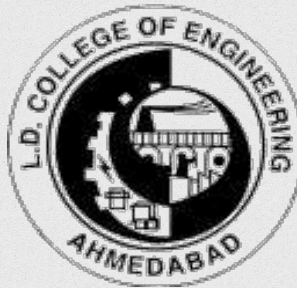


The Great Mind Challenge'11
Initiate Collaborate Innovate

Cybernetics Protector

Software Requirement Specification

Version 1.0



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Project Guide

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CYBER CRUNCH

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Introduction

1.0 Purpose

The **Cybernetics Protector** is a online web application, Which managing secret agency's all things. And also connecting to our country's defense section and regular people.

The secret intelligence agency has always using undercover agents, they solve specific type secrete and sensitive cases. And some time spying and finding criminals, and many more works...

For this type difficult and critical woks make more distance between agency and their agent. But in this situation make sure, their communication always secure that most important. More then secret agency easily find agent location, they are easily connect each other.

So, the this web application provide sefe and secure communication chanel betwin agent and secrete agency. And agent tracing,managing secrete data,job application,type extra facility.

1.1 Scope

- There are four basic users – Agent,Secret Intelligence Agency's chief, Ministry of Defence, Citizen.
- All users have their own profile[citizen not including] in cybernetics protector system.
- Providing secure communicate channel between Agent and Agency's chief.
- Agency's chief can any time trace the Agent location.
- Agents can view dynamic map, any time.
- Agency's chief can manage the case detail and history logo.
- Agent and Agency's chief can generate report.
- Agent can view case detail and access the database and upload the data.
- Ministry of Defence can securely send resources to Secret Intelligence Agency.

- Citizen can directly communicate with Agency's chat Assistant,
- and apply for job in Secret Agency.

1.2 Definitions, Acronyms and Abbreviations

- **Cybernetics Protector** – This is a web application. That mainly provide secure communication channel between Agent and Agency's chief.
- **Admin** – Admin is a Administrator of the entire system. Admin have full authority of this system.
- **SAC** – Secret Agency Chief. Who is operate the Agency.
- **Chat Assistant** – Chat Assistant is a one type mediator in between citizen and Secret Agency.
- **WASCE** – WebSphere Application Server Community Edition. It is an application server that runs and supports J2EE and web service applications.
- **DB2** – DB2 is a database management system that provides a flexible and efficient database platform to maintain records of students, teachers, admin, and citizen.
- **JSP** – Java Server Pages. It is used to create dynamic web content.
- **J2EE** – Java 2 Enterprise Edition. A programming platform which is a part of java platform for developing and running distributed java.
- **API** – Application Programming Interface. API is a source code based specification intended to be used as an interface by software components to communicate with each other. An API

may include specification for routines, data structures, object classes, and variables.

- UML - Unified Modeling Language is a standard language for writing software blueprints. The UML may be used to visualize, specify, construct and document.
- XML - Extensible Markup Language is a text based format that let developers describe, deliver and exchange structured data between a range of applications to client for display and manipulation.
- HTTP - Hypertext Transfer Protocol. It's a service protocol.
- HTTPS – Hypertext Transfer Protocol Secure. It is a combination of HTTP with SSL/TLS protocol. It provides encrypted communication are often and secure identification of network web server. HTTPS connections are often used for payment transactions on the WWW and for sensitive transaction in corporate information systems.
- SSL/TLS - Transport Layer Security(TLS) and it's predecessor, Secure Sockets Layer(SSL), are cryptographic protocols that provide communication security over the internet.
- SHA-1 – It is a cryptographic hash function designed by the United States National Security Agency and published by the US NIST as a U.S. Federal Information Processing Standard. SHA stands for “Secure Hash Algorithm”. SHA-1 is the most widely used of the existing SHA hash functions, and is employed in several widely used security applications and protocols.
- Eclipse – Eclipse is a IDE for JAVA programming.

1.3 Tools Used

Application architecture – JAVA, J2EE

JAVA - Java is an object-oriented programming language developed by Sun Microsystems a company best known for its high end UNIX workstations. Java language was designed to be small, simple, and portable across platforms, operating systems, both at the source and at the binary level, which means that Java programs (applet and application) can run on any machine that has the Java virtual machine (JVM) installed.

J2EE - Java Platform, Enterprise Edition or Java EE is a widely used platform for server programming in the Java programming language. The Java platform (Enterprise Edition) differs from the Java Standard Edition Platform (JavaSE) in that it adds libraries which provide functionality to deploy fault-tolerant, distributed, multi-tier Java software, based largely on modular components running on an application server .

Web server – WASCE

WebSphere Application Server Community Edition (from now on WASCE) is a free, certified Java EE 5 server for building and managing Java applications. It is IBM's supported distribution of Apache Geronimo that uses Tomcat for servlet container and Axis 2 for web services. Over 15 WASCE developers are commuters in the Apache Geronimo project.

Development Tool – RAD

IBM Rational Application Developer for WebSphere Software (RAD) is an integrated development environment (IDE), made by IBM's Rational. Software division, for visually designing,

constructing, testing, and deploying Web services, portals, and Java (J2EE) applications.

Database platform – DB2

DB2 Database is the database management system that delivers a flexible and cost effective database platform to build robust on demand business applications and supports the J2EE and web services standards.

Designing Tool – Rational Rose

Rational Rose is a UML 2.0 based visual modeling tool.

1.4 References

- Object Oriented Modeling and Design with UML-Michael Blaha, James Rumbaugh.
- Software Engineering, Ian Sommerville [8 th edition].
- Pressman R.S., Software Engineering : A Practitioner's Approach, TMH.
- IBM's TGMC Exampals.
- Wikipedia - www.wikipedia.com
- w3schools – www.w3schools.com
- Complete References – J2EE
- DBMS - An introduction to Database Systems, C J Date, Addition-Wesley.

1.5 Technologies to be used

- DB-2
- Rational Rose

- WASCE
- RAD

1.6 Overview

Existing System :-

- Secure communication channel.
- Agent tracing.
- People can direct chatting with chat assistant.
- Job application for people.

Drawbacks :-

- No web camera interaction.
- Remote area users and people who doesn't have know.
- Remote area users and people who doesn't have knowledge of internet can not use the system.
- Internet must require.

Our plane :-

- Secure communication in between Secret Agency Chief and Agents.
- People can interact with secret agency.

Overall Descriptions

2.0 Product Perspective

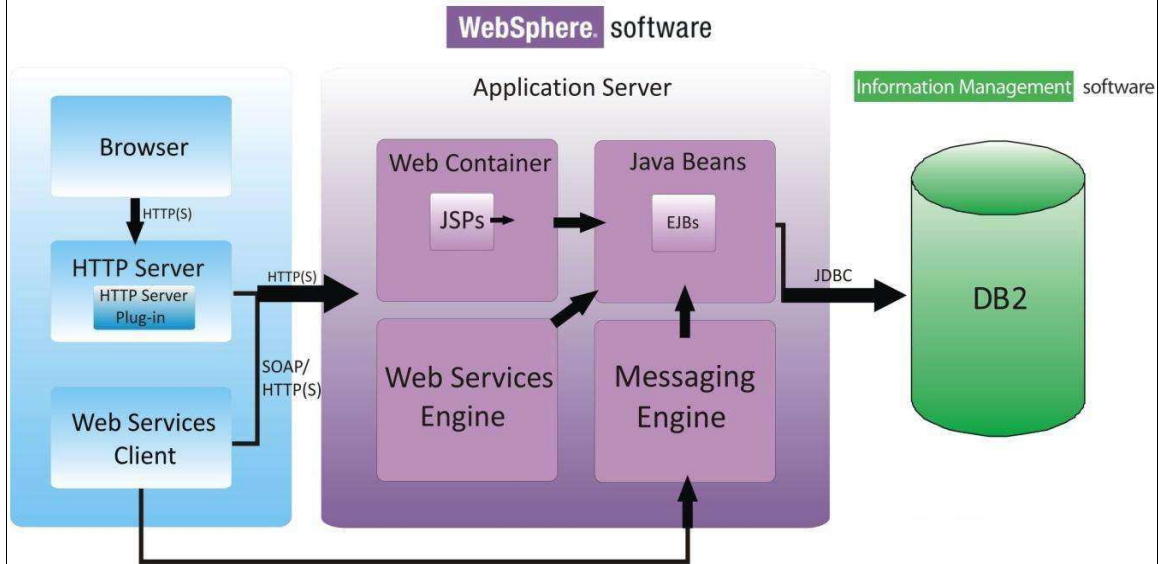


Fig : 2.1 Product Perspective

2.1 Software Interface

client on internet

Web Browser, Any Operating System

Web Server

WASCE, Any Operating System

Database Server

DB2, Any Operating System

Development End

RAD & Eclipse(J2EE,Java,Java Bean,Servlets,HTML, XML,AJAX), DB2,OS (Windows),WebSphere(Web Server).

2.2 Hardware Interface

Minimum Requirement:

Client Side			
	Processor	RAM	Disk Space
Internet Explorer – 6	Intel Pentium iii or AMD – 800 MHz	128 MB	200 MB
Server Side			
	Processor	RAM	Disk Space
RAD	Intel Pentium iii or AMD – 800 MHz	1 GB	3.5 GB
DB2 – 9.5		256 MB	500 MB (Excluding Data Size)

Recommended Requirement:

Client Side			
	Processor	RAM	Disk Space
Internet Explorer – 6	Intel Pentium iii or AMD – 800 MHz	128 MB	200 MB
Server Side			
	Processor	RAM	Disk Space
RAD	Intel Pentium iii or AMD – 800 MHz	1 GB	3.5 GB
DB2 – 9.5		512 MB	500 MB (Excluding Data Size)

2.3 Communication Interface

- Client (custome) on Internet will be using HTTP/HTTPS.

- Client (system user) on Internet will be using HTTP/HTTPS.

2.4 Constraints

- GUI is only in English.
- Login and password is used for the identification of users.
- Only registered citizen will be authorized to use the services.
- Limited to HTTP/HTTPS.
- This system is working for single server.

