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Road Fix-it

Analysis & Design Document

Muhammad Tanzeel Saleem
Muhammad Nasir Khurshid
Muhammad Bilal Arif

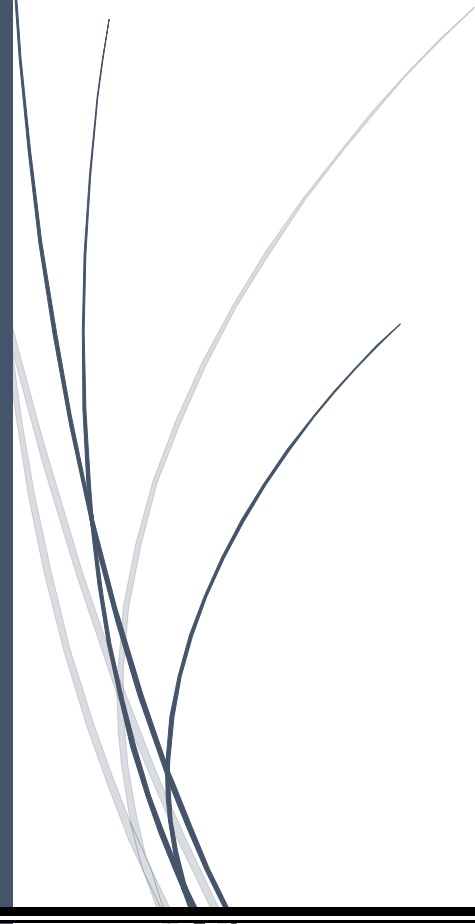


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1. Software Requirement Specification

1.1. Introduction:

A software requirement specification is a document that provides an overview of the subject “Road Fix-it”. Its primary purpose is to provide a clear and descriptive statement of user requirements of that it can be used for further development of the software. Software requirement specification contains problem statement, relative work, project overview, project scope, project objective, functional and non-functional requirements, Use cases and their detailed descriptions, and Interaction between user and system.

SRS also defines the user’s characteristics and operating environments. The software requirement specifications describe the details, that how the system is expected to perform in different scenarios.

1.2. Problem Statement:

Nowadays traveling is an important part of our lives. Mostly traveling is being done through, roads but roads cause a lot of accidents per day, moreover damaged roads may damage vehicles. Many accidents occur due to depilated roads which include water lagging, potholes, garbage, etc. For smooth traveling, the quality of roads is very important.

The system of lodging complaints with the road damaged department is not properly known by the public due to which they could not lodge their complaint about misappropriation and depilation of roads.

1.3. Scope:

RFI allows users to lodge complaints about road problems.

The main functionalities of the system are:

- Users must turn on their GPS.
- Users enter their phone number (first time only).
- Users can select a problem.
- Users can take a snap and add some detail if he/she wants.
- Admin has to log in to verify the complaint.
- The system will allow users to enter his/her phone number.
- The system will allow users to on GPS on their phones.

1.4. Functional Requirements:

The major functional requirements are:

- User must turn on its GPS.
- Users enter their phone number (first time only).
- User can select problem.
- User can take a snap and add detail if he/she wants.
- Admin has to log in to verify and then approve the complaint.
- The system will allow users to enter his/her phone number.
- The system will allow users to on GPS on their phones.

1.5. Non-Functional Requirements:

The non-functional requirements are:

- Application should not take more than 3 seconds to open.

- When an application gets interrupted by a call, then the application should discard selected information and move to the first page.
- Users should be able to understand the flow of the application easily.
- Application should not be restricted to a specific android version.
- The availability of the software should be easily and for everyone.

1.6. Actors:

The actor uses the system to achieve the goal. The use case documents the interaction between the system and the actors to achieve the goal.

- User
- Admin

1.7. List of Use Cases:

The list of use cases according to the user is following:

i. Admin Use Cases:

- Admin login
- Admin signup
- Verify complaint
- View locations.
- View problems
- View detailed data
- View specific data
- Admin logout

ii. User Use Cases:

- Enter a phone number

- Get location
- Select problem
- Take image and add some detail (optional).
- Lodge complaint
- Use microphone

1.8. Software System Attributes:

Following are the software system attributes:

i. Reliability:

- The probability of failure is zero.
- The system shall never crash other than as the result of an operating system error.
- If an error occurs, then it will display an appropriate message.
- The reliability of the system is approximately more than 90%.

ii. Availability:

For availability, it requires the following conditions:

- Internet connection
- Database connection

iii. Security:

- System has two types of users and every user has access constraints.
- If an admin tries to login with the wrong password the system will display error.

iv. Maintainability:

If there is any fault detected in the future, then it will be easy to correct and modify the existing code. The

application and web can also be upgraded for new features.

