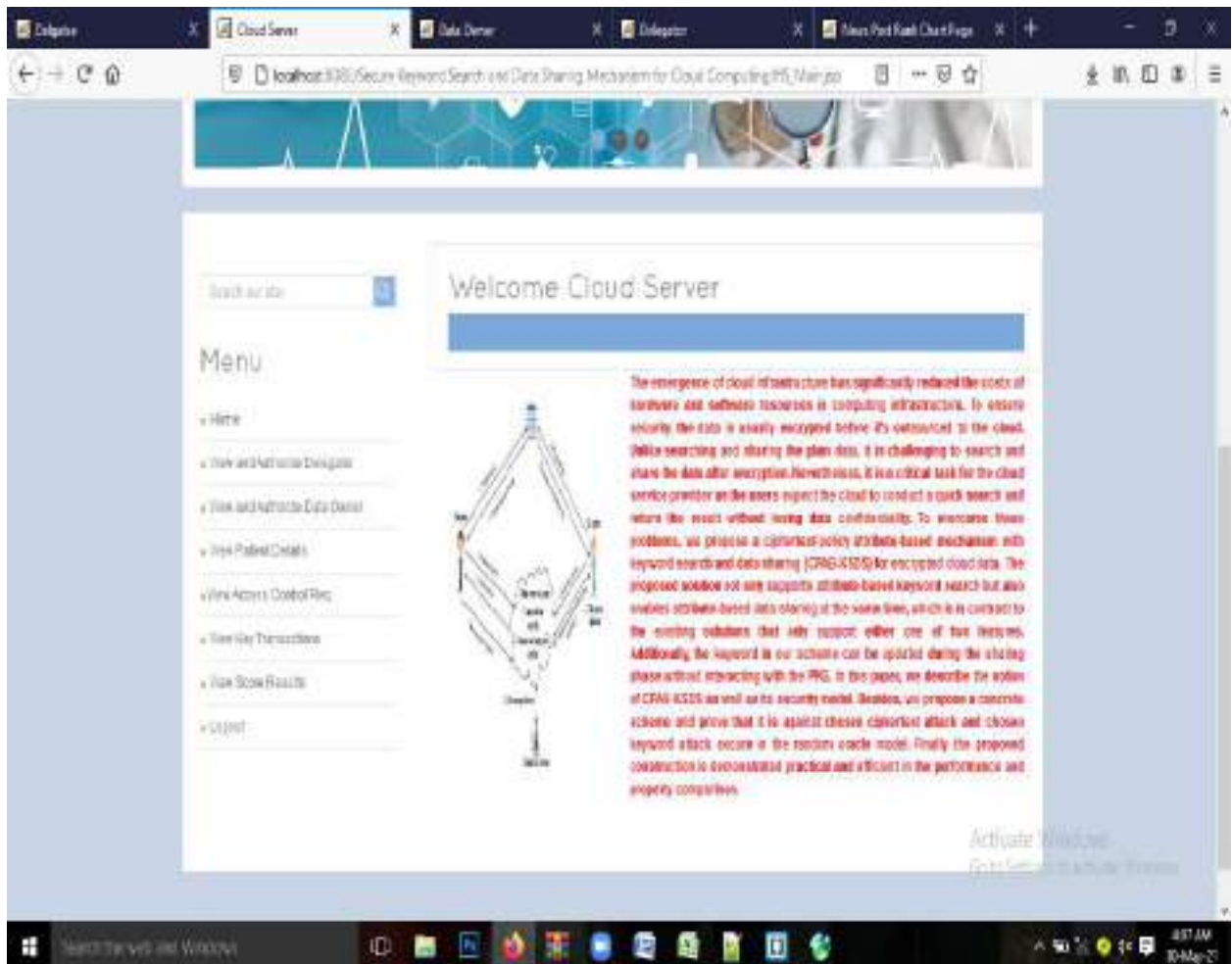


**Cloud server login**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## Screen 4:

The below interface shows the welcome cloud server page



Cloud Server homepage

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 5:

The below interface shows the authorize delegator persons



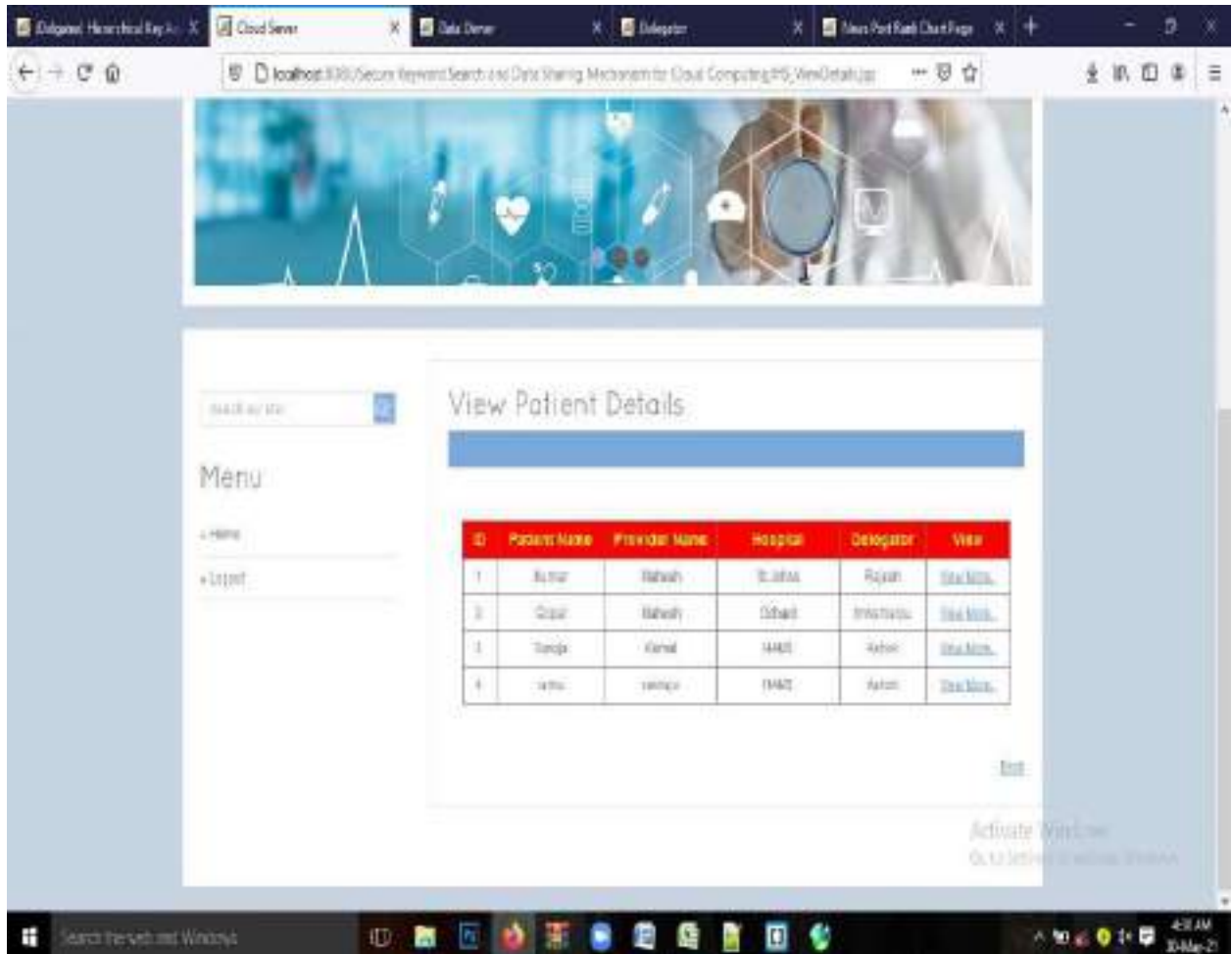
**Delegator authorize**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 6:

The give interface shows the view patient details

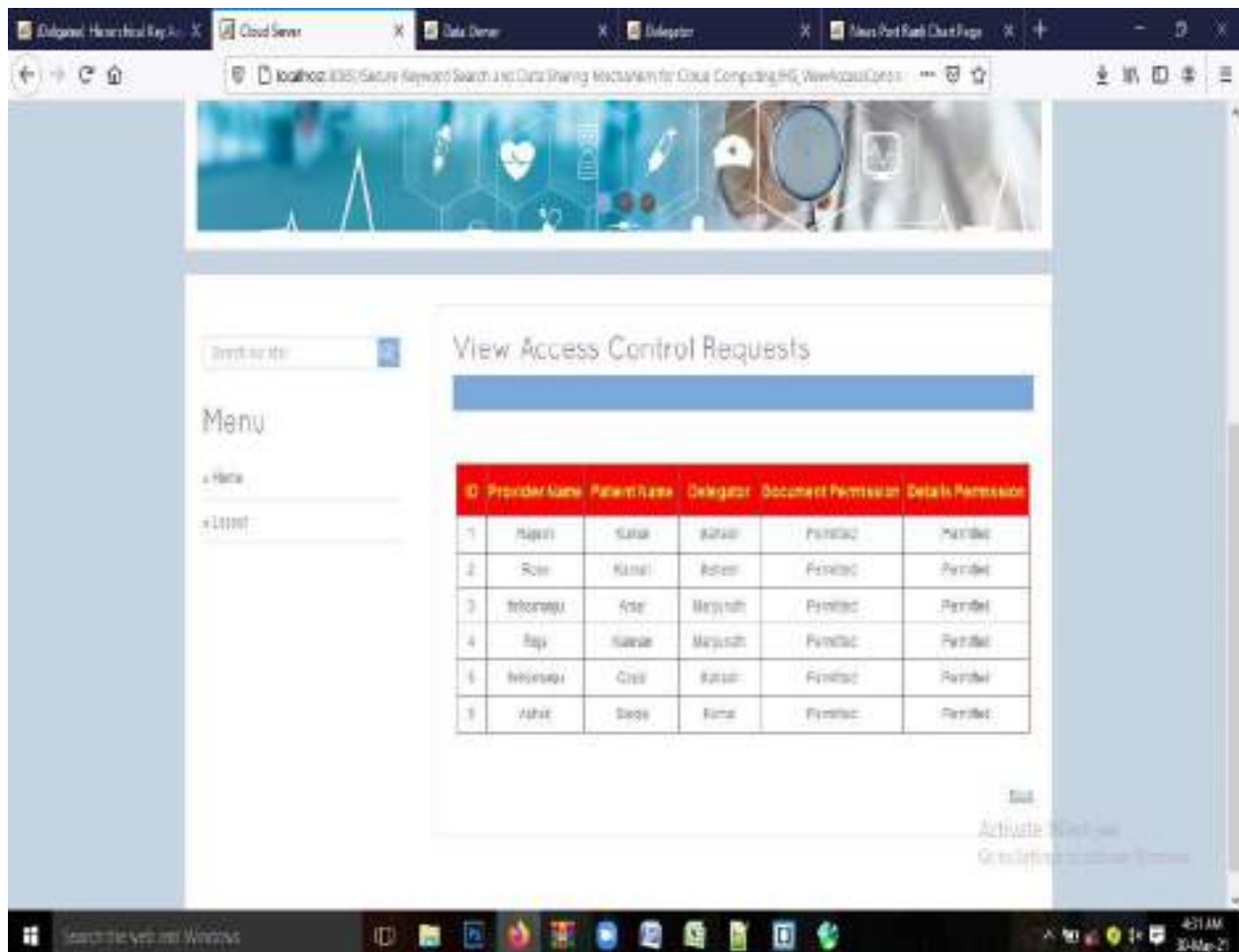


**View all patient details**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## Screen 7:

The given interface shows the view access control requests



**View access control**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## Screen 8:

The given interfaces shows the delgatee key transaction

ID	REQUESTOR	REQUEST NAME	PROVIDER NAME	REQUESTER	STATUS
1	Mishra	Numat	Encryption Key Request	Encryption Key	yy07gahT0j6
2	Mishra	Jaiswal	Encryption Key Request	Encryption Key	EC0762m0aT6be
3	Mishra	Kish	Encryption Key Request	Encryption Key	W0706K205C04
4	Mishra	Kishore	Encryption Key Request	Encryption Key	qp0762u0r0y46c
5	Mishra	Dipal	Encryption Key Request	Encryption Key	qp0762u0r0y46c
6	Kish	Jaiswal	Encryption Key Request	Encryption Key	007162u0r0y46c
7	Kish	Kish	Encryption Key Request	Encryption Key	1x2K20y0r0y46c
8	RequestData List	Numat	Request	Request	Request Key
9	Request	Request	Request	Request	Request Key
10	Request	Request	Request	Request	Request Key

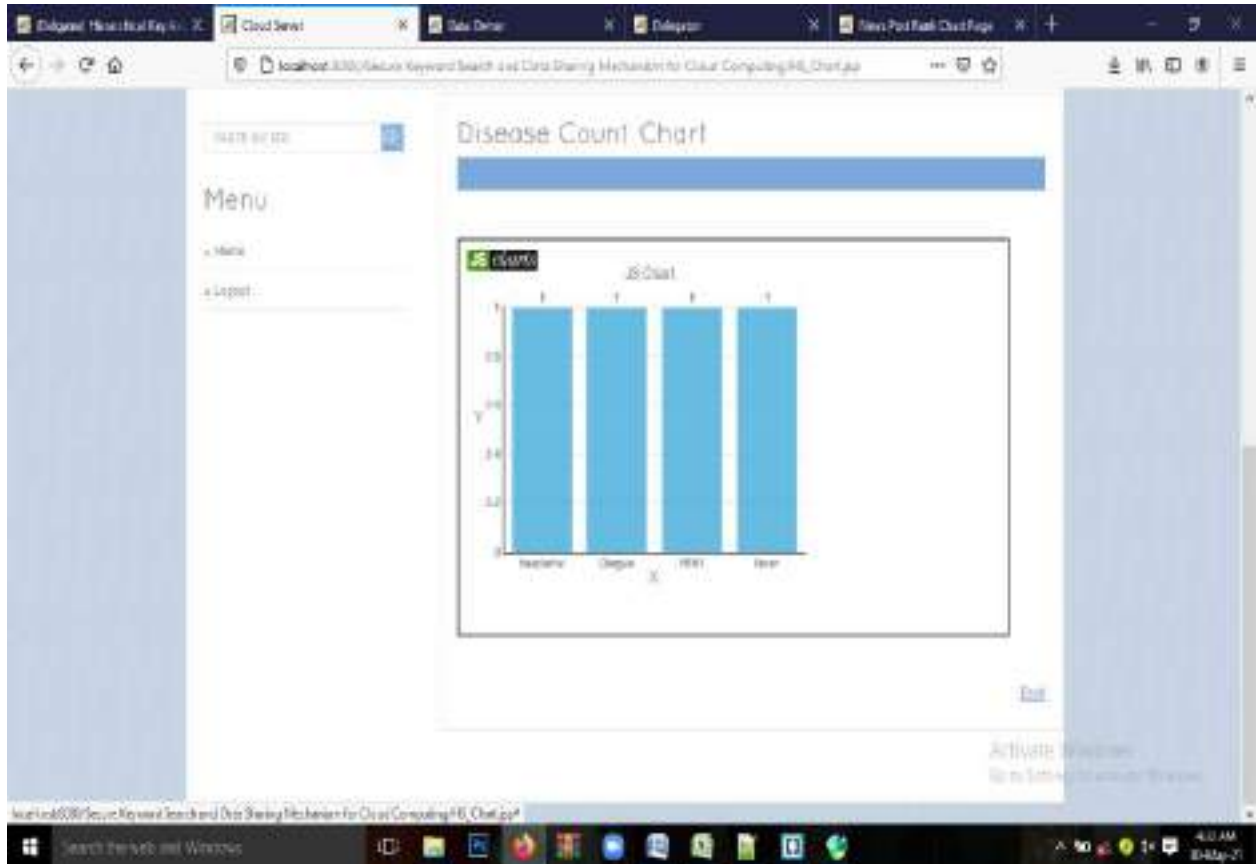
[View all transactions](#)

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 9:

The given interfaces shows the view disease count chat



**View disease count chat**



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 10:

The given interfaces shows the authorize data owner



**View data owner and authorize**

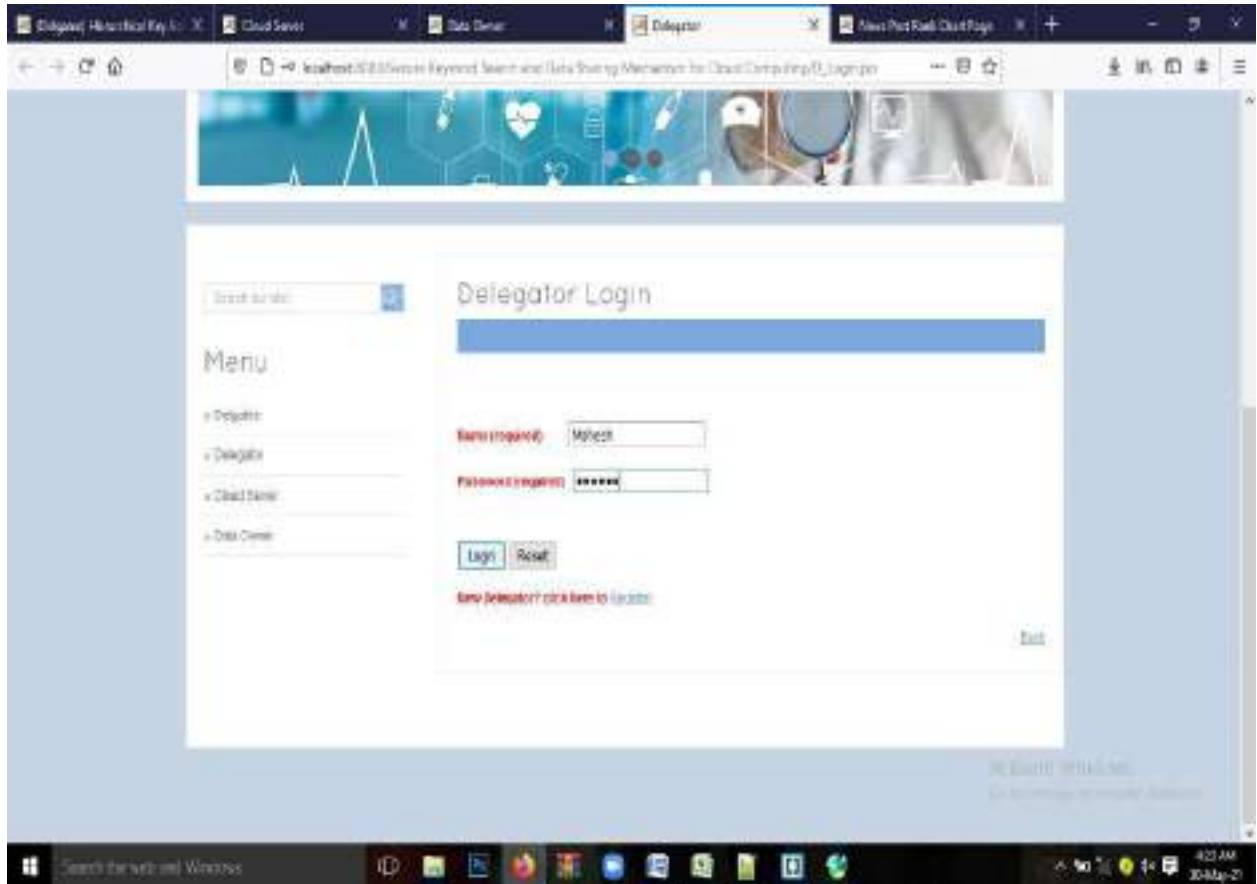


# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 11:

User login the delegator account

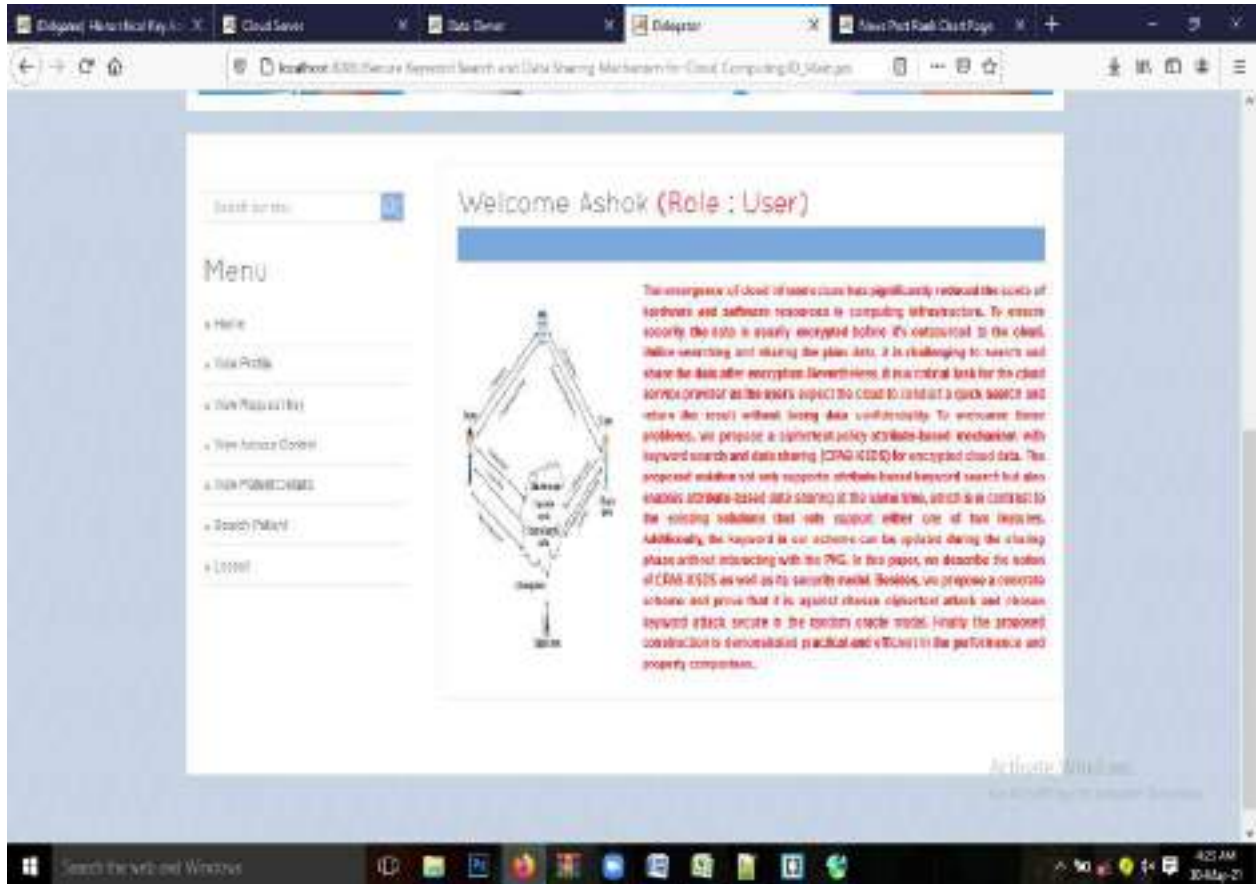


**Delegator login**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

Screen 12:

The given interface show the home page of the doctor



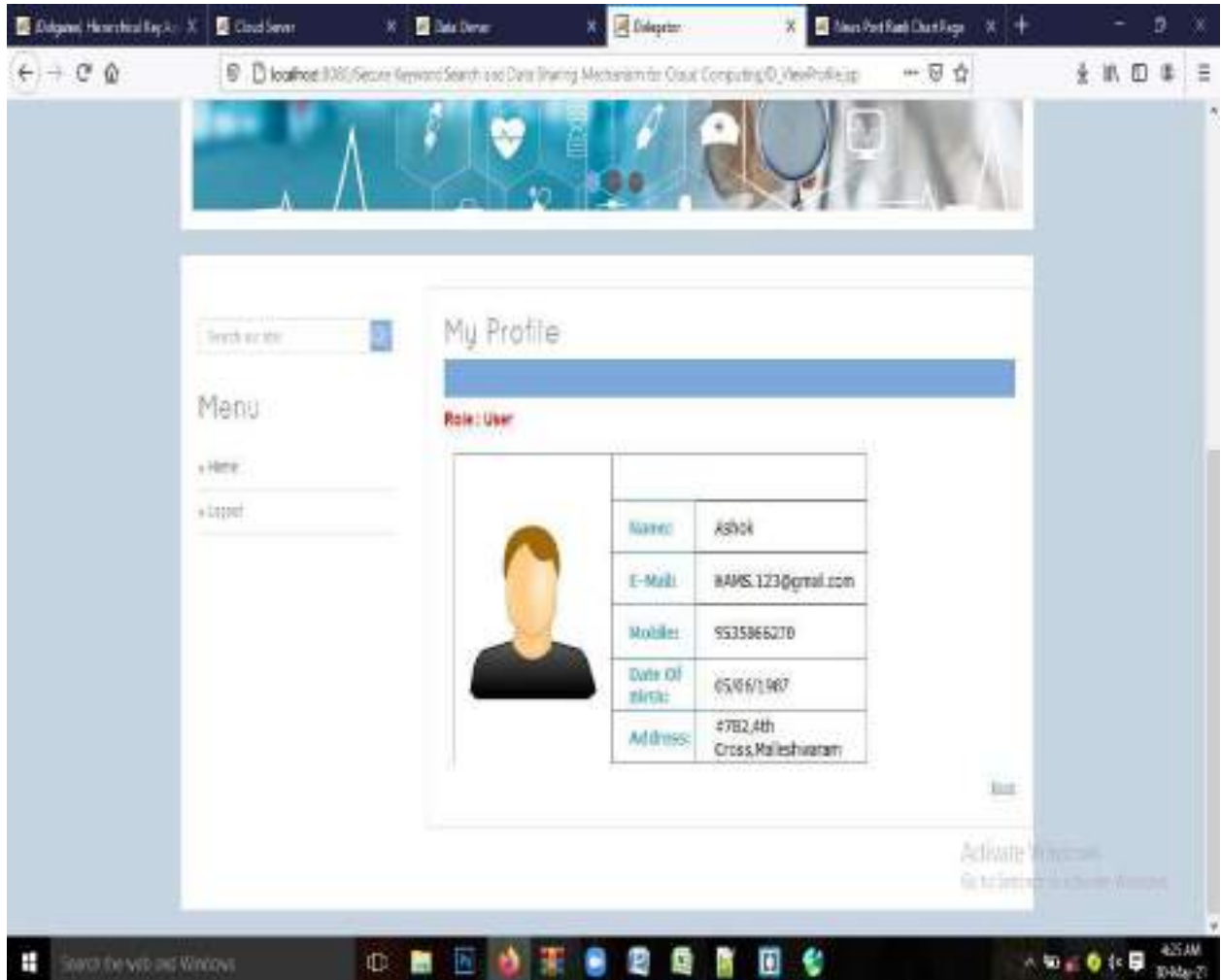
Home page doctor

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 13:

The given interface shows the view profile of doctor



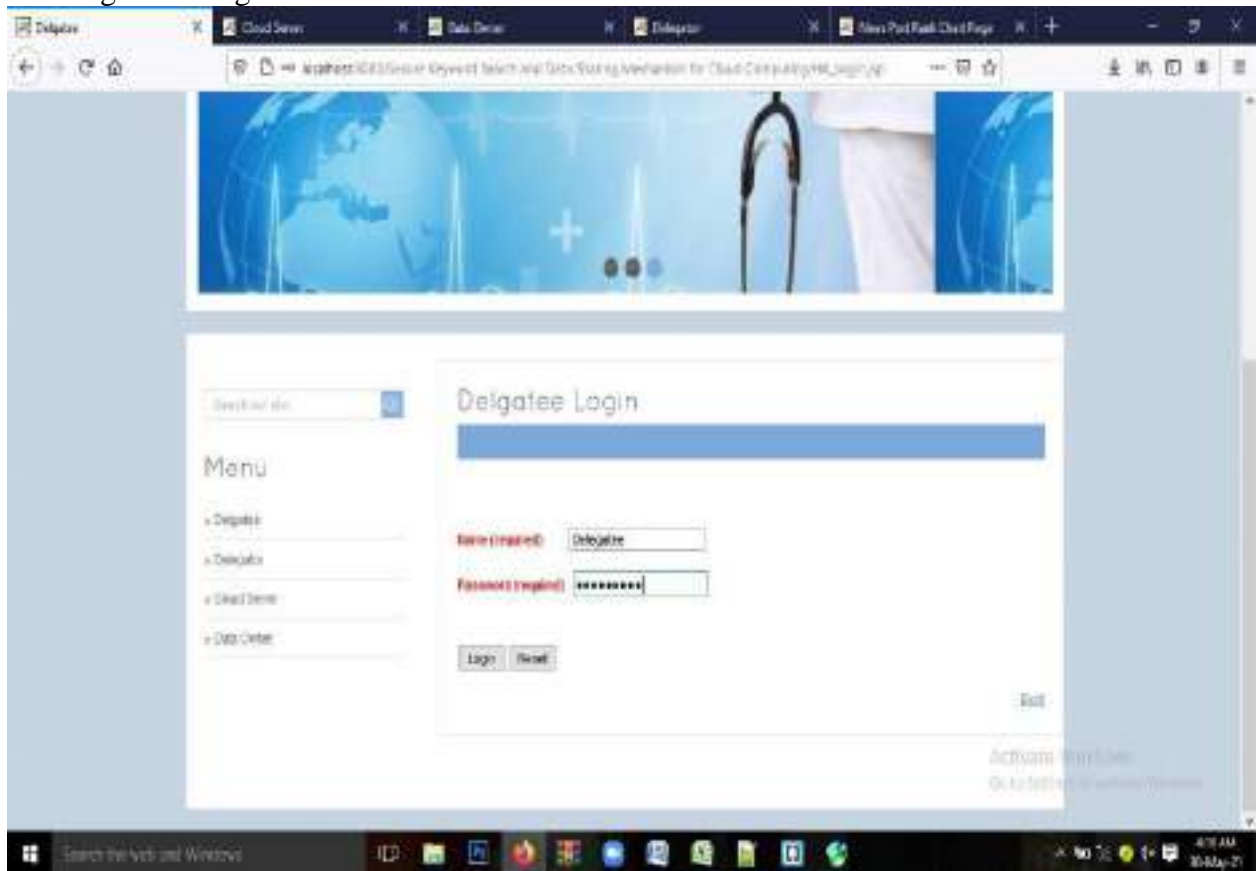
**View profile**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 14:

User login the delgatee account

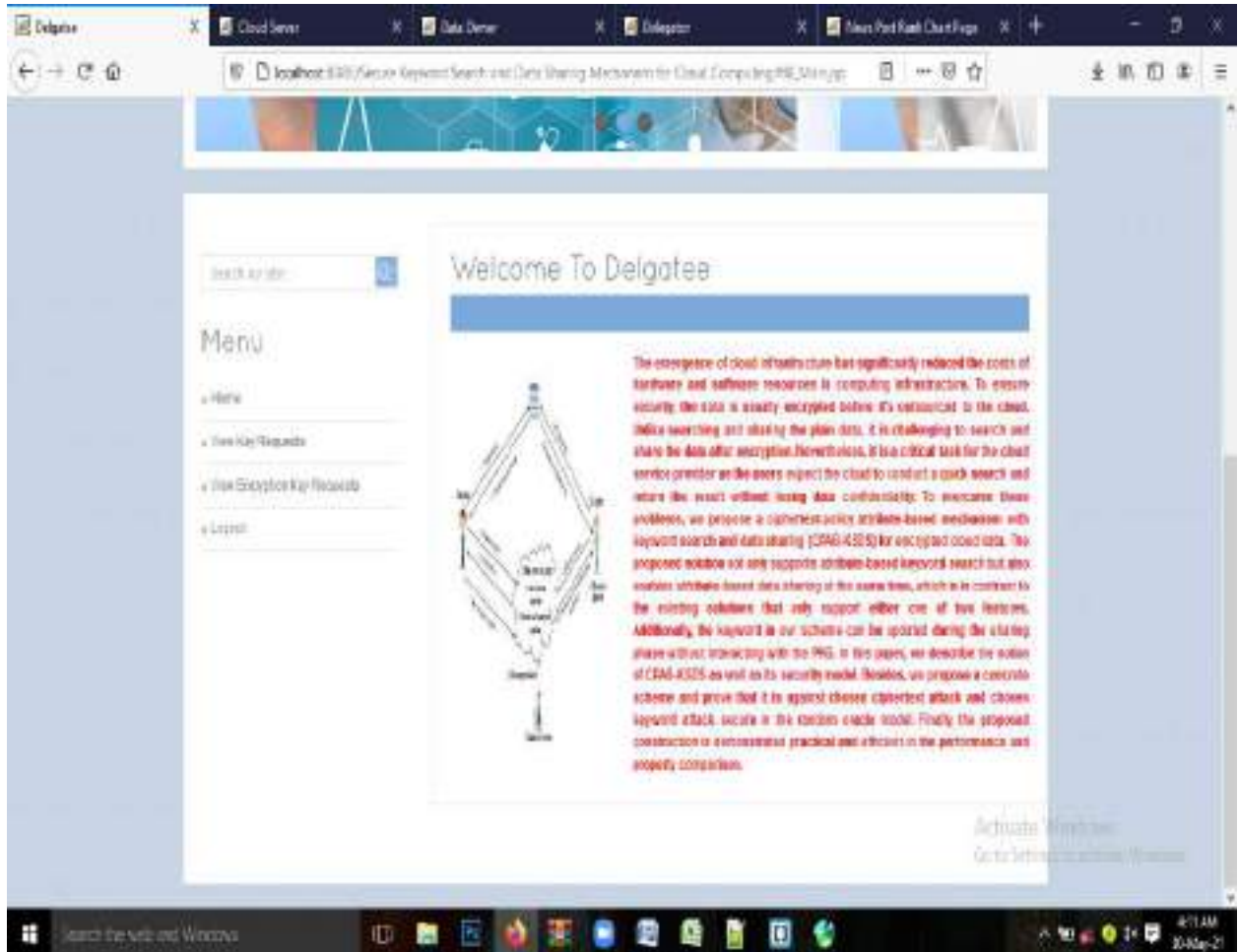


**Delegate login**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## Screen 15:

The given interface show the delgatee home page



Delgatee home page

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 16:

The below interface show the view search key requests



**View search key**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## Screen 18:

The given interface show the view encryption key



**View encryption key**

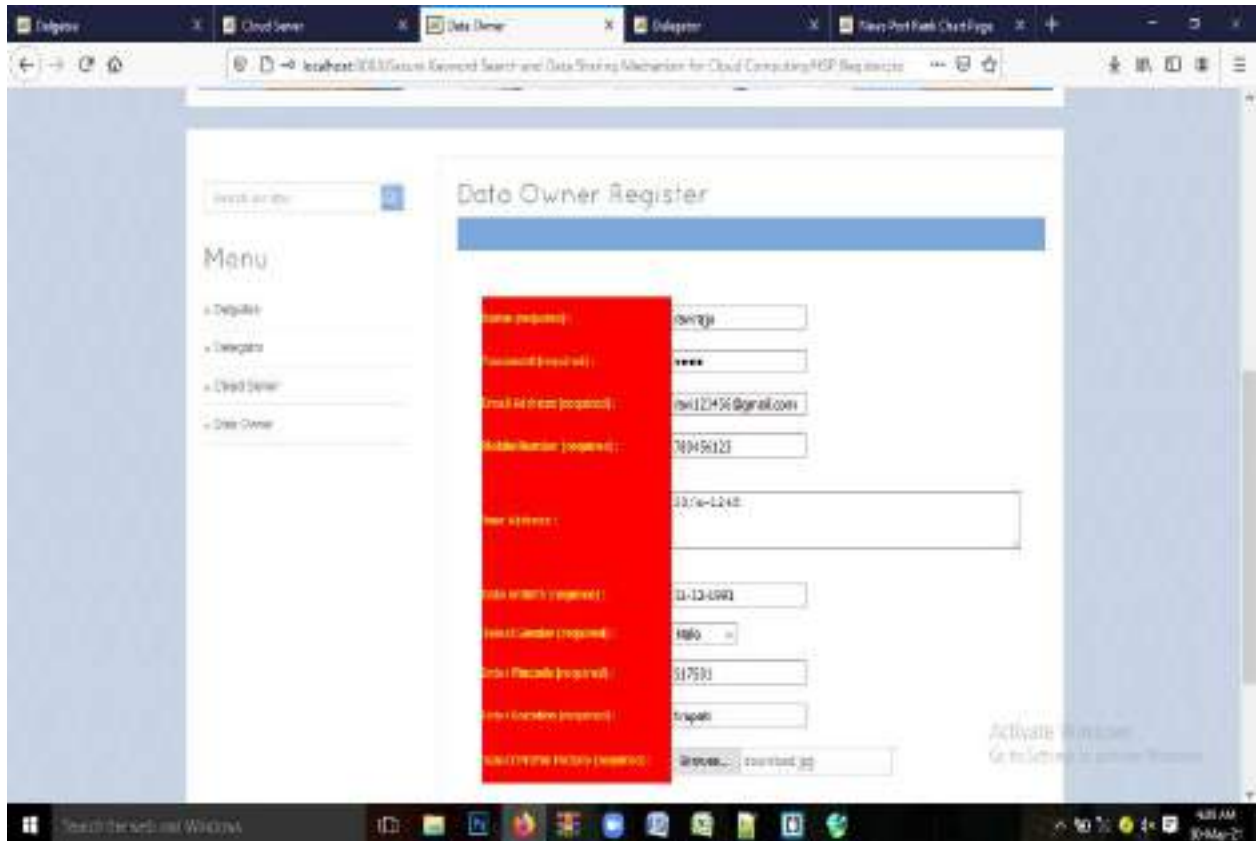


# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 19:

User register the data owner registration from



## Data owner Registration

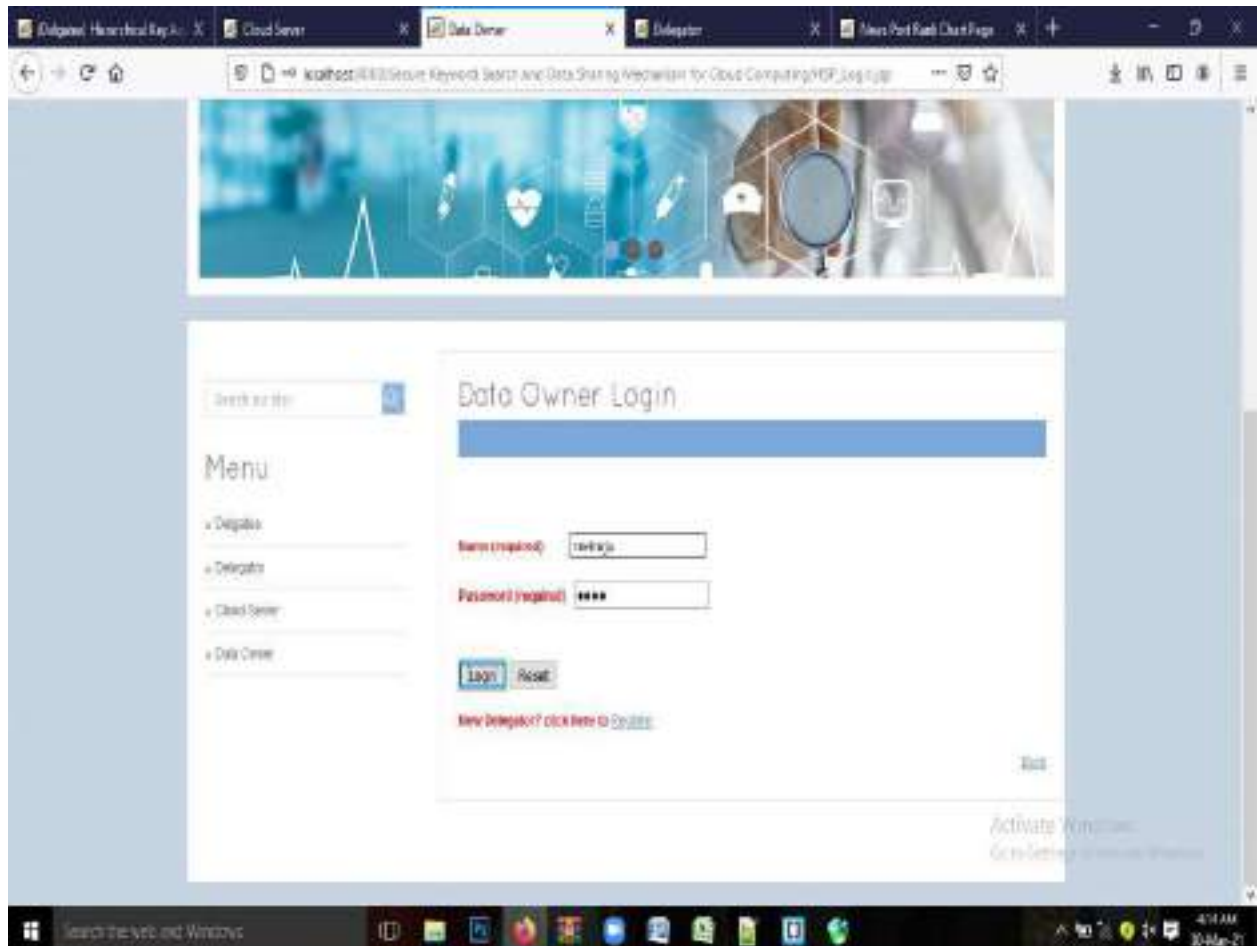


# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

Screen 20:

User login the data owner account

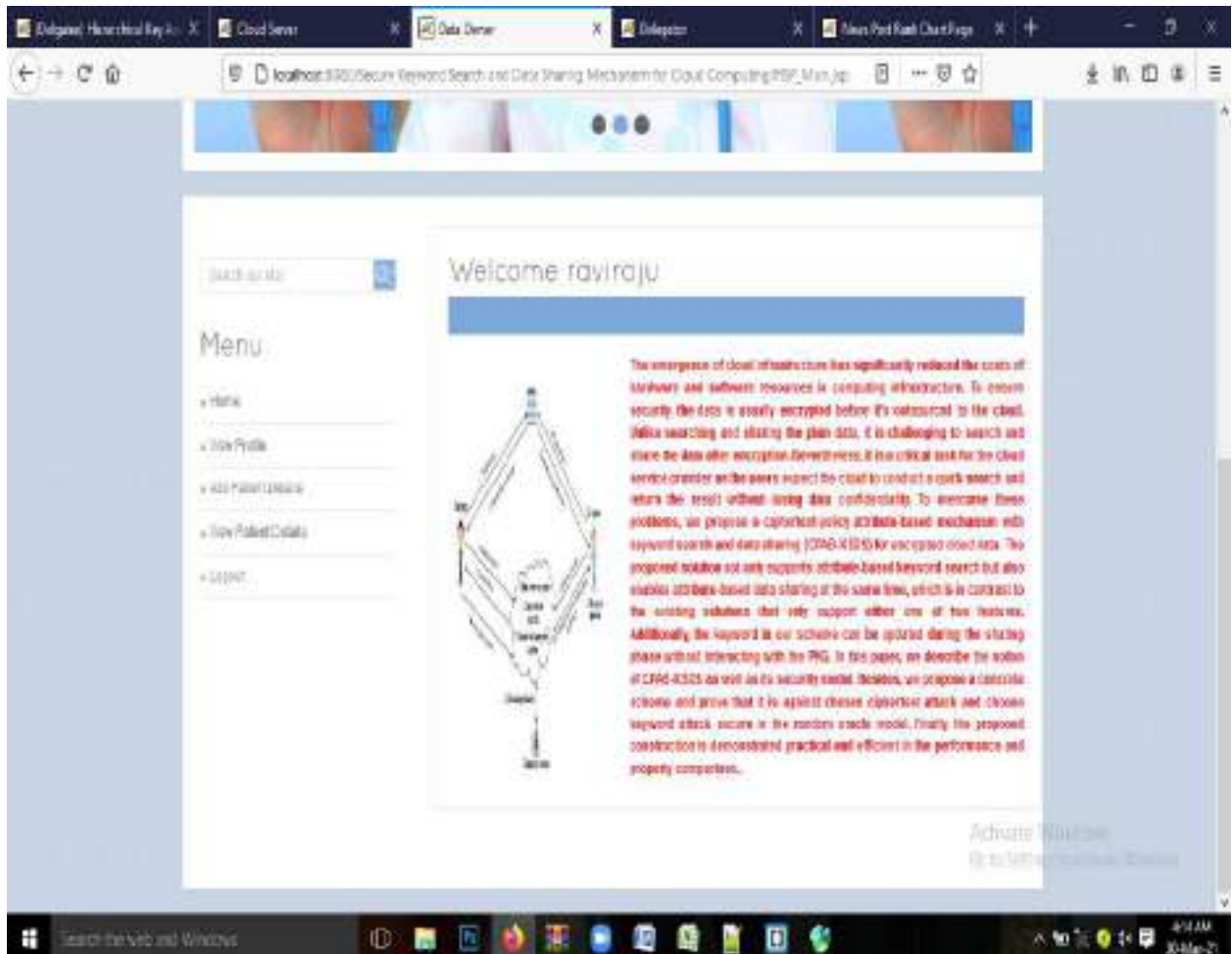


**Data owner login**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

## Screen 21:

The given interface show the welcome page of data owner



Data owner welcome

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 22:

The given interface show the data owner profile



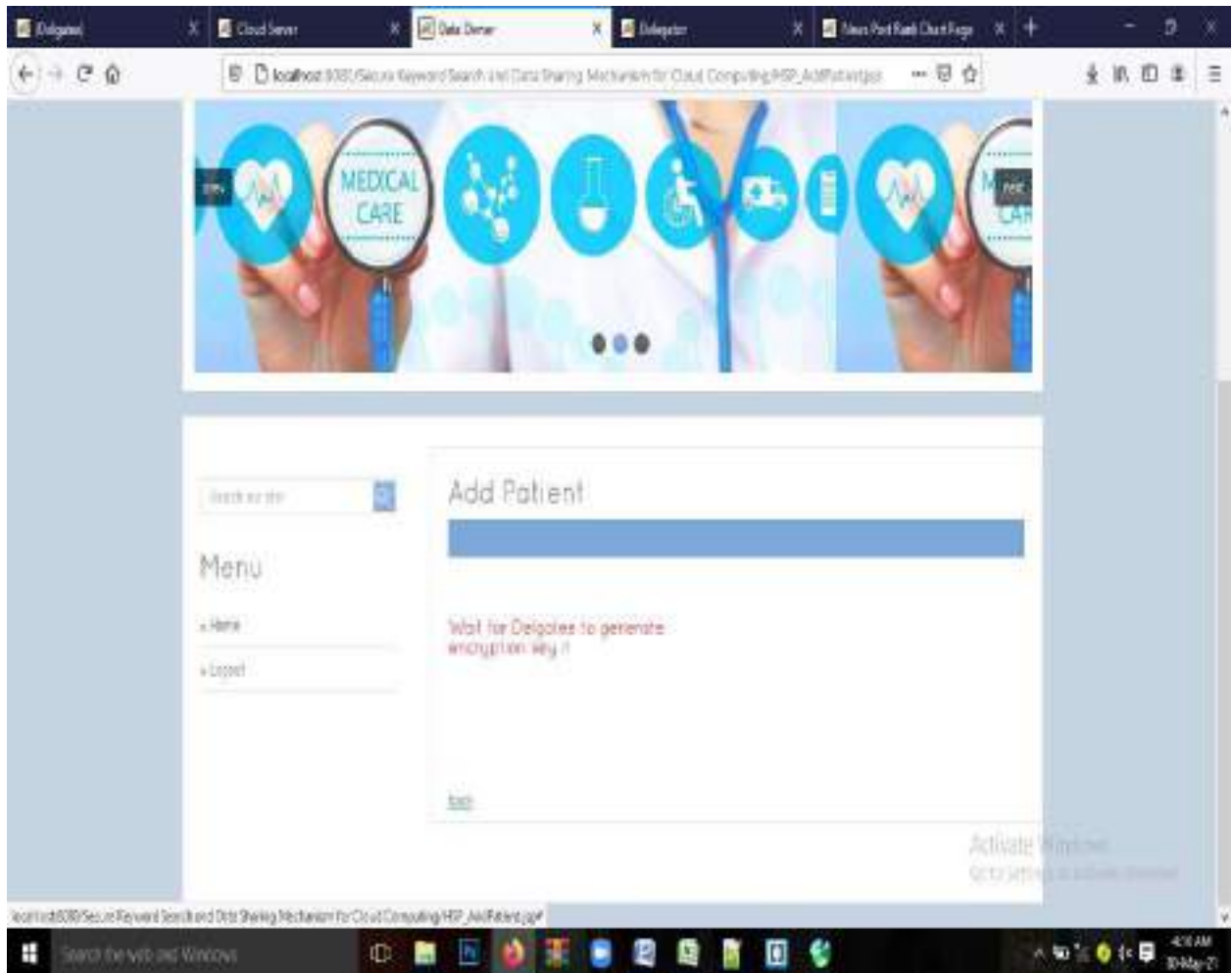
## View profile

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 23:

The given interface shows the request for encryption key



**Request for encryption key**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

Screen 24:

The given interface shows the encryption key requests from



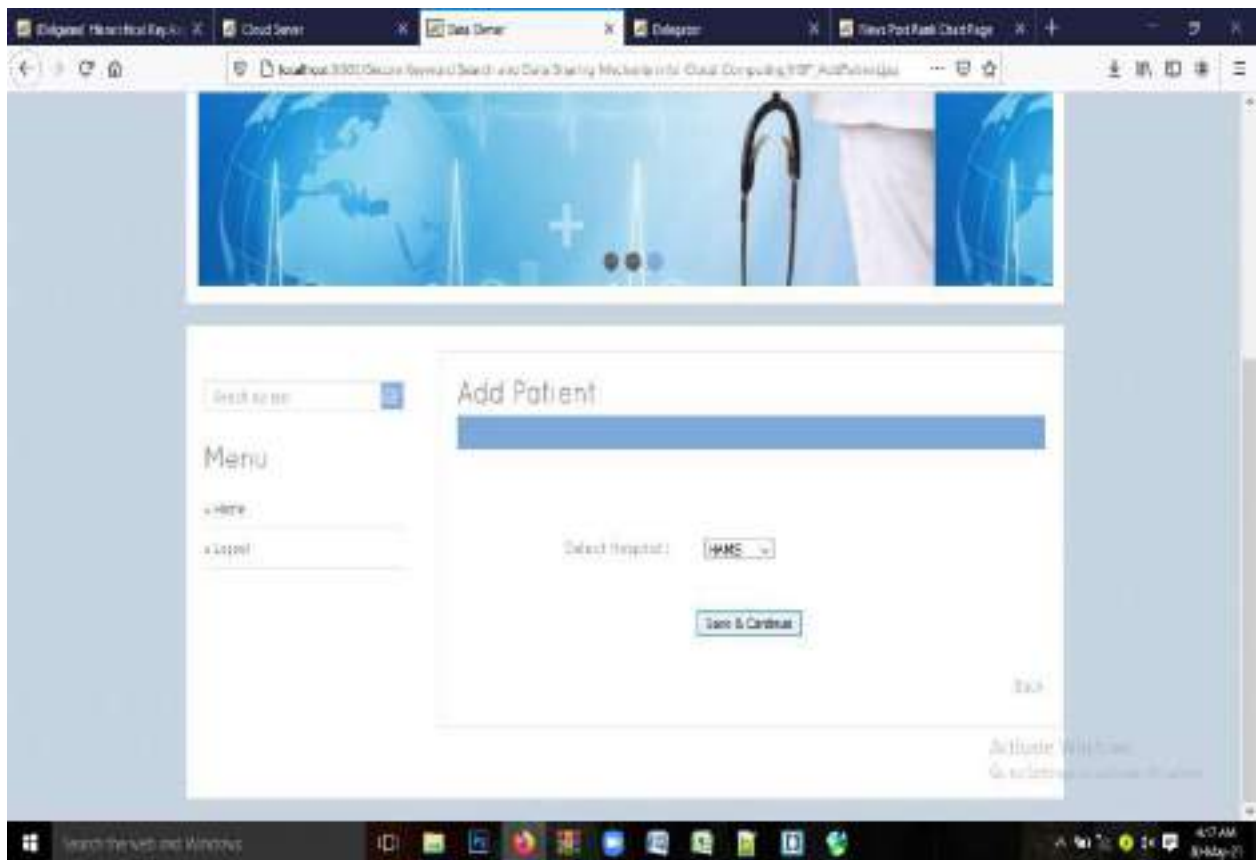
Key results

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

Screen 25:

The given interface show the add patient details



**Add patient**

# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 26:

The given interface shows the add patient details

The screenshot shows a web browser window with the URL `localhost:8080/Secure Keyword Search and Data Sharing Mechanism for Cloud Computing/ADD_Patient.jsp`. The page title is "Add Patient". On the left, there is a "Menu" sidebar with "Home" and "Logout" options. The main content area contains a form for adding a patient's details. The form fields are as follows:

Field Label	Value
Enrollment Key	1902942049543416
Patient Name	ram
Mobile No	9876
Hospital	jeebs
Select Doctor/Case	ajghf
Insurance	free
Age	30
Home Address	10/4/125 fluro lane, 22 street
Date of Birth	20/11/1990
Gender	Male
E-mail	ram123@gmail.com
Phone	999876543

At the bottom of the form, there is a "Save" button and a "Cancel" button. The Windows taskbar at the bottom shows the time as 8:52 AM on 30-May-21.