2.5 Data Flow Diagram [DFD]

Level :- 0

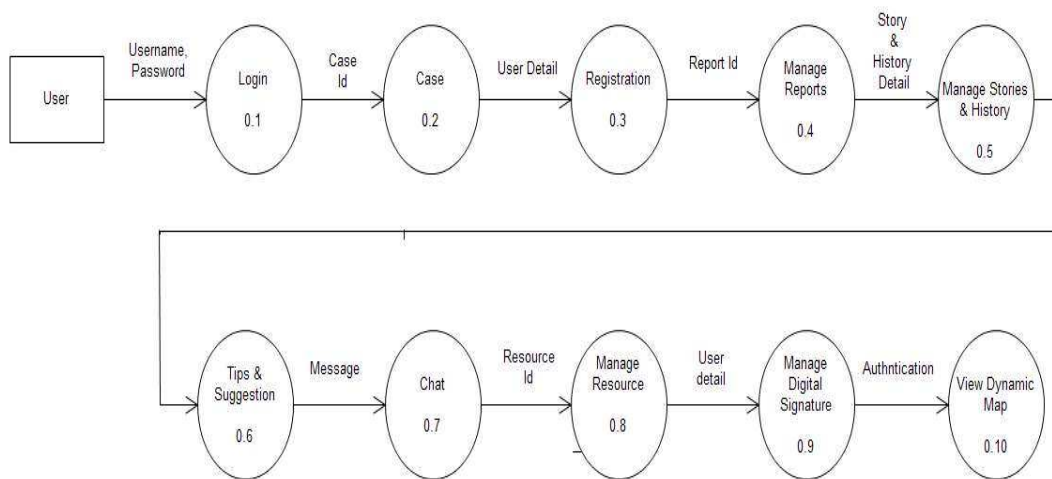
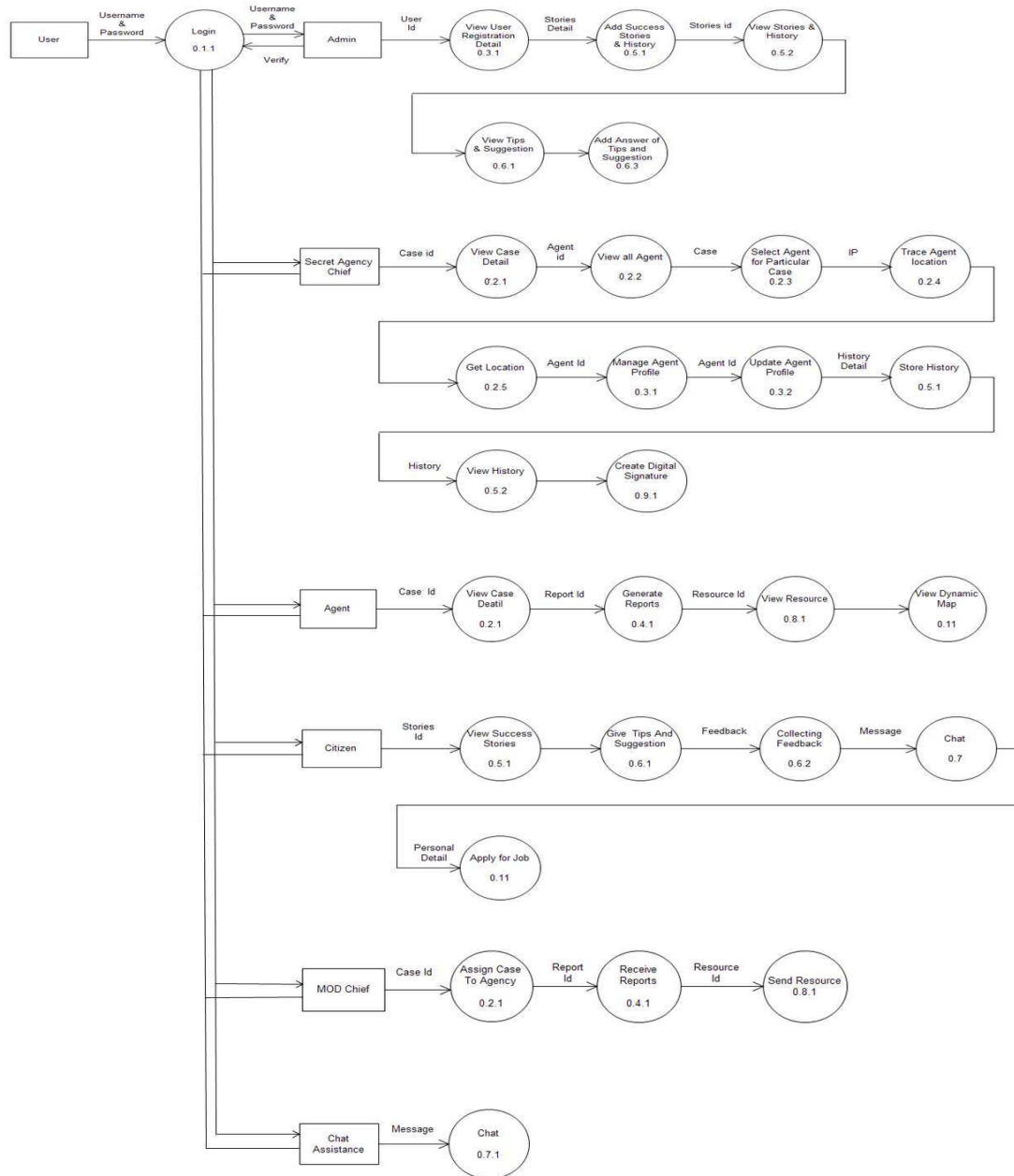