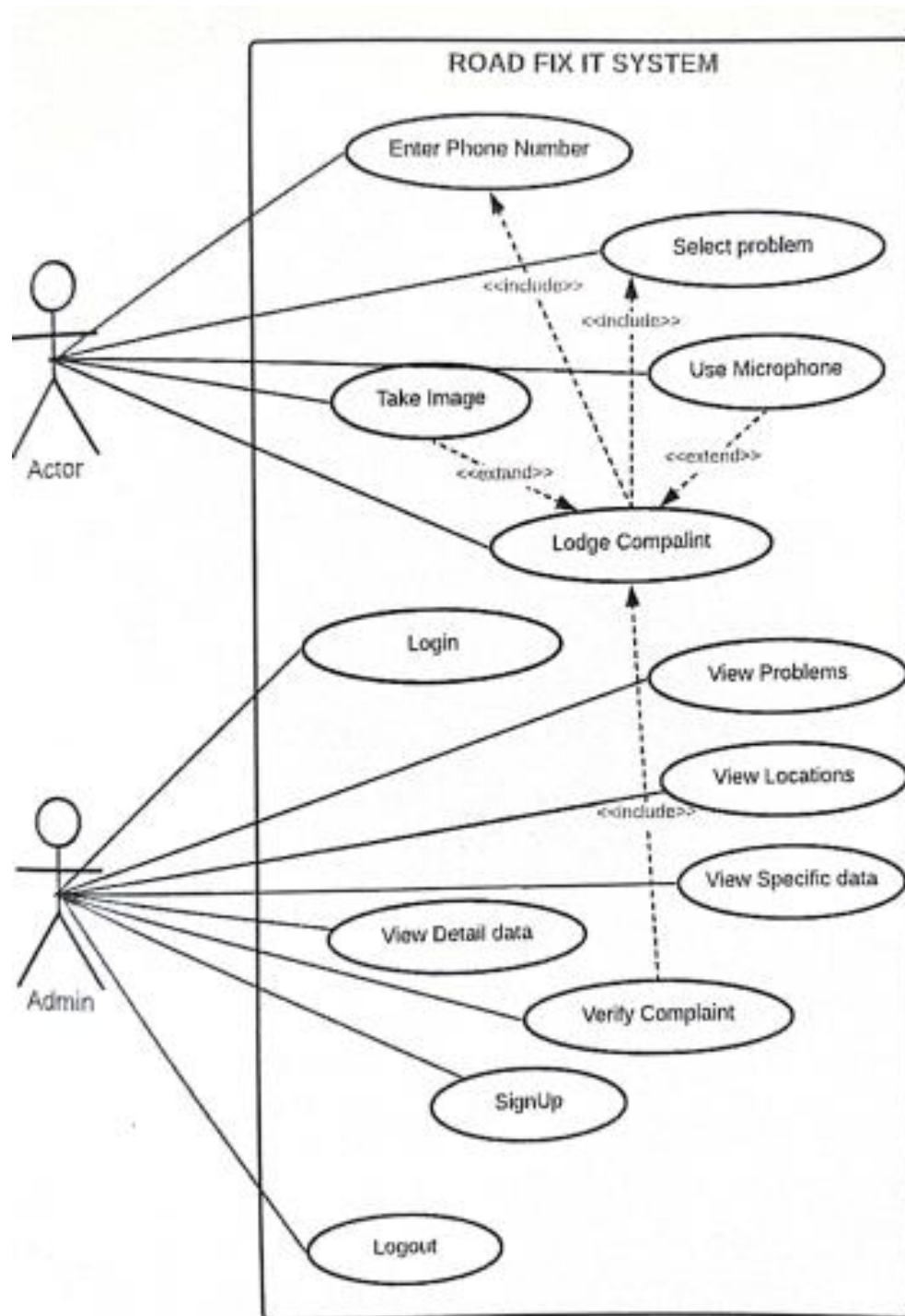
v. Portability:

The application will run on tan android phone which is a portable device so users can use this app anywhere, at any time and website will run on a desktop.

vi. Performance:

- The application should not take more than 3-5 seconds to open.
- User interface should be opened in a maximum of 5 seconds.
- The response time of the application should not more than 5 seconds.