**Add patient details**

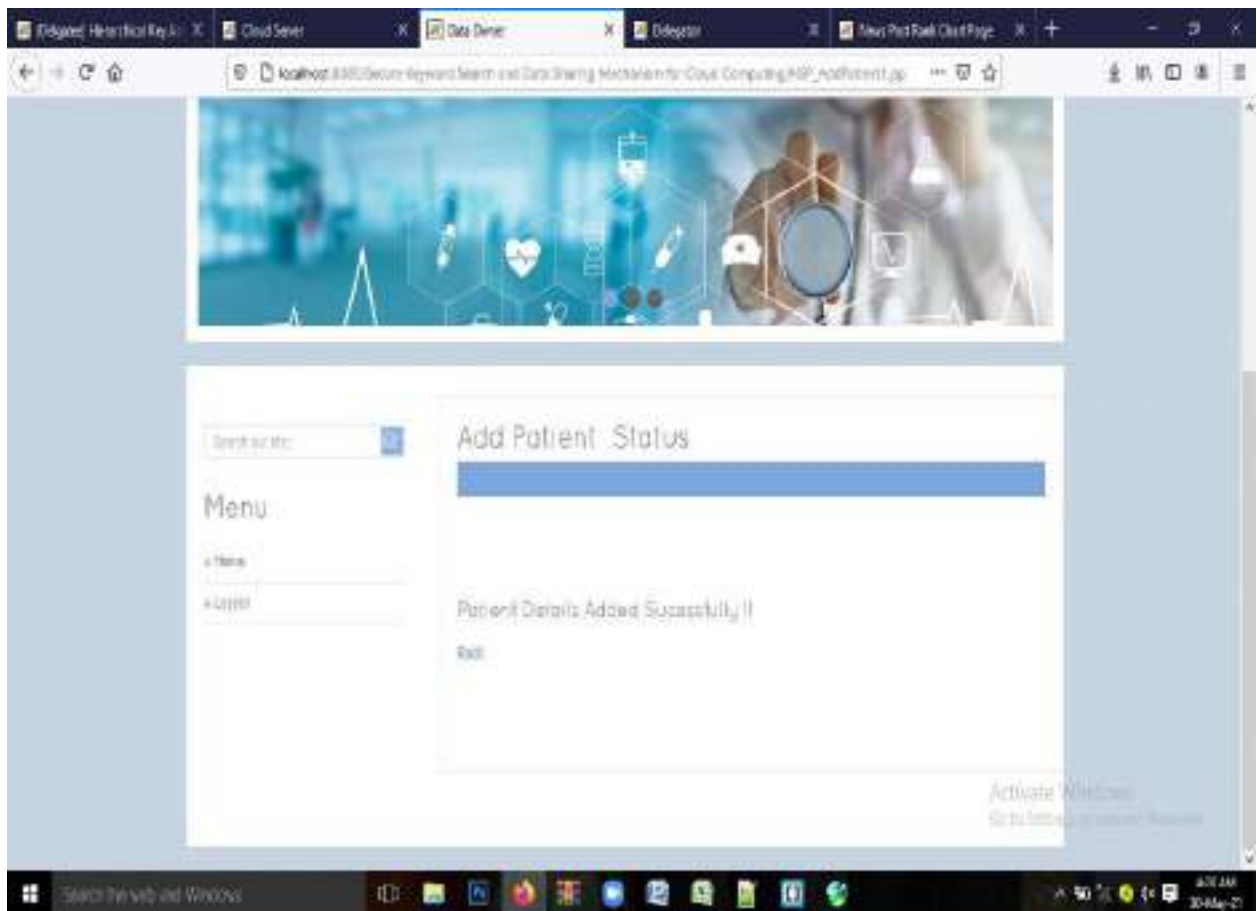


# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

Screen 27:

The given interface show the add patient details sucessfully



**Add successfully**



# Secure Keyword Search and Data Sharing Mechanism For Cloud Computing

---

## Screen 28:

The given interface show the view patient details



**View patient details**

## CONCLUSION

In this work, a new notion of cipher text-policy attribute- based mechanism (CPAB- KSDS) is introduced to support keyword searching and data sharing. A concrete CPAB-KSDS scheme has been constructed in this paper and we prove its CCA security in the random oracle model. The proposed scheme is demonstrated efficient and practical in the performance and property comparison. This Project provides an affirmative answer to the open challenging problem pointed 96 out in the prior work, which is to design an attribute based encryption with keyword searching and data sharing without the PKG during the sharing phase.

## **FUTURE ENHANCEMENT**

Furthermore, our work motivates interesting open problems as well including designing CPAB-KSDS scheme without random oracles or proposing a new scheme to support more expressive keyword search.

## REFERENCES

- [1] A. Sahai and B. Waters, “Fuzzy identity-based encryption,” in Annual International Conference on the Theory and Applications of Cryptographic Techniques, pp. 457–473, Springer, 2005.
- [2] V. Goyal, O. Pandey, A. Sahai, and B. Waters, “Attribute-based encryption for fine-grained access control of encrypted data,” in Proceedings of the 13th ACM conference on Computer and communications security, pp. 89–98, Acm, 2006.
- [3] J. Bethencourt, A. Sahai, and B. Waters, “Ciphertext-policy attribute-based encryption,” in Security and Privacy, 2007. SP’07. IEEE Symposium on, pp. 321–334, IEEE, 2007.
- [4] B. Waters, “Ciphertext-policy attribute-based encryption: An expressive, efficient, and provably secure realization,” in International Workshop on Public Key Cryptography, pp. 53–70, Springer, 2011.
- [5] H. Qian, J. Li, Y. Zhang, and J. Han, “Privacy-preserving personal health record using multi-authority attribute-based encryption with revocation,” *International Journal of Information Security*, vol. 14, no. 6, pp. 487–497, 2015.
- [6] J. Liu, X. Huang, and J. K. Liu, “Secure sharing of personal health records in cloud computing: Ciphertext-policy attribute-based encryption,” *Future Generation Computer Systems*, vol. 52, pp. 67–76, 2015.
- [7] L. Fang, W. Susilo, C. Ge, and J. Wang, “Interactive conditional proxy re-encryption with fine grain policy,” *Journal of Systems and Software*, vol. 84, no. 12, pp. 2293–2302, 2011.



**A**

**Project Report**

**On**

**SECURE DATA GROUP SHARING AND CONDITIONAL DISSEMINATION  
WITH MULTI-OWNER IN CLOUD COMPUTING**

*Submitted in partial fulfilment for the award of the degree*

**of**

**Master of Computer Applications**

*Submitted by*

**V KAVITHA**

**(Reg. No. 19F65F0013)**

*Under the esteemed guidance of*

**Mr. P. KARTHIKEYAN, MCA., M.E.**

**Associate Professor, Department of MCA.**



**Department of Master of Computer Applications**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**

**(NAAC Accredited with „A“ Grade, NBA Accredited Institution)**

**Siddharth Nagar, Narayanavanam Road, Puttur-517583,**

**Andhra Pradesh.**

**2020-2021**

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)  
(NAAC Accredited with „A“ Grade, NBA Accredited Institution)  
Siddharth Nagar, Narayanavanam Road, Puttur-517583, A.P.**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



**CERTIFICATE**

*This is to certify that this project report titled “**SECURE DATA SHARING AND CONDITIONAL DISSEMINATION WITH MULTI-OWNER IN CLOUD COMPUTING**” that is being submitted by **V KAVITHA (Reg. No. 19F65F0013)** in partial fulfilment of the requirements for the award of the Degree of **Master of Computer Applications** to JNTUA, ANANTHAPURAMU. This record is a bonafide work carried out by him under my guidance and supervision during the academic year 2020-2021.*

**Internal Guide**

**Head of the Department**

---

*Submitted for the main project viva-voce examination held on \_\_\_\_\_*

**Internal Examiner**

**External Examiner**

## **DECLARATION**

I, **V KAVITHA** hereby declare that the project report entitled “**SECURE DATA SHARING AND CONDITIONAL DISSEMINATION WITH MULTI-OWNER IN CLOUD COMPUTING**” is original and independent record of my project work, submitted to JNTUA, Ananthapuramu, under the guidance of **Mr. P. KARTHIKEYAN**, MCA., M.E. Associate Professor in MCA Department, **SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)**, Puttur, for the award of the degree of **MASTER OF COMPUTER APLICATIONS**. The results embodied in this project have not been submitted to any other University for award of any degree.

**Place: Puttur**

**Date:**

**V KAVITHA**

**Reg. No.: 19F65F0013**



## ACKNOWLEDGEMENT

I take this opportunity to acknowledge all the people who helping me to do my project a successful one.

I am thankful to My Guide and Project Coordinator **Mr. P. KARTHIKEYAN, MCA.,** M.E. Associate Professor,HOD, Department of **MASTER OF COMPUTER APPLICATIONS,** for himvaluable guidance and suggestions in analysing and testing throughout the period of project work.

I wish to express my profound gratitude to our dynamic principal **Dr. K. Chandra Sekhar Reddy, Ph.D.** for his constant encouragement for completing the project successfully.

I extend my thanks to **Dr. P.K. Ghosh, Ph.D.** Vice President who gave me the moral support for the completion of the project.

I greatly convey my sincere thanks to our beloved chairman **Dr. K. Ashok Raju, Ph.D.** and Vice Chairperson **Dr. K. Indravani, Ph.D.** for providing me the ample facilities and time for accomplishment of the project.

I extend my thanks to all staff members of the MCA Department who gave me the ethical support for the completion of the project.

I also extend my thanks to my parents and my friends for the encouragement of preceding the project in right way to complete the project in successful way.

(V KAVITHA)

# CONTENTS

S. No.	CHAPTERS	PAGE No.
	ABSTRACT	
	LIST OF FIGURES	i
	LIST OF ABBREVIATIONS	ii
1	INTRODUCTION	1 – 5
2	SYSTEM STUDY	6 – 7
3	SYSTEM ANALYSIS	
	3.1 EXISTING SYSTEM	8
	3.2 DISADVANTAGES	8
	3.3 PROPOSED SYSTEM	9
	3.4 ADVANTAGES	10
4	SOFTWARE MODULES	11 - 12
5	SYSTEM ARCHITECTURE	13 - 15
6	SOFTWARE ENVIRONMENT	16 - 30
7	SYSTEM REQUIREMENTS	31
8	SYSTEM DESIGN	32 - 46
9	IMPLEMENTATION	47 - 84
10	SYSTEM TESTING	85 - 87
11	SCREEN SHOTS	88 - 107
	CONCLUSION	
	FUTURE ENHANCEMENT	
	REFERENCES	

## **ABSTRACT**

Rapid development of cloud services, huge volume of data is shared via cloud computing. Although cryptographic techniques have been utilized to provide data confidentiality in cloud computing, current mechanisms cannot enforce privacy concerns over ciphertext associated with multiple owners, which makes co-owners unable to appropriately control whether data disseminators can actually disseminate their data. In this project, we propose a secure data group sharing and conditional dissemination scheme with multi-owner in cloud computing, in which data owner can share private data with a group of users via the cloud in a secure way, and data disseminator can disseminate the data to a new group of users if the attributes satisfy the access policies in the ciphertext. We further present a multiparty access control mechanism over the disseminated ciphertext, in which the data co-owners can append new access policies to the ciphertext due to their privacy preferences. Moreover, three policy aggregation strategies, including full permit, owner priority and majority permit, are provided to solve the privacy conflicts problem caused by different access policies.

## LIST OF FIGURES

<b>S. No.</b>	<b>Name</b>	<b>Page No.</b>
1	1.3. Structure of Service models	3
2	5.1. System Architecture	14
3	5.2. Block Diagram	15
4	6.1. Compilation & Interpretation	17
5	6.2. Execution for different platforms	17
6	6.3. Java Platform	18
7	6.4. Java IDE	20
8	8.1. Data Flow Diagram	33
9	8.2. Class Diagram	45
10	8.3. Use Case Diagram	39
11	8.4. Sequence Diagram	42
12	8.5. Collaboration Diagram	41
13	8.6. E-R Notations	46
14	Screen Shots	88 -107

## LIST OF ABBREVIATIONS

<b>S. No.</b>	<b>Acronyms</b>	<b>Abbreviations</b>
1	HTML	Hyper Text Markup Language
2	CSS	Cascading Style Sheet
3	JSP	Java Server Page
4	UML	Unified Modelling Language
5	SDLC	System Development Life Cycle
6	DFD	Data Flow Diagram
7	OOA	Object Oriented Analysis
8	OOD	Object Oriented Design
9	JDBC	Java Database Connectivity
10	DMO	Data Multi Owners
11	DBMS	Database Management System
12	RMI	Remote Method Invocation
13	JVM	Java Virtual Machine
14	SQL	Structure Query Language

# 1. INTRODUCTION

## 1.1 What is cloud computing?

**Cloud computing** is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced

## 1.2 How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high- performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.

The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

## 1.3 Characteristics and Services Models:

The salient characteristics of cloud computing based on the definitions provided by the National Institute of Standards and Terminology (NIST) are outlined below:

- **On-demand self-service:** A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.
- **Broad network access:** Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

- **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.
- **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. Consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.
- **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be managed, controlled, and reported providing transparency for both the provider and consumer of the utilized service.

#### **1.4 Services Models:**

Cloud Computing comprises three different service models, namely Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three service models or layers are completed by an end user layer that encapsulates the end user perspective on cloud services. The model is shown in figure below. If a cloud user accesses services on the infrastructure layer, for instance, she can run her own applications on the resources of a cloud infrastructure and remain responsible for the support, maintenance, and security of these applications herself. If she accesses a service on the application layer, these tasks are normally taken care of by the cloud service provider.

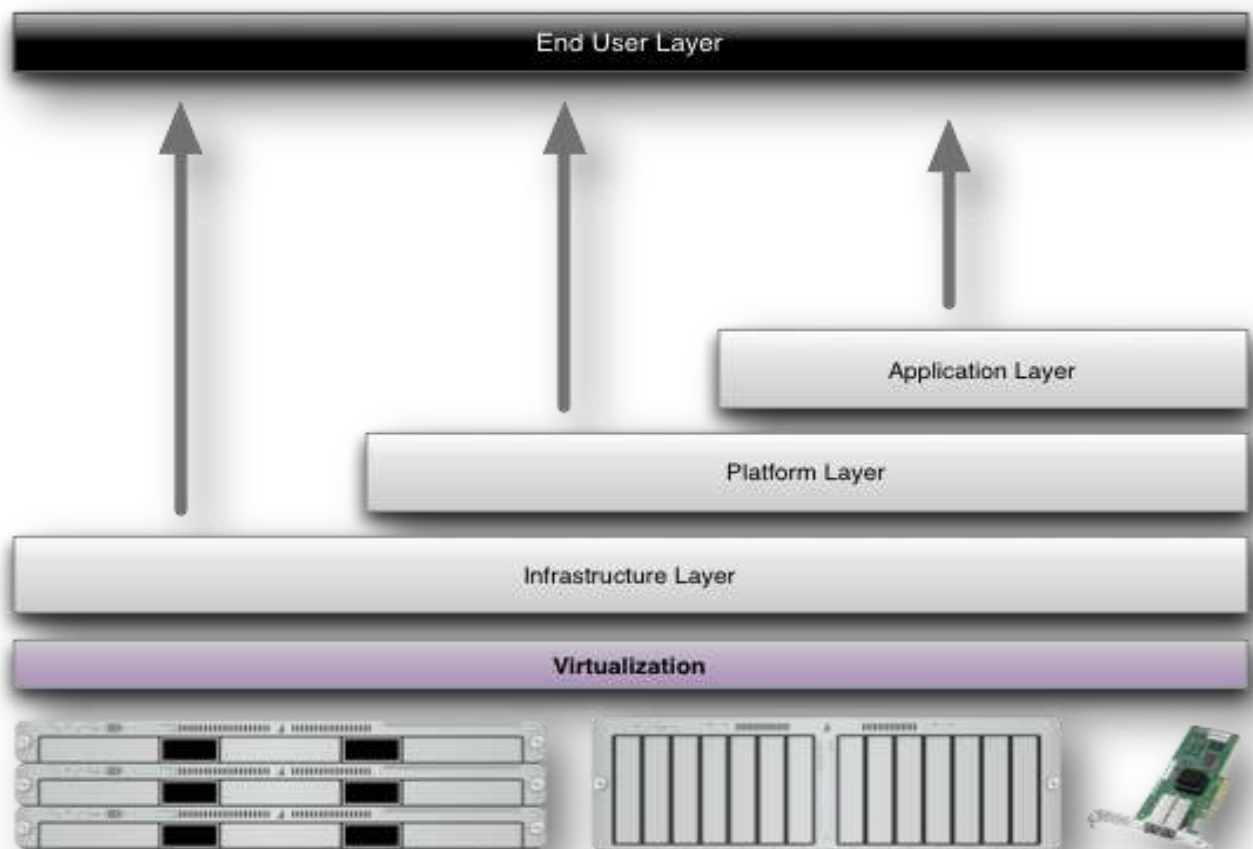


Fig 1.1: Structure of service models

### 1.5 Benefits of cloud computing:

1. **Achieve economies of scale** – increase volume output or productivity with fewer people. Your cost per unit, project or product plummets.
2. **Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
3. **Globalize your workforce on the cheap.** People worldwide can access the cloud, provided they have an Internet connection.
4. **Streamline processes.** Get more work done in less time with less people.
5. **Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees.
6. **Improve accessibility.** You have access anytime, anywhere, making your life some



7. **Monitor projects more effectively.** Stay within budget and ahead of completion cycle times.
8. **Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
9. **Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
10. **Improve flexibility.** You can change direction without serious “people” or “financial” issues at stake.

## 1.6 Advantages:

- **Price:** Pay for only the resources used.
- **Security:** Cloud instances are isolated in the network from other instances for improved security.
- **Performance:** Instances can be added instantly for improved performance. Clients have access to the total resources of the Cloud’s core hardware.
- **Scalability:** Auto-deploy cloud instances when needed.
- **Uptime:** Uses multiple servers for maximum redundancies. In case of server failure, instances can be automatically created on another server.
- **Control:** Able to login from any location. Server snapshot and a software library lets you deploy custom instances.
- **Traffic:** Deals with spike in traffic with quick deployment of additional

## **2. SYSTEM STUDY**

### **2.1 FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Three key considerations involved in the feasibility analysis are:

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

#### **2.1.1 ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

#### **2.1.2 TECHNICAL FEASIBILITY**

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical

resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

### **2.1.3 SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

## 3.SYSTEM ANALYSIS

### 3.1 EXISTING SYSTEM

To deal with these threats, appropriate encryption techniques should be utilized to guarantee data confidentiality. By utilizing the IBBE technique , Huang et al. Patranabis et al. and Liu et al. proposed several private data sharing schemes in cloud computing. In these schemes, data owner outsources encrypted data to the CSP by defining a list of receivers, thus only the intended users in the list can get the decryption key and further decrypt the private data.

ABE is another promising one-to-many cryptographic technique to realize data encryption and fine-grained access control in cloud computing. Specially, ciphertext-policy ABE (CP-ABE) is suited for access control in real world applications due to its expressiveness in describing the access policy of ciphertext Guo et al. proposed a privacy preserving data dissemination scheme in mobile social networks based on CP-ABE.

Teng et al. proposed an efficient access control scheme with hierarchical CP-ABE to achieve privacy preservation in cloud storage systems. In the schemes , ABE has been utilized to provide access control of medical documents when providing health services in cloud, so that health record can only be decrypted by authorized document requesters with corresponding attributes.

Secure data dissemination is another important security requirement for data storage in cloud computing. The identity-based PRE is a basic encryption algorithm to reach secure data dissemination in cloud computing, with which the data disseminators could send their re-encryption keys to the semi-trusted proxy to transform data owner's ciphertext for new users. Further, attribute- based PRE has been employed in cloud computing by incorporating the ABE technique. The proxy can transform the ciphertext under an access policy into the one under another access policy with data disseminator's re-encryption key, and the users who satisfy the new access policy can access the plaintext.

### **3.2 DISADVANTAGES OF EXISTING SYSTEM**

- In the existing work, merging privacy preferences of data owner and multiple co-owners is not an easy task, due to privacy conflict is inevitable in multiparty authorization enforcement.
- The system's security is very less due to lack of conditional proxy re-encryption.

### **3.3 PROPOSED SYSTEM**

The proposed system introduces a solution to achieve cipher text group sharing among multiple users, and capture the core feature of multiparty authorization requirements. The contributions of our scheme are as follows:

The system achieves fine-grained conditional dissemination over the cipher text in cloud computing with attribute based CPRE. The cipher text is firstly deployed with an initial access policy customized by data owner. Our proposed multiparty access control mechanism allows the data co-owners to append new access policies to the cipher text due to their privacy preferences. Hence, the cipher text can be re-encrypted by the data disseminator only if the attributes satisfy enough access policies.

The system provides three strategies including full permit, owner priority and majority permit to solve the privacy conflicts problem. Specially, in full permit strategy, data disseminator must satisfy all the access policies defined by data owner and co-owners. With the majority permit strategy, data owner can firstly choose a threshold value for data co-owners, and the cipher text can be disseminated if and only if the sum of the access policies satisfied by data disseminator's attributes is greater than or equal to this fixed threshold. The system proves the correctness of our scheme, and conduct experiments to evaluate the performance at each phase to indicate the effectiveness of our scheme

### **3.4 ADVANTAGES OF PROPOSED SYSTEM**

- The Data security is more since data co-owners can renew the cipher texts by appending their access policies as the dissemination conditions.
- The system is more secured due to Continuous policy enforcement in which the data owner's access policy is enforced in the initial cipher text as well as the renewed cipher text.

## 4.SOFTWARE MODULES

### 4.1MODULES

- Data Owner
- Data Access
- Cloud Provider
- Trusted Authority

### 4.2 MODULES DESCRIPTION

#### **Data Owners (DO)**

In this module, the Data Owner maintained their data in server. he has to login with valid details and then he can perform some operations like View Profile, Enter File name & get enc key Permission From TA, View Response With out Entering file name, Check Enc Key & Sce key Req & then browse file, Split in to four blocks & give file Access, View all files & give update & delete Option, View all File Verify any file & recover, View all Uploaded file with access permission, Enter file name & get Sec key.

#### **Data Access or (DA)**

In this module, the Data Access or maintained their data in server. he has to login with valid details and then he can perform some operations like View your profile, View all Authorized data, Search Data on only Authorized data, View its Details, Request Dec key From TA, Request Sec key From TA, Download the file User.

#### **Cloud Provider(CP)**

In this module, the Cloud Provider maintained their data in server. he has to login with valid details and then he can perform some operations like View all data Owner file Block in Enc formate, Access Details, File Blocks with its sign, View all Content & sec Key attacker with Dt & IP, View all owners S key & end Key, View all files rank in chart, View no. of key & content Attacker in chart.

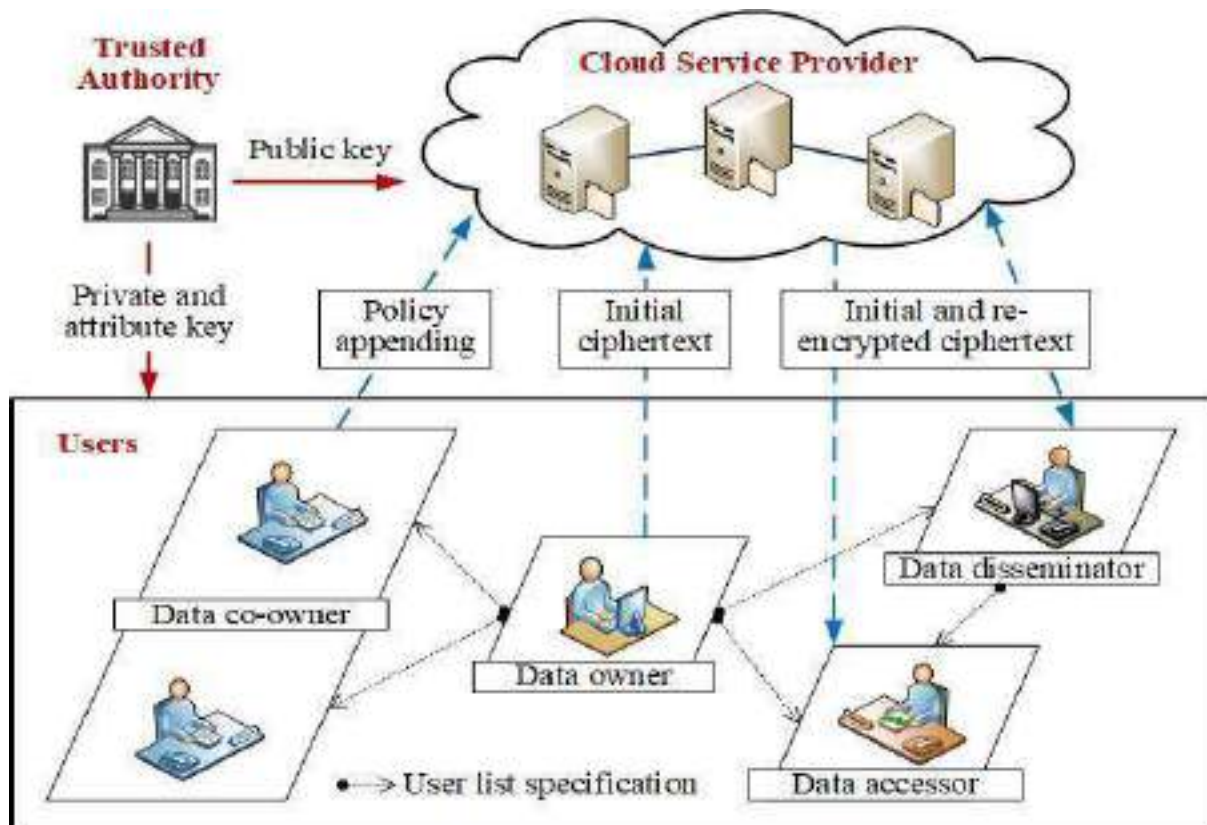
#### **Trusted Authority (TA)**

In this module, the Trusted Authority maintained their data in server. he has to login with valid details and then he can perform some operations like View all Data owner & authorized, View all End users & authorized, View all Enc key Permission Req & give, View all Sec key Permission & using RSA, View Dec key Req From User.

## **5.SYSTEM ARCHITECTURE**

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hardcopy output.It is the most important and direct source information to the user.