Fig : 2.2 Level 0 for DFD

Level :- 1Fig : 2.3 Level 1 for DFD

2.6 E-R Diagram

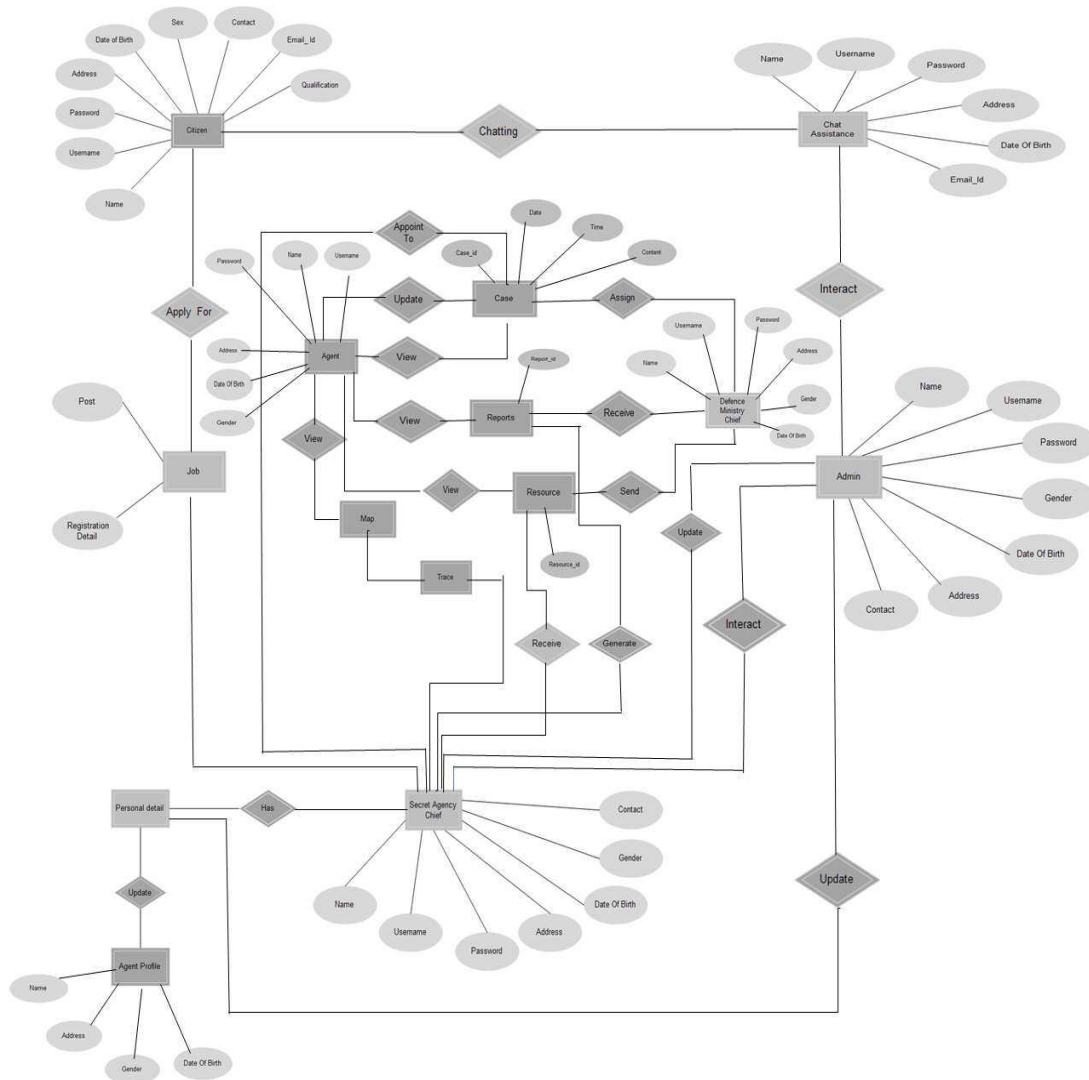


Fig : 2.4 E-R Diagram

2.7 Architecture Diagram

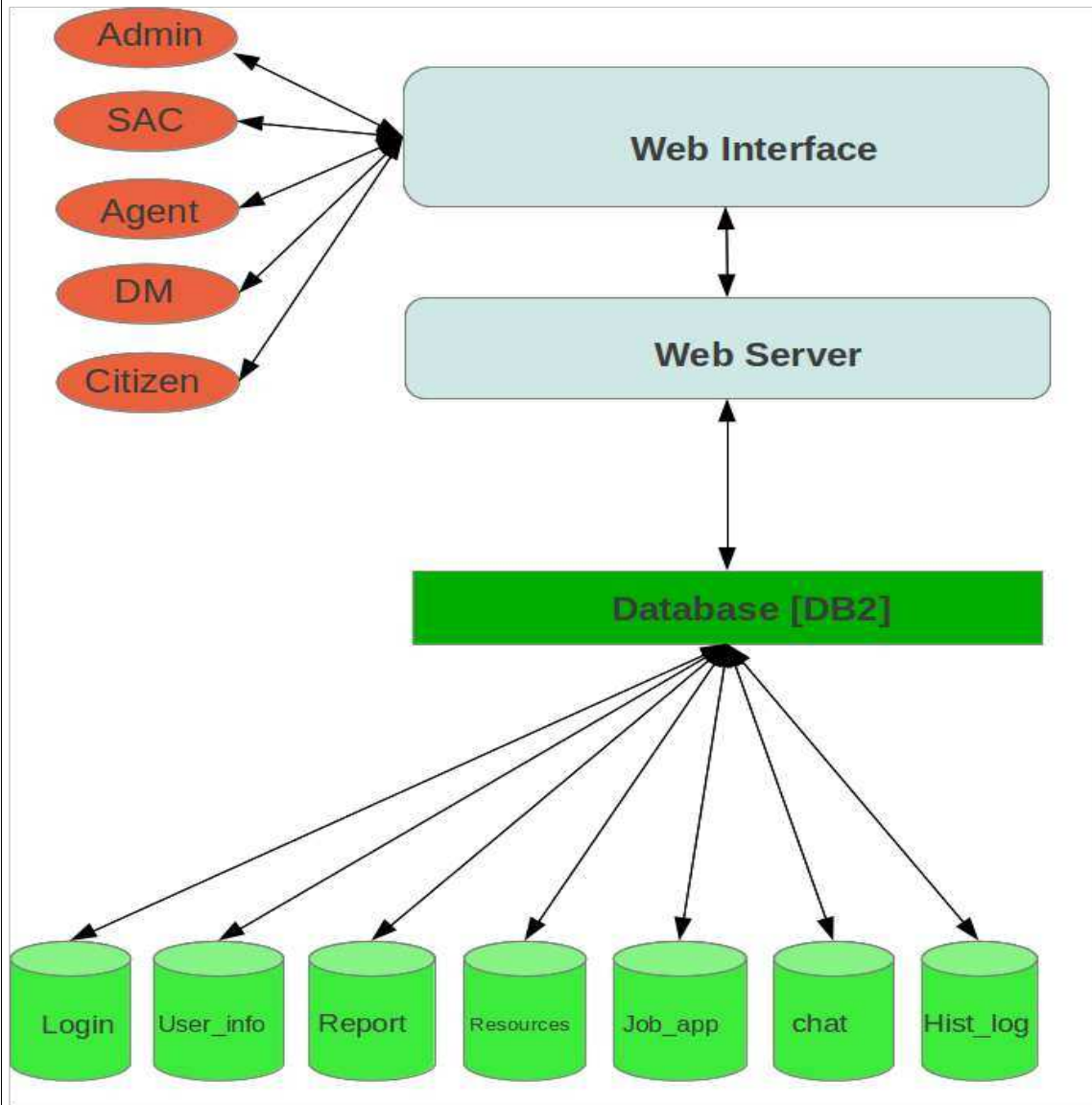


Fig : 2.5 Architecture Diagram

2.8 Database Diagram

DATABASE DIAGRAM

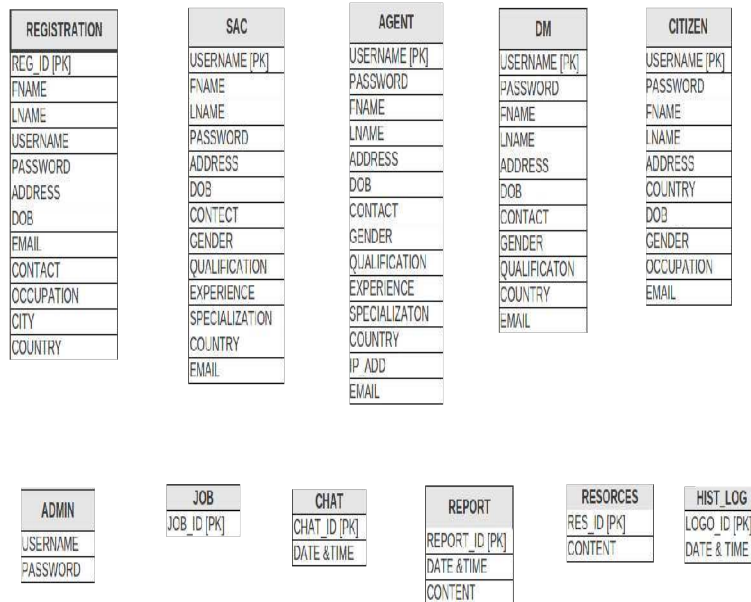


Fig : 2.6 Database Diagram

Specific Requirements

3.0 USE CASE REPORTS

3.0.0 Secret Agency's Chief Use - Case Report

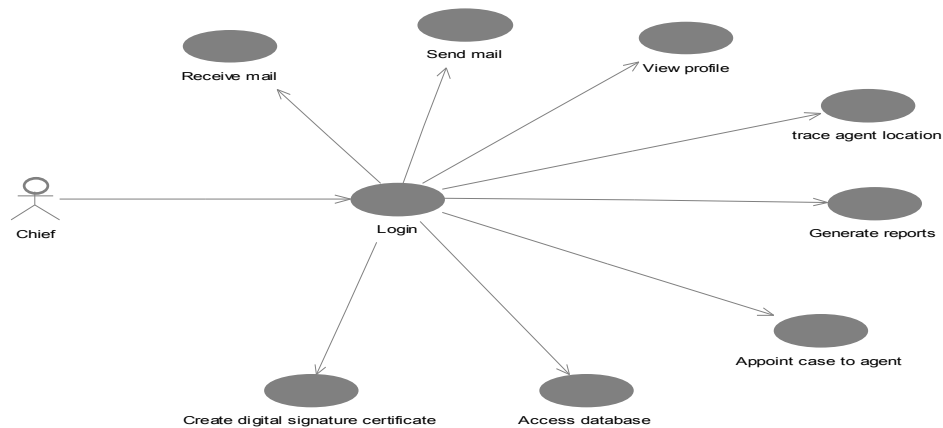


Fig : 3.1 use – case diagram for secret agency chief

USE-CASE	Description
Log in	The Chief has to Login in order to .
Receive mail	The chief can receive mail
Send mail	The chief can send mail to agent.
View profile	The chief is able to view his own profile and also agent's profile.
Trace agent location	The chief can trace the agent location on map.
Generate reports	The chief can generate reports about cases.
Appoint case to agent	The chief can appoint any particular case to agent.
Access database	The chief can access all detail about database.
Create digital signature certificate	The chief can create digital signature certificate for secure mailing system.

3.0.1 Agent Use - Case Report

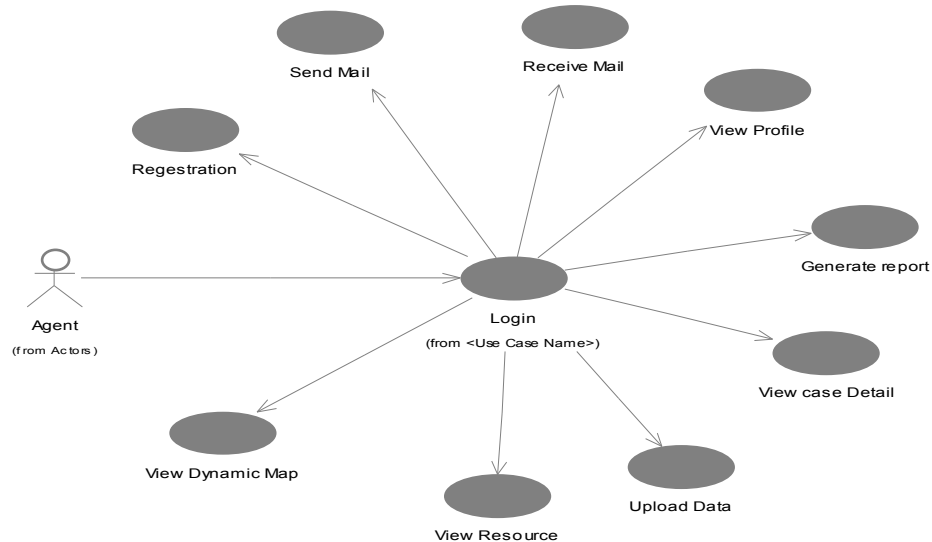


Fig : 3.2 use – case diagram for Agent

USE-CASE	Description
Login	The agent has to login in order to.
Registration	The agent has to register his detail to use system.
Send mail	The agent can send mail to chief.
Receive mail	The agent can receive mail.
View profile	The agent can view his profile.
Generate report	The agent can generate reports about case.
View case detail	The agent can view details about particular case for his information.
Upload data	The agent can upload encrypt data to database.
View resources	The agent can view resources of case that is given to him.
View dynamic map	The agent can view dynamic map for any help related his case.

3.0.2 Ministry of Defence Use - Case Report

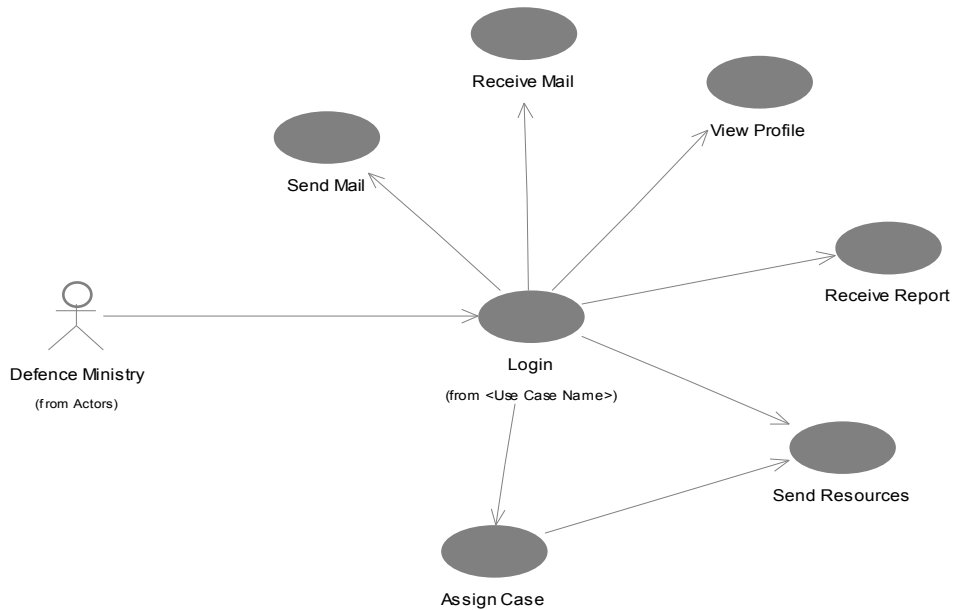


Fig : 3.3 use – case diagram for Ministry of Defence

USE-CASE	Description
Login	The MOD has to login in order to.
Send mail	The MOD can send mail to chief.
Receive mail	The MOD can receive mail from chief.
View profile	The MOD can view his own profile.
Receive reports	The MOD can receive reports about cases from chief.
Send resources	The MOD can send resources of cases to agency chief.
Assign case	The MOD can assign cases to the particular secret agency.

3.0.3 Citizen Use - Case Report

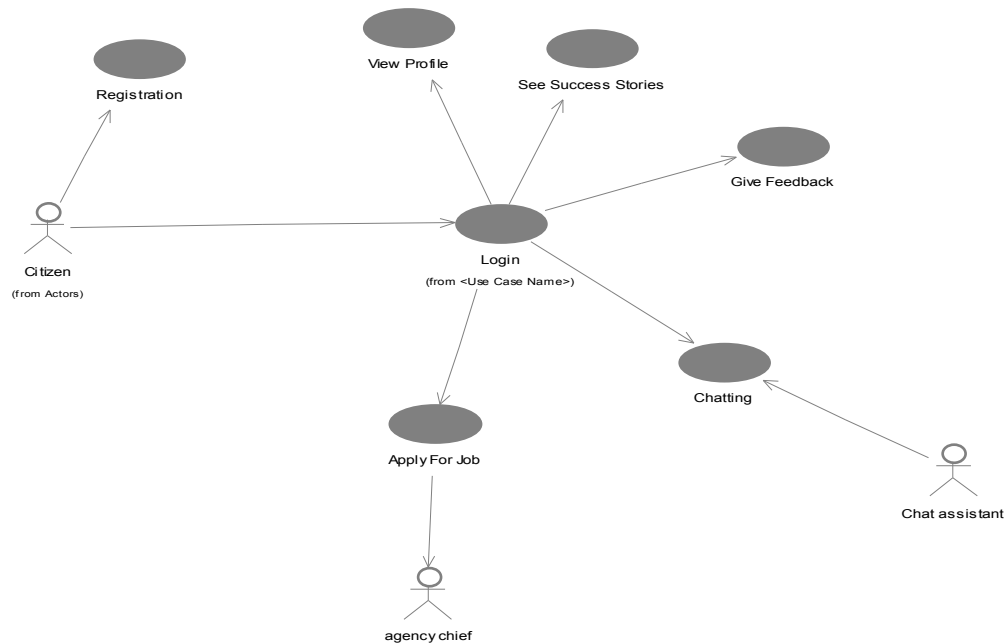


Fig : 3.4 use – case diagram for Citizen

USE-CASE	Description
Login	The citizen has to login in order to.
Registration	The citizen has to register his detail .
View profile	The citizen can view his profile.
See success stories	The citizen can read the success stories of secret agency.
Give feed back	The citizen can give tips and suggestion to the secret agency.
chatting	The citizen can chat with the chat assistant of secret agency.
Apply for job	The citizen can apply for the job in secret agency.