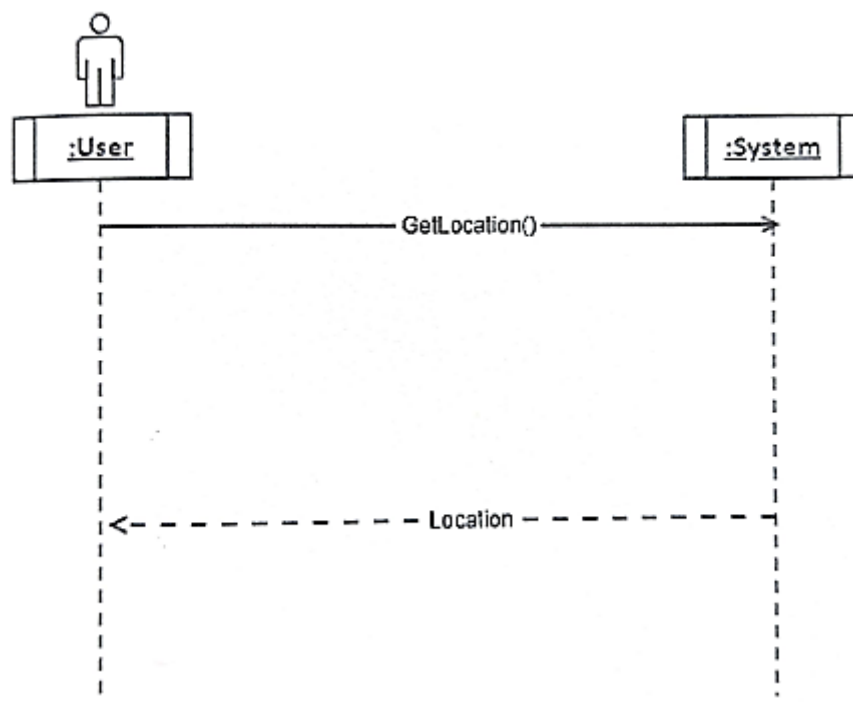
2. Use Case Diagram:



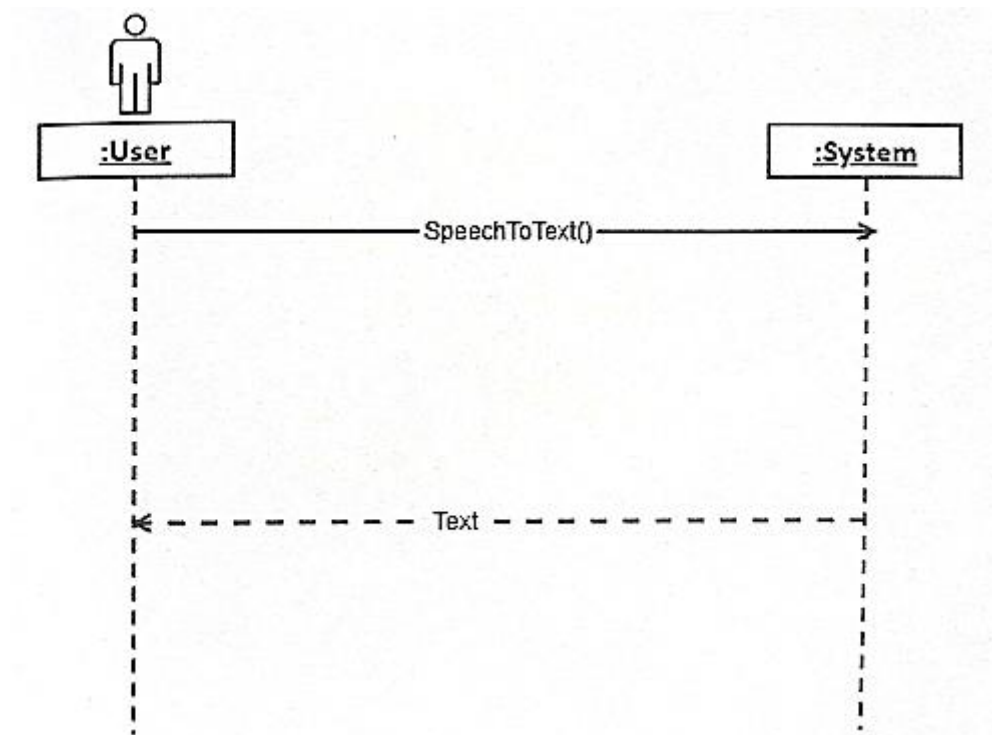
3. System Sequence Diagram:

A system sequence diagram is a diagram that shows the interaction between user and system. The diagram illustrates the input and output events related to our system. It shows a scenario of a use case, events that external actors generate their order, and possible inter-system events.