## 5. SYSTEM ARCHITECTURE



**Fig: System model of proposed scheme. The user role is divided into the following Categories: data owner, data co-owner, data disseminator and data accessor**



## 5.1 DATAFLOW DIAGRAM

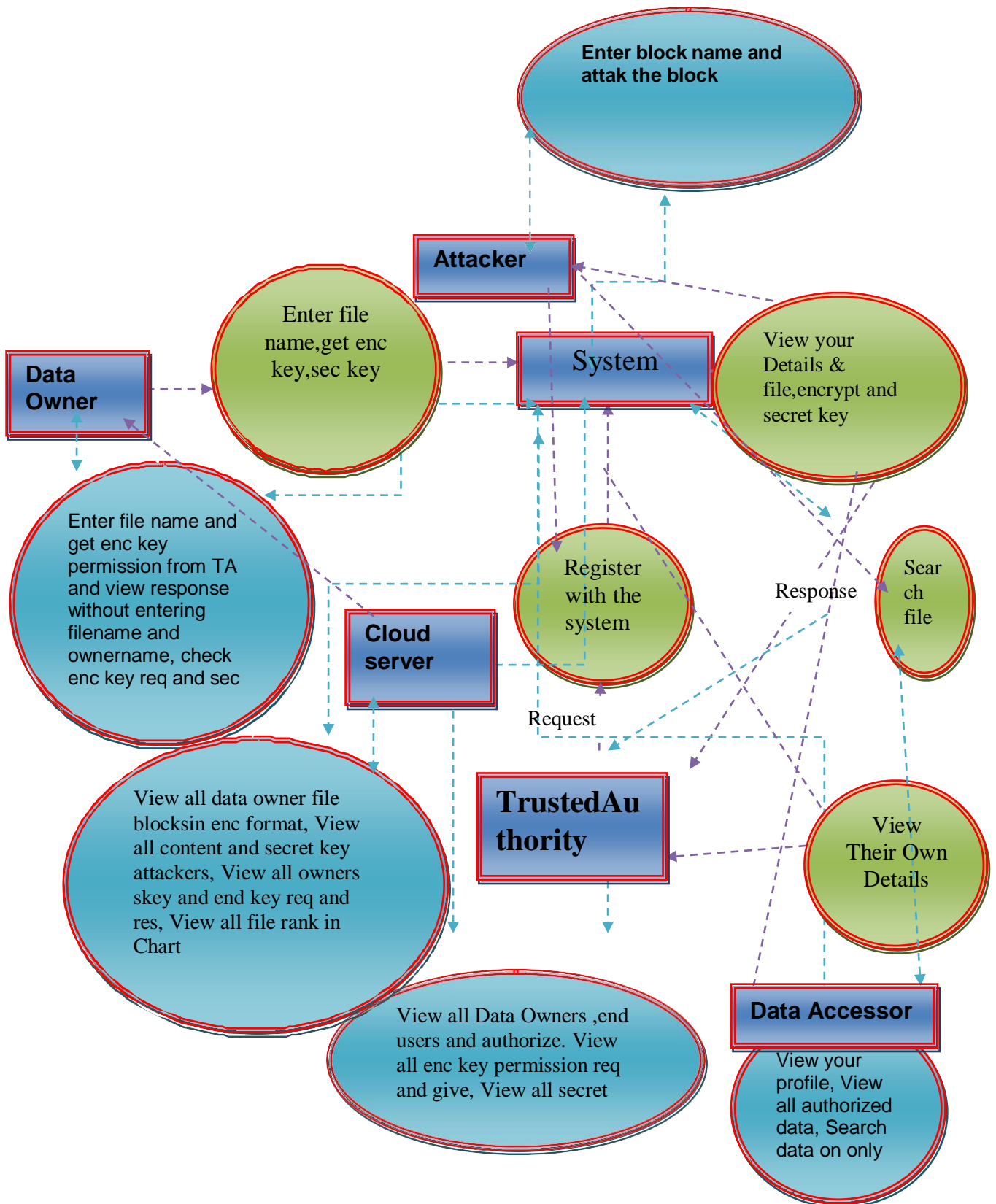


Fig 5.2 Data Diagram

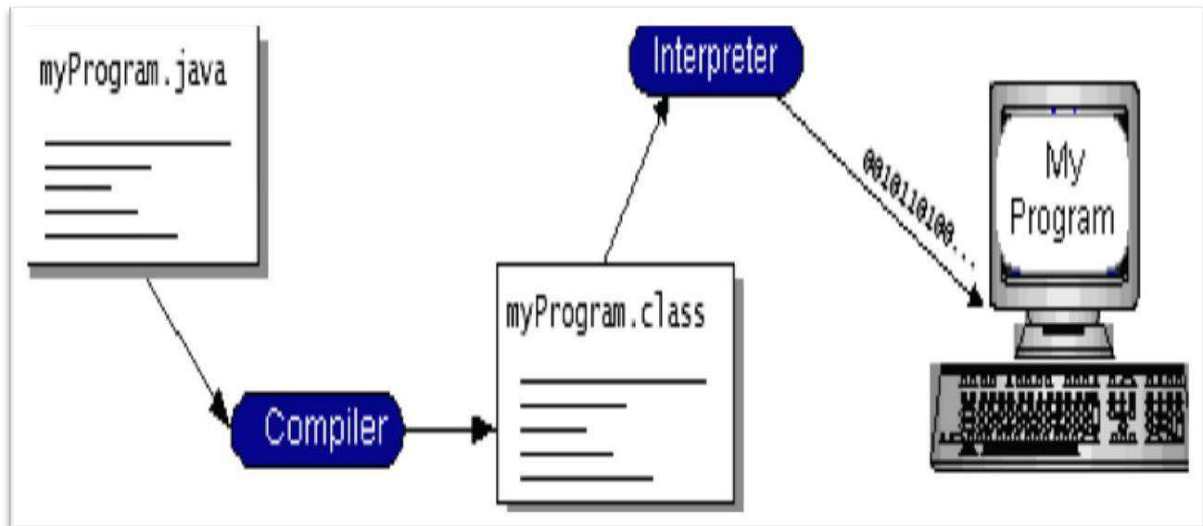
## 6.SOFTWARE ENVIRONMENT

**Java technology is both a programming language and a platform.**

The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

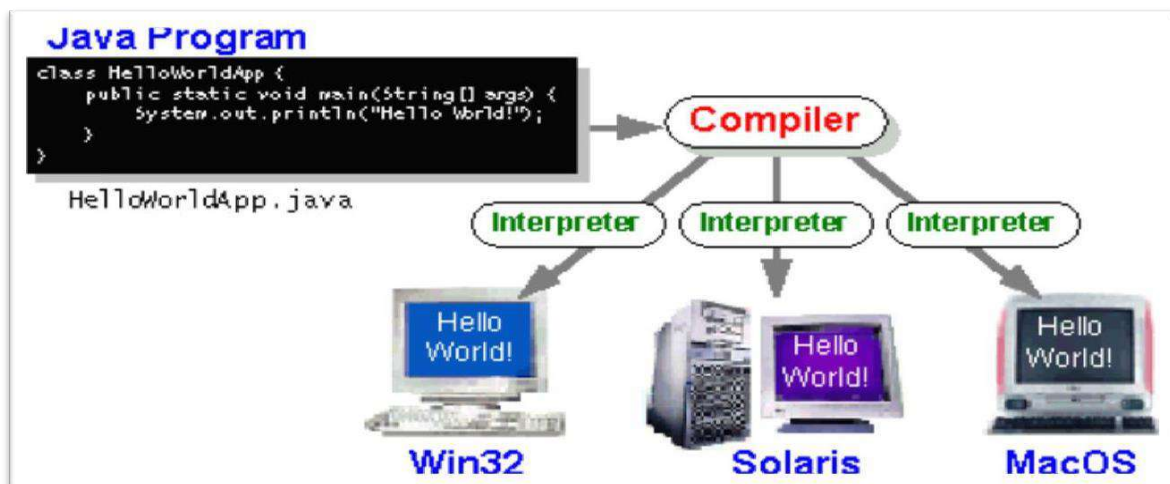
- Simple
- Architecture neutral
- Object oriented
- Portable
- Distributed
- High performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes - the platform-independent codes interpreted by the interpreter on the Java platform. The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.



*Fig 6.1: Program Compilation and Interpretation*

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM. Java byte codes help make "write once, run anywhere" possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM. That means that as long as a computer has a Java VM.



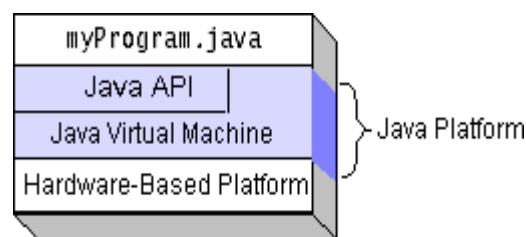
**Fig 6.2: Execution for different platforms**

## 6.2. The Java Platform

A platform is the hardware or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and MacOS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

You've already been introduced to the Java VM. It's the base for the Java platform and is ported onto various hardware-based platforms. The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as *packages*. The next section, What Can Java Technology Do? Highlights what functionality some of the packages in the Java API provide. The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.



**Fig 6.3: Java Platform**

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time bytecode compilers can bring performance close to that of native code without threatening portability.

### 6.3 What Can Java Technology Do?

The most common types of programs written in the Java programming language are applets and applications. If you've surfed the Web, you're probably already familiar with applets. An applet is a program that adheres to certain conventions that allow it to run within a Java-enabled browser. However, the Java programming language is not just for writing cute, entertaining applets for the Web. The general-purpose, high-level Java programming language is also a powerful software platform. Using the generous API, you can write many types of programs.

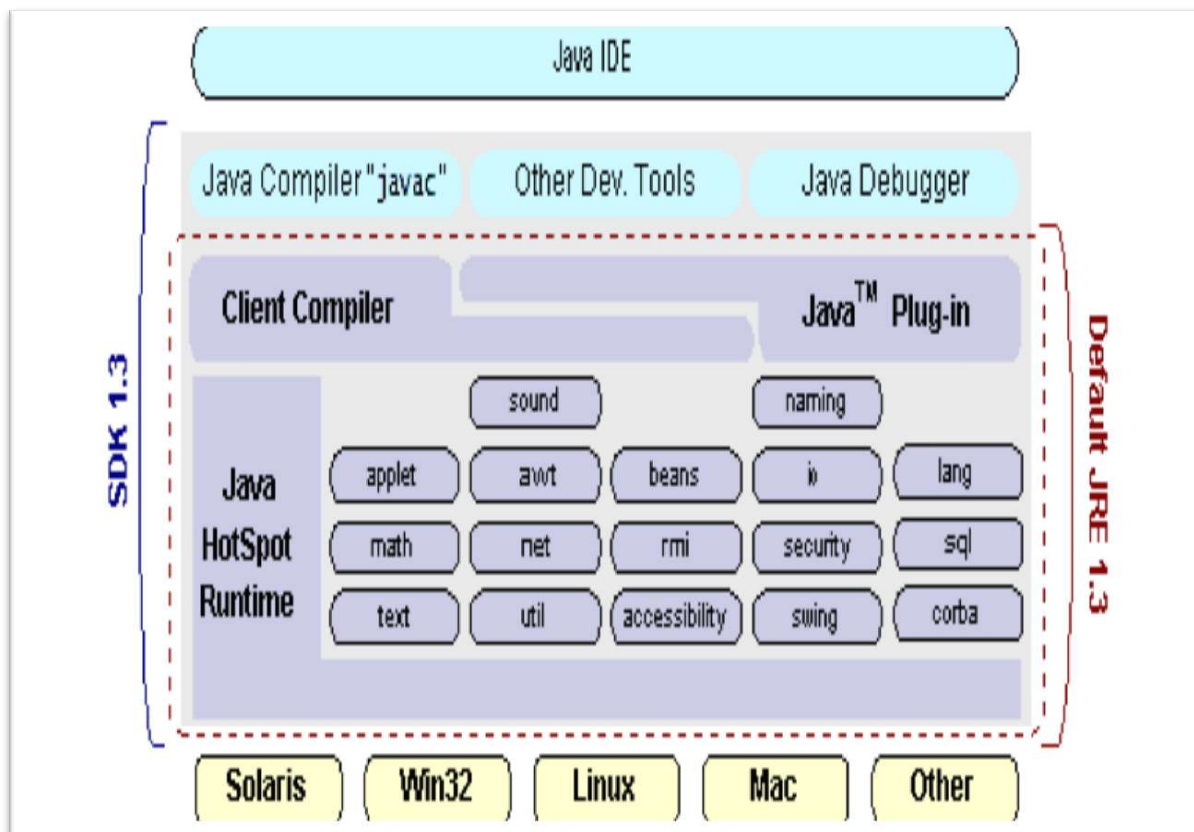
An application is a standalone program that runs directly on the Java platform. A special kind of application known as a server serves and supports clients on a network. Examples of servers are Web servers, proxy servers, mail servers, and print servers. Another specialized program is a servlet. A servlet can almost be thought of as an applet that runs on the server side. Java Servlets are a popular choice for building interactive web applications, replacing the use of CGI scripts. Servlets are similar to applets in that they are runtime extensions of applications. Instead of working in browsers, though, servlets run within Java Web servers, configuring or tailoring the server.

How does the API support all these kinds of programs? It does so with packages of software components that provides a wide range of functionality. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.
- **Security:** Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.

- **Software components:** Known as JavaBeans™, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC™):** Provides uniform access to a widerange of relational databases.

The Java platform also has APIs for 2D and 3D graphics, accessibility, servers, collaboration, telephony, speech, animation, and more. The following figure depicts what is included in the Java 2 SDK.



**Fig 6.4: Java IDE**

### 6.3. How Will Java Technology Change My Life?

We can't promise you fame, fortune, or even a job if you learn the Java programming language. Still, it is likely to make your programs better and requires less effort than other languages. We believe that Java technology will help you do the following:

- **Get started quickly:** Although the Java programming language is a powerful object-oriented language, it's easy to learn, especially for programmers already familiar with C or C++.
- **Write less code:** Comparisons of program metrics (class counts, method counts, and so on) suggest that a program written in the Java programming language can be four times smaller than the same program in C++.
- **Write better code:** The Java programming language encourages good coding practices, and its garbage collection helps you avoid memory leaks. Its object orientation, its JavaBeans component architecture, and its wide-ranging, easily extendible API let you reuse other people's tested code and introduce fewer bugs.
- **Develop programs more quickly:** Your development time may be as much as twice as fast versus writing the same program in C++. Why? You write fewer lines of code and it is a simpler programming language than C++.
- **Avoid platform dependencies with 100% Pure Java:** You can keep your program portable by avoiding the use of libraries written in other languages. The 100% Pure Java™ Product Certification Program has a repository of historical process manuals, white papers, brochures, and similar materials online.
- **Write once, run anywhere:** Because 100% Pure Java programs are compiled into machine-independent byte codes, they run consistently on any Java platform.
- **Distribute software more easily:** You can upgrade applets easily from a central server. Applets take advantage of the feature of allowing new classes to be loaded "on the fly," without recompiling the entire program.

## 6.4. ODBC

Microsoft Open Database Connectivity (ODBC) is a standard programming interface for application developers and database systems providers. Before ODBC became a *de facto* standard for Windows programs to interface with database systems,



programmers had to use proprietary languages for each database they wanted to connect to. Now, ODBC has made the choice of the database system almost irrelevant from a coding perspective, which is as it should be. Application developers have much more important things to worry about than the syntax that is needed to port their program from one database to another when business needs suddenly change. Through the ODBC Administrator in Control Panel, you can specify the particular database that is associated with a data source that an ODBC application program is written to use. Think of an ODBC data source as a door with a name on it. Each door will lead you to a particular database. For example, the data source named Sales Figures might be a SQL Server database, whereas the Accounts Payable data source could refer to an Access database. The physical database referred to by a data source can reside anywhere on the LAN.

The ODBC system files are not installed on your system by Windows 95. Rather, they are installed when you setup a separate database application, such as SQL Server Client or Visual Basic 4.0. When the ODBC icon is installed in Control Panel, it uses a file called ODBCINST.DLL. It is also possible to administer your ODBC data sources through a stand-alone program called ODBCADM.EXE. There is a 16-bit and a 32-bit version of this program and each maintains a separate list of ODBC data sources. From a programming perspective, the beauty of ODBC is that the application can be written to use the same set of function calls to interface with any data source, regardless of the database vendor. The source code of the application doesn't change whether it talks to Oracle or SQL Server. We only mention these two as an example. There are ODBC drivers available for several dozen popular database systems. Even Excel spreadsheets and plain text files can be turned into data sources. The operating system uses the Registry information written by ODBC Administrator to determine which low-level ODBC drivers are needed to talk to the data source (such as the interface to Oracle or SQL Server). The loading of the ODBC drivers is transparent to the ODBC application program. In a client/server environment, the ODBC API even handles many of the network issues for the application programmer.

The advantages of this scheme are so numerous that you are probably thinking there must be some catch. The only disadvantage of ODBC is that it isn't as efficient as talking directly to the native database interface. ODBC has had many detractors make the charge that it is too slow. Microsoft has always claimed that the critical factor in performance is the quality of the driver software that is used. In our humble opinion, this is



true. The availability of good ODBC drivers has improved a great deal recently. And anyway, the criticism about performance is somewhat analogous to those who said that compilers would never match the speed of pure assembly language. Maybe not, but the compiler (or ODBC) gives you the opportunity to write cleaner programs, which means you finish sooner. Meanwhile, computers get faster every year.

## 6.5. JDBC

In an effort to set an independent database standard API for Java; Sun Microsystems developed Java Database Connectivity, or JDBC. JDBC offers a generic SQL database access mechanism that provides a consistent interface to a variety of RDBMSs. This consistent interface is achieved through the use of “plug-in” database connectivity modules, or *drivers*. If a database vendor wishes to have JDBC support, he or she must provide the driver for each platform that the database and Java run on. To gain a wider acceptance of JDBC, Sun based JDBC’s framework on ODBC. As you discovered earlier in this chapter, ODBC has widespread support on a variety of platforms. Basing JDBC on ODBC will allow vendors to bring JDBC drivers to market much faster than developing a completely new connectivity solution. JDBC was announced in March of 1996. It was released for a 90 day public review that ended June 8, 1996. Because of user input, the final JDBC v1.0 specification was released soon after. The remainder of this section will cover enough information about JDBC for you to know what it is about and how to use it effectively. This is by no means a complete overview of JDBC. That would fill an entire book.

## 6.6. JDBC

Few software packages are designed without goals in mind. JDBC is one that, because of its many goals, drove the development of the API. These goals, in conjunction with early reviewer feedback, have finalized the JDBC class library into a solid framework for building database applications in Java. The goals that were set for JDBC are important. They will give you some insight as to why certain classes and functionalities behave the way they do. The eight design goals for JDBC are as follows:

The designers felt that their main goal was to define a SQL interface for Java. Although not the lowest database interface level possible, it is at a low enough level for higher-level tools and APIs to be created. Conversely, it is at a high enough level for

application programmers to use it confidently. Attaining this goal allows for future tool vendors to “generate” JDBC code and to hide many of JDBC’s complexities from the end user.

### **SQL Conformance**

SQL syntax varies as you move from database vendor to database vendor. In an effort to support a wide variety of vendors, JDBC will allow any query statement to be passed through it to the underlying database driver. This allows the connectivity module to handle non-standard functionality in a manner that is suitable for its users.

### **JDBC must be implemental on top of common database interfaces**

The JDBC SQL API must “sit” on top of other common SQL level APIs. This goal allows JDBC to use existing ODBC level drivers by the use of a software interface. This interface would translate JDBC calls to ODBC and vice versa.

### **Provide a Java interface that is consistent with the rest of the Java system**

Because of Java’s acceptance in the user community thus far, the designers feel that they should not stray from the current design of the core Java system.

### **Use strong, static typing wherever possible**

Strong typing allows for more error checking to be done at compile time; also, less error appear at runtime.

### **Keep the common cases simple**

Because more often than not, the usual SQL calls used by the programmer are simple SELECT’s, INSERT’s, DELETE’s and UPDATE’s, these queries should be simple to perform with JDBC. However, more complex SQL statements should also be possible.

Finally we decided to proceed the implementation using Java Networking. And for dynamically updating the cache table we go for MS Access database. Java ha two things: a programming language and a platform. Java is also unusual in that each Java program is both compiled and interpreted. With a compile you translate a Java program into an intermediate language called Java byte codes the platform-independent code instruction is passed and run on the computer. Compilation happens just once

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (Java VM). Every Java interpreter, whether it's a Java development tool or a Web browser that can run Java applets, is an implementation of the Java VM. The Java VM can also be implemented in hardware. Java byte codes help make "write once, run anywhere" possible. You can compile your Java program into byte codes on my platform that has a Java compiler.

## 6.7. SOCKETS

A socket is a data structure maintained by the system to handle network connections. A socket is created using the call `socket`. It returns an integer that is like a file descriptor. In fact, under Windows, this handle can be used with Read File and Write File functions.

```
#include
<sys/types.h>
#include
<sys/socket.h>

int socket(int family, int type, int protocol);
```

Here "family" will be `AF_INET` for IP communications, protocol will be zero, and type will depend on whether TCP or UDP is used. Two processes wishing to communicate over a network create a socket each. These are similar to two ends of a pipe - but the actual pipe does not yet exist.

## 6.8. JFREE CHART

JFreeChart is a free 100% Java chart library that makes it easy for developers to display professional quality charts in their applications. JFreeChart's extensive feature set includes: A consistent and well-documented API, supporting a wide range of chart types, A flexible design that is easy to extend, and targets both server-side and client-side applications. Support for many output types, including Swing components, image files (including PNG and JPEG), and vector graphics file formats (including PDF, EPS and SVG), JFreeChart is "open source" or, more specifically, free software. It is distributed under the terms of the GNU Lesser General Public Licence (LGPL), which permits use in proprietary applications.

## **Map Visualizations**

Charts showing values that relate to geographical areas. Some examples include: (a) population density in each state of the United States, (b) income per capita for each country in Europe, (c) life expectancy in each country of the world. The tasks in this project include. Sourcing freely redistributable vector outlines for the countries of the world, states/provinces in particular countries (USA in particular, but also other areas). Creating an appropriate dataset interface (plus default implementation), a rendered, and integrating this with the existing XYPlot class in JFreeChart. Testing, documenting, testing some more, documenting some more.

## **Time Series Chart Interactivity**

Implement a new (to JFreeChart) feature for interactive time series charts --- to display a separate control that shows a small version of ALL the time series data, with a sliding "view" rectangle that allows you to select the subset of the time series data to display in the main chart.

## **Dashboards**

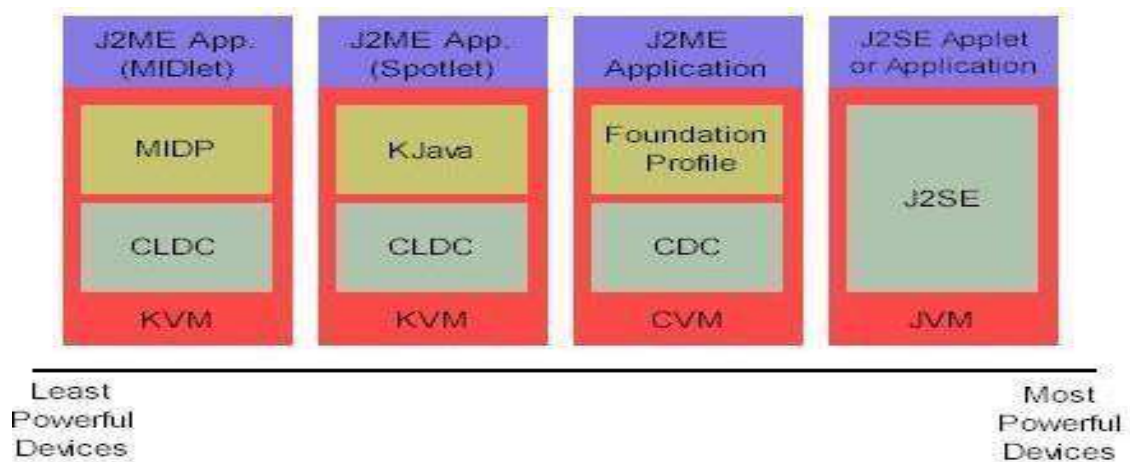
There is currently a lot of interest in dashboard displays. Create a flexible dashboard mechanism that supports a subset of JFreeChart chart types (dials, pies, thermometers, bars, and lines/time series) that can be delivered easily via both Java Web Start and an applet.

## **Property Editors**

The property editor mechanism in JFreeChart only handles a small subset of the properties that can be set for charts. Extend (or re-implement) this mechanism to provide greater end-user control over the appearance of the charts.

## **6.8. J2ME (Java 2 Micro edition)**

Sun Microsystems defines J2ME as "a highly optimized Java run-time environment targeting a wide range of consumer products, including pagers, cellular phones, screen-phones, digital set-top boxes and car navigation systems." Announced in June 1999 at the JavaOne Developer Conference, J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. With J2ME, Sun has adapted the Java platform for consumer products that incorporate or are based on small computing devices.



**Fig 6.7: General J2ME Architecture**

J2ME uses configurations and profiles to customize the Java Runtime Environment (JRE). As a complete JRE, J2ME is comprised of a configuration, which determines the JVM used, and a profile, which defines the application by adding domain-specific classes.

The configuration defines basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. We'll discuss configurations in detail in the The profile defines the application; specifically, it adds domain-specific classes to the J2ME configuration to define certain uses for devices. We'll cover profiles in depth in the The following graphic depicts the relationship between the different virtual machines, configurations, and profiles. It also draws a parallel with the J2SE API and its Java virtual machine. While the J2SE virtual machine is generally referred to as a JVM, the J2ME virtual machines, KVM and CVM, are subsets of JVM. Both KVM and CVM can be thought of as a kind of Java virtual machine -- it's just that they are shrunken versions of the J2SE JVM and are specific to J2ME.

### Developing J2ME applications

**Introduction** In this section, we will go over some considerations you need to keep in mind when developing applications for smaller devices. We'll take a look at the way the compiler is invoked when using J2SE to compile J2ME applications. Finally, we'll explore packaging and deployment and the role pre-verification plays in this process.

Developing applications for small devices requires you to keep certain strategies in mind during the design phase. It is best to strategically design an application for a small

device before you begin coding. Correcting the code because you failed to consider all of the "gotchas" before developing the application can be a painful process. Here are some design strategies to consider:

- Keep it simple. Remove unnecessary features, possibly making those features a separate, secondary application.
- Smaller is better. This consideration should be a "no brainer" for all developers. Smaller applications use less memory on the device and require shorter installation times. Consider packaging your Java applications as compressed Java Archive (jar) files.
- Minimize run-time memory use. To minimize the amount of memory used at run time, use scalar types in place of object types. Also, do not depend on the garbage collector. You should manage the memory efficiently yourself by setting object references to null when you are finished with them. Another way to reduce run-time memory is to use lazy instantiation, only allocating objects on an as-needed basis. Other ways of reducing overall and peak memory use on small devices are to release resources quickly, reuse objects, and avoid exceptions.

### **Configurations overview**

The configuration defines the basic run-time environment as a set of core classes and a specific JVM that run on specific types of devices. Currently, two configurations exist for J2ME, though others may be defined in the future:

- **Connected Limited Device Configuration (CLDC)** is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. This is the configuration (and the virtual machine) used for developing small J2ME applications. Its size limitations make CLDC more interesting and challenging (from a development point of view) than CDC. CLDC is also the configuration that we will use for developing our drawing tool application. An example of a small wireless device running small applications is a Palm hand-held computer.

- **Connected Device Configuration (CDC)** is used with the C virtual machine (CVM) and is used for 32-bit architectures requiring more than 2 MB of memory. An example of such a device is a Net TV box.

## **7.SYSTEM REQUIREMENTS**

### **7.1 HARDWARE REQUIREMENTS**

- Processor- Intel (R) Core (TM) i3-4200U
- CPU - 1.6GHz
- RAM:4 GB
- Hard Disk: 40 GB.

### **7.2 SOFTWARE REQUIREMENTS**

- Operating System- windows 7 / 8.1 / 10/
- Server: Apache Tomcat
- Database: MYSQL Server 5.0
- Frontend: HTML, CSS, JS
- Backend: JSP



## 8. SYSTEM DESIGN

### 8.1 DATAFLOW DIAGRAM:

1. The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
2. The data flow diagram (DFD) is one of the most important modelling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
3. DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
4. DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction.