3.0.4 Admin Use - Case Diagram

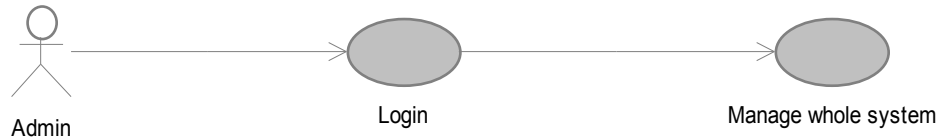


Fig : 3.5 use – case diagram for Administrator

USE-CASE		Description
Login		Admin has to login in order to.
Manage whole system		Admin can manage whole system.

3.1 Activity Diagrams

3.1.1 Mailing Sysytem Activity Diagram

For secure mailing system, user have to enter username and password. After that verify username and password .If it is valid than user can login and create mail.If it is not valid than again go back for enter username & password. After login user can create message and also attach file and send mail.If mail can not received than it generate error message.

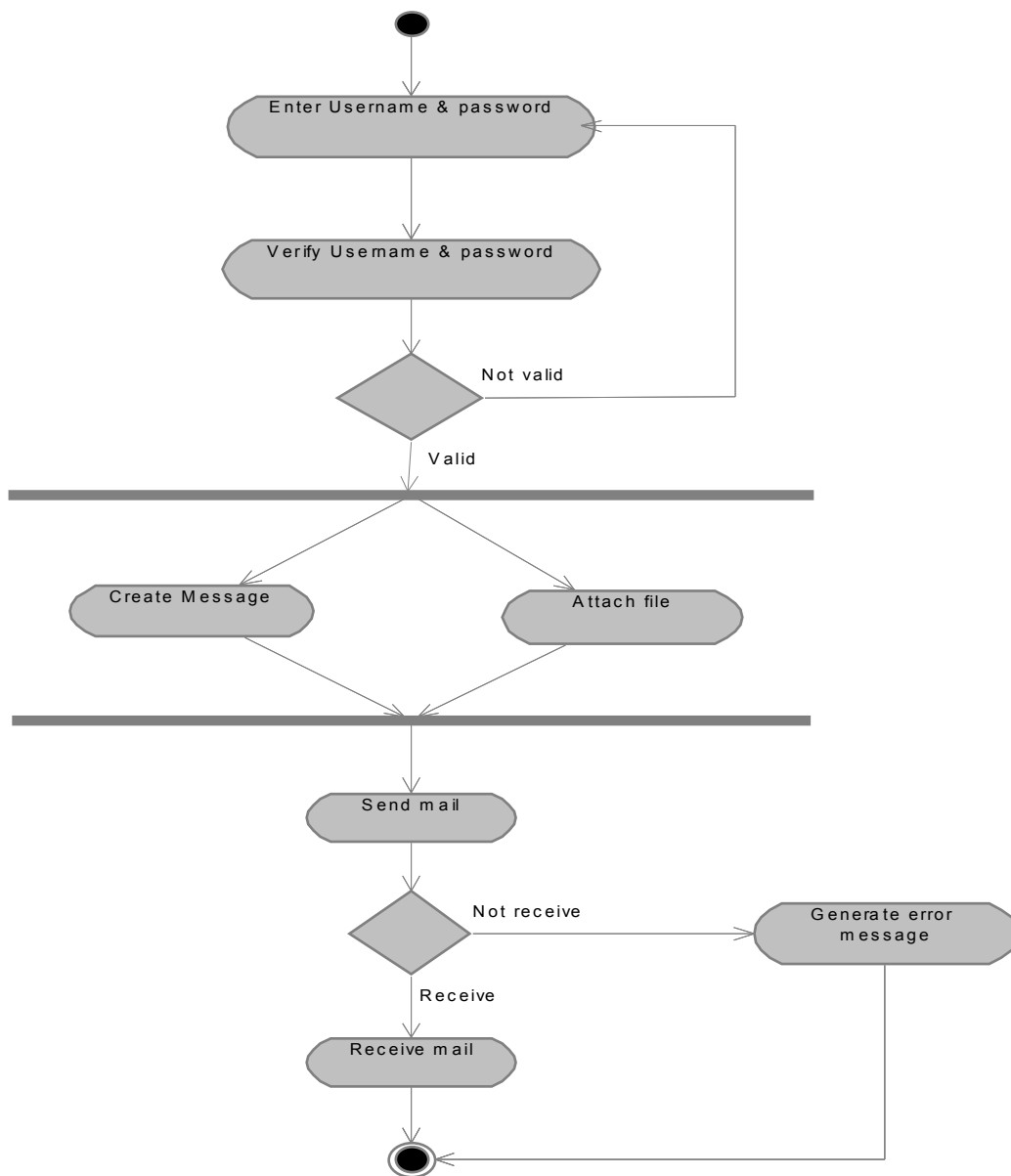


Fig : 3.6 activity diagram for Mailing System

3.1.2 Managing Database Activity Diagram

This activity is for managing database. Agent can upload data to database .Agent have a functionality to encrypt data before upload in database. By this functionality the data security goes high. The agent can store encrypt data and also update it in database. Same this this SAC can do also.

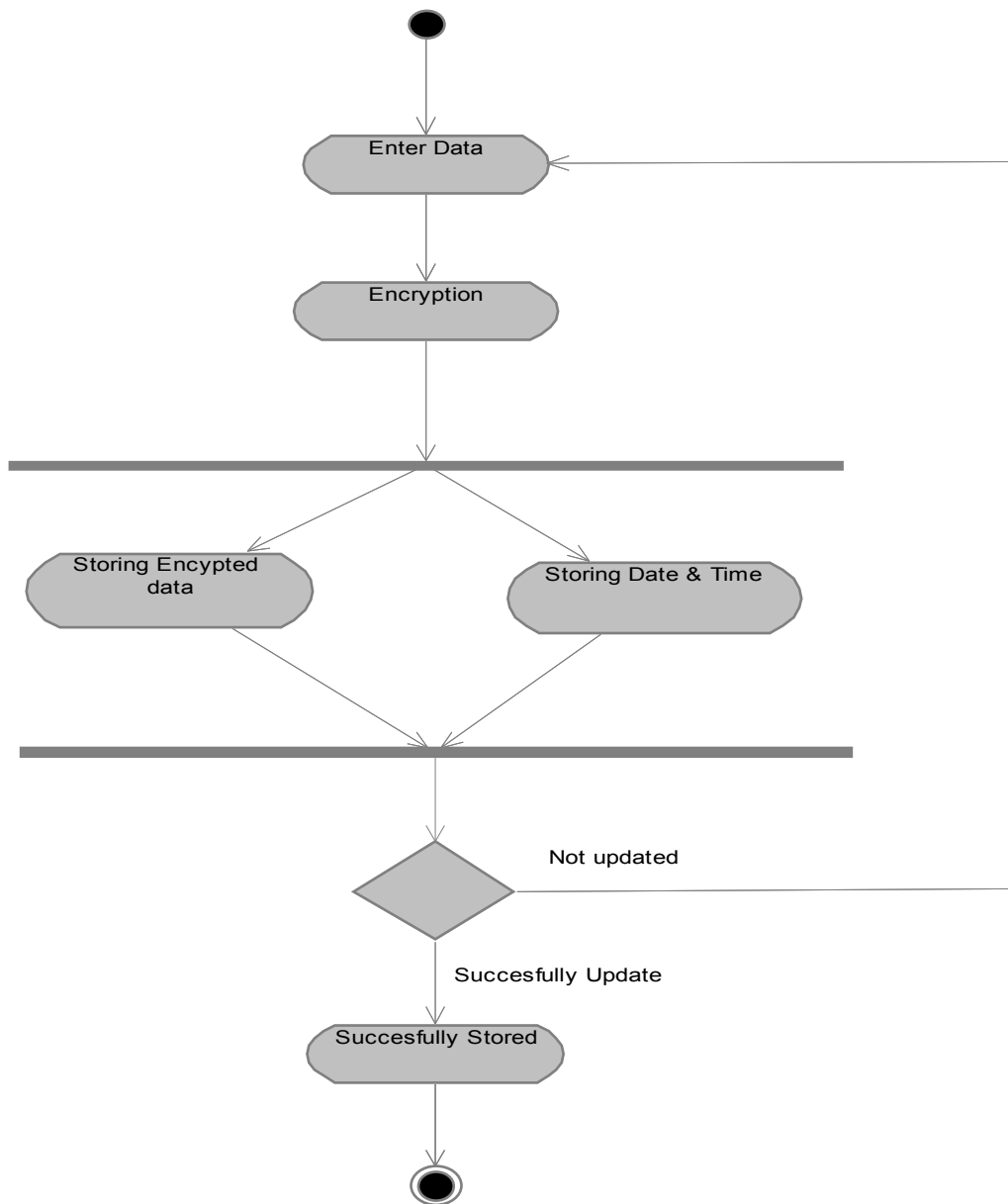


Fig : 3.7 activity diagram for Managing Database

3.1.3 Defence Ministry Send Resources Activity Diagrams

The defence ministry can view case detail. DM can also send case resources to secret agency chief. He can also select and send case resources with all case details to the secret agency chief and can also receive resources from secret agency.