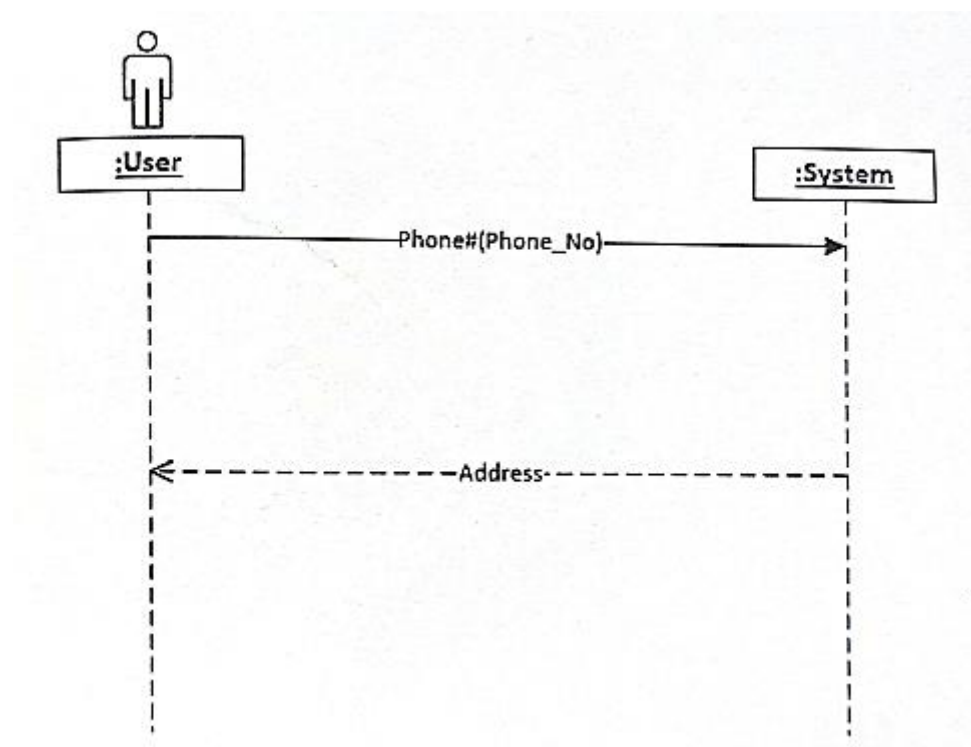
i. Get Location



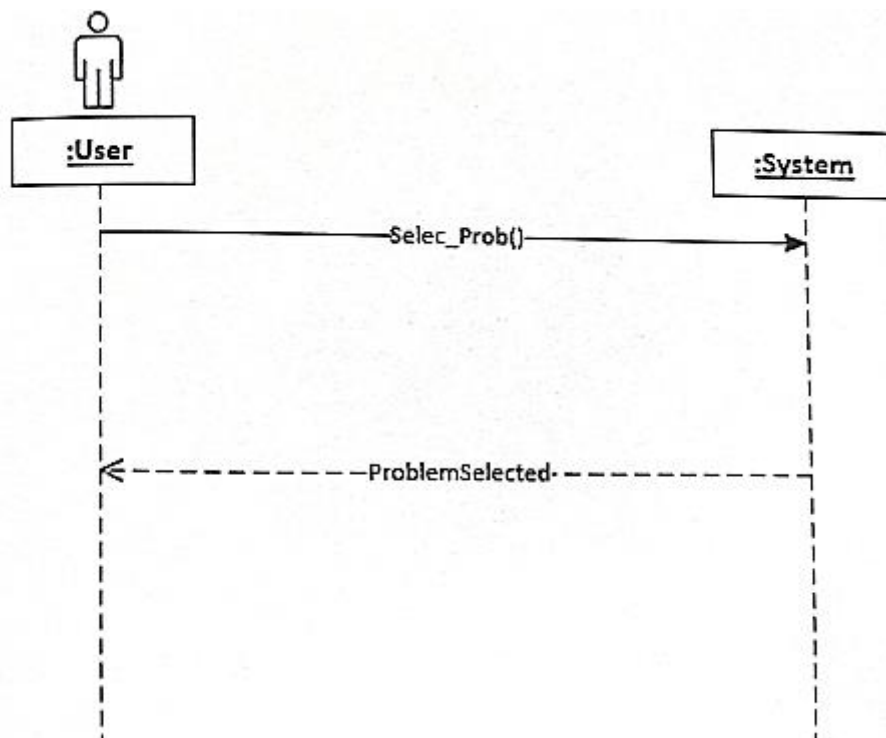
ii. Microphone



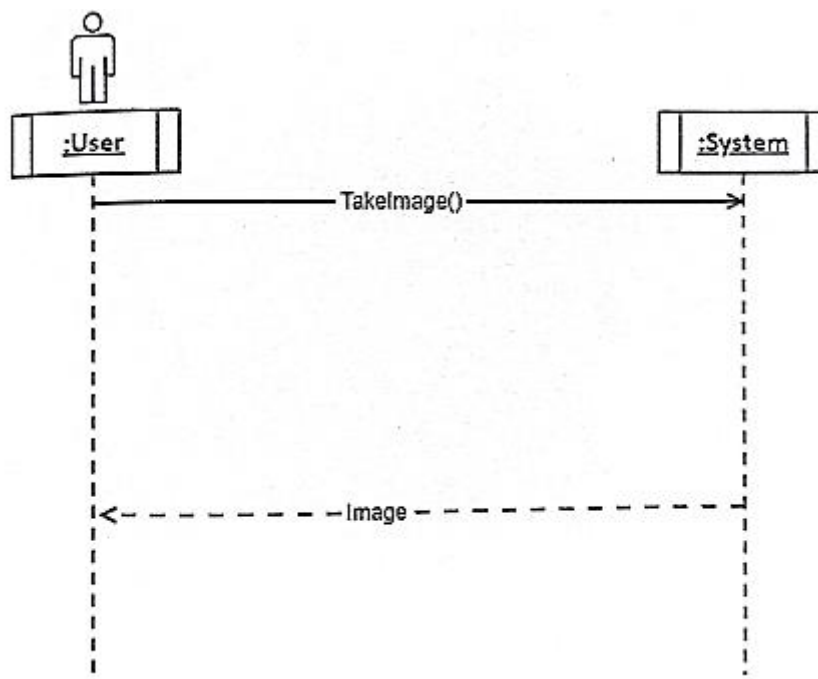