8.1 DATAFLOW DIAGRAM

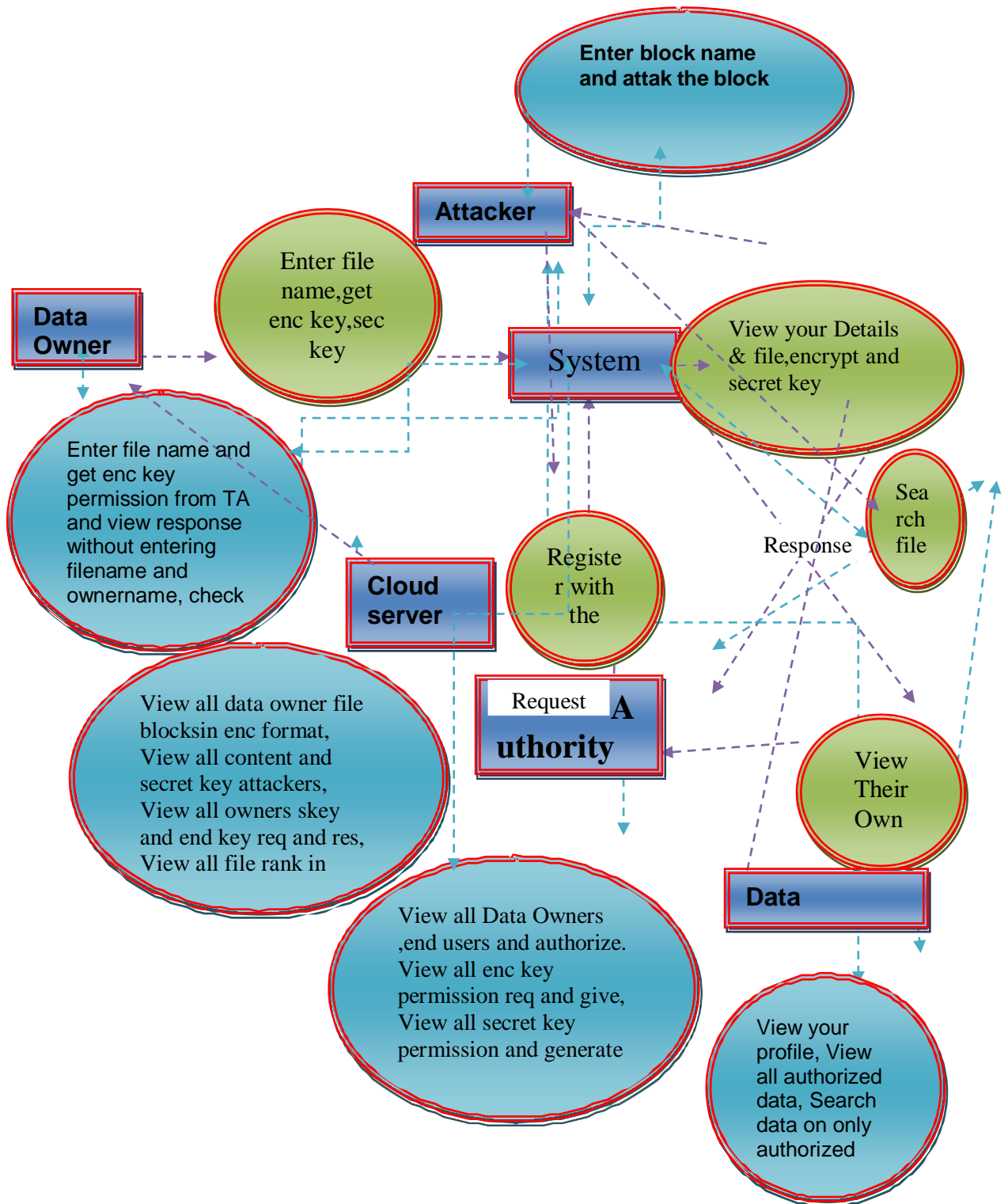
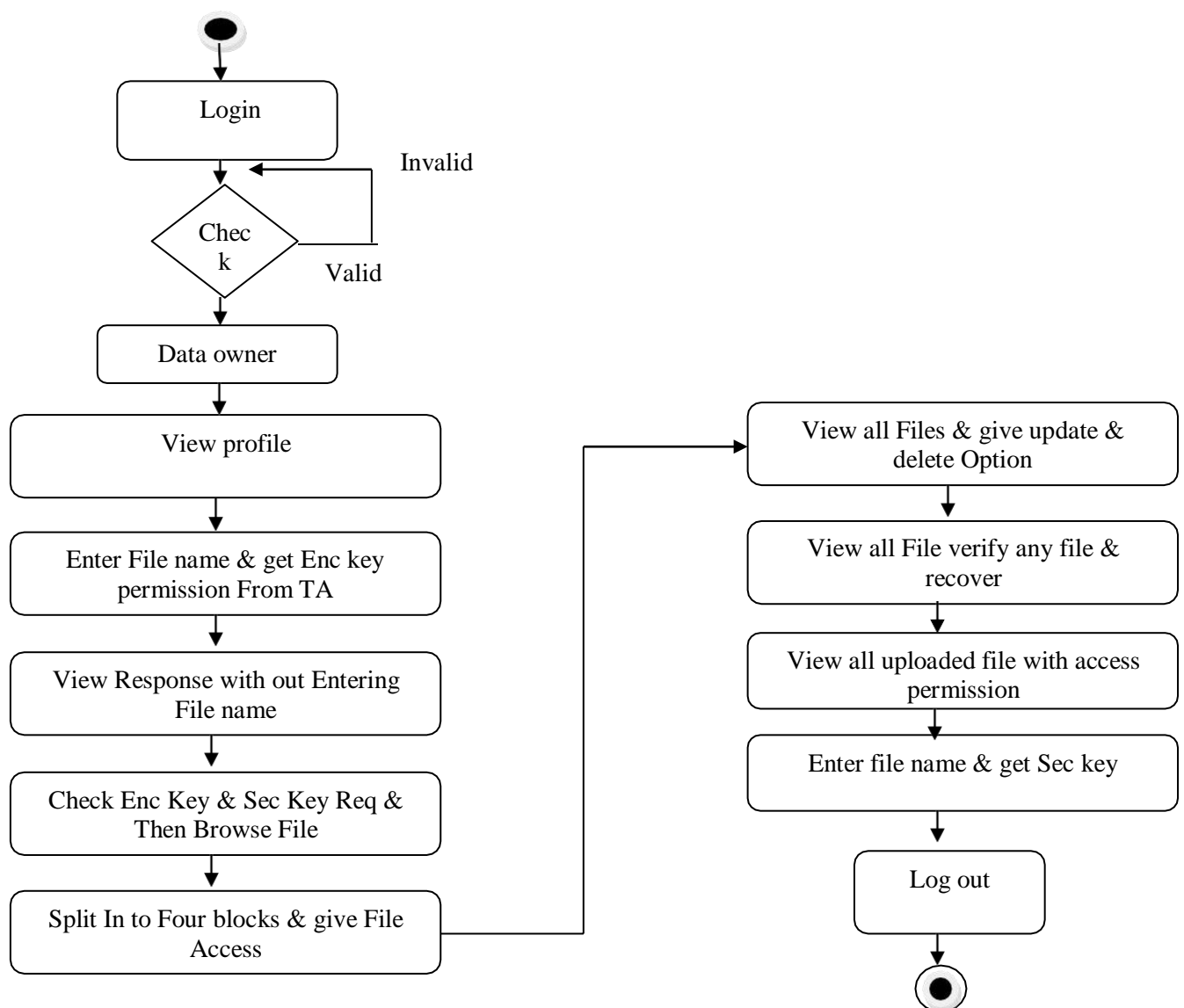


Fig 8.1 DATAFLOW DIAGRAM

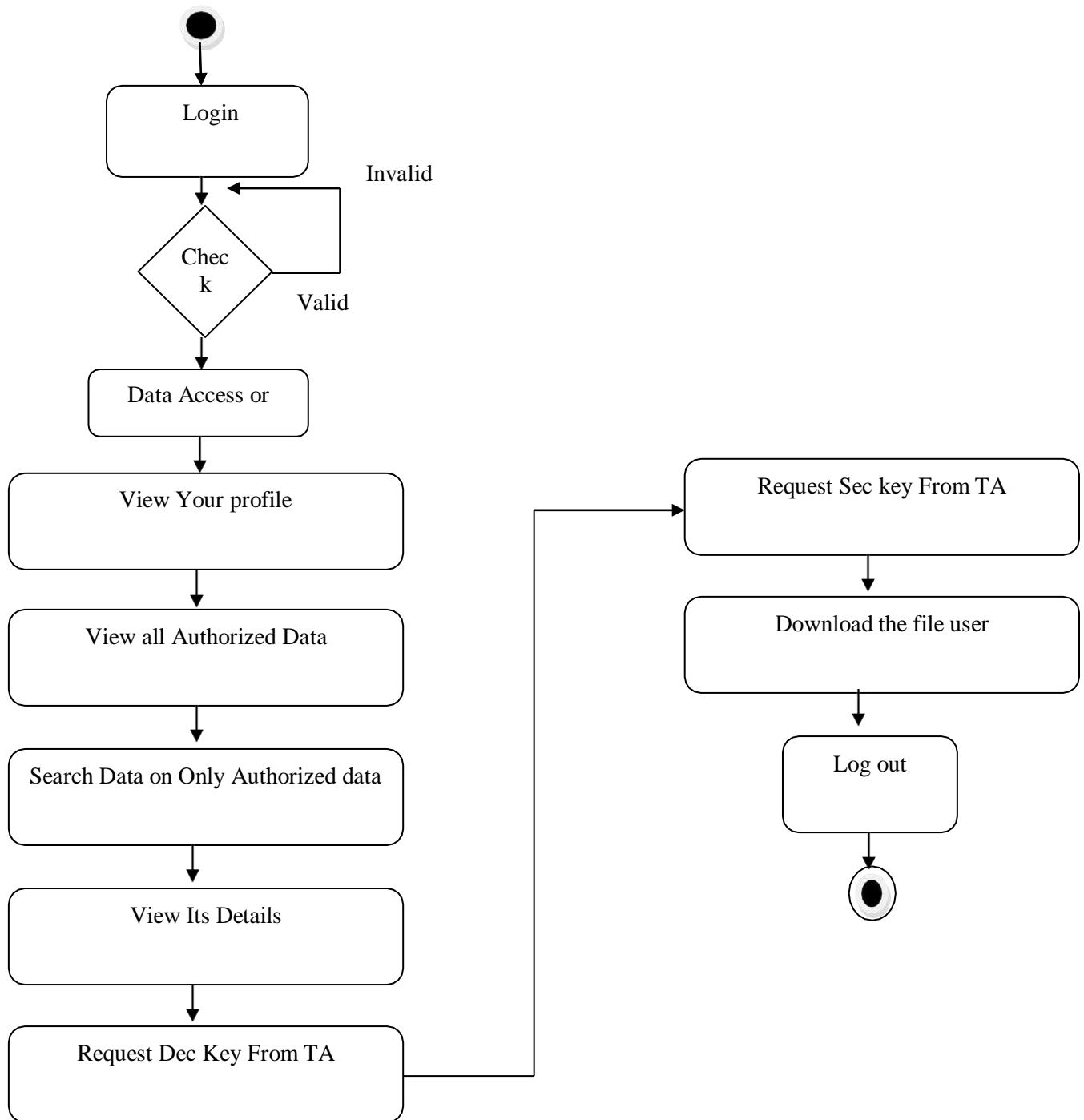
## 8.2 UML DIAGRAMS

### 8.3 Activity Diagram

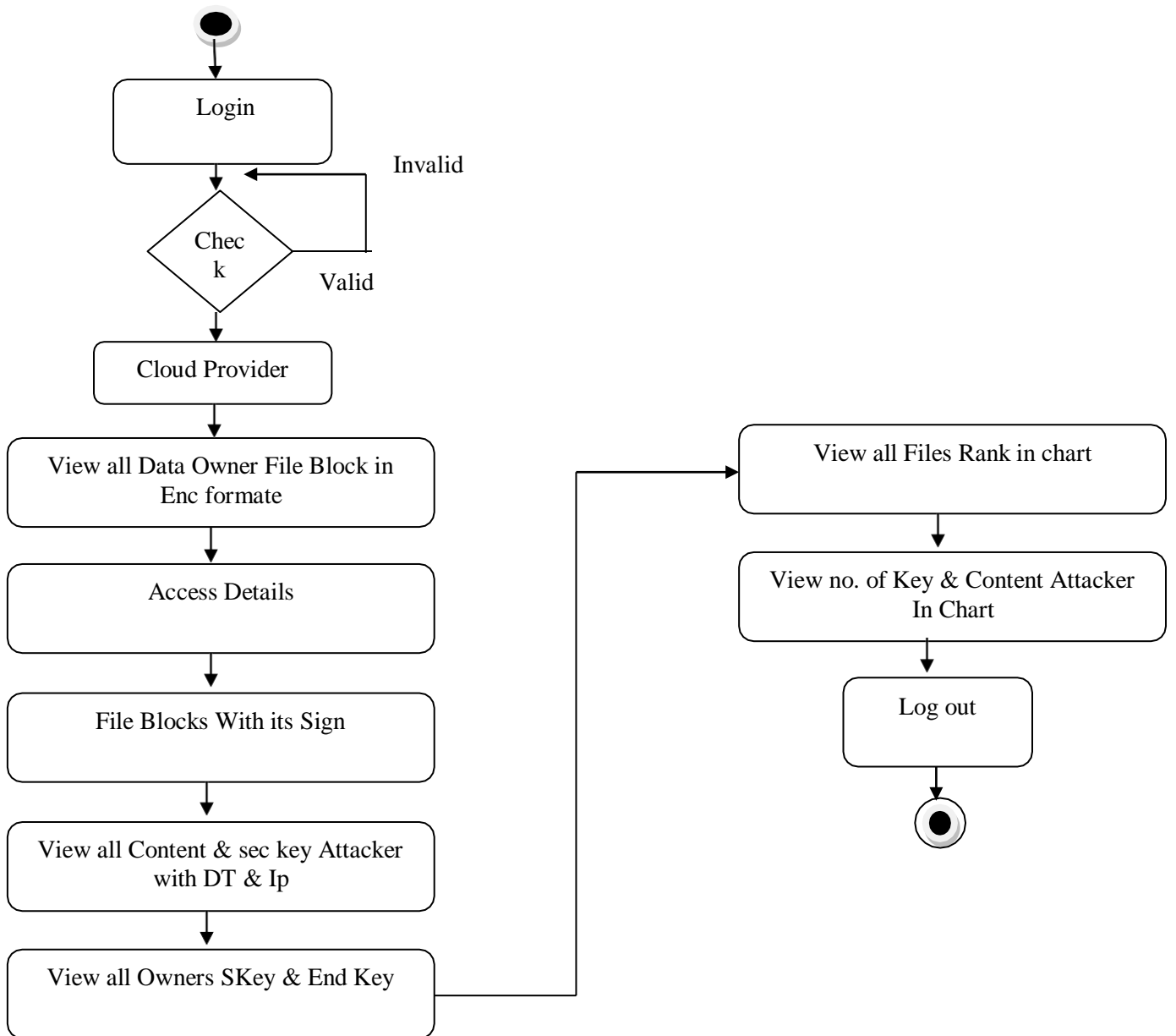
Activity diagrams are graphical representations of work flows of step wise activities and actions with support for choice, iteration and concurrency, in the unified modeling language, activity diagrams can be used to describe the business and operational step-by-step work flows of components in a system. An activity diagram shows the overall flow of control.



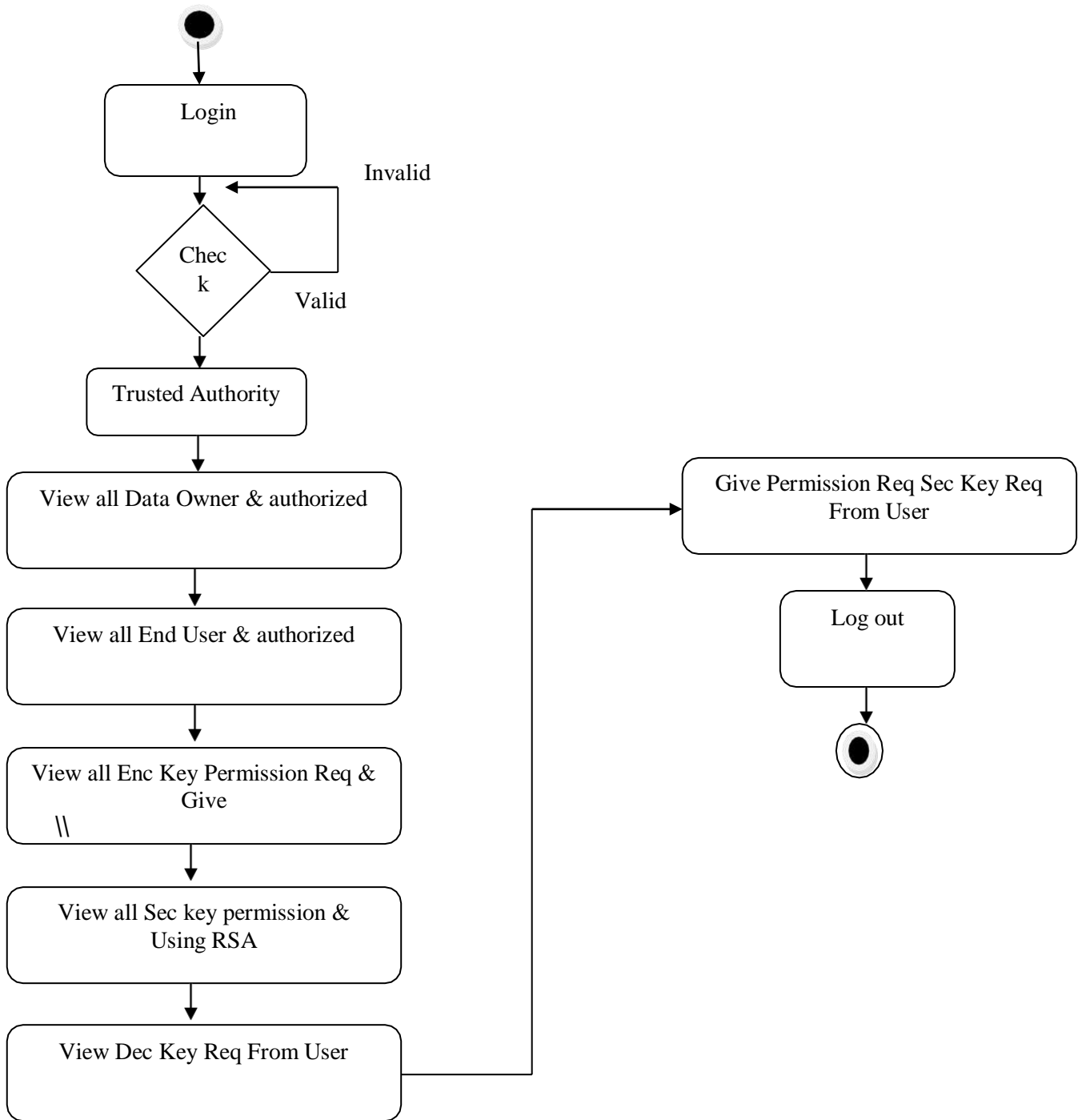
**Fig 8.3 Activity Diagram for Data Owner**



**Fig 8.4 Activity Diagram for Data Accessor**



**Fig 8.5 Activity Diagram for Cloud Provider**



**Fig 8.5 Activity Diagram for Trusted Authority**

### 8.4 Use case Diagram

A Use case Diagram in the unified modeling language (UML) is a type of behavioral diagram defined by and created from a use case analysis. Its proposed is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, (represented as use case) and any dependencies. Between those use cases.

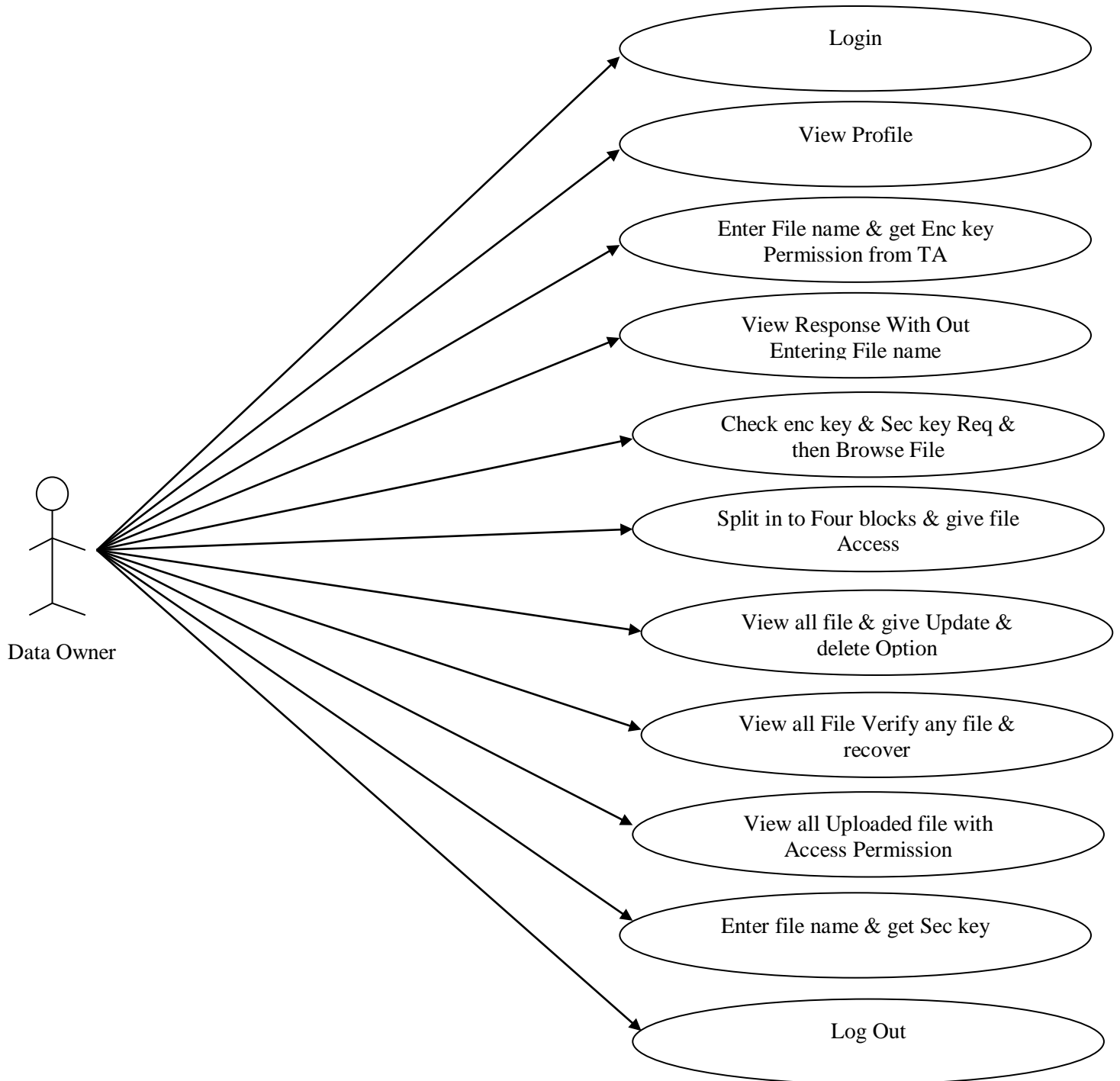
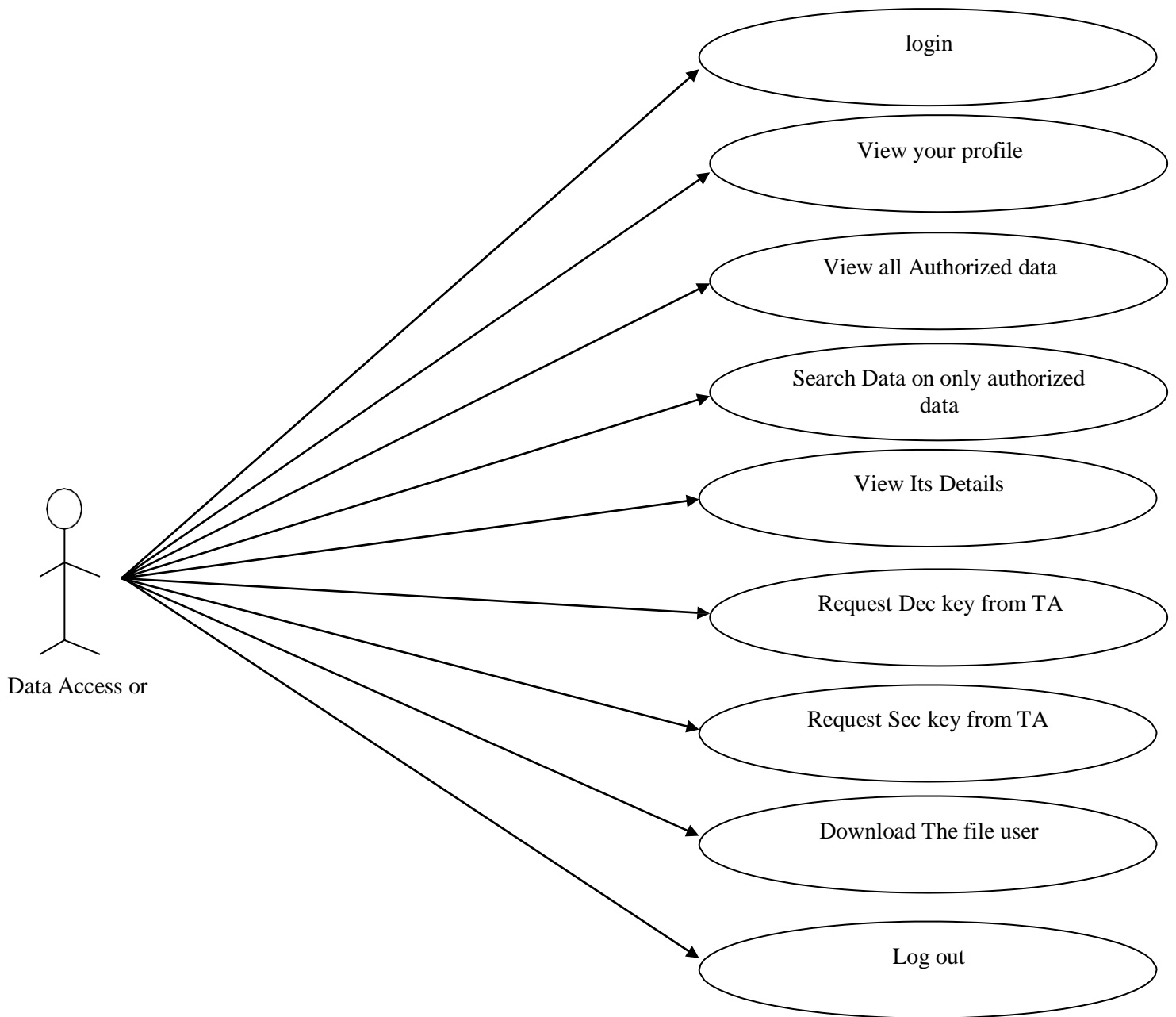
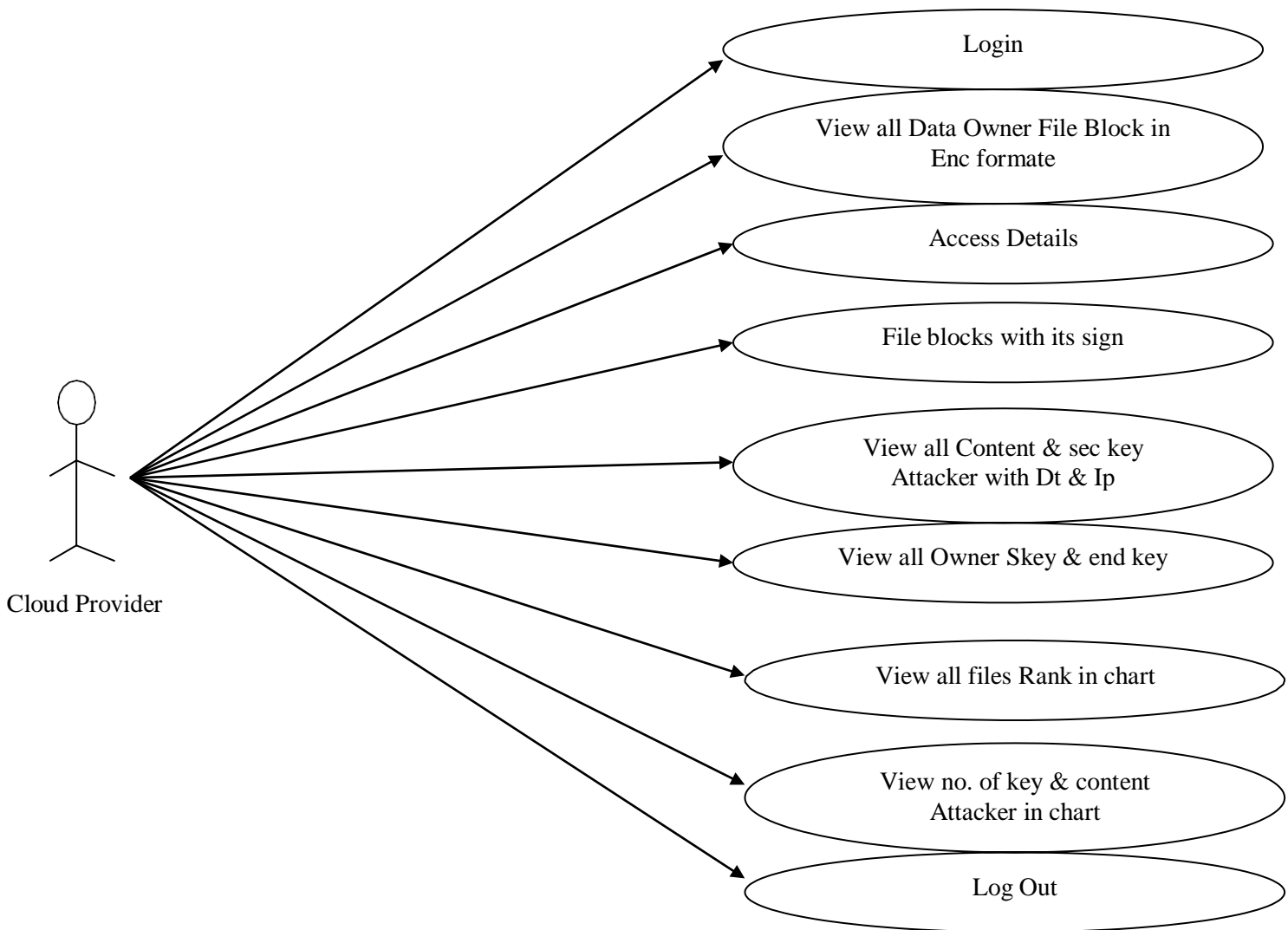