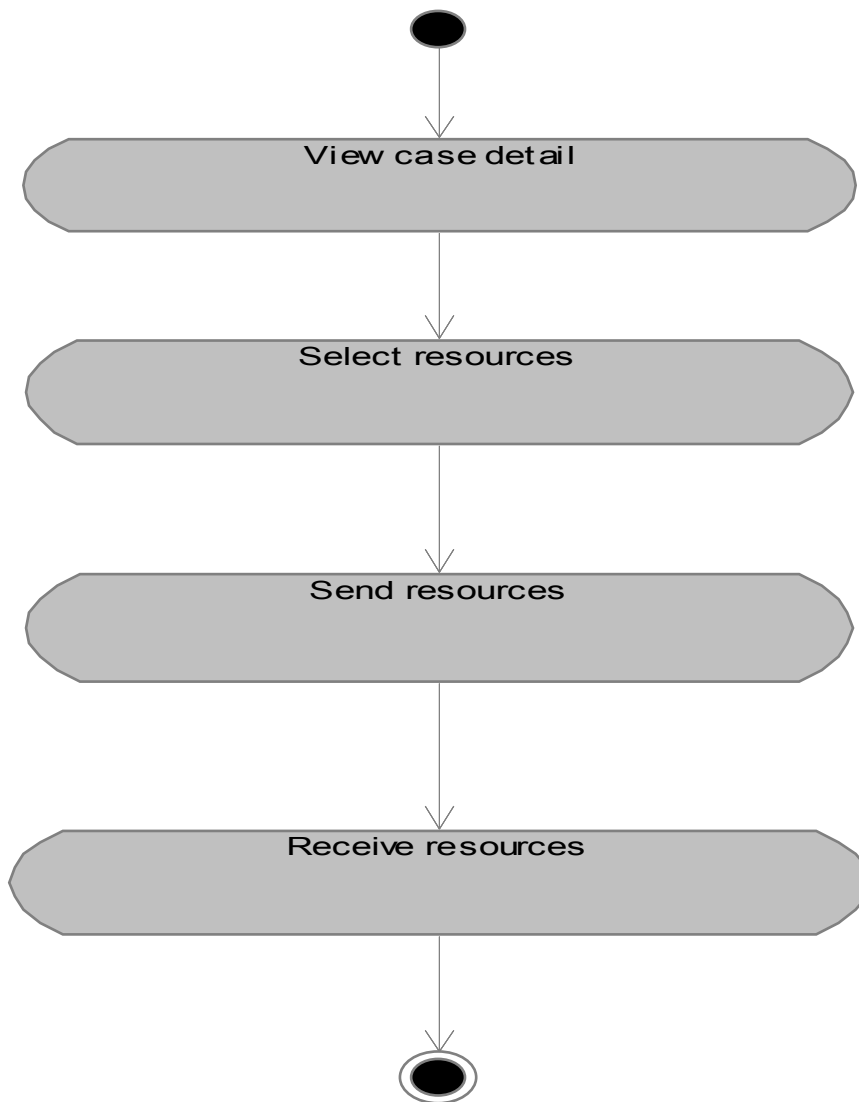


Fig : 3.8 activity diagram for Defence Ministry Send Resources

3.1.4 Agent Tracing Activity Diagram

This activity diagrams for trace the agent location using agent IP address. The secret agency chief can trace the agent location. The chief has to enter the agent id , if ID is correct than he can trace agent location otherwise he has to enter correct agent ID.If chief can trace agent location successfully than he can see agent location on dynamic map.

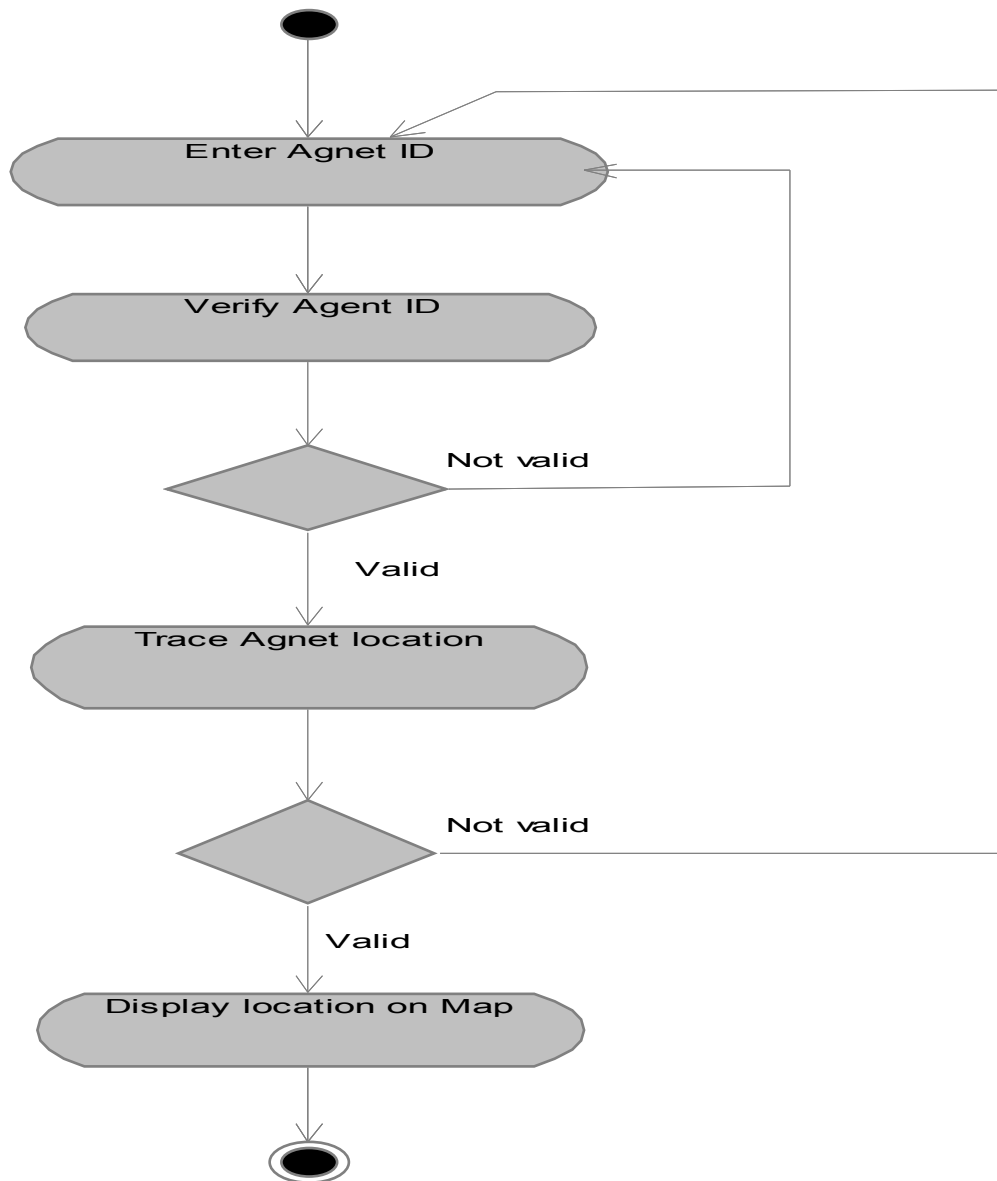


Fig : 3.9 activity diagram for Agent tracing

3.1.5 Case Assign To Agent Activity Diagram

This activity show that how to appoint any case to agent. Firstly chief view all case details and also view agent details. Based on that chief can appoint particular case to capable agent. After selection of agent , chief has to send case resources with all details to agent.

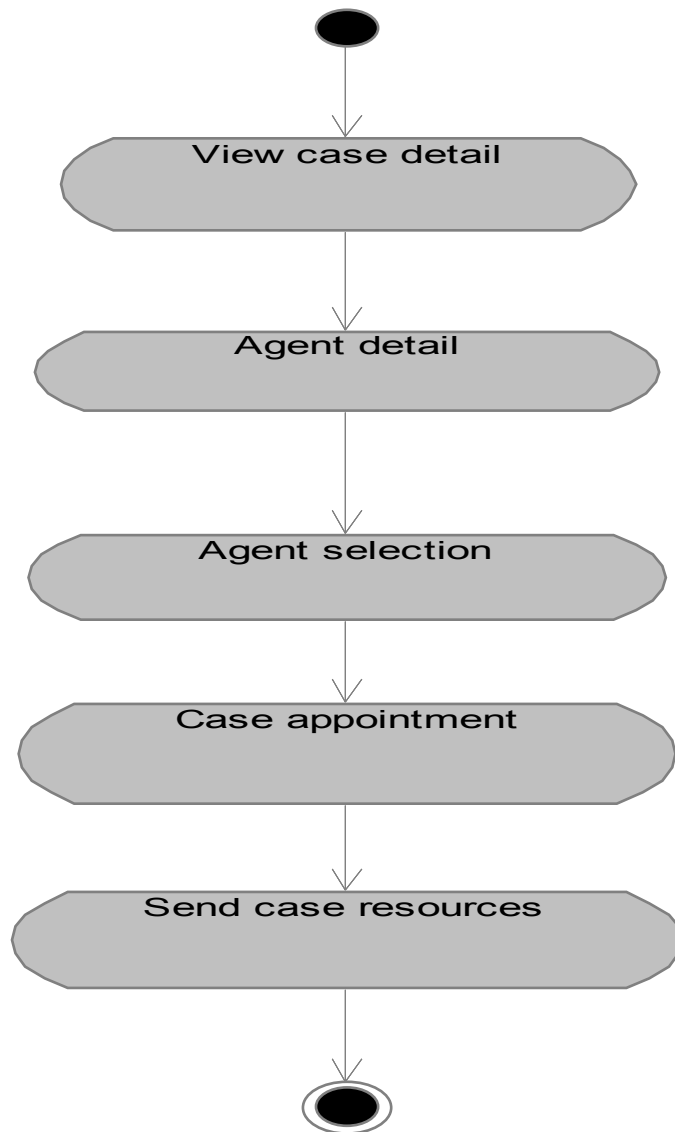


Fig : 3.10 activity diagram for Case Assign

3.1.6 Citizen Login & Chatting Activity Diagram

Every citizen of country can login in this system. If he is verified user then he is able for chatting, apply for job and also give tips and suggestion to secret agency. If citizen want to apply for job then he has to fill up application form with his details. After login he can directly redirect to the home page. Citizen can chat with chat assistant of secret agency and citizen can also give tips and suggestion to secret agency.