iii. Enter Phone Number



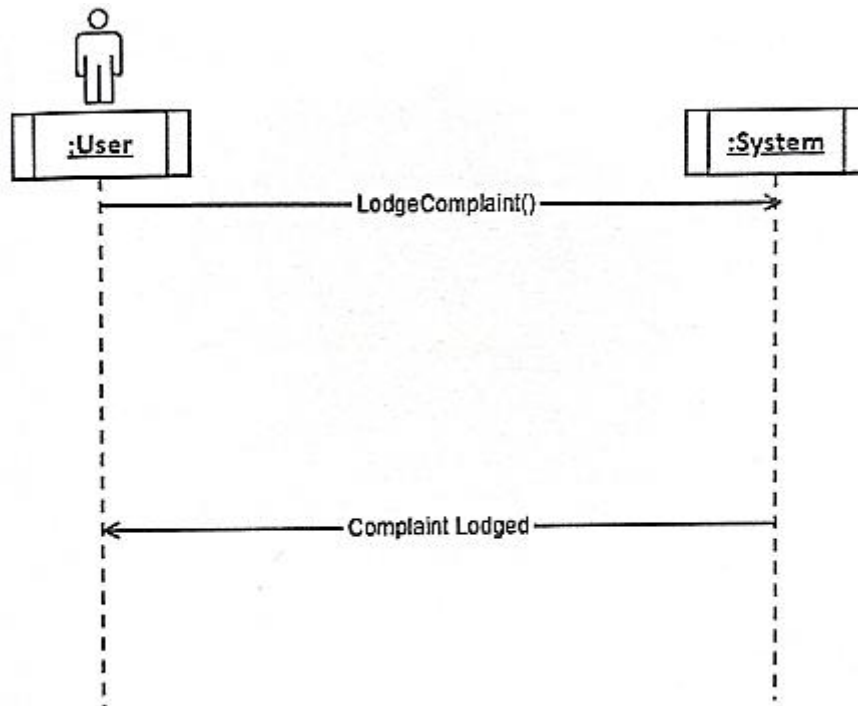
iv. Select Problem



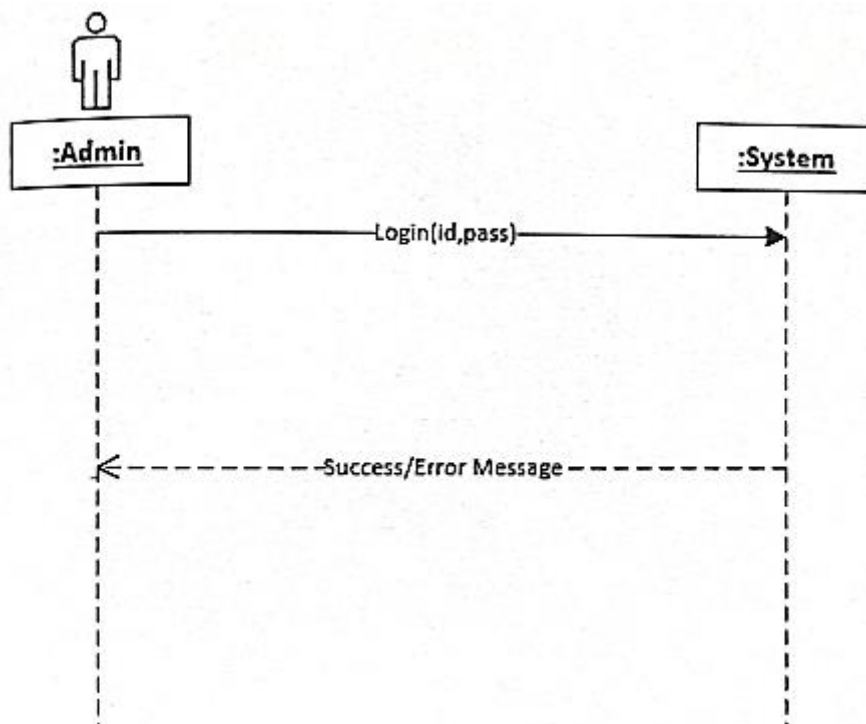
v. Take Image