Fig 8.7 Use case Diagram for Data Owner

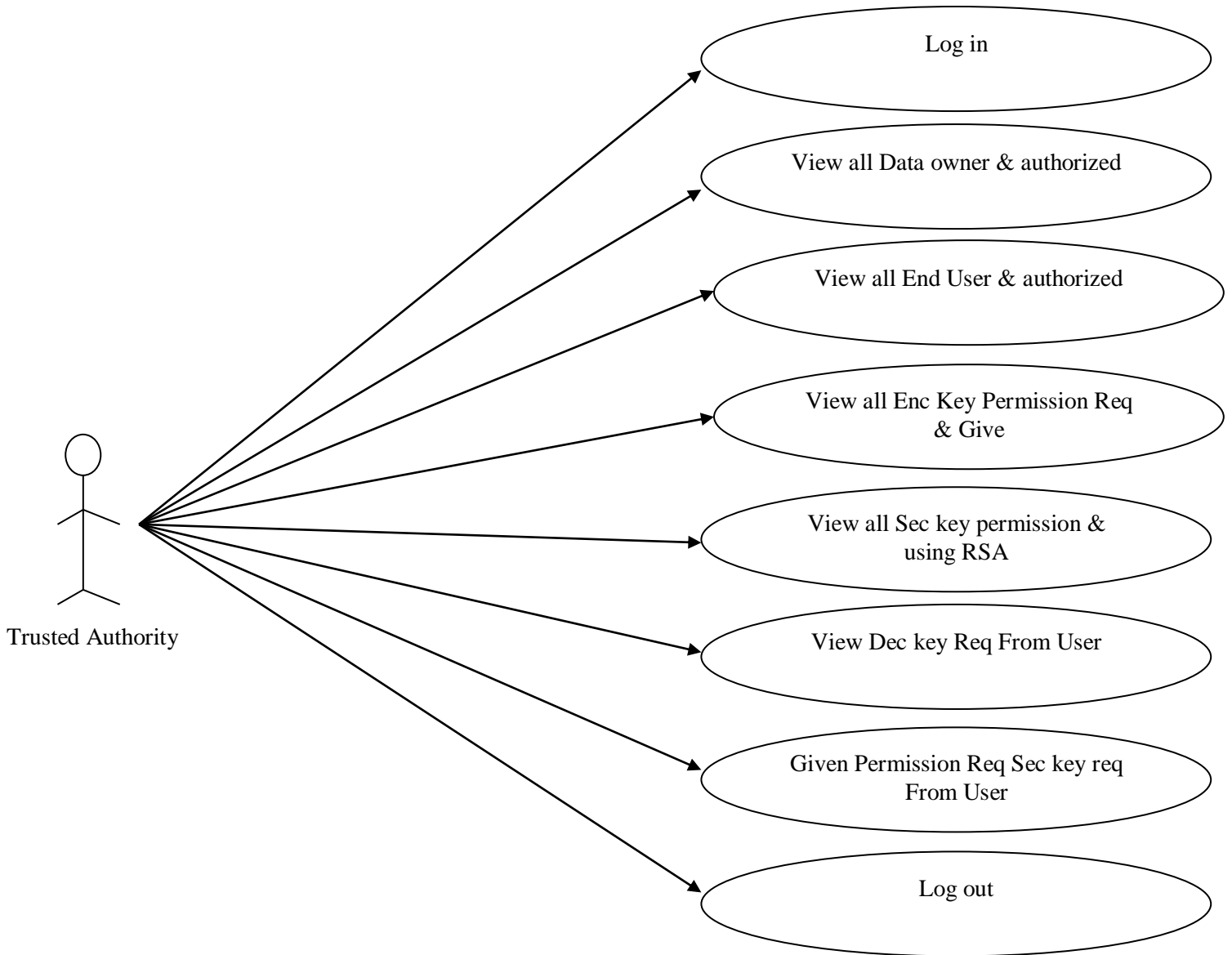


**Fig 8.8 Use case Diagram for Data Accessor**





**Fig 8.9 Use case Diagram for Cloud Provider**



**Fig 8.10 Use case Diagram for Trusted Authority**

### 8.5 Sequence Diagram

A Sequence Diagram in unified modeling language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what it is a construct of a messages sequence chart sequence diagram are some times called event diagram, event scenarios, and timing diagram.

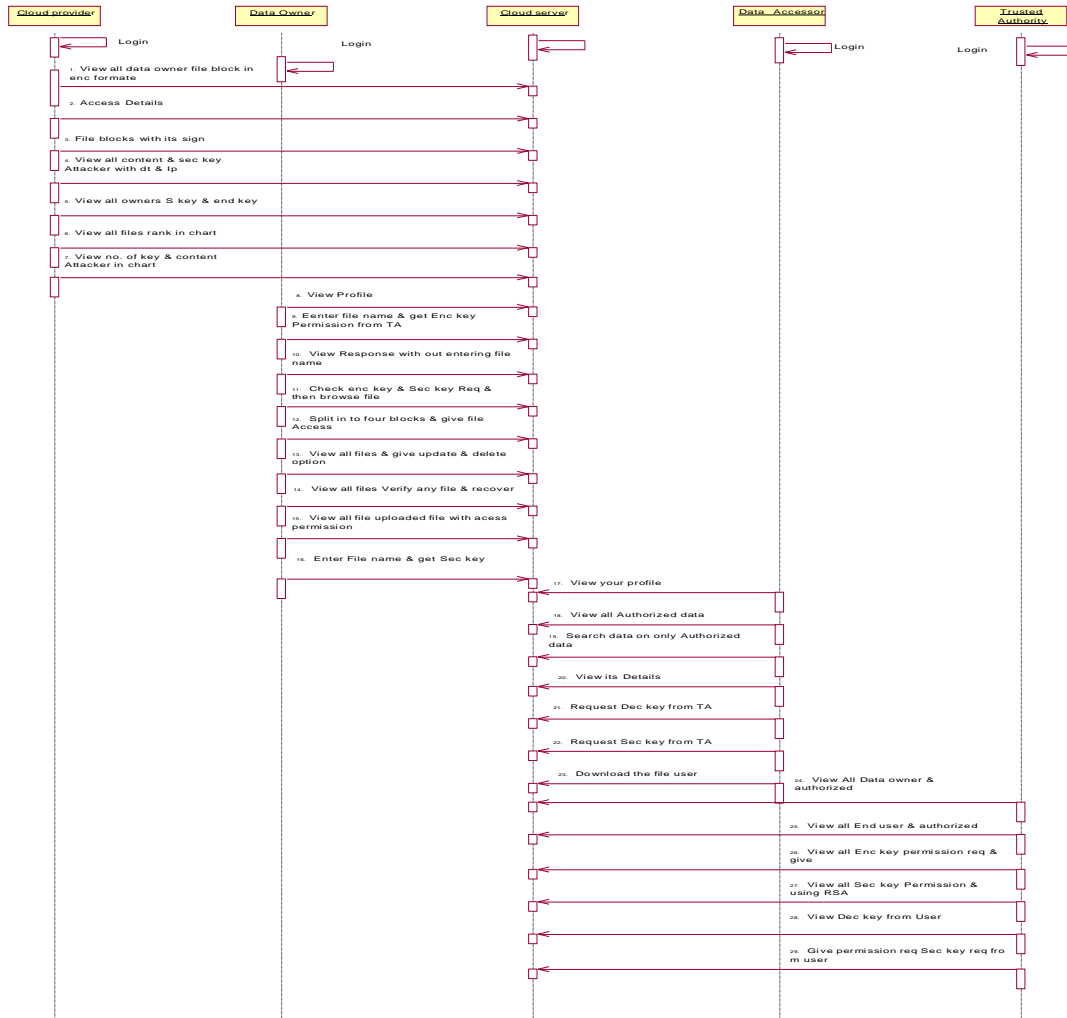
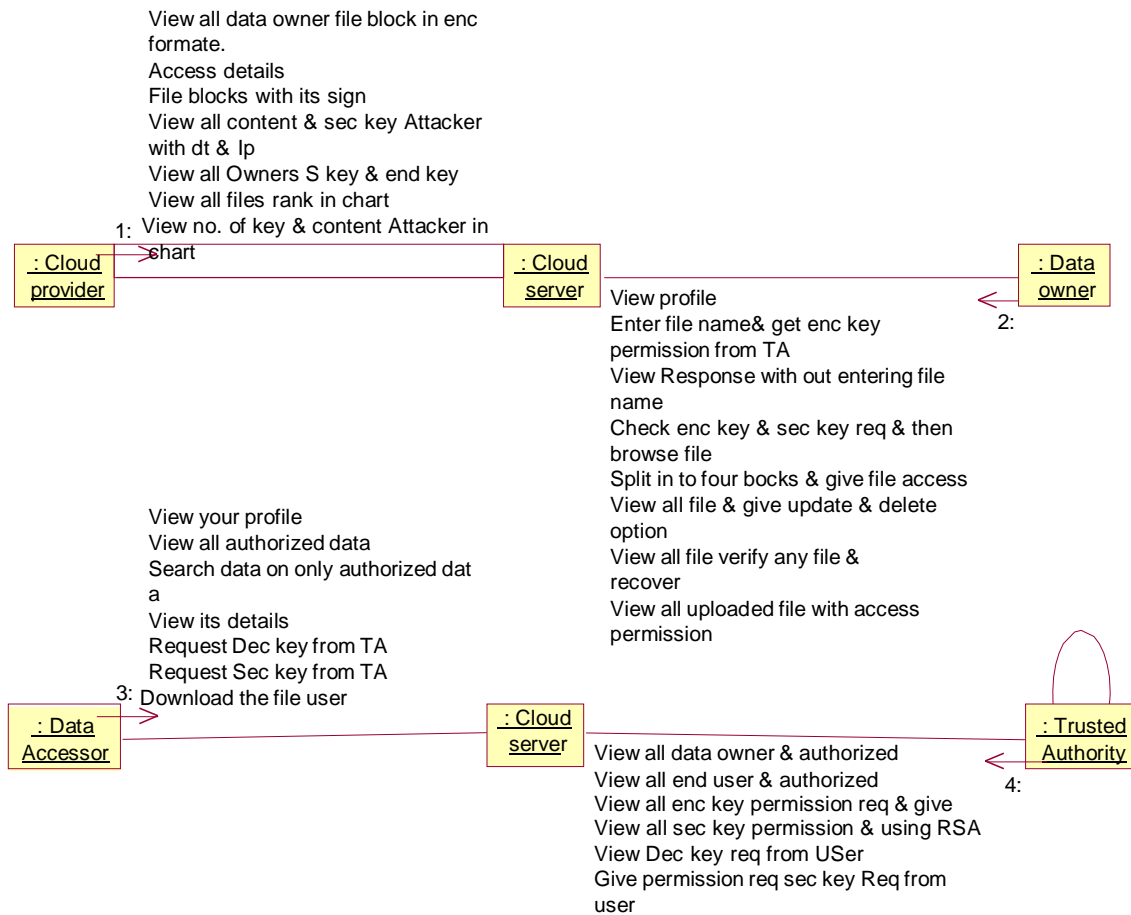


Fig 8.11 Sequence Diagram

### 8.6 Collaboration Diagram

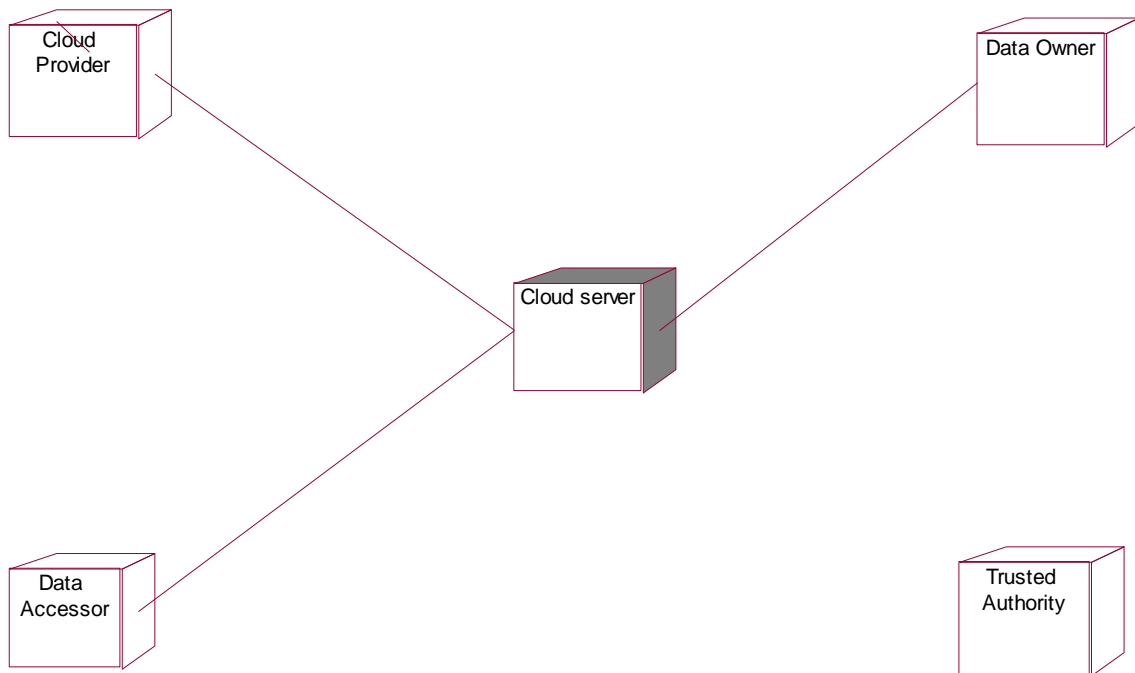
A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object.



**Fig 8.12 Collaboration Diagram**

### 8.7 Deployment diagram

Deployment diagram represents the deployment view of a system .It is related to the Component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical Hardware's used to deploy the Applications.



**Fig8.13 Deployment diagram**

## 8.8 Class Diagram

A class is a set of objects that share a common structure and common behavior (the same attributes, operations, relationships, and semantics). A class is an abstraction of real world items.

There are 4 approaches for identifying classes:

1. Noun phrase approach.
2. Common class pattern approach.
3. Use case driven sequence or collaboration approach.
4. Classes , Responsibilities and Collaborators approach.

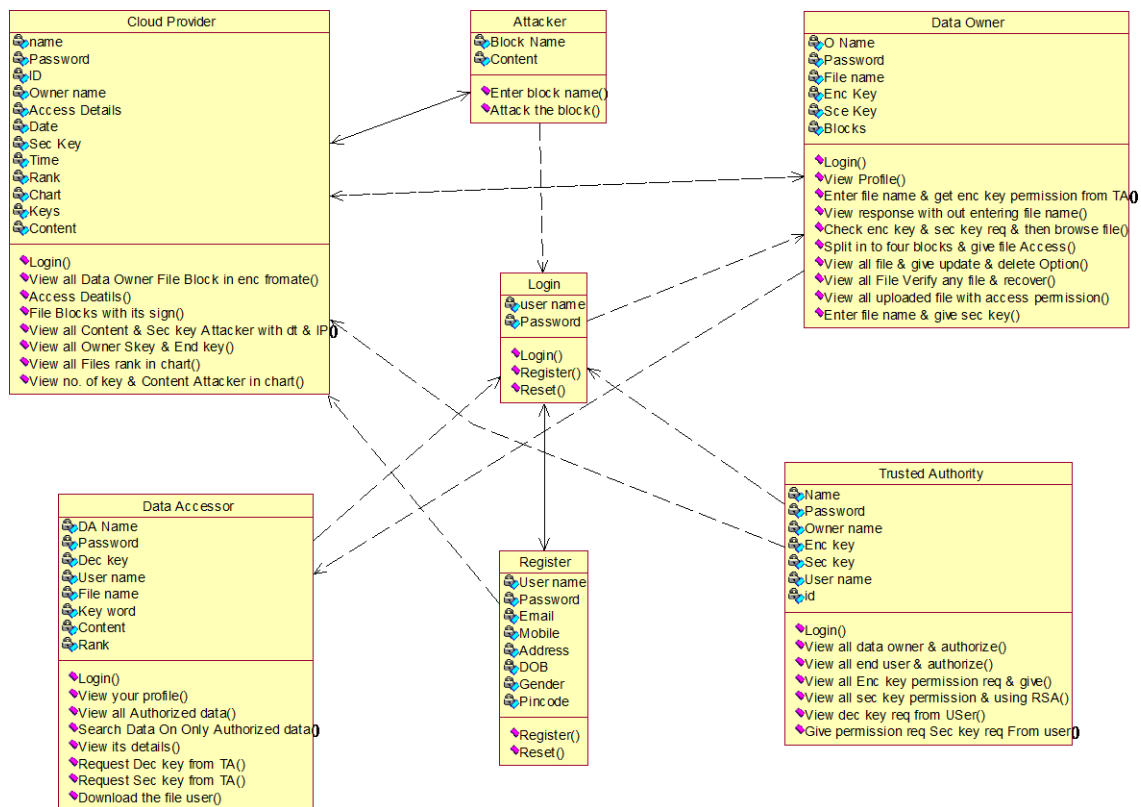
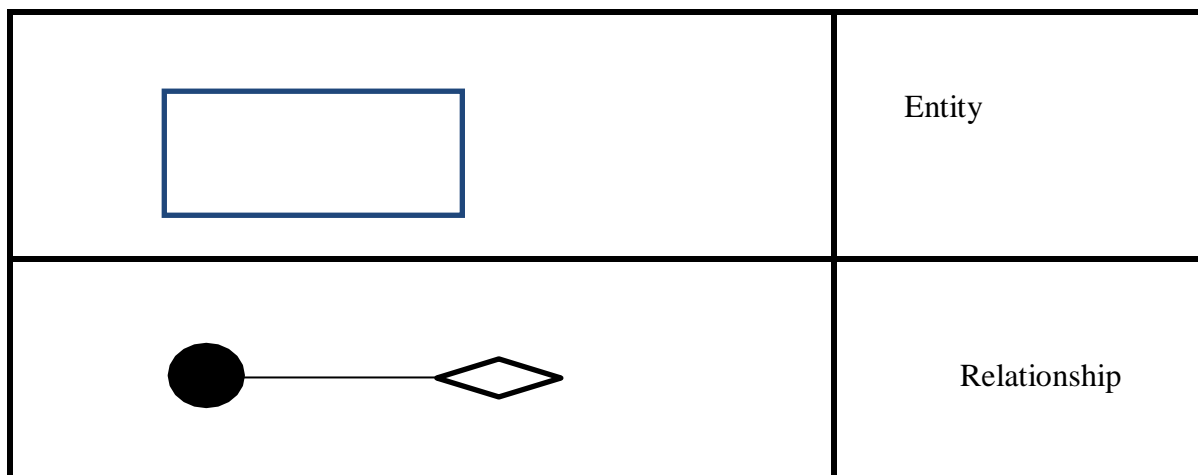


Fig 8.14 Class Diagram

## 8.9 E-R Diagrams

The corner stone notation for data modeling is entity relationship. The set of primary components for the E-R diagram objects, attributes, relationships and various type indicators. The primary purpose of E-R diagram is to represent data objects and the relationship. E-R diagram notation is relatively simply, data objects are represented by labeled rectangle, relationships are indicated with diamonds and connections between objects and relationships are established using a variety of special connection lines. Let us define the symbols used in the E-R diagram.



**Fig 8.15: E-R Notations**

## **9.IMPLEMENTATION**

### **9.1 INPUTDESIGN**

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

### **9.2. OBJECTIVES**

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system.
2. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
3. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.



4. Then the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user
5. It will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

### **9.3. OUTPUT DESIGN**

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
2. Select methods for presenting information.
3. Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
  - Convey information about past activities, current status or projections
  - Future.
  - Signal important events, opportunities, problems, or warnings.
  - Trigger an action.
  - Confirm an action.

## 9.4 CODING

### Au\_login.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Attribute Trusted Authority Login</title>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link href="css/style.css" rel="stylesheet" type="text/css" />
<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/cufon-times.js"></script>
<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>
<script type="text/javascript" src="js/script.js"></script>
<script type="text/javascript" src="js/coin-slider.min.js"></script>
<script language="javascript" type="text/javascript">
function valid()
{
var na3=document.s.userid.value;
if(na3=="")

{
alert("Please Enter Name");
document.s.userid.focus();
return false;
}
else
{

}
var na4=document.s.pass.value;
if(na4=="")

{
alert("Please Enter Password");
document.s.pass.focus();
```

```
return false;
}
}
</script>
<style type="text/css">
<!--
.style1 {font-family: "Times New Roman", Times, serif}
.style2 {font-size: 15px}
.style3 {color: #1e5381}
.style4 {font-size: 20px}
.style5 {font-weight: bold}
.style7 {
 font-weight: bold;
 color: #ffae00;
}
.style9 {color: #ffae00}
.style10 {font-size: 24px}
-->
</style>
</head>
<body>
<div class="main">
 <div class="header">
 <div class="header_resize">
 <div class="logo">
 <h1>Secure Data Group Sharing and Conditional
Dissemination with Multi Owner in Cloud Computing</h1>
 </div>
 <div class="menu_nav">

 Home Page
 Cloud Service Provider
 <li class="active">Trusted Authority
 Data Owner
 Data Accessor

 </div>
 </div>
</div>
```

```

<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
 <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 align="center"> Trusted Authority Login </h2>
 <p> </p>
<form name="s" action="au_authentication.jsp" method="post" onSubmit="return valid()" ons
target="_top">

 <table align="center" border="1" width="57%" height="179">
 <tr>
 <td width="48%" height="46" bgcolor="#333333" class="style4 style2"><span class="style4
style3 style1 style7 style9"> Name </td>
 <td width="55%" height="46" bgcolor="#333333"><input type="text" name="userid"
size="18" /></td>
 </tr>
 <tr>
 <td width="48%" height="40" bgcolor="#333333" class="style5 style2"> <span class="style4
style1 style9">Password</td>
 <td width="55%" height="40" bgcolor="#333333"><input type="password" name="pass"
size="18" /></td>
 </tr>
 <tr>
 <td height="78" colspan="2" bgcolor="#999999"><p align="center">
 <input type="submit" value="Login" name="B1" />
 <input type="reset" value="Reset" name="B2" />
 </td>
 </tr>
 </table>

```

```
</tr>
</table>

</form>

</div>
</div>
<div class="sidebar">
 <p> </p>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home Page
 Cloud Service Provider
 Trusted Authority
 Data Owner
 Data Accessor
 Attacker

 </div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
<div align=center></div>
</body>
```

</html>

## Index.jsp

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<title>Home Page</title>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<link href="css/style.css" rel="stylesheet" type="text/css" />

<link rel="stylesheet" type="text/css" href="css/coin-slider.css" />

<script type="text/javascript" src="js/cufon-yui.js"></script>

<script type="text/javascript" src="js/cufon-times.js"></script>

<script type="text/javascript" src="js/jquery-1.4.2.min.js"></script>

<script type="text/javascript" src="js/script.js"></script>

<script type="text/javascript" src="js/coin-slider.min.js"></script>

<style type="text/css">

<!--

.style1 {

    color: #FF0000;

    font-weight: bold;

}

.style2 { font-size: 18px }

.style3 { font-size: 24px }

-->

</style>

</head>

<body>

<div class="main">

    <div class="header">

        <div class="header\_resize">

            <div class="logo">

                <h1><a href="index.html" class="style3">Secure Data Group Sharing and Conditional  
Dissemination with Multi Owner in Cloud Computing</a></h1>

            </div>

        <div class="menu\_nav">

            <ul>

                <li class="active"><a href="index.html"><span>Home Page</span></a></li>

```
Cloud Service Provider
Trusted Authority
Data Owner
Data Accessor

</div>
<div class="clr"></div>
<div class="slider">
 <div id="coin-slider"> </div>
 <div class="clr"></div>
</div>
<div class="clr"></div>
</div>
<div class="content">
 <div class="content_resize">
 <div class="mainbar">
 <div class="article">
 <h2 class="style3">Secure Data Group Sharing and Conditional Dissemination with Multi
Owner in Cloud Computing</h2>
 <ul class="ex_menu">
 Data sharing, cloud computing,conditional proxy re-encryption,attribute-based
encryption, privacy conflict

 <div class="clr"></div>
 <div class="img"></div>
 <div class="post_content">
 <p align="justify" class="style1">With the rapid development of cloud services, huge volume
of data is shared via cloud computing. Although cryptographic techniques have been utilized to
provide data confidentiality in cloud computing, current mechanisms cannot

 enforce privacy concerns over ciphertext associated with multiple owners, which makes co-
owners unable to appropriately control whether data disseminators can actually disseminate their data.
In this paper, we propose a secure data group sharing and conditional dissemination scheme with
multi-owner in cloud computing, in which data owner can share private data with a group of users via
```

the cloud in a secure way, and data disseminator can disseminate the data to a new group of users if the attributes satisfy the access policies in the ciphertext. We further present a multiparty access control mechanism over the disseminated ciphertext, in which the data co-owners can append new access policies to the ciphertext due to their privacy

preferences. Moreover, three policy aggregation strategies, including full permit, owner priority and majority permit, are provided to solve the privacy conflicts problem caused by different access policies. The security analysis and experimental results show our scheme is practical and efficient for secure data sharing with multi-owner in cloud computing.