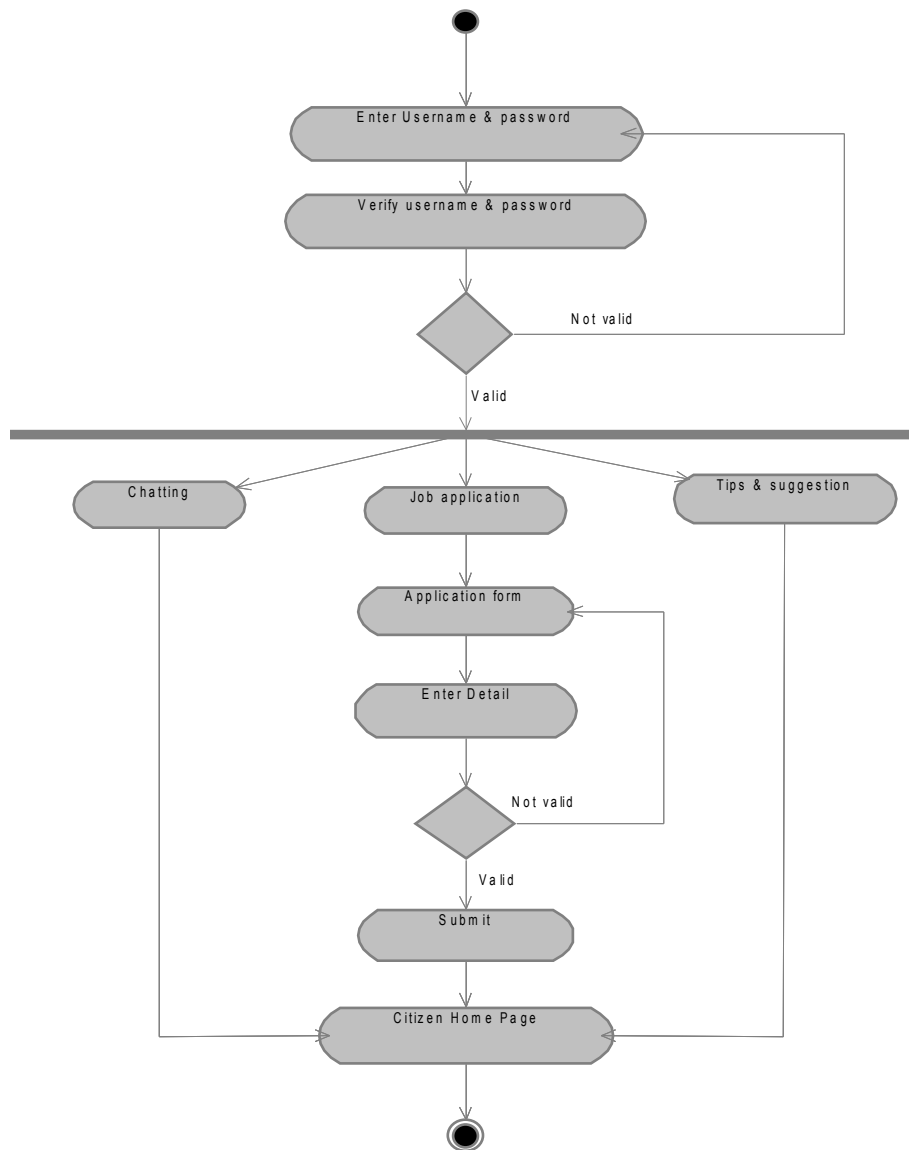


Fig : 3.11 activity diagram for Citizen Login & Chatting

3.1.7 Digital Signature Certificate Activity Diagram

In this secure mailing system , when chief want to send some secret data to agent that time chief give digital signature to that data. So when agent receive that data he is sure about that data is secured and only send from chief. So agent is sure about that data is secure.