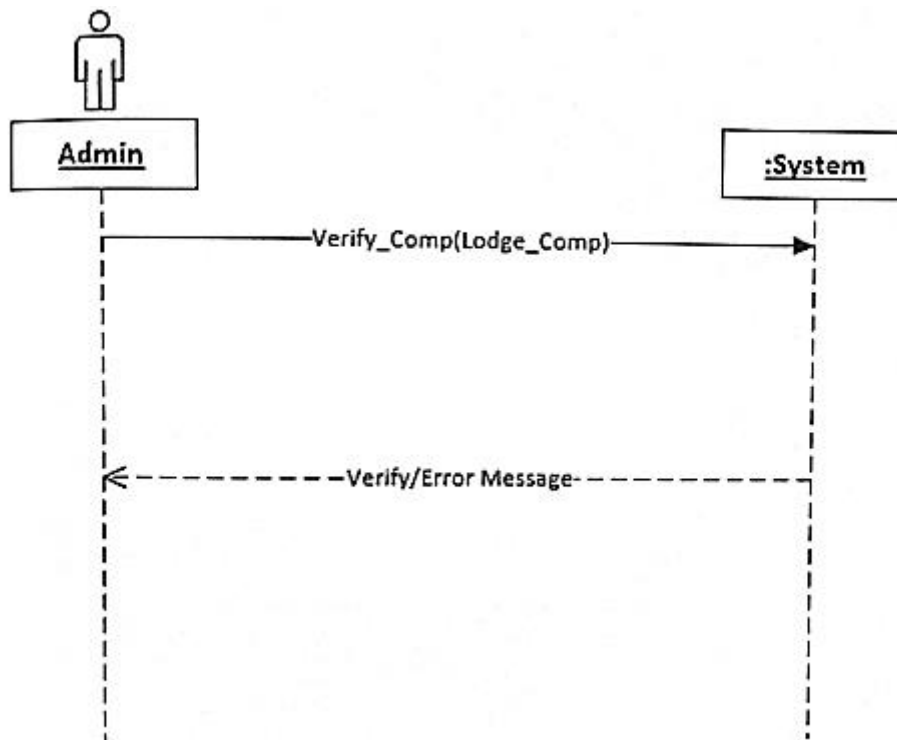
vi. Lodge Complaint



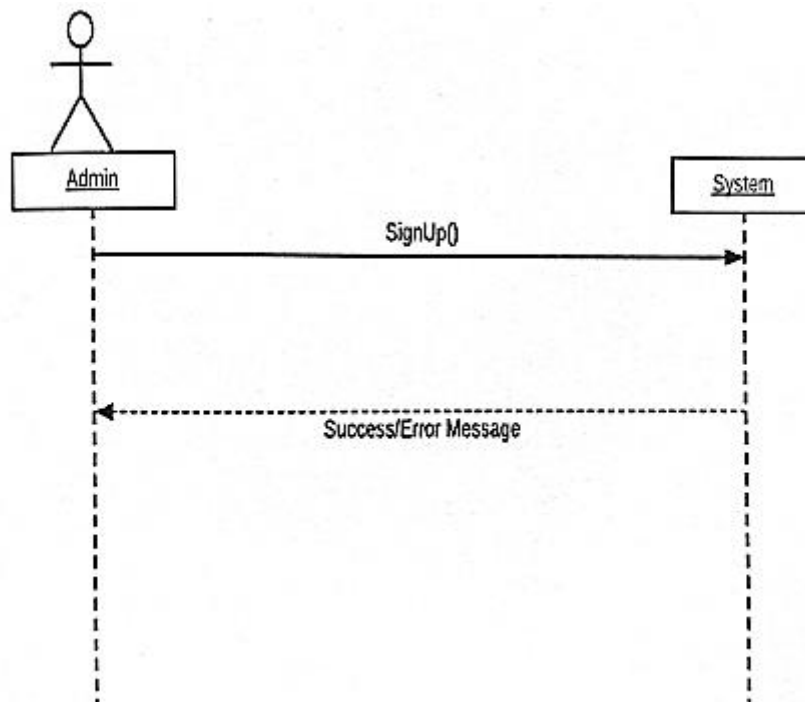
vii. Admin Login



