Team G33K5

Water Management Portal

Software requirement specification

Version 1.0

Team Guide

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REVISION HISTORY

Date	Version	Description	Author
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Table of Contents

Software Requirements Specifications

1.0 Introduction:

1.1 **Purpose:**

Water management portal:

Nowadays, water has become one of the most essential necessity for most of the metro and cosmopolitan cities. The WMP maintains a log of all the service gainers. It provides data, maintains templates regarding the quality of the water and the equipment carrying it.

It also provides the necessary measures to be taken by the users to keep the water clean and safe. It takes feedback from them and fills up the voids in their services. It holds a log of the city to the places where the water is being circulated. This portal provides statistical data concerning the physical, chemical and biological properties of water. It is also purposed to provide some of the concerning factors of water like the color, alkalinity, taste, odor, p^H and hardness of water.

1.2 Scope:

- This web application can be accessed by four different users: Admins, City employees, members, non-members.
- Admins, City employees and members have their respective password protected profiles.
- Members once after logging into the system can report any problems they face.
- City employees can view the tags that are placed by different members and can take necessary steps to rectify their problems or can reply to the comments placed by different users.
- Admin has the privilege of maintaining the quality of the web application by deleting falsy data and managing user accounts.

1.3 Definitions , Abbreviations and Acronyms:

- **HTTP:** Hypertext Transfer Protocol is a transaction oriented client/server protocol between web browser & a Web Server.

- **HTML:** Hypertext Mark-up Language is a mark-up language used to design static webpages.

- **WAS:** Web sphere application server is an application server that runs business applications and supports the J2EE and web services standards.

- **J2EE:** Java 2 Enterprise Edition is a programming platform— part of the Java Platform—for developing and running distributed multitier architecture Java applications, based largely on modular software components running on an application server.

- **DB2:** DB2 Database is the database management system that delivers a flexible and cost-effective database platform to build robust on demand business applications. Create different system users and assign different roles with related permissions.

- **TCP/IP:** Transmission Control Protocol/Internet Protocol, the suite of communication protocols used to connect hosts on the Internet. TCP/IP uses several protocols, the two main ones being TCP and IP.

- **XML (Extensible Markup Language):** It is a markup language that was designed to transport and store data.

- **Ajax (Asynchronous Java Script and XML):** It is a technique used in java script to create dynamic web pages.

- **Web 2.0:** It is commonly associated with web applications which facilitate interactive information sharing,

interoperability, user-centered design and collaboration on the World Wide Web.

- **WASCE (Web Sphere Application Server Community Edition):** It is an application server that runs and supports the J2EE and the web service applications.

1.4 References:

- Object Oriented Modeling and Design with UML-Michael Blaha, James Rambaugh.
- Software Engineering, Seventh Edition, Ian Sommerville.
- IBM Red Books.
- IBM TGMC Sample Synopsis.
- IBM – www.ibm.in/developerworks

1.5 Technologies to be 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 (Java SE) 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**
  - WASCE

    Web Sphere Application Server Community Edition 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 15WASCE developers are committers in the Apache Geronimo project.

- **Development tool –RAD**
  - RAD

    IBM Rational Application Developer for Web Sphere 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

    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.

- **Design tool – Rational Software Modeler**
  - RSM

    IBM Rational Software Modeler, (RSM) made by IBM's Rational Software division, is a Unified Modeling Language UML 2.0-based visual modeling and design tool. Rational Software Modeler is built on the Eclipse open-source software framework and includes capabilities focused on visual modeling and model-driven development (MDD) with the UML for creating resilient, thought-out applications and web services.

1.6 Overview:

- **Existing System**
  - The user has to manually place a complaint or query with the Municipal Corporation.

- **Drawbacks**
  - Time taking process

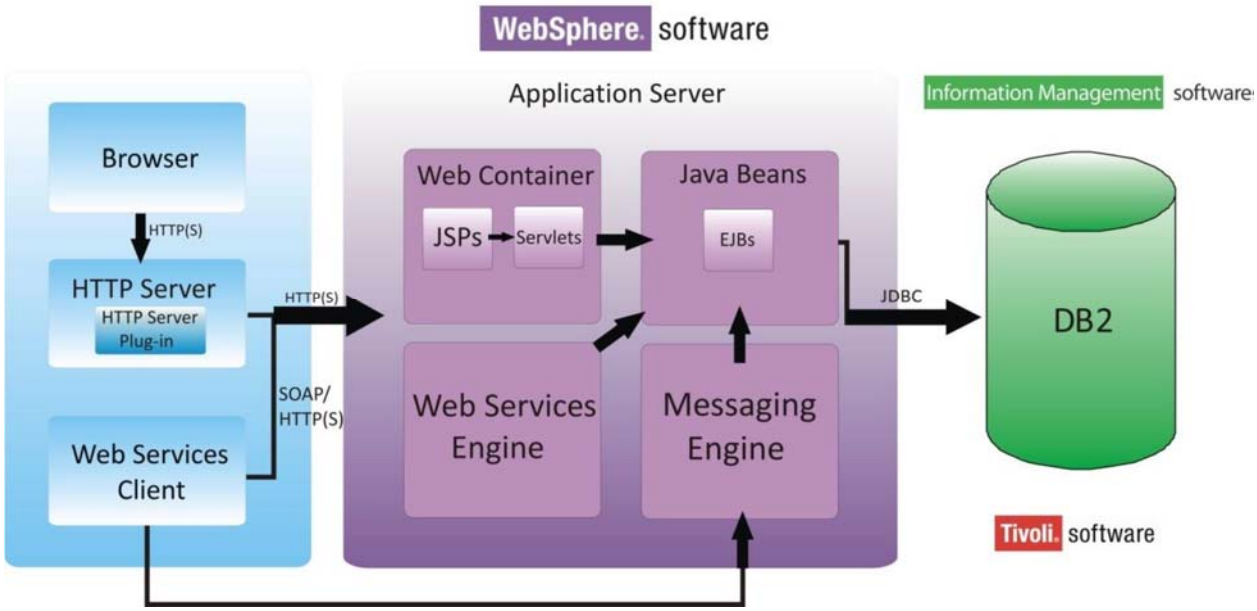
- Lack of easy accessibility
- User cannot check progress of his/her complaint