```
</div>
<div class="clr"></div>
</div>
<div class="article">
 <div class="clr"></div>
</div>
</div>
<div class="sidebar">
 <div class="searchform">
 <form id="formsearch" name="formsearch" method="post" action="#">

 <input name="editbox_search" class="editbox_search" id="editbox_search" maxlength="80"
value="Search our ste:" type="text" />

 <input name="button_search" src="images/search.gif" class="button_search" type="image" />
 </form>
 </div>
 <div class="clr"></div>
 <div class="gadget">
 <h2 class="star">Sidebar Menu</h2>
 <div class="clr"></div>
 <ul class="sb_menu">
 Home Page
 Cloud Service Provider
 Trusted Authority
 Data Owner
 Data Accessor
 Attacker

 </div>
</div>
```



```

</div>
<div class="gadget">
 <h2 class="star">Concepts</h2>
 <div class="clr"></div>
 <ul class="ex_menu">Data sharing,

 cloud computing,

 conditional proxy re-encryption,

 attribute-based encryption,

 privacy conflict

</div>
</div>
<div class="clr"></div>
</div>
</div>
<div class="fbg"></div>
<div class="footer">
 <div class="footer_resize">
 <div style="clear:both;"></div>
 </div>
</div>
</div>
</div>
<div align=center></div>
</body>
</html>

```

**Results1.jsp**

```

<% @page import
="java.util.*,java.text.SimpleDateFormat,java.util.Date,java.io.FileInputStream,java.io.FileOutputStre
am,java.io.PrintStream"%>
<% @page import ="java.sql.*"%>
<% @page import ="java.io.*"%>
<% @ page import="java.sql.*,java.util.Random"%>
<% @ include file="connect.jsp"%>
<%
try
{

```

```
ResultSet rs=connection.createStatement().executeQuery("select * from results");
%><html>
<head>
<title>Transaction Results</title>
<script type="text/javascript" src="sources/jscharts.js"></script>
</head>
<body>
<div id="graph">Loading graph...</div>
<script type="text/javascript">
var myData=new Array();
var colors=[];

<%
 int i=0;

 String s1=null;

 while(rs.next())
 {
 s1=rs.getString(1);
 int s3=Integer.parseInt(rs.getString(2));
 %>

 myData["<%=i%>"]=["<%= s1%>",<%= s3%>"];

 <%
 i++;}
 %>

 var myChart = new JSChart('graph', 'bar');
 myChart.setDataArray(myData);
 myChart.setBarColor('#42aBdB');
 myChart.setBarOpacity(0.8);
 myChart.setSize(500, 350);
 myChart.setBarBorderColor('#D9EDF7');
 myChart.setBarValues(true);
 myChart.setTitleColor('#8C8383');
```

```
myChart.setAxisColor('#777E89');
myChart.setAxisValuesColor('#777E81');
myChart.draw();
```

```
</script>
</body>
</html>
<%
}
catch(Exception e)
{
e.printStackTrace();
}
%>
```

### **Graph1.jsp**

```
<html>
<head>
<title>Account Type Results</title>
<script type="text/javascript" src="sources/jscharts.js"></script>
<style type="text/css">
<!--
.style4 { color: #FF0000}
.style5 { color: #0000FF}
-->
</style>
</head>
<body>
<div id="graph">Loading graph...</div>
<script type="text/javascript">
var myData=new Array();
var colors=[];

<% @ include file="connect.jsp"%>

<%
try
{
```

```
int i=0,count=0,count1=0,s2=0;
String s1="";

String query="select * from cloud_files ";
Statement st=connection.createStatement();
ResultSet rs=st.executeQuery(query);
while (rs.next())
{
 s1=rs.getString(2);//dt
 s2=Integer.parseInt(rs.getString(18));//dt
%>

myData["<%=i%>"]=["<%= s1%>",<%= s2%>"];

<%
count=0;

i++;
}

%>

var myChart = new JSChart('graph', 'bar');
myChart.setDataArray(myData);
myChart.setBarColor('#FF3300');
myChart.setBarOpacity(0.8);
myChart.setBarBorderColor('#FFFFFF');
myChart.setBarValues(true);
myChart.setTitleColor('#FF0000');
myChart.setAxisColor('#000000');
myChart.setAxisValuesColor('#0000FF');
myChart.setSize(700,400);
myChart.draw();
```

</script>

<span class="style5"></span><span class="style4"></span>

```

</body>
</html>
<%
}
catch(Exception e)
{
e.printStackTrace();
}
%>

{% extends 'SProvider/design1.html' %}
{% block researchblock %}

<link rel="icon" href="images/icon.png" type="image/x-icon" />

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

 <style>
 body {background-color:#FFFFFF;}
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{ font-family: 'Fredoka One', cursive;

}

 .text-uppercase{
font-family: 'Righteous', cursive;

}

 input{
font-family:'Russo One', sans-serif;
font-size:15px;
}

.style3 {
 color: #FF0000;
 font-weight: bold;
}

.style4 {color: #FFFFFF}
</style>

 <body>
 <div class="container-fluid">
 <div class="container">

```

```

<div class="row">
 <div class="col-md-5">
 <p class="style3">VIEW ALL FLIGHTS
RECOMMENDED DETAILS !!!
 </p>
 <table border="1">
 <tr>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy" >User Name</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Flight Name</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Location</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Usefull</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Recommended Date and Time</th>
 </tr>
 { %for object in list_objects % }
 <tr>
 <td style="color:red; font-size:25px; font-family:fantasy" >{ { object.uname1 } }</td>
 <td style="font-family:monospace; font-size:19px; ">{ { object.pname } }</td>
 <td style="font-family:monospace; font-size:19px; ">{ { object.loc } }</td>
 <td style="font-family:monospace; font-size:19px; ">{ { object.usefull } }</td>
 <td style="font-family:monospace; font-size:19px; ">{ { object.dt } }</td>
 </tr>
 { % endfor % }
 </table>
 </div>
</div>
</fieldset>
</form>

```

```

 </div>

 <div class="col-md-2">
 <!.....null.....>
 </div>

 </div>
</div>
</div>
{% endblock % }
View Remote Users.html
{% extends 'SProvider/design1.html' % }
{% block researchblock % }

<link rel="icon" href="images/icon.png" type="image/x-icon" />

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

 <style>
 body {background-color:#FFFFFF;}
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{ font-family: 'Fredoka One', cursive;
}

 .text-uppercase{
font-family: 'Righteous', cursive;

 }
 input{
font-family:'Russo One', sans-serif;
font-size:15px;
 }

 .style1 {color: #FF0000}
</style>

 <body>
 <div class="container-fluid">
 <div class="container">

 <div class="row">
 <div class="col-md-5">
 <form role="form" method="POST" >
 {% csrf_token % }
 <fieldset>
 <p class="text-uppercase pull-center

```

```

style1">VIEW ALL REMOTE USERS !!! </p>
 <div class="viewclients">
 <table>
 <tr>
 <th bgcolor="#FF0000"
style="color:yellow">USER NAME</th>
 <th bgcolor="#FF0000"
style="color:yellow">EMAIL</th>
 <th bgcolor="#FF0000"
style="color:yellow">Mob No</th>
 <th bgcolor="#FF0000"
style="color:yellow">Country</th>
 <th bgcolor="#FF0000"
style="color:yellow">State</th>
 <th bgcolor="#FF0000"
style="color:yellow">City</th>
 </tr>
 <tr>
 <td bgcolor="#FFFFFF"
style="color:white">{ {o.username} }</td>
 <td bgcolor="#FFFFFF"
style="color:white">{ {o.email} }</td>
 <td bgcolor="#FFFFFF"
style="color:white">{ {o.phoneno} }</td>
 <td bgcolor="#FFFFFF"
style="color:white">{ {o.country} }</td>
 <td bgcolor="#FFFFFF"
style="color:white">{ {o.state} }</td>
 <td bgcolor="#FFFFFF"
style="color:white">{ {o.city} }</td>
 </tr>
 </table>
 </div>
 </fieldset>
</form>
</div>
<div class="col-md-2">
 <!.....null.....>
</div>
</div>
</div>
</div>
{% endblock % }

```

**Viewallpostreviews.html**

{% extends 'SProvider/design1.html' % }



```
{% block researchblock % }
```

```
<link rel="icon" href="images/icon.png" type="image/x-icon" />
```

```

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

```

```

 <style>
 body {background-color:#FFFFFF;}
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{font-family: 'Fredoka One', cursive;
}

 .text-uppercase{
font-family: 'Righteous', cursive;

 }
 input{
font-family:'Russo One', sans-serif;
font-size:15px;
 }
.style3 {
 color: #FF0000;
 font-weight: bold;
}
</style>

 <body>
 <div class="container-fluid">
 <div class="container">

 <div class="row">
 <div class="col-md-5">

 <p class="style3">VIEW ALL USERS REVIEWS !!!
 </p>
 <table border="1">

<tr>

 <th style="color:red; font-size:20px; font-family:fantasy" >User
Name</th>
 <th style="color:red; font-size:20px; font-family:fantasy">Flight
Name</th>
 <th style="color:red; font-size:20px; font-
family:fantasy">Review</th>

```

```

 <th style="color:red; font-size:20px; font-family:fantasy">Sentiment
Analysis</th>
 <th style="color:red; font-size:20px; font-family:fantasy">Review
Date and Time</th>
 <th style="color:red; font-size:20px; font-
family:fantasy">Feedback</th>

 </tr>

 {% for object in list_objects %}
 <tr>
 <td style="color:red; font-size:25px; font-family:fantasy"
>{{ object.uname }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.tname }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.ureview }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.sanalysis }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.dt }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.feedback }}</td>
 </tr>

 {% endfor %}

</table>
</div>

 </fieldset>
 </form>
</div>

 <div class="col-md-2">
 <!.....null.....>
 </div>
 </div>
</div>
</div>
</div>
{% endblock %}

```

**ViewTrendings.html**

```
{% extends 'SProvider/design1.html' %}
{% block researchblock %}
```

```
<link rel="icon" href="images/icon.png" type="image/x-icon" />
```

```
 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">
```

```

 <style>
 body {background-color:#FFFFFF;}
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{font-family: 'Fredoka One', cursive;

}

 .text-uppercase{
font-family: 'Righteous', cursive;

}
 input{
font-family:'Russo One', sans-serif;
font-size:15px;
}
 .style1 {
color: #FF0000;
font-weight: bold;
}
 </style>

 <body>
 <div class="container-fluid">
 <div class="container">

 <div class="row">
 <div class="col-md-5">
 <form role="form" method="POST" >
 {% csrf_token %}
 <fieldset>
 <p class="text-uppercase pull-center
style1">VIEW TRENDING PRODUCTS By HASH TAG </p>
 <hr>

 <div class="viewtopic">
 <table>
```

```

 <tr>
 { % for object in objects
% }

 <td>{{ object.topics }}</td>

 </tr>
 { % endfor % }

 </table>
</div>
<div class="topicimage"></div>

 </fieldset>
</form>
</div>

<div class="col-md-2">
 <!.....null.....>
</div>

</div>
</div>
</div>
{ % endblock % }
Mean Squared Error.jsp
{ % extends 'SProvider/design1.html' % }
{ % block researchblock % }

<link rel="icon" href="images/icon.png" type="image/x-icon" />

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

 <style>
 body {background-color:#FFFFFF;}
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{ font-family: 'Fredoka One', cursive;
}

 .text-uppercase{
font-family: 'Righteous', cursive;

 }
 .tweettext{

```

```

border: 2px solid yellowgreen;
width: 1104px;
height: 442px;
overflow: scroll;
background-color:;
}
 .style1 {
 color: #FF0000;
 font-weight: bold;
}
</style>

<body>
<div class="container-fluid">
 <div class="container">

 <div class="row">
 <div class="col-md-5">
 <form role="form" method="POST" >
 {% csrf_token %}
 <fieldset>
 <p class="text-uppercase pull-
center"><marquee behavior="alternate">
Squared Error!!!
 VIEW Mean
 </marquee>
 </p>

 <hr>
 <div class="tweettext">
 <table border="1">
 <tr>

 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy" >Airline Name</th>

 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy" >Flight Number</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy" >Departure From</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Date of Journey</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Scheduled Departure</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Departure Delay</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Delay Reason</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-

```

```

family:fantasy">Destination</th>
 <th style="color:red; font-size:20px; font-family:fantasy">Arrival
Time</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Arrival Delay</th>
 <th style="color:red; font-size:20px; font-family:fantasy">Delay
Reason</th>
 <th style="color:red; font-size:20px; font-family:fantasy">Error
Calculation</th>
 </tr>

```

```

{% for object in list_objects %}
 <tr>
 <td style="color:red; font-size:20px; font-family:fantasy"
>{{ object.fname }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.names }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.from1 }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.dij }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.sc_dpt }}</td>
 <td bgcolor="#FF0000" style="font-family:monospace; font-
size:19px; ">{{ object.dd }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.dr }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.des }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.at }}</td>
 <td bgcolor="#FF0000" style="font-family:monospace; font-
size:19px; ">{{ object.adr }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.ad }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.error }} mns</td>
 </tr>
 {% endfor %}
</table>
</div>

```

```

 </fieldset>
 </form>
</div>

```

```

 <div class="col-md-2">
 <!.....null.....>
 </div>
 </div>
</div>
</div>
{% endblock %}
<tr>

Median Absolute Error.html
{% extends 'SProvider/design1.html' %}
{% block researchblock %}

<link rel="icon" href="images/icon.png" type="image/x-icon" />

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

 <style>
 body {background-color:#FFFFFF;}
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{ font-family: 'Fredoka One', cursive;
}

 .text-uppercase{
font-family: 'Righteous', cursive;

 }
 .tweettext{

border: 2px solid yellowgreen;
width: 1104px;
height: 442px;
overflow: scroll;
background-color:;
}

 .style1 {
color: #FF0000;
font-weight: bold;
}
 </style>

 <body>
 <div class="container-fluid">
 <div class="container">

```

```

<div class="row">
 <div class="col-md-5">
 <form role="form" method="POST" >
 {% csrf_token %}
 <fieldset>
 <p class="text-uppercase pull-center
style1"><marquee behavior="alternate"">
 VIEW Median Absolute Error !!!
 </marquee>
 </p>
 </fieldset>
 </form>
 </div>
</div>
<hr>
<div class="tweettext">
 <table border="1">
 <tr>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy" >Airline Name</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy" >Flight Number</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy" >Departure From</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Date of Journey</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Scheduled Departure</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Departure Delay</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Delay Reason</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Destination</th>
 <th style="color:red; font-size:20px; font-family:fantasy">Arrival
Time</th>
 <th bgcolor="#FF8888" style="color:red; font-size:20px; font-
family:fantasy">Arrival Delay</th>
 <th style="color:red; font-size:20px; font-family:fantasy">Delay
Reason</th>
 <th style="color:red; font-size:20px; font-family:fantasy">Error
Calculation</th>
 </tr>
 </table>
 {% for object in list_objects %}
 <tr>
 <td style="color:red; font-size:20px; font-family:fantasy"
>{{ object.fname }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.names }}</td>

```



```

 <td style="font-family:monospace; font-size:19px;
">{{ object.from1 }}</td>

 <td style="font-family:monospace; font-size:19px;
">{{ object.dij }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.sc_dpt }}</td>
 <td bgcolor="#FF0000" style="font-family:monospace; font-
size:19px; ">{{ object.dd }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.dr }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.des }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.at }}</td>
 <td bgcolor="#FF0000" style="font-family:monospace; font-
size:19px; ">{{ object.adr }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.ad }}</td>
 <td style="font-family:monospace; font-size:19px;
">{{ object.error }} mns</td>
 </tr>

```

```

 {% endfor % }
 </table>
 </div>

```

```

 </fieldset>
 </form>
 </div>

 <div class="col-md-2">
 <!.....null.....>
 </div>

 </div>
</div>
</div>
{% endblock % }

```

**IOGI.html**

```

<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css"
rel="stylesheet" id="bootstrap-css">

```

```

<!DOCTYPE html>

```

```

<html lang="en">

 <title>Login</title>

 <meta charset="utf-8">
 <meta name="viewport" content="width=device-width, initial-scale=1,
shrink-to-fit=no">

 <head>

<link rel="icon" href="images/icon.png" type="image/x-icon" />

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

 <style>
 body {
 }
 .container-fluid {padding:50px;}
 .container{ background-color:white;padding:50px; }
 #title{ font-family: 'Fredoka One', cursive;
}

 .text-uppercase{
 font-family: 'Righteous', cursive;

 }
 .style1 {color: #FF0000}
 .style4 {color: #FF0000; font-weight: bold; }
</style>
</head>
<body>
 <div class="container-fluid">
 <div class="container">
 <h2 class="style1 text-center" id="title">Predicting Flight
Delays with Error Calculation using Machine Learned Classifiers
</h2>
 <p class="text-center">
 <small id="passwordHelpInline"
class="text-muted">Flight Prediction, Machine Learning, Error
Calculation, Logistic Regression, Decision Tree, Bayesian Ridge, Random Forest, Gradient
Boosting, Logistic Regression, U.S. Flight data..
</small> </p>
 <hr>
 <div class="row">
 <div class="col-md-5">
 <form role="form" method="POST" >

```

```

 { % csrf_token % }
 <fieldset>
 <p class="text-uppercase pull-
center"> </p>
 </fieldset>
 </form>
 </div>

 <div class="col-md-2">
 <!.....null.....>
 </div>

 <div class="col-md-5">
 <form method="POST" role="form">
 { % csrf_token % }

 <fieldset>
 <p class="text-uppercase"> Login Using
Your Account: </p>

 <div class="form-group">
 <input type="text"
name="username" class="form-control input-lg" placeholder="User Name" required>
 </div>
 <div class="form-group">
 <input type="password"
name="password" class="form-control input-lg" placeholder="Password" required>
 </div>
 <div>
 <input type="submit"
name="submit1" class="btn btn-md" value="sign_in">
 </div></br>

 <p class="text-uppercase"> Login Using
Your Account: </p>

 <div>

 <button class="btn btn-lg "><a href="{ %
url 'serviceproviderlogin' % }">SERVICE PROVIDER</button>
 <button class="btn btn-lg "><a href="{ % url 'Register1'
% }">REGISTER</button>
 </div>
 </fieldset>
 </form>
 </div>
 </div>
 </div>

```

```
</div>
</body>
```

```
</html>
```

### **Rating.html**

```
<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css"
rel="stylesheet" id="bootstrap-css">
```

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<title>Register Your Details</title>
```

```
<meta charset="utf-8">
```

```
<meta name="viewport" content="width=device-width, initial-scale=1,
shrink-to-fit=no">
```

```
<style type="text/css">
```

```
<!--
```

```
.style1 {
```

```
color: #FF0000;
```

```
font-weight: bold;
```

```
}
```

```
-->
```

```
</style>
```

```
<head>
```

```
<link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
```

```
<link href="https://fonts.googleapis.com/css?family=Righteous"
```

```
rel="stylesheet">
```

```
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">
```

```
<style>
```

```
body {
```

```
}
```

```
.container-fluid {padding:50px;}
```

```
.container{ background-color:white;padding:50px; }
```

```
#title{ font-family: 'Fredoka One', cursive;
```

```
}
```

```
.text-uppercase{
```

```
font-family: 'Righteous', cursive;
```

```

 }
</style>
</head>
<body>
 <div class="container-fluid">
 <div class="container">
 <h2 class="text-center style1" id="title">Predicting Flight Delays with
Error Calculation using Machine Learned Classifiers
</h2>
 <p class="text-center">
 <small id="passwordHelpInline"
class="text-muted">Flight Prediction, Machine Learning, Error
Calculation, Logistic Regression, Decision Tree, Bayesian Ridge,
Random Forest, Gradient Boosting, Logistic Regression, U.S. Flight
data.. </small> </p>
 <hr>
 <div class="row">
 <div class="col-md-5">
 <form role="form" method="POST" >
 {% csrf_token %}
 <fieldset>
 <p class="text-uppercase pull-center
style1"> REGISTER YOUR DETAILS HERE !!! </p>
 <div class="form-group">
 <input type="text"
name="username" id="username" class="form-control input-lg" placeholder="User Name"
required>
 </div>
 <div class="form-group">
 <input type="email"
name="email" id="email" class="form-control input-lg" placeholder="Email Address"
required>
 </div>
 <div class="form-group">
 <input type="password"
name="password" id="password" class="form-control input-lg" placeholder="Password"
required>
 </div>
 <div class="form-group">
 <input type="number"
name="phoneno" id="phoneno" class="form-control input-lg" placeholder="Mobile
Number" required>
 </div>
 <div class="form-group">
 <input type="text"
name="country" id="country" class="form-control input-lg" placeholder="Country"
required>
 </div>
 </fieldset>
 </form>
 </div>
 </div>
 </div>
 </div>

```

```

 <input type="text" name="state"
id="state" class="form-control input-lg" placeholder="State" required>
 </div>
 <div class="form-group">
 <input type="text" name="city"
id="city" class="form-control input-lg" placeholder="City" required>
 </div>

 <div class="form-check">
 <label class="form-check-label"></label>
 </div>
 <div>
 <input type="submit"
class="btn btn-lg btn-primary" name="submit" value="sign_up" >
 </div>
</fieldset>
<div>

 <button class="btn btn-lg "><a href="{%
url 'login' %}">User Login</button>
 </div>
</form>
</div>

 <div class="col-md-2">
 <!.....null.....>
 </div>

 <div class="col-md-5">
 </div>
 </div>
</div>
</body>

```

</html>

**View Flight Recommends.html**

```

{% extends 'RUser/design.html' %}
{% block userblock %}

```

```

<link rel="icon" href="images/icon.png" type="image/x-icon" />

```

```

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

```

```

<style>
 body {background-color:#FFFFFF;}
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{ font-family: 'Fredoka One', cursive;
}

 .text-uppercase{
font-family: 'Righteous', cursive;

}
input{
font-family:'Russo One', sans-serif;
font-size:15px;
}
.style3 {
 color: #FF0000;
 font-weight: bold;
}
.style4 {color: #FFFFFF}
</style>

<body>
<div class="container-fluid">
 <div class="container">

 <div class="row">
 <div class="col-md-5">

 <p class="style3">VIEW ALL RECOMMENDED
 </p>
 <table border="1">
 <tr>
 {% for object in list_objects %}

 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy" >User Name</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Flight Name</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Location</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Usefull</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Recommended Date and Time</th>
 </tr>

```

```

 <tr>
 <td style="color:red; font-size:25px; font-family:fantasy" >{{ object.uname1 }}</td>
 <td style="font-family:monospace; font-size:19px; ">{{ object.pname }}</td>
 <td style="font-family:monospace; font-size:19px; ">{{ object.loc }}</td>
 <td style="font-family:monospace; font-size:19px; ">{{ object.usefull }}</td>
 <td style="font-family:monospace; font-size:19px; ">{{ object.dt }}</td>
 </tr>

```

```

 { % endfor % }
 </table>
</div>

```

```

 </fieldset>
 </form>
</div>

 <div class="col-md-2">
 <!.....null.....>
 </div>
</div>
</div>
</div>
</div>
{ % endblock % }

```

Register1.html

```

{ % extends 'RUser/design.html' % }
{ % block userblock % }

```

```

<link rel="icon" href="images/icon.png" type="image/x-icon" />

```

```

 <link href="https://fonts.googleapis.com/css?family=Lobster" rel="stylesheet">
 <link href="https://fonts.googleapis.com/css?family=Righteous"
rel="stylesheet">
<link href="https://fonts.googleapis.com/css?family=Fredoka+One" rel="stylesheet">

```



```

<style>
 body {background-color:#FFFFFF;}
 .container-fluid {padding:50px;}
 .container{background-color:white;padding:50px; }
 #title{ font-family: 'Fredoka One', cursive;
}

 .text-uppercase{
font-family: 'Righteous', cursive;

}
input{
font-family:'Russo One', sans-serif;
font-size:15px;
}
.style3 {
 color: #FF0000;
 font-weight: bold;
}
.style4 {color: #FFFFFF}
</style>

<body>
<div class="container-fluid">
 <div class="container">

 <div class="row">
 <div class="col-md-5">

 <p class="style3">VIEW ALL RECOMMENDED
 </p>
 <table border="1">
 <tr>
 { % for object in list_objects % }

 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy" >User Name</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Flight Name</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Location</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Usefull</th>
 <th bgcolor="#0000FF" style="color:red; font-size:20px; font-
family:fantasy">Recommended Date and Time</th>
 </tr>

 <tr>

```

```

 <td style="color:red; font-size:25px; font-family:fantasy" >{{ object.uname1 }}</td>
 <td style="font-family:monospace; font-size:19px; ">{{ object.pname }}</td>
 <td style="font-family:monospace; font-size:19px; ">{{ object.loc }}</td>
 <td style="font-family:monospace; font-size:19px; ">{{ object.usefull }}</td>
 <td style="font-family:monospace; font-size:19px; ">{{ object.dt }}</td>
 </tr>

 {% endfor %}
</table>
</div>
</fieldset>
</form>
</div>

<div class="col-md-2">
 <!.....null.....>
</div>
</div>
</div>
</div>
{% endblock %}

```

## **10. SYSTEM TESTING**

### **10.1 SYSTEM TESTING**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

### **10.2 TYPES OF TESTING**

#### **Unit testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

#### **Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successful unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

#### **Functional test**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

### **System Test**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

### **White Box Testing**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

### **Black Box Testing**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

## 10.3 TEST STRATEGY AND APPROACH

Field testing will be performed manually and functional tests will be written in detail.

### Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

### Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

### Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

### Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

11.