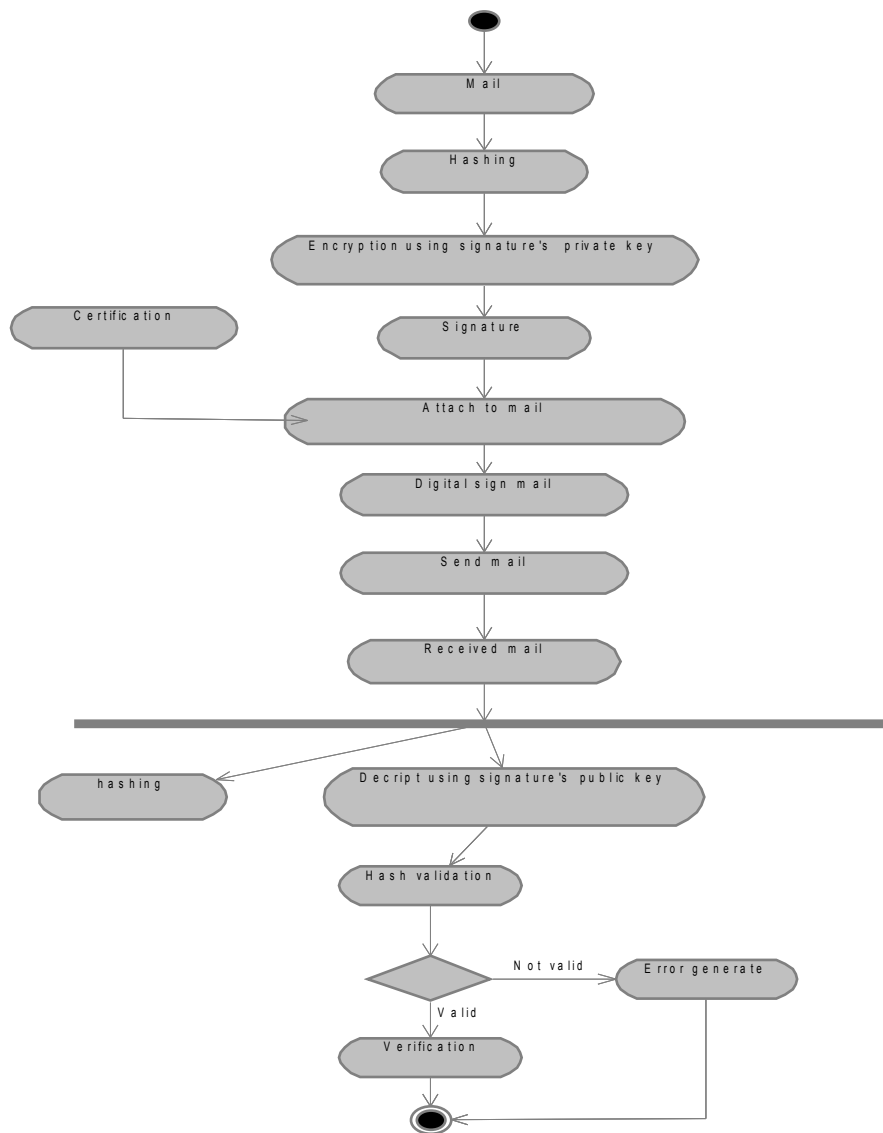


Fig : 3.12 activity diagram for Digital Signature Certificate

3.2 Sequence Diagram

3.2.0 Users Login Sequence Diagram

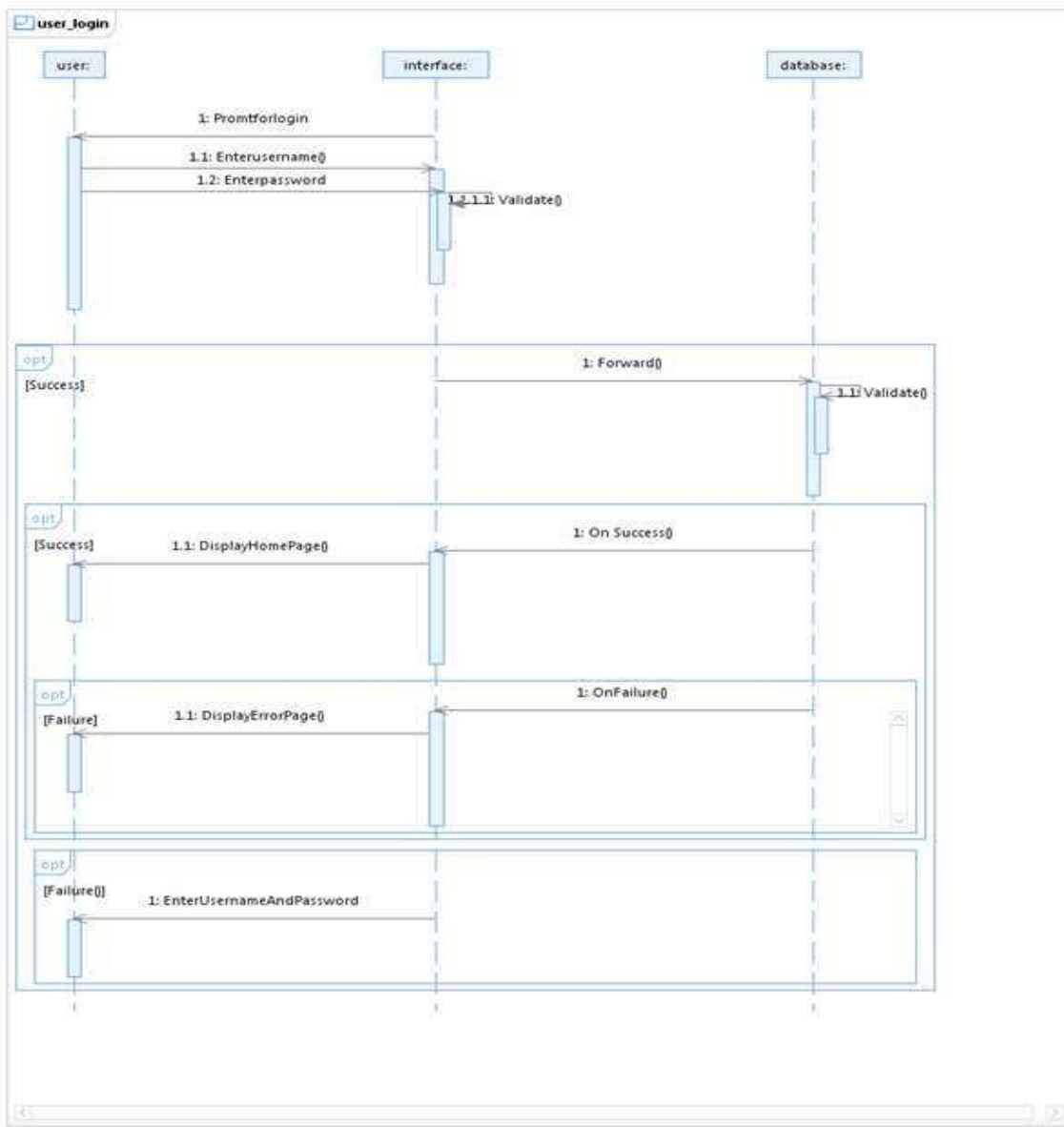


Fig : 3.13 Sequence diagram for user login

3.2.1 Case Assign To Agent Sequence Diagram

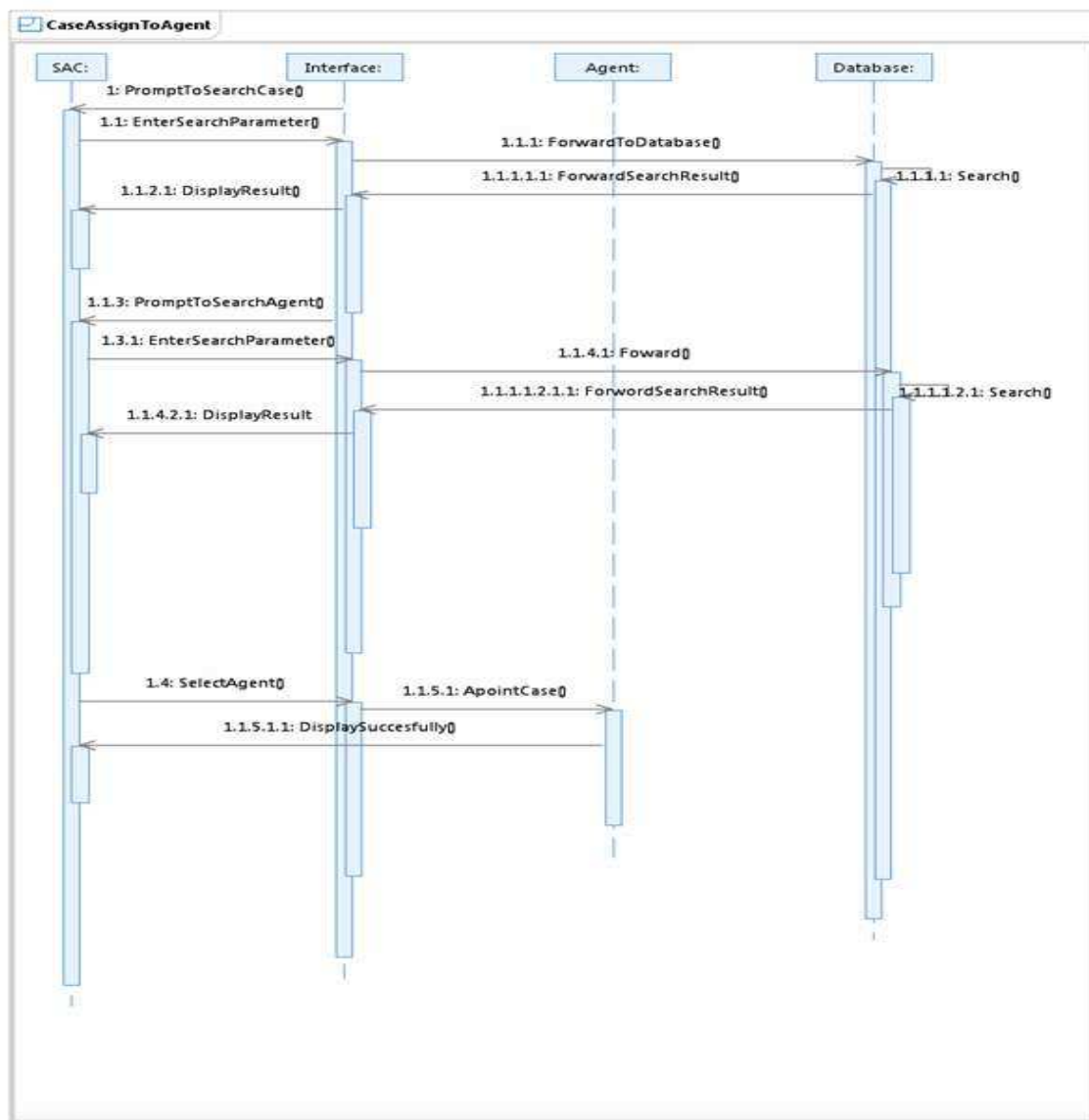


Fig : 3.14 Sequence Diagram for Case Assign to Agent

3.2.2 Job Application Sequence Diagram

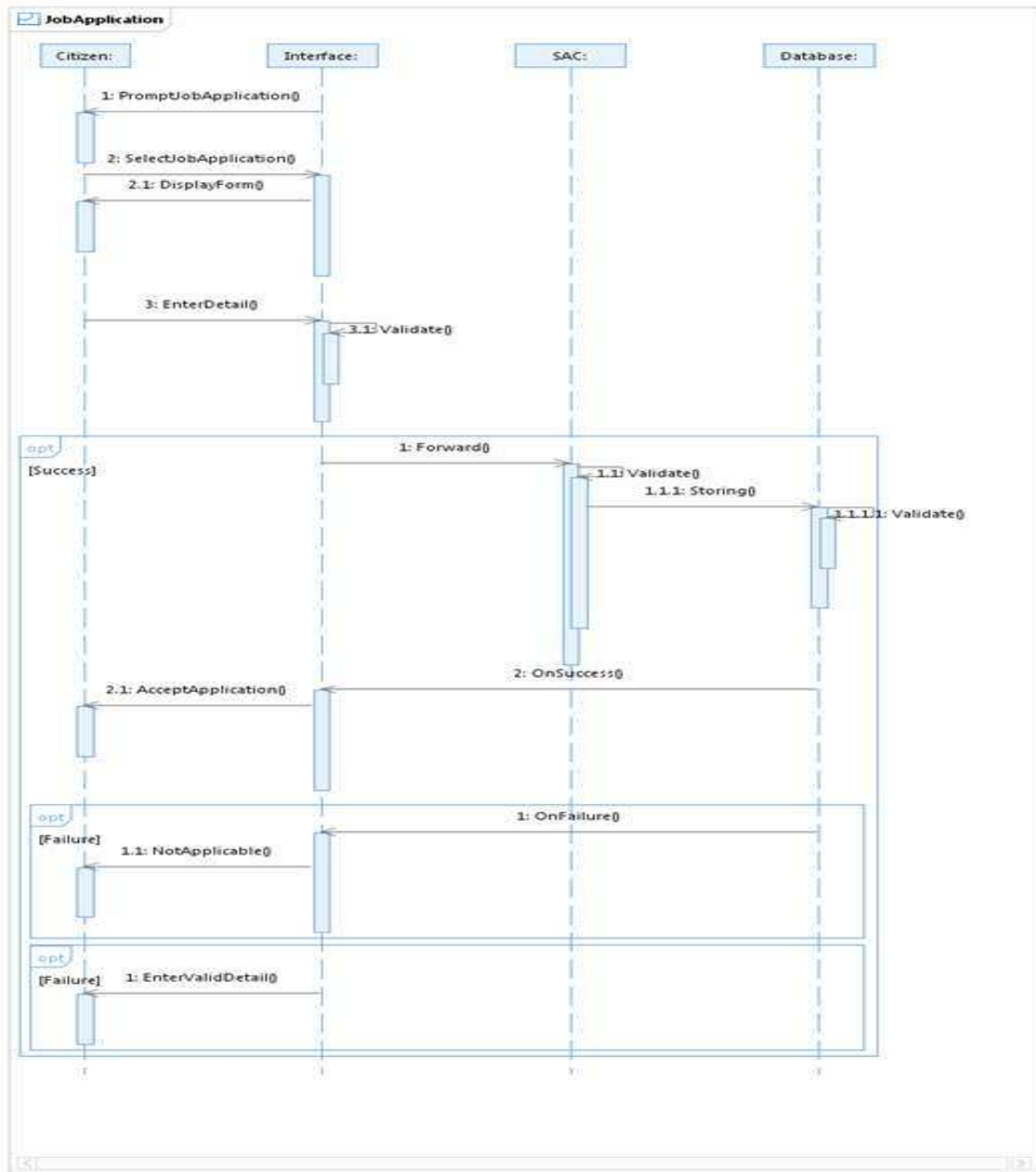


Fig : 3.15 Sequence Diagram for Job Application

3.2.3 Manage Database Sequence Diagram