- **Proposed System**
  - Accessibility from homes
  - Separate forms for City Residents, Employees and Visitors

- **Our Plan**
  - To provide a web accessible information base.
  - To provide templates for information entry – e.g. education, water supply pressure report, water quality concern report, etc.
  - Allow for easy update of information by city employees.
  - Allow for easy retrieval of feedback collected to facilitate acting on feedback received.
  - To allow report of water management-related issue (dirty water, bad odour, pollution, etc.).
  - Allow submission of suggestions for improvement.
  - Enable a map view of the city.

2.0 Overall Description:

2.1 Product Perspective:



2.2 Software Interface:

- **Client on Internet**
  Web Browser, Operating System (any)

- **Client on Intranet**
  Web Browser, Operating System (any)

- **Web Server**
  WASCE, Operating System (any)

- **Data Base Server**
  DB2, Operating System (any)

- **Development End**
  RAD (J2EE, Java, Java Bean, Servlets, HTML, XML, AJAX), DB2, OS (Windows), Web Sphere (Web Server)

2.3 Hardware Interface:

Minimum Requirements:

Client Side			
	Processor	**RAM**	**Disk Space**
Internet Explorer - 6	Intel Pentium III or AMD - 800 MHz	128 MB	100 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 Requirements:

Client Side			
	Processor	**RAM**	**Disk Space**
Internet Explorer - 6	All Intel or AMD - 1 GHZ	256 MB	100 MB
Server Side			
RAD	All Intel or AMD - 2 GHZ	2 GB	3.5 GB
DB2 - 9.5		512 MB	500 MB (Excluding Data Size)

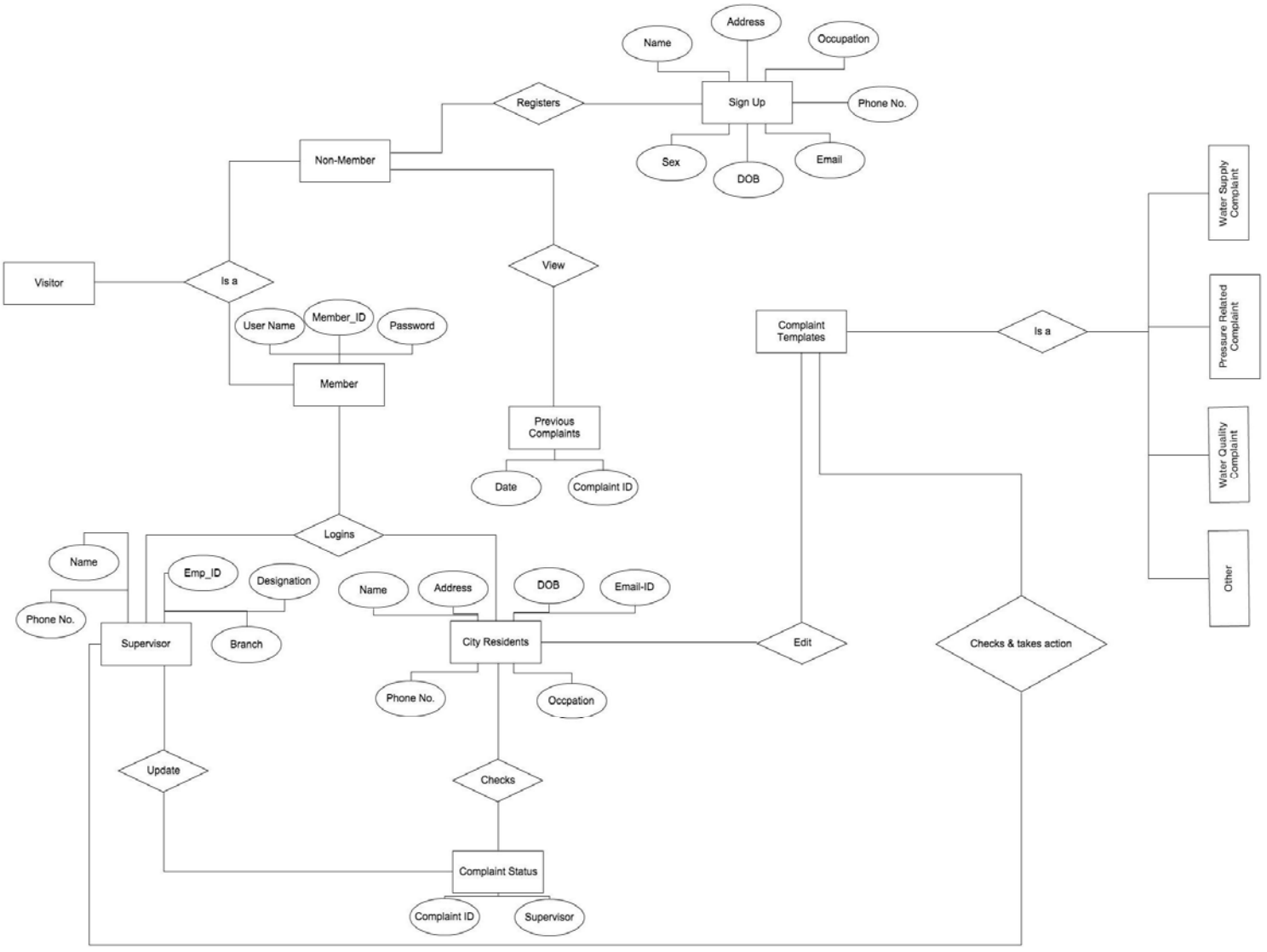
2.4 Communication Interface:

- Client on Internet will be using HTTP/HTTPS protocol.
- Client on Internet will be using HTTP/HTTPS protocol.

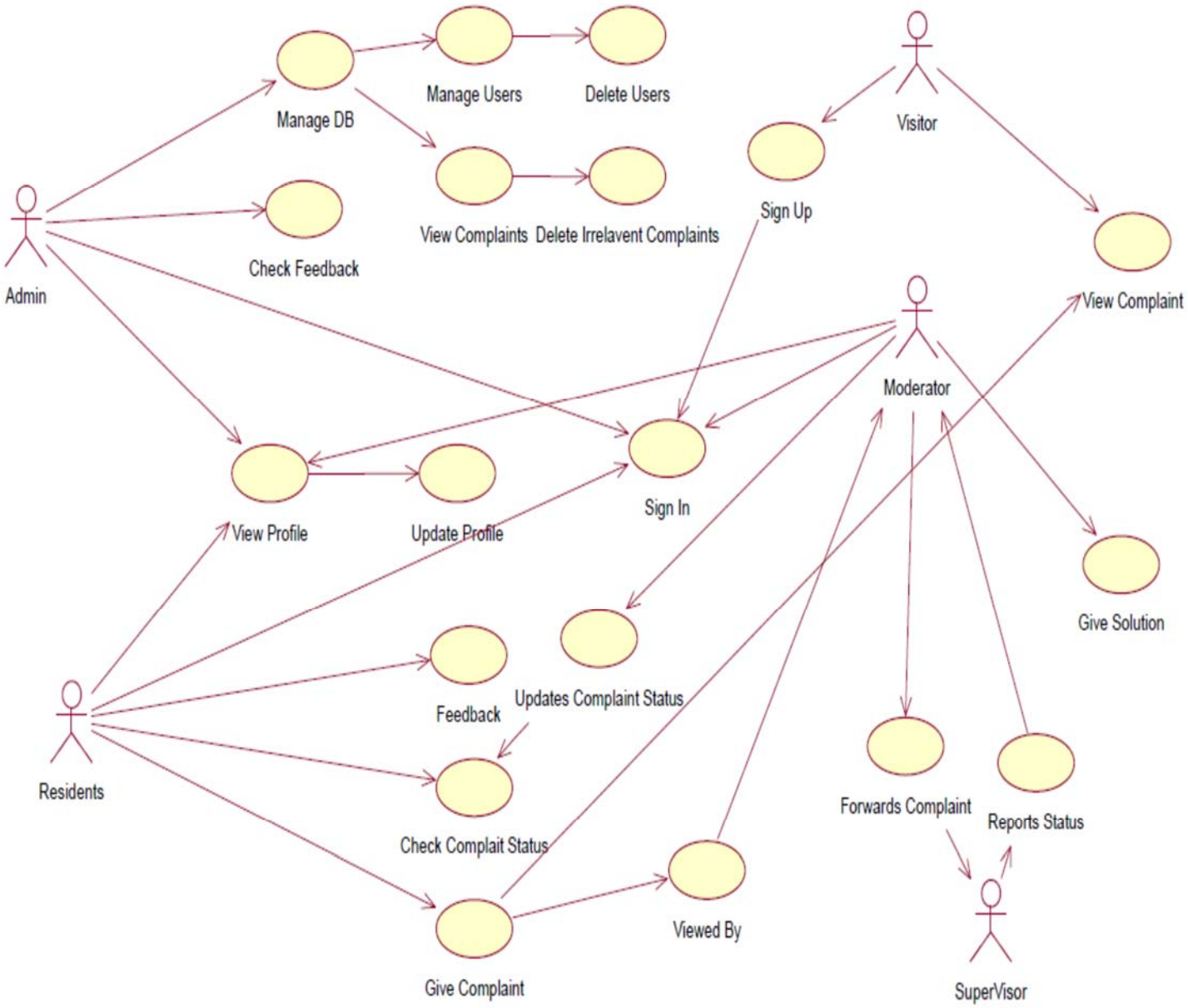
2.5 Constraints:

- GUI is only in English.
- Login and password is used for the identification of users.
- Limited to HTTP/HTTPS.
- This system is working for single server.