## SCREENSHOTS



Fig11.1 The above interface represents Home Page



Fig11.2 The above interface represents Cloud Server Login Page



Fig11.3 The above interface represents Cloud Server Main Page



Fig11.4 The above interface represents All Data Owner File Blocks



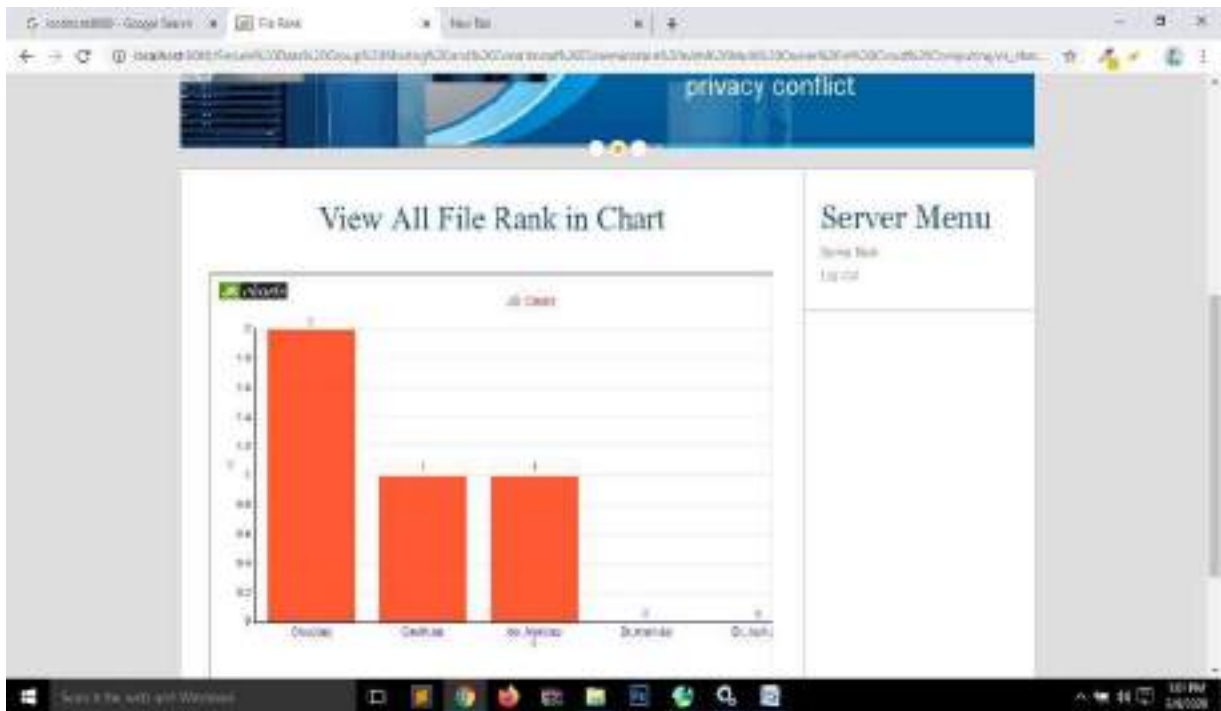


Fig11.5 The above interface represents All Disseminator Attacker Page

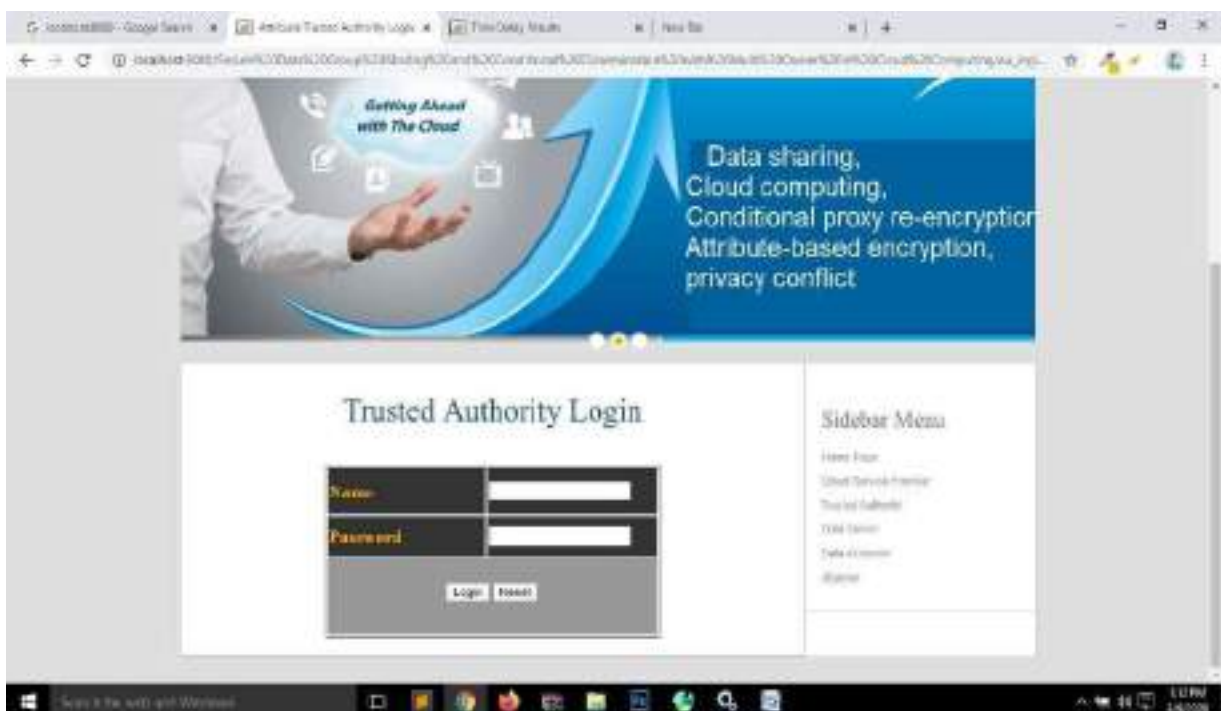


Fig11.6 The above interface represents All Data Owner Encrypt Request and Response





**Fig11.7** The above interface represents View All File Rank Chart



**Fig11.8** The above interface represents Trusted Authority Login Page



Fig11.9 The above interface represents Trusted Authority Main Page



Fig11.10 The above interface represents Data Owners Authorization Page



Fig11.11 The above interface represents Data Accessors Authorization Page



Fig11.12 The above interface represents All Encryption Key Permission Request Page



**Fig11.13** The above interface represents All Secret Key Permission Request Page



**Fig11.14** The above interface represents Decrypt Key Request From User

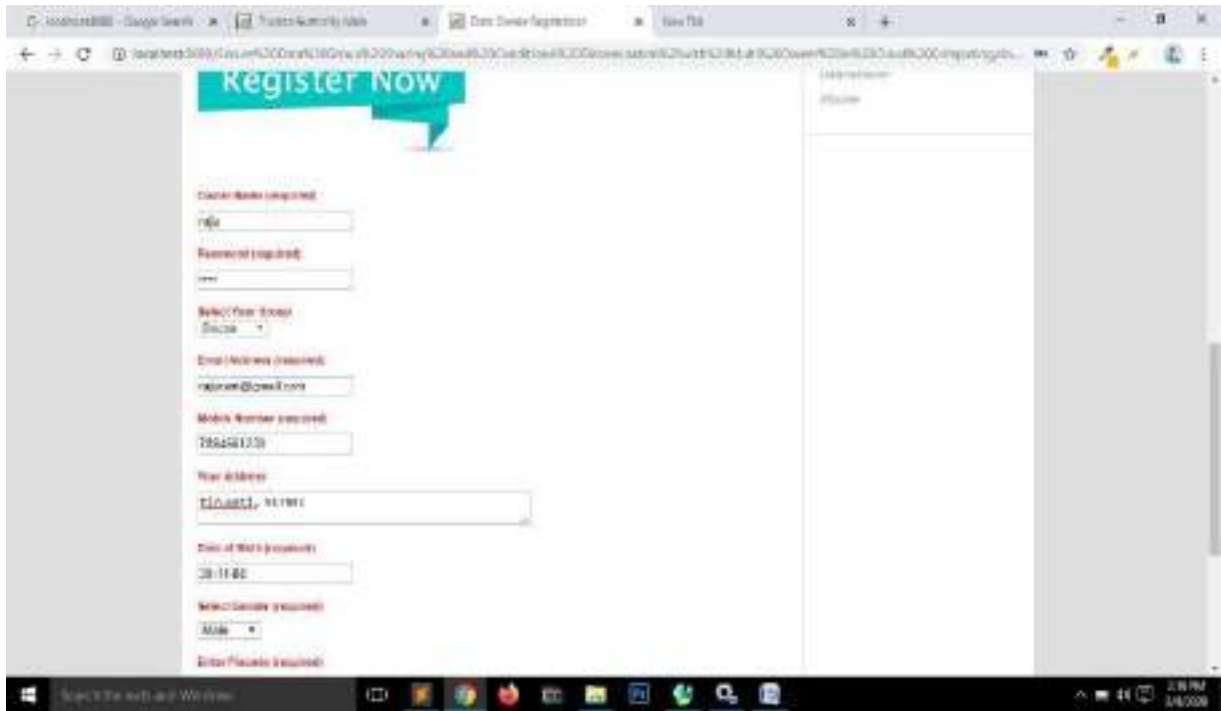




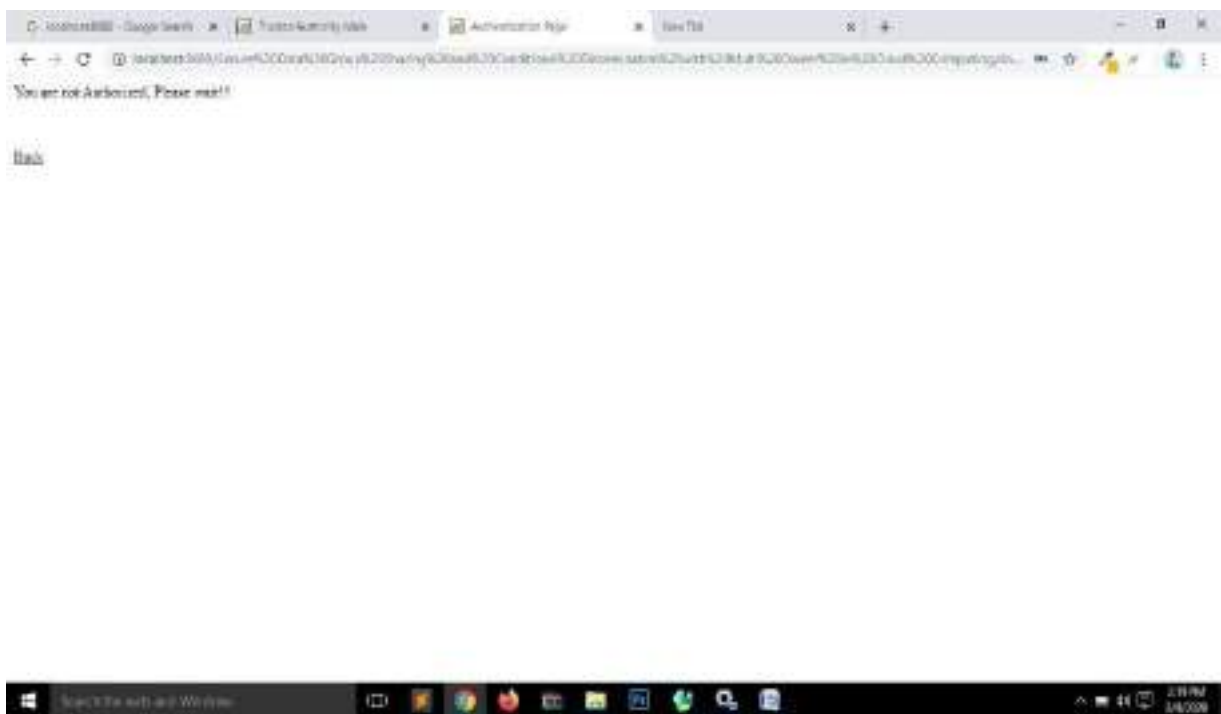
Fig11.15 The above interface represents Secret Key Request From User



Fig11.16 The above interface represents Data Owner Login Page



**Fig11.16** The above interface represents Data Owner Registration Page



**Fig11.17** The above interface represents Waiting For Authorization Page



Fig11.18 The above interface represents Data Owner Authorized by TA



Fig11.19 The above interface represents Waiting Data Owner Main Page



Fig11.20 The above interface represents Data Owner Profile Page

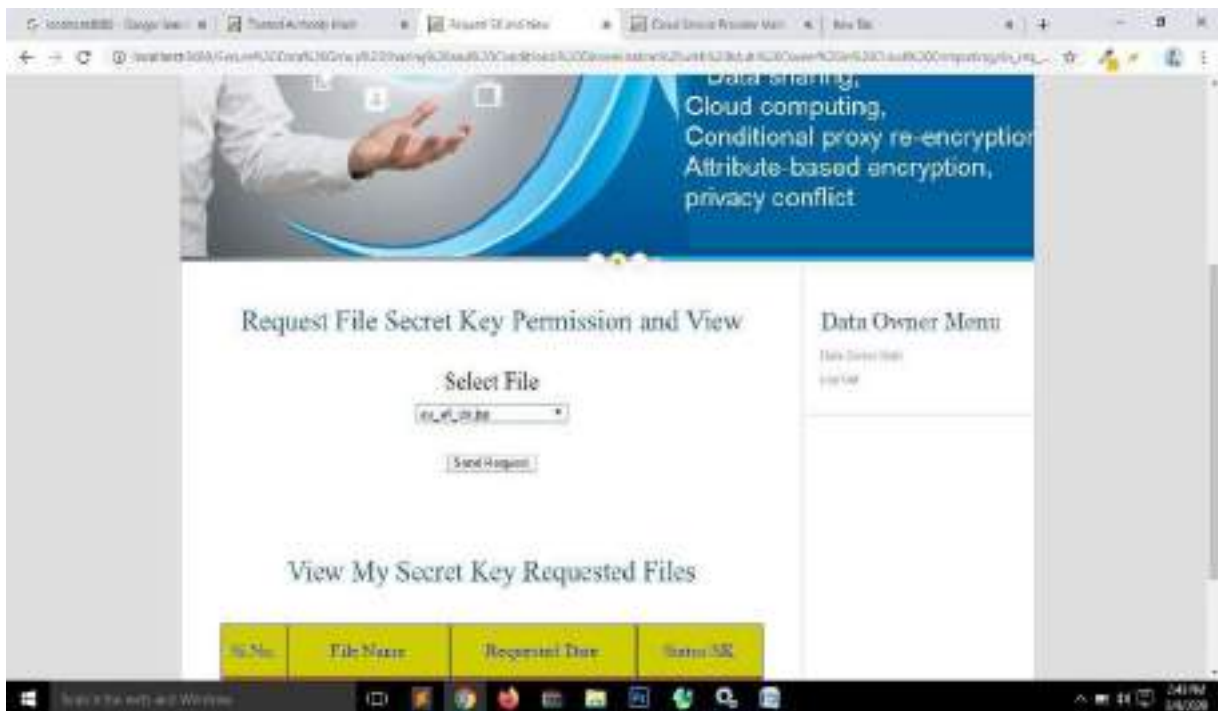


Fig11.21 The above interface represents Request File Encryption Key Permission

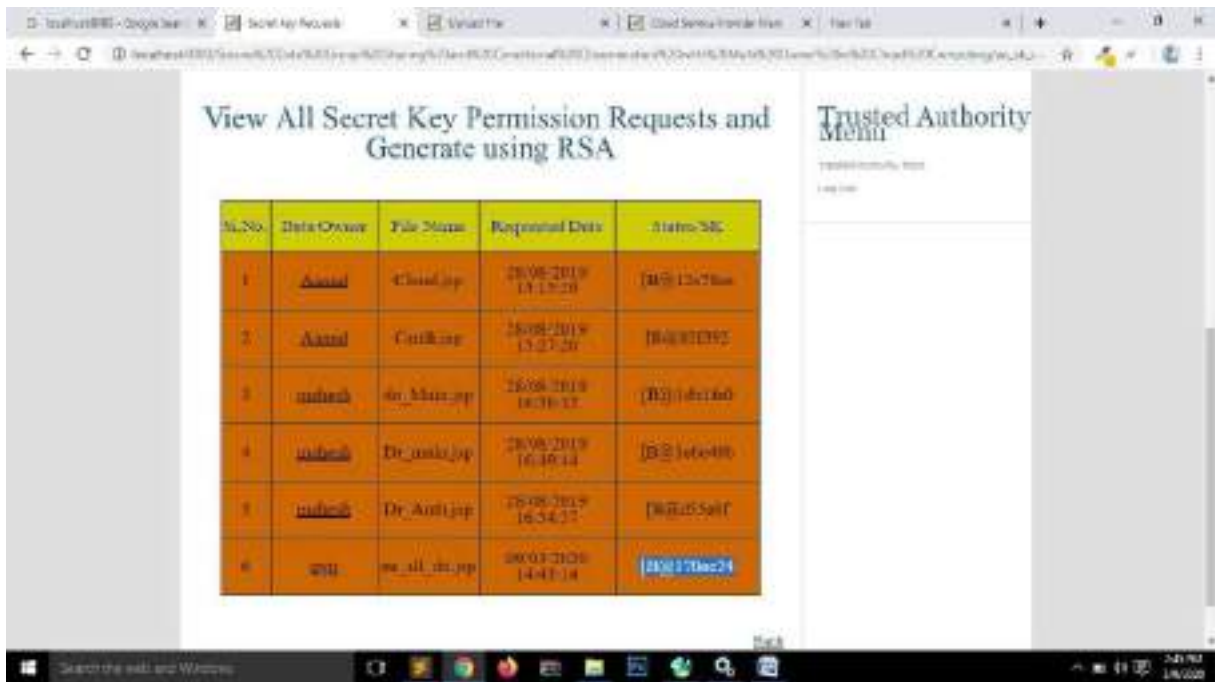




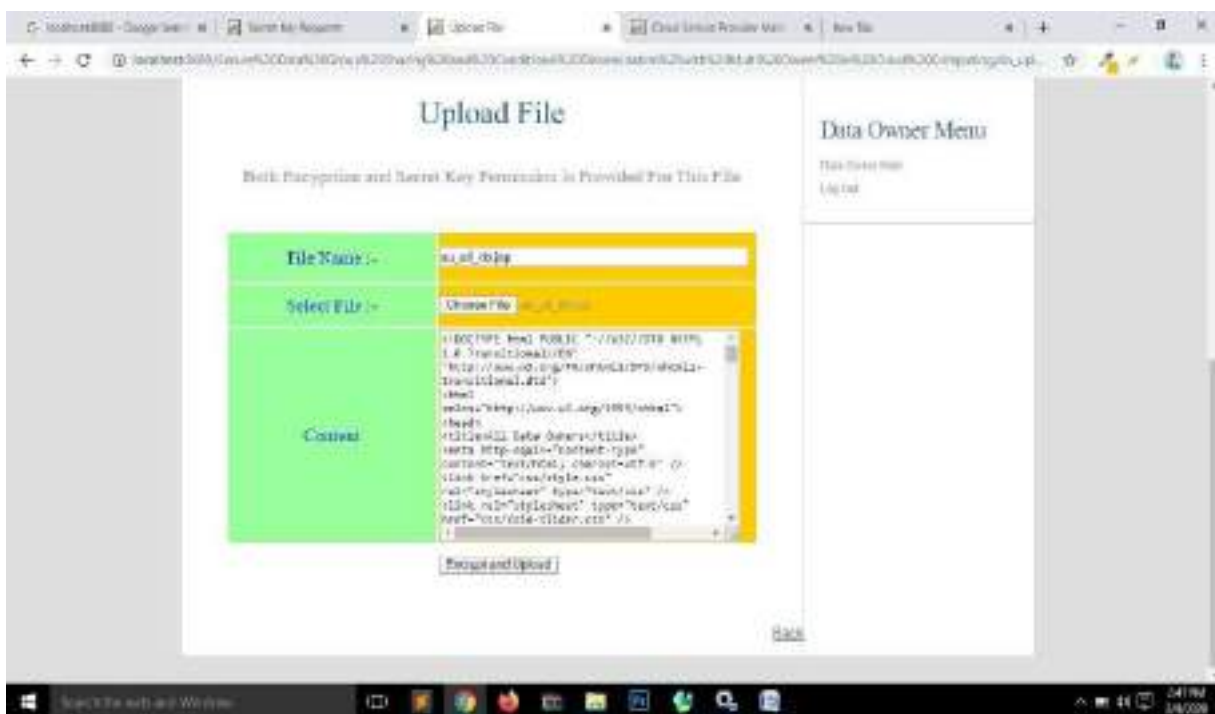
**Fig11.22** The above interface represents File Encryption Key Permission Granted By TA



**Fig11.23** The above interface represents Request File Secret Key Permission



**Fig11.24** The above interface represents Request File Secret Key Permission Granted By TA



**Fig11.25** The above interface represents File Upload Page



Fig11.26 The above interface represents Update or Delete File Page



Fig11.27 The above interface represents View All Files and verify page



Fig11.28 The above interface represents Data Accessor login

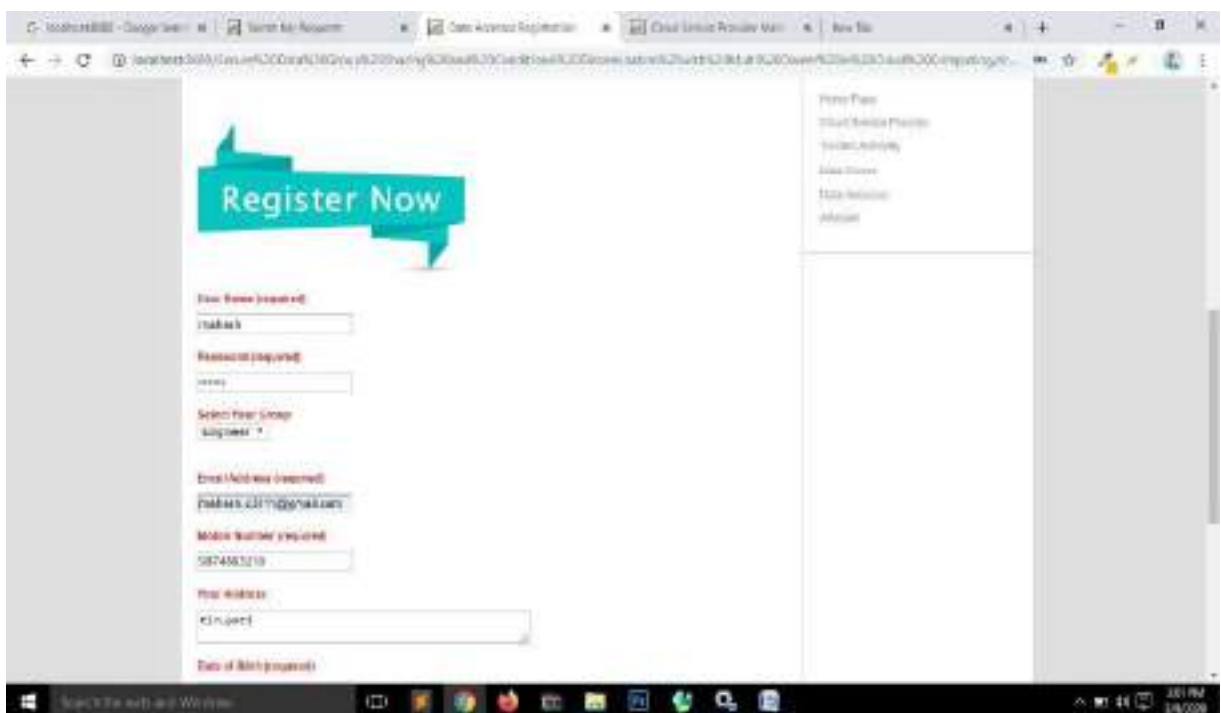


Fig11.29 The above interface represents Data Accessor Registration Page



Fig11.30 The above interface represents Data Accessors Authorized By TA



Fig11.31 The above interface represents Data Accessors Main Page





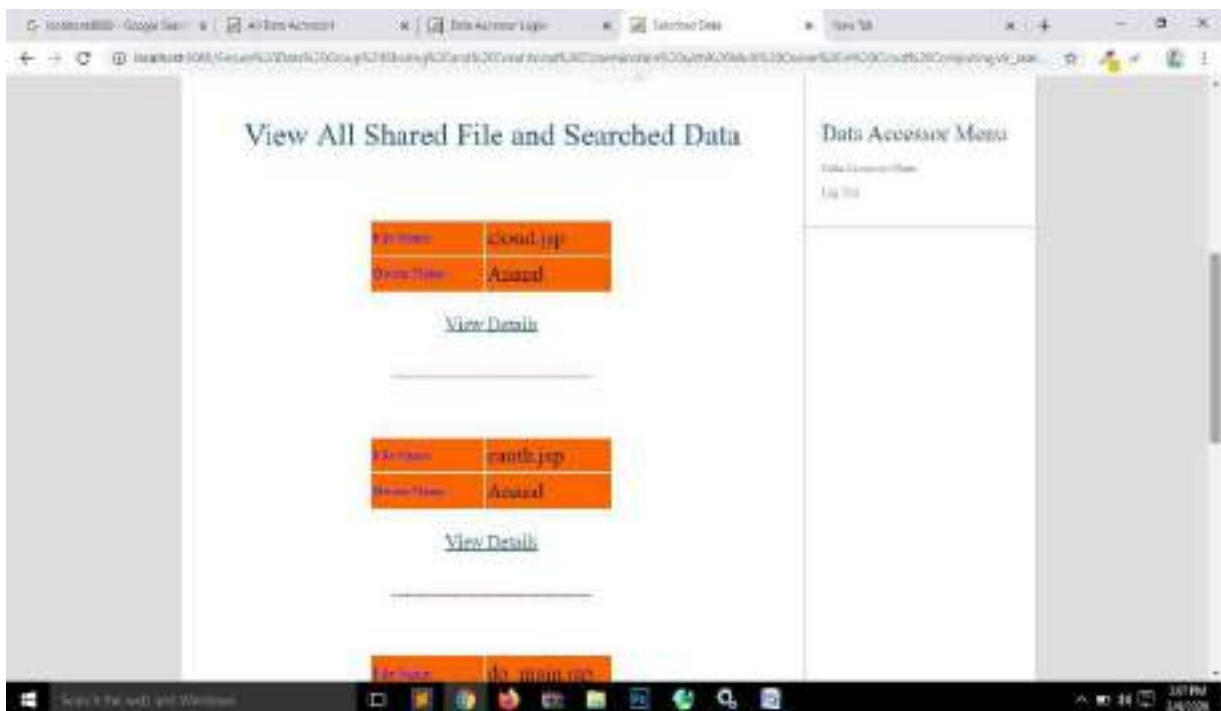
Fig11.32 The above interface represents Data Accessors Profile Page



Fig11.33 The above interface represents Authorized Page



**Fig11.35** The above interface represents Search Authorized Page



**Fig11.36** The above interface represents View All Shared File and Searched Data



Fig11.37 The Above Interface represents File Details Page



Fig11.38 The Above Interface represents Request Decrypt Key From TA





Fig11.39 The Above Interface represents Request Decrypt Key Permission By TA



Fig11.40 The Above Interface represents Shared File Download Page

## CONCLUSION

The data security and privacy is a concern for users in cloud computing. In particular, how to enforce privacy concerns of multiple owners and protect the data confidentiality becomes a challenge. In this project, we present a secure data group sharing and conditional dissemination scheme with multi-owner in cloud computing. In our scheme, the data owner could encrypt her or his private data and share it with a group of data accessors at one time in a convenient way based on IBBE technique. Meanwhile, the data owner can specify fine-grained access policy to the ciphertext based on attribute-based CPRE, thus the ciphertext can only be re-encrypted by data disseminator whose attributes satisfy the access policy in the ciphertext.

## **FUTURE ENHANCEMENT**

In the future, we will enhance our scheme by supporting keyword search over the ciphertext. We further present a multiparty access control mechanism over the ciphertext, which allows the data co-owners to append their access policies to the ciphertext. Besides, we provide three policy aggregation strategies including full permit, owner priority and majority permit to solve the problem of privacy conflicts.

## REFERENCES

- [1] Y. Wang, Z. Cai, Z. Zhan, Y. Gong, and X. Tong, “An optimization and auction-based incentive mechanism to maximize social welfare for mobile crowdsourcing,” *IEEE Trans. Comput. Social Syst.*, vol. 6, no. 3, pp. 414–429, Apr. 2019.
- [2] Y.-W. Zhang, Y.-Y. Zhou, F.-T. Wang, Z. Sun, and Q. He, “Service recommendation based on quotient space granularity analysis and covering algorithm on Spark,” *Knowl.-Based Syst.*, vol. 147, pp. 25–35, May 2018.
- [3] S. Zhang, X. Li, Z. Tan, T. Peng, and G. Wang, “A caching and spatial K-anonymity driven privacy enhancement scheme in continuous location-based services,” *Future Gener. Comput. Syst.*, vol. 94, pp. 40–50, May 2019.
- [4] J. Zhao, L. Wang, J. Tao, J. Chen, W. Sun, R. Ranjan, J. Kołodziej, A. Streit, and D. Georgakopoulos, “A security framework in g-hadoop for big data computing across distributed cloud data centres,” *Journal of Computer and System Sciences*, vol. 80, no. 5, pp. 994–1007, 2014.
- [5] M. S. Hossain and G. Muhammad, “Cloud-assisted industrial internet of things (iiot)-enabled framework for health monitoring,” *Computer Networks*, vol. 101, pp. 192–202, 2016.
- [6] R. Zhang and L. Liu, “Security models and requirements for healthcare application clouds,” in *Cloud Computing (CLOUD)*, 2010 IEEE 3rd International Conference on. IEEE, 2010, pp. 268–275.
- [7] K. He, J. Chen, R. Du, Q. Wu, G. Xue, and X. Zhang, “Deypos: Deduplicatable dynamic proof of storage for multi-user environments,” 2016.
- [8] L. Qi, R. Wang, C. Hu, S. Li, Q. He, and X. Xu, “Time-aware distributed service recommendation with privacy-preservation,” *Inf. Sci.*, vol. 480, pp. 354–364, Apr. 2019.
- [9] W. Dou, X. Zhang, J. Liu, and J. Chen, “HireSome-II: Towards privacyaware cross-cloud service composition for big data applications,” *IEEE Trans. Parallel Distrib. Syst.*, vol. 26, no. 2, pp. 455–466, Feb. 2015.
- [10] S. Zhang, G. Wang, M. Z. A. Bhuiyan, and Q. Liu, “A dual privacy preserving scheme in continuous location-based services,” *IEEE Internet Things J.*, vol. 5, no. 5, pp. 4191–4200, Oct. 2018.