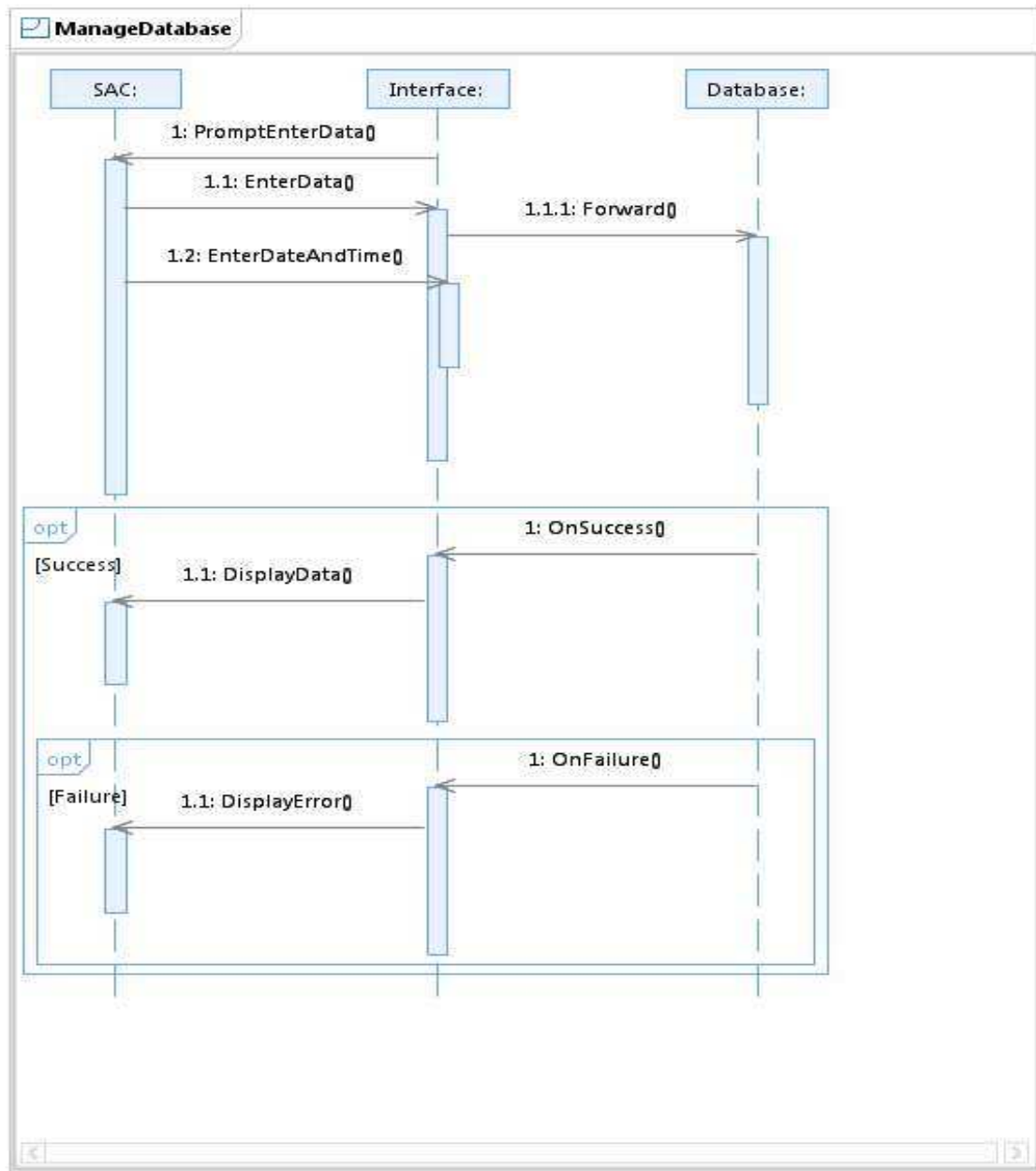


Fig : 3.16 Sequence Diagram for Manage Database

3.2.4 Uploadation File Sequence Diagram

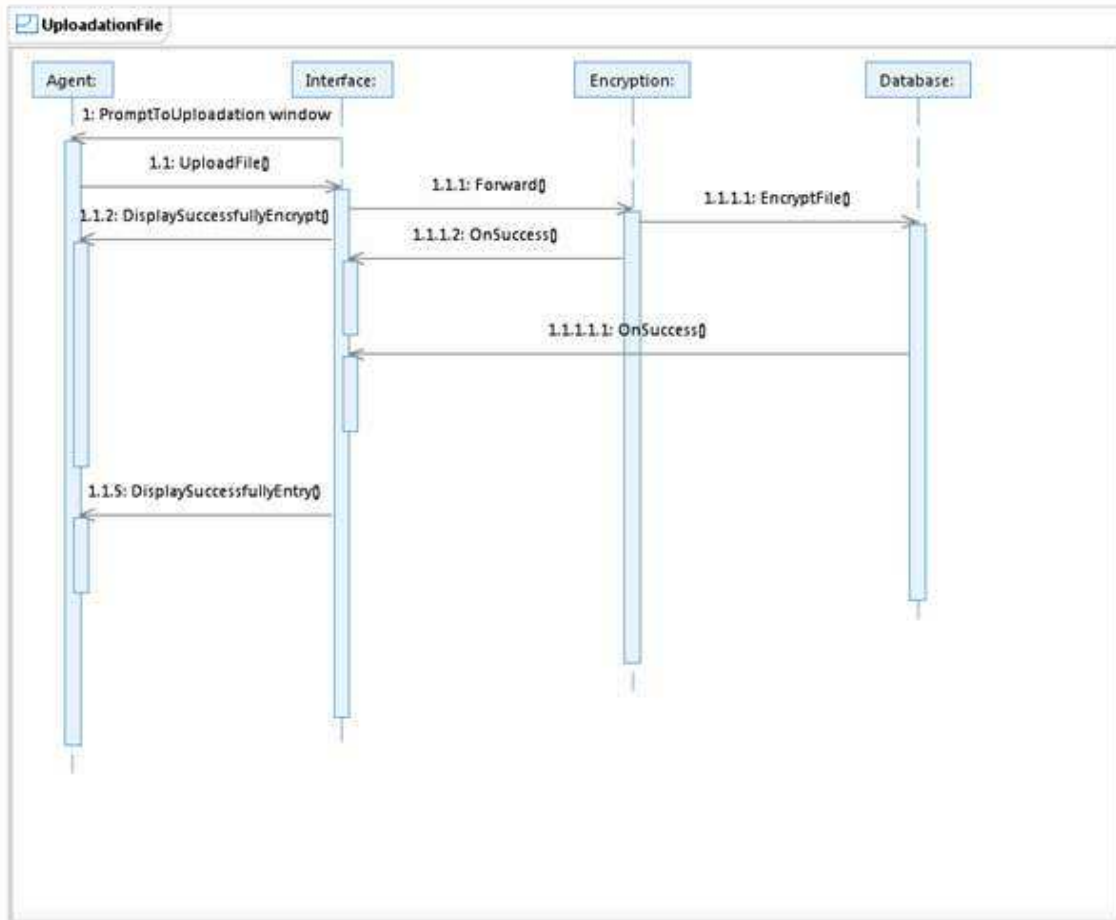


Fig : 3.17 Sequence Diagram for Uploadation File

3.2.5 Authentication of Privileged Users Sequence Diagram

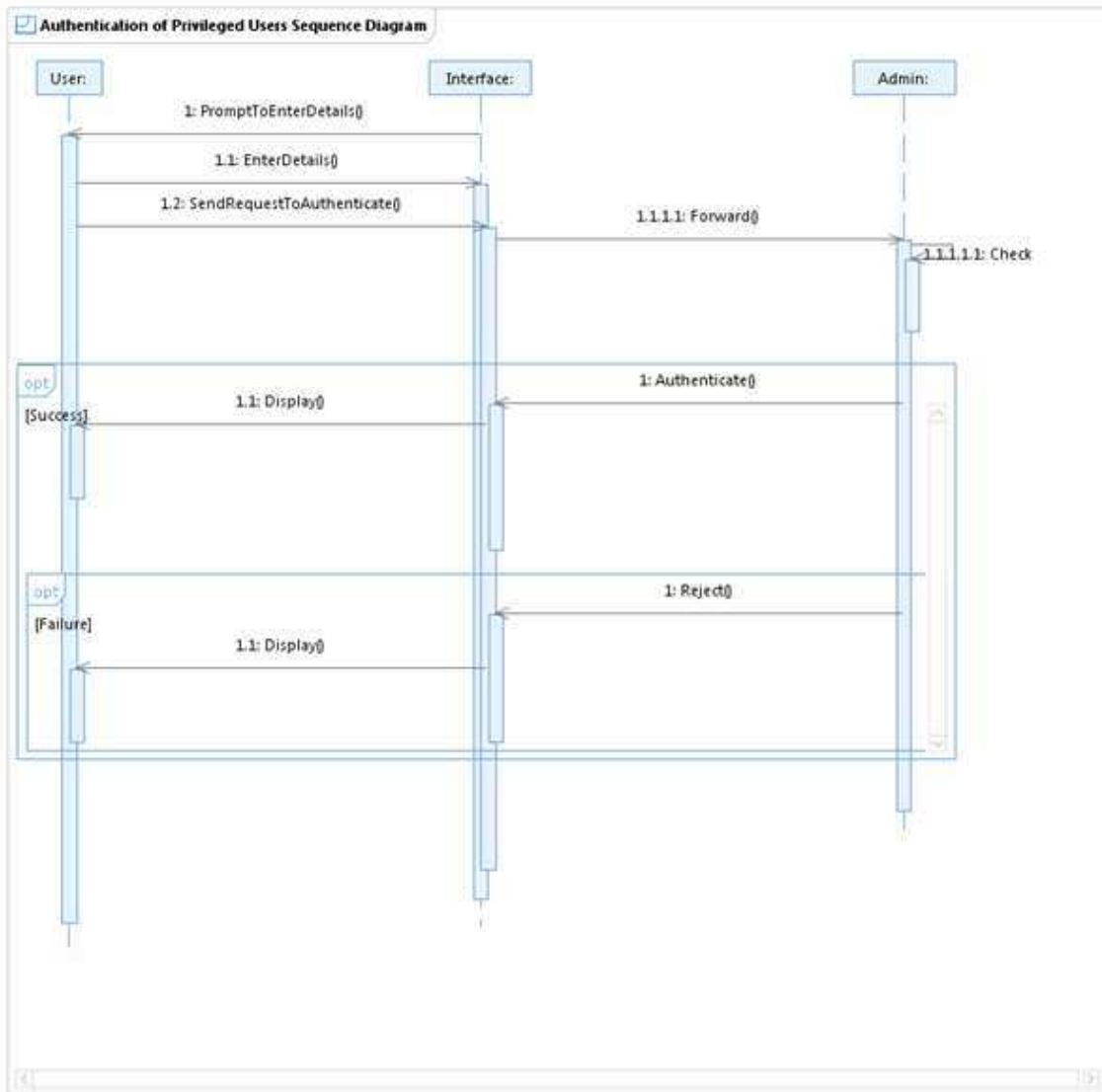


Fig : 3.18 Sequence Diagram for Authentication of Privileged Users

3.2.6 Trace Agent Location Sequence Diagram

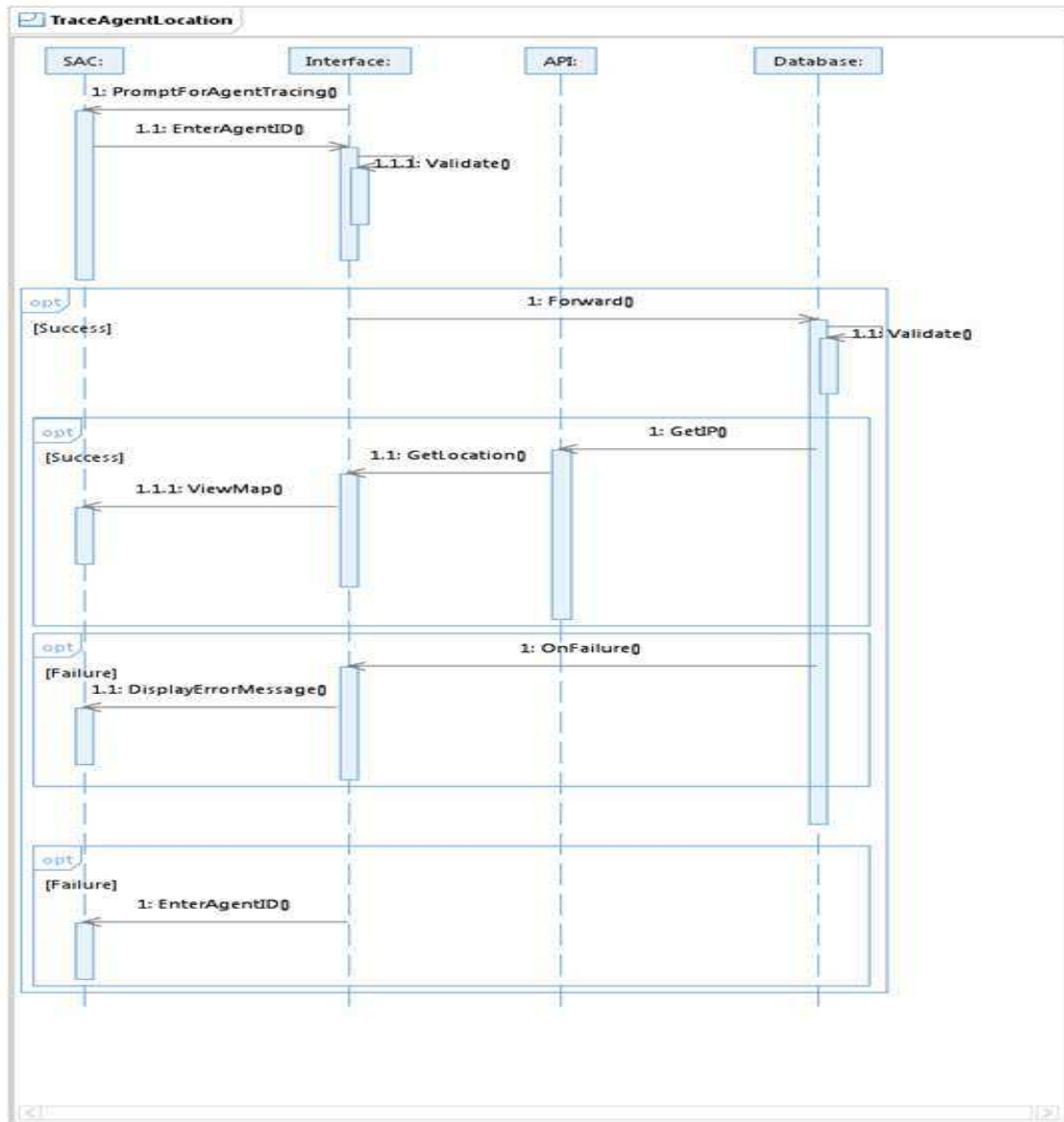


Fig : 3.19 Sequence Diagram for Trace Agent Location

Thank You