2.6 ER Diagram:

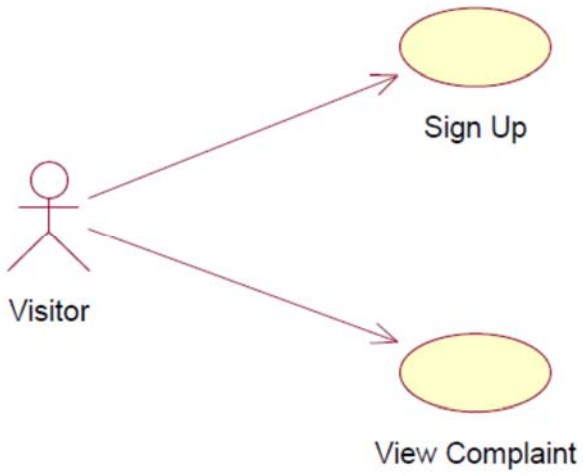


2.7 Use-Case Model Survey:



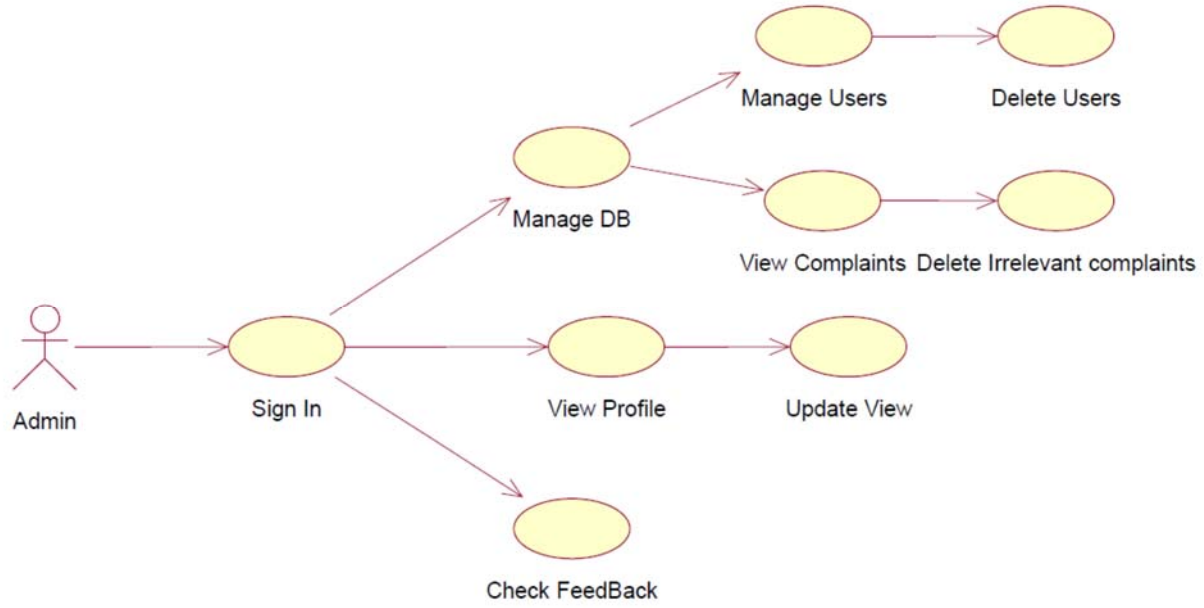
3.0 Specific Requirements:

3.1 Use Case Reports:



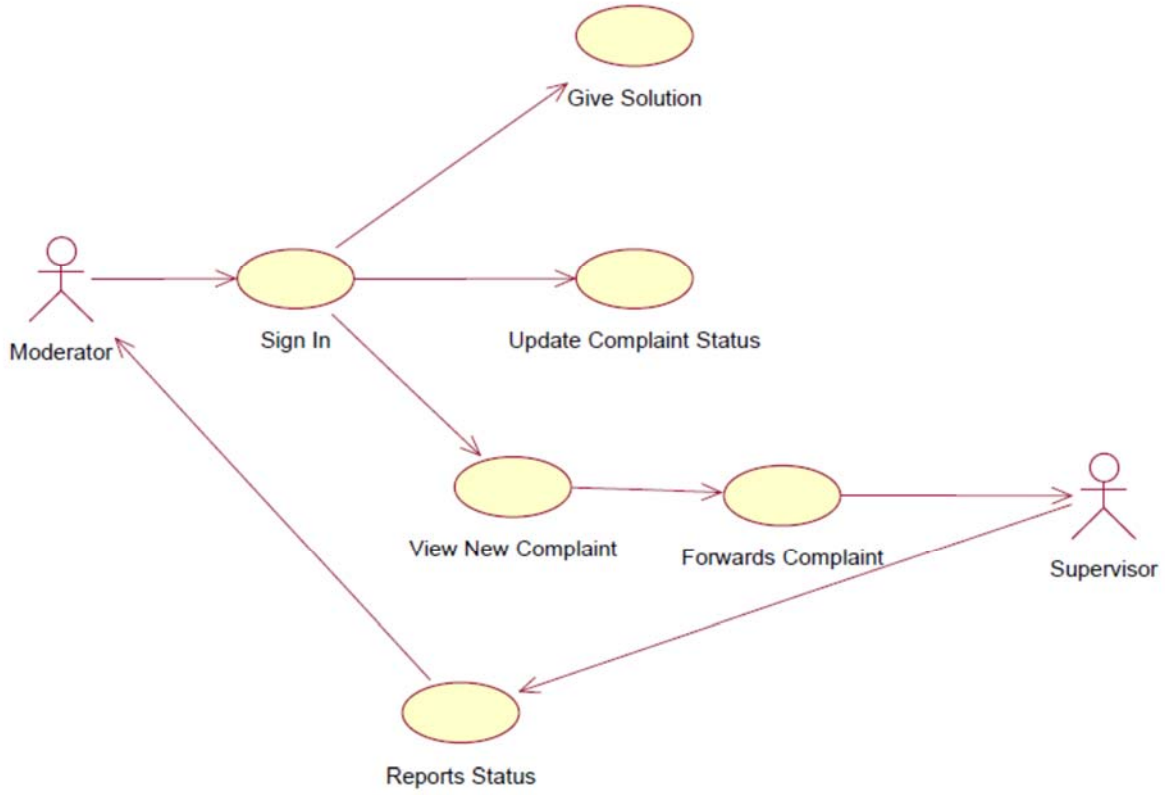
Visitor Use Case Diagram

Use Case	Description
SIGN UP	The Visitor enters his personal details using the Sign Up and submits it to the Portal.
VIEW COMPLAINT	The Visitor can view the old complaints posted by the City Residents and also their remedies provided by the City Employees.



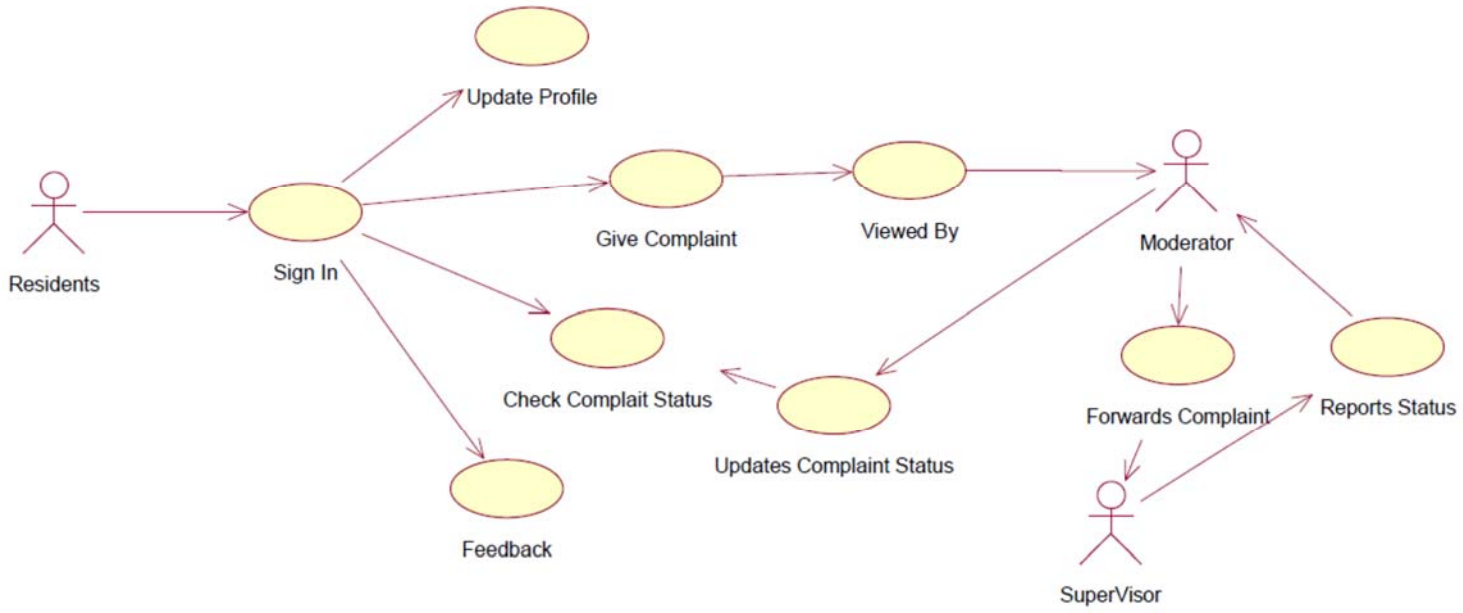
Admin Use-Case Diagram

Use Case	Description
SIGN IN	The Admin enters his credentials in order to access his account.
MANAGE DB	The Admin checks for any falsy data, if found undo's it.
VIEW PROFILE	The Admin can view the profiles of the City Employees and City Residents but he can't have an access to their secured credentials.
CHECK FEEDBACK	The Admin checks the feedback given by the City Residents.
MANAGE USERS	The Admin manages the profiles of the City Employees and the City Residents.
VIEW COMPLAINTS	The Admin views the complaints given by the Users regarding the maintenance of the Portal.
DELETE USERS	The Admin deletes the profiles of the Users who are injecting malware into the Portal or the users who are not abiding by the rules of the Portal.
DELETE IRRELEVANT COMPLAINTS	The Admin deletes the irrelevant complaints posted by the Users in the Portal.



City Employee Use-Case Diagram

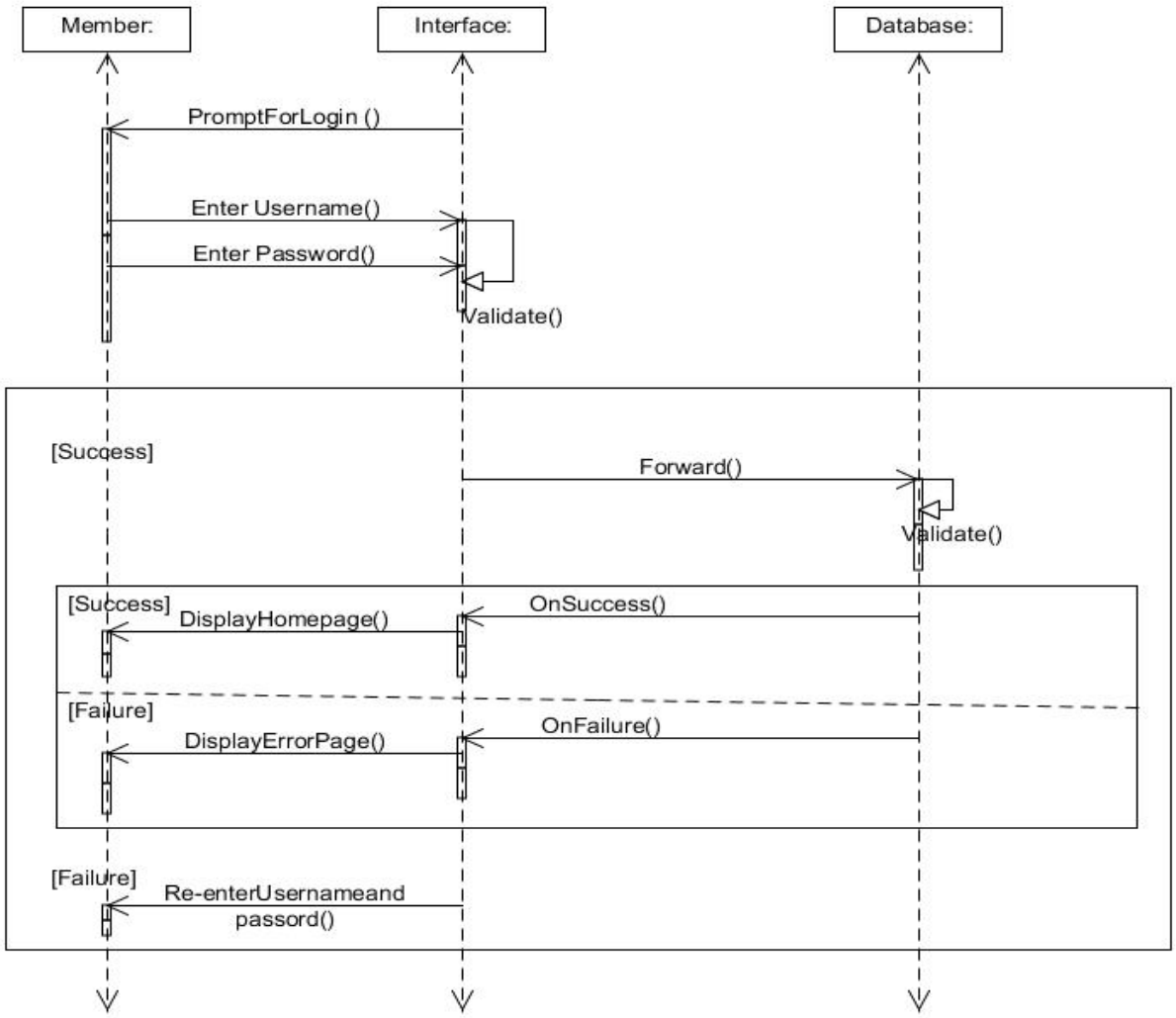
Use Case	Description
SIGN IN	The Moderator (City Employee) enters into his profile using the Sign In by submitting his credentials to the Portal.
UPDATE COMPLAINT STATUS	The Moderator (City Employee) updates the status of the complaint in reference to the progress of it.
VIEW NEW COMPLAINT	The Moderator (City Employee) views the new complaints given by the City Residents if any.
REPORT STATUS	The Supervisor reports to the Moderator (City Employee) regarding the progress of the complaint.
GIVE SOLUTION	The Moderator (City Employee) gives solution to the complaints sent by the City Residents.
FORWARDS COMPLAINT	The Moderator (City Employee) forwards the complaint to the Supervisor to take action on that.



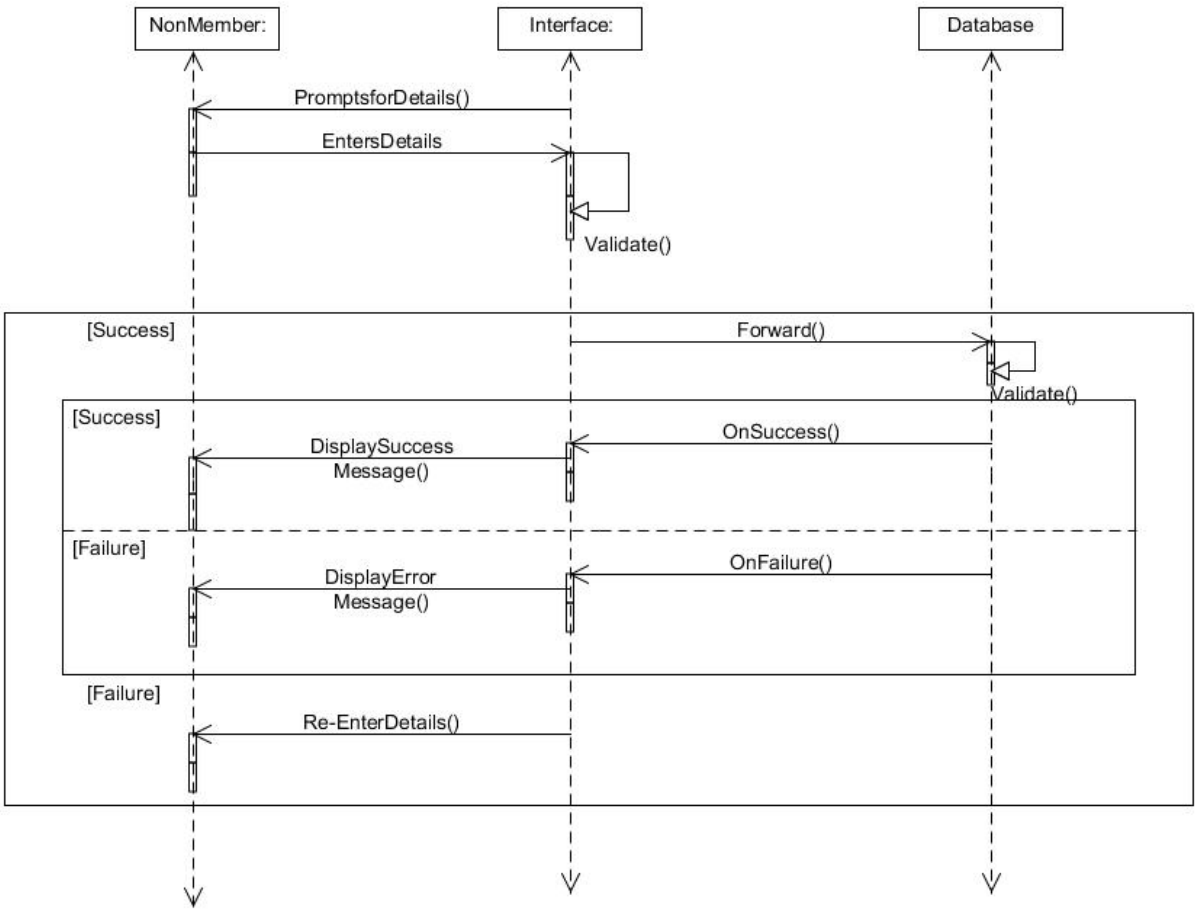
Residents Use-Case Diagram

Use Case	Description
SIGN IN	The City Residents sign in into the Portal submitting their appropriate credentials.
UPDATE PROFILE	The City Residents update their profile which contains the data originally submitted by them to the Portal.
GIVE COMPLAINT	The City Residents give complaints to the Portal using the template forms respectively.
CHECK COMPLAINT STATUS	The City Residents check the complaint status updated by the Moderator (City Employee).
FEEDBACK	The City Residents give feedback regarding the services provided by the City Employees and also regarding the status of their complaint.
VIEWED BY	The complaint given by the City Resident is viewed by the Moderator (City Employee).
UPDATE COMPLAINT STATUS	The Moderator (City Employee) updates the complaint status according to the progress in recovering the situation.
FORWARDS COMPLAINT	The Moderator (City Employee) forwards the complaint to the Supervisor after checking it.

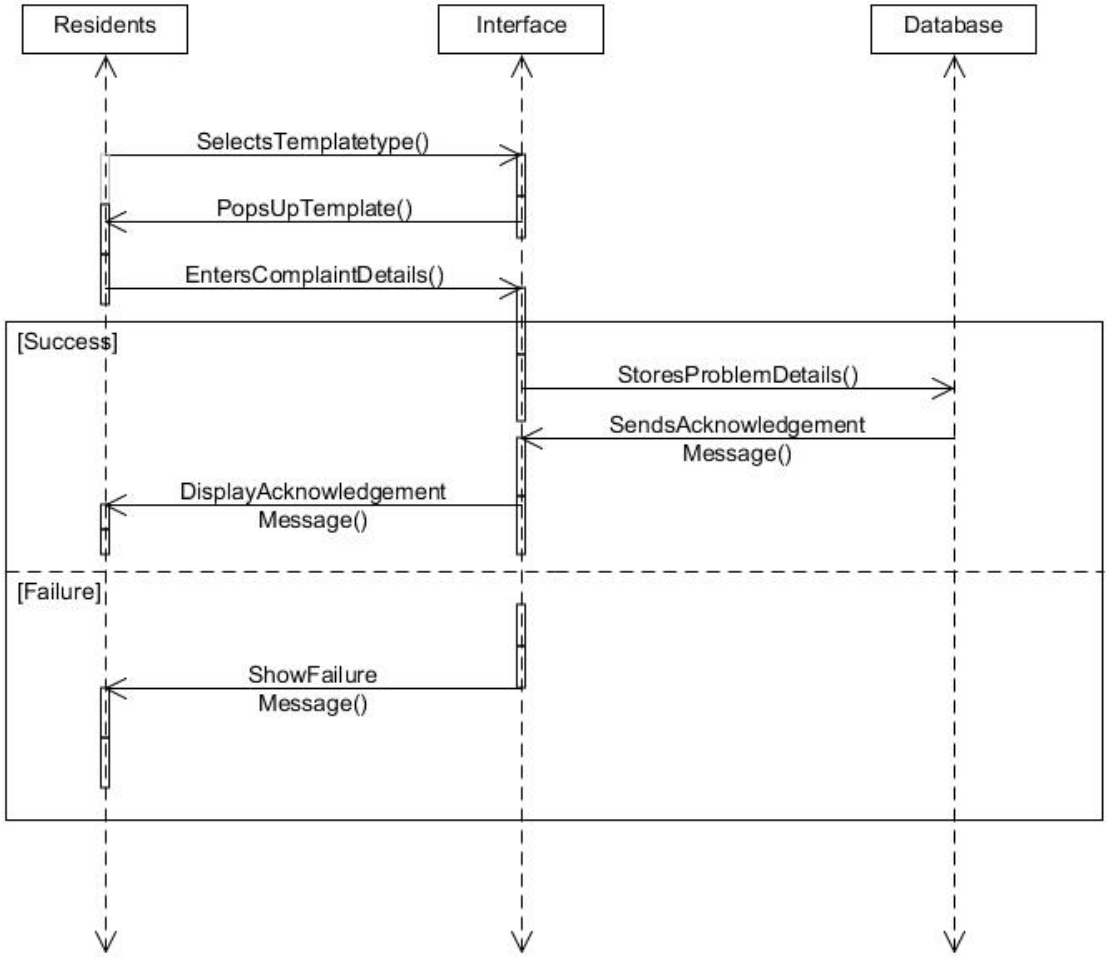
3.2 Sequence Diagrams:



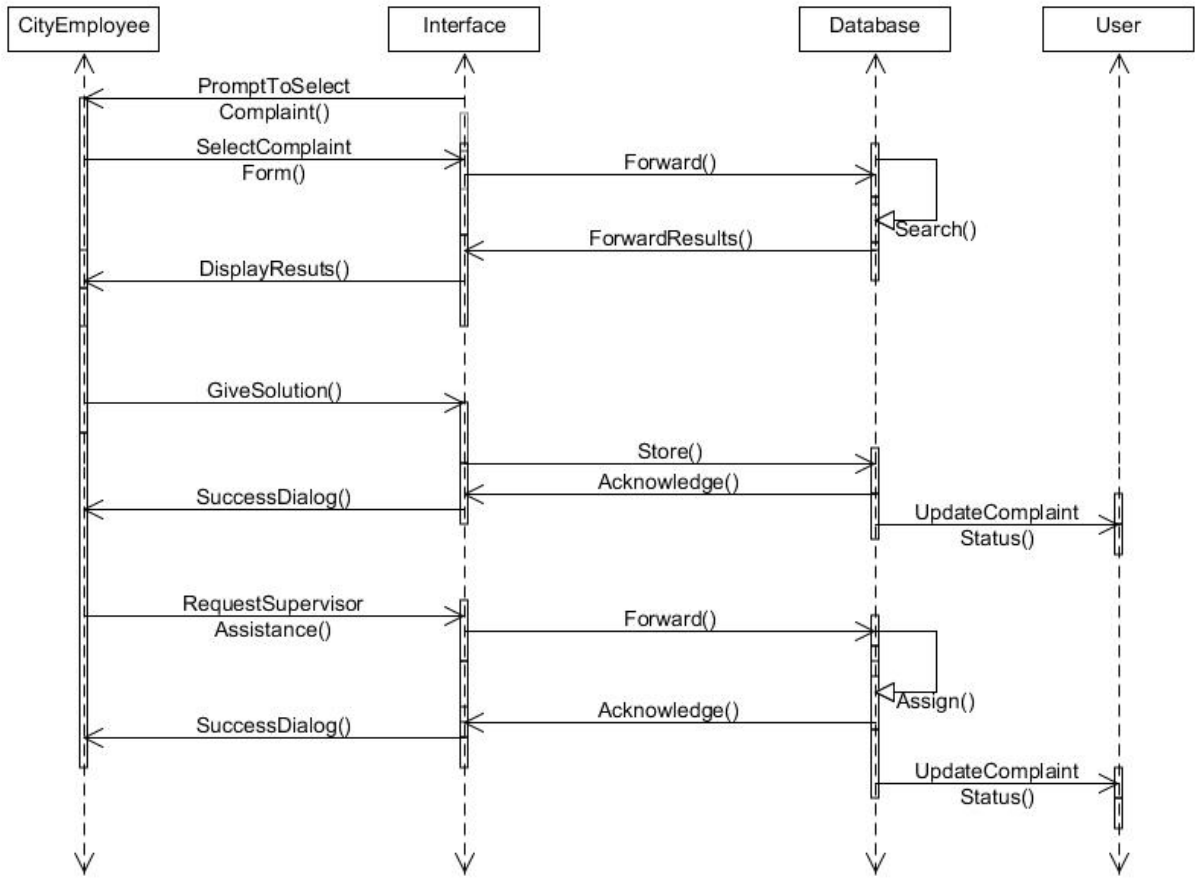
Sequence Diagram Representing Login Process



Sequence Diagram Representing new user sign-up



Sequence Diagram Representing Resident Accessing Templates



Sequence Diagram Representing City Employee viewing complaints