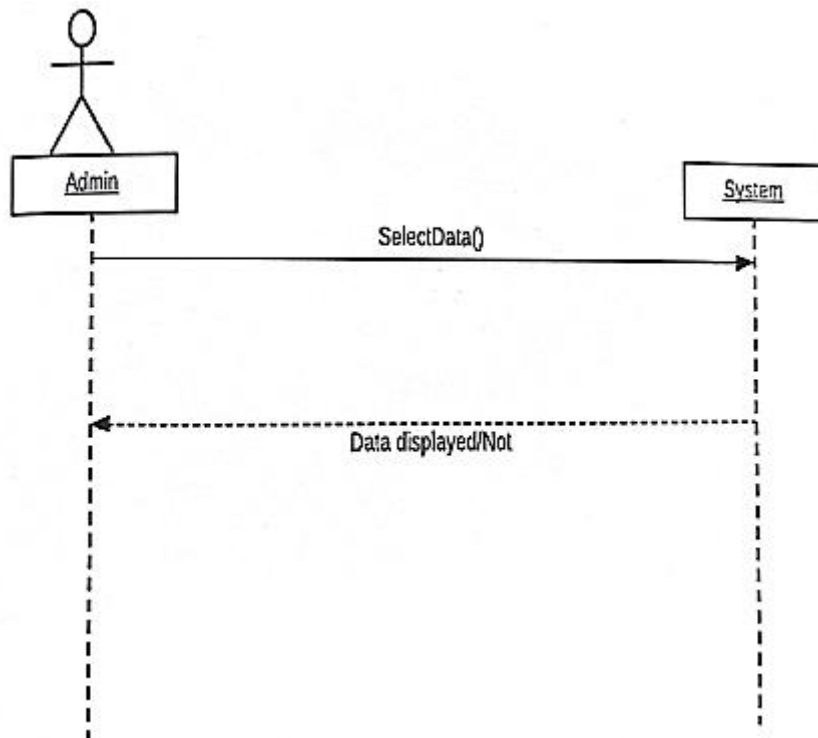
viii. Verify Complaint



ix. Admin Sign Up

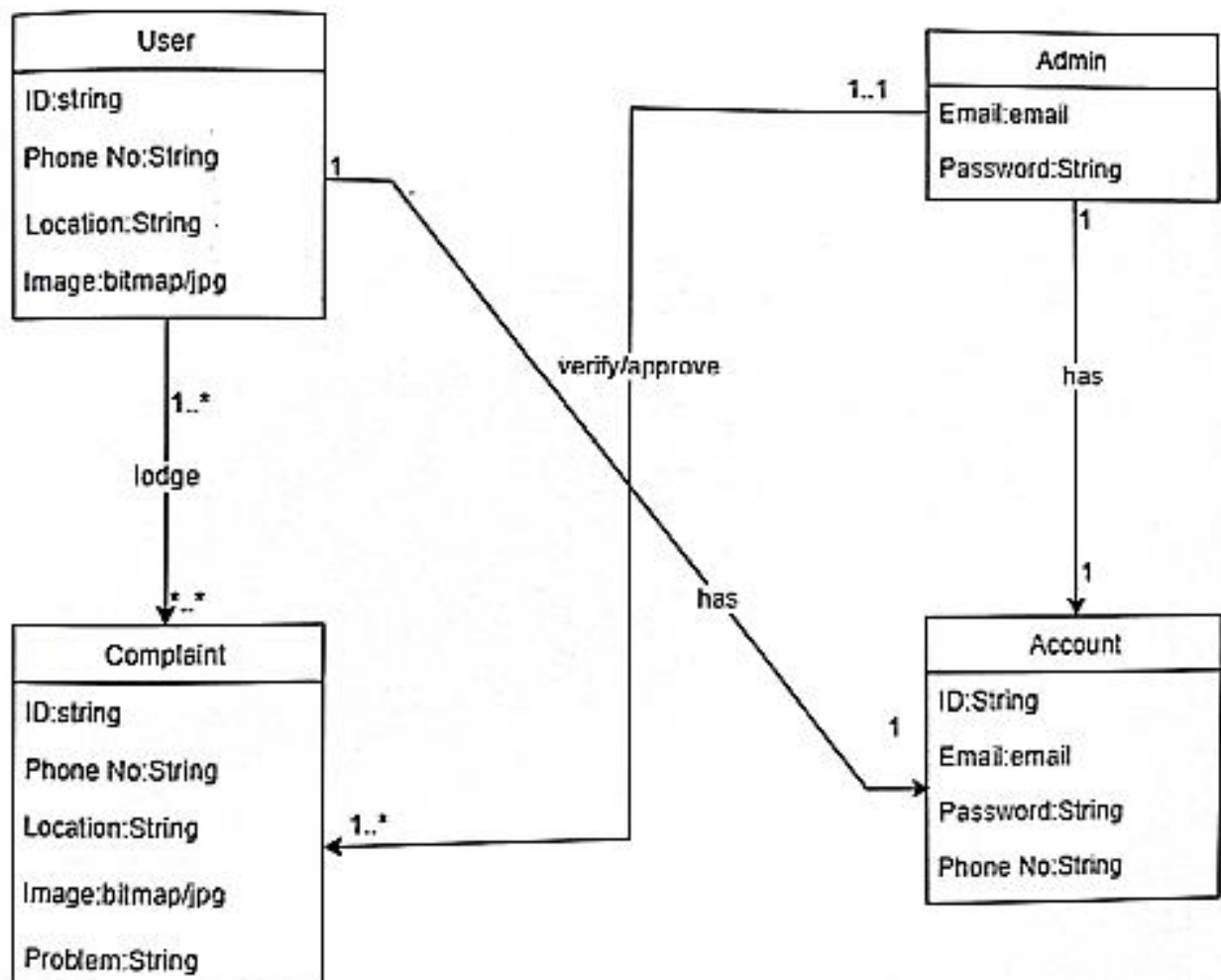


x. Select Data



4. Domain Model:

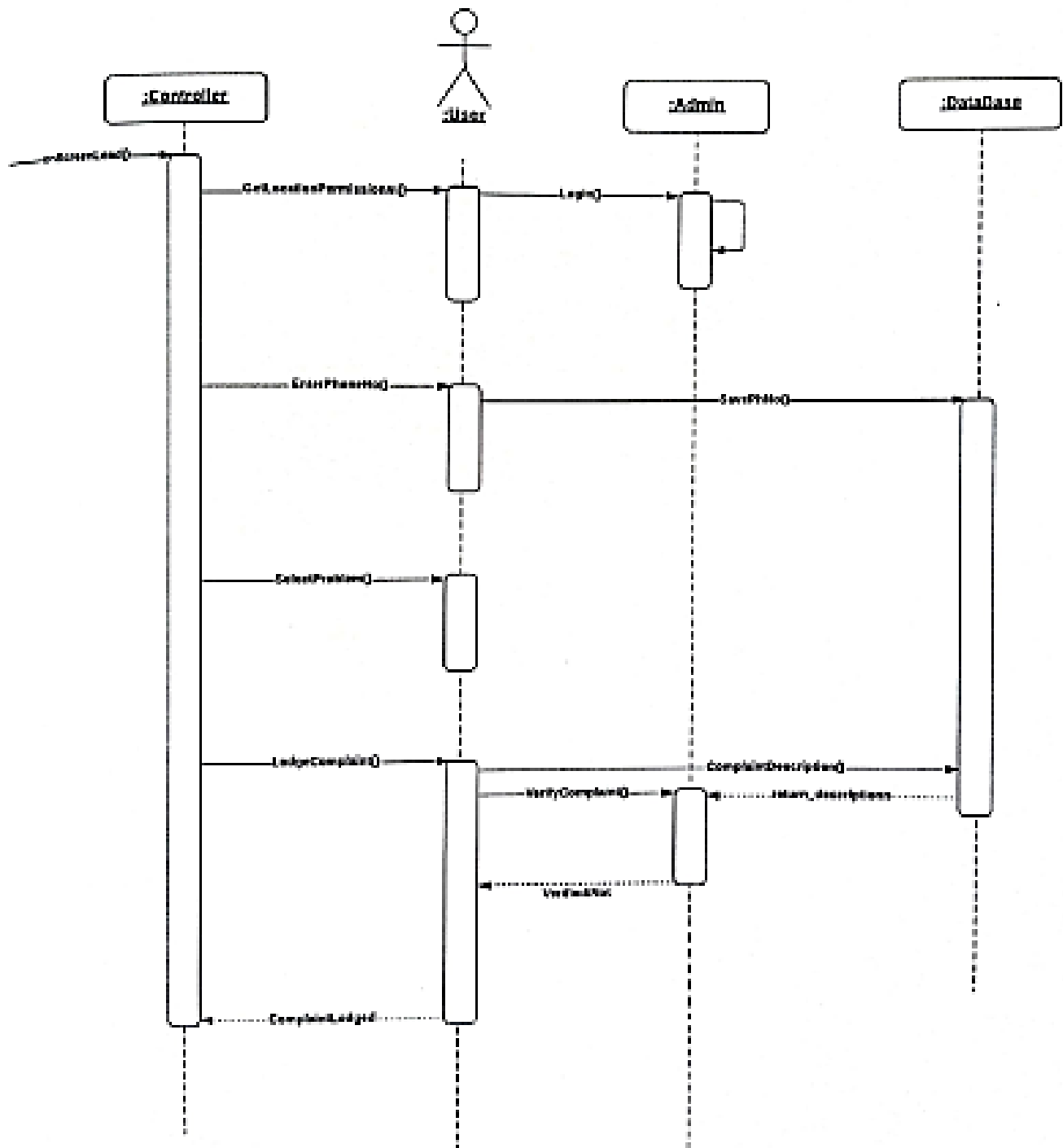
The domain model is an object model of the problem domain. It is based on real-world conceptual classes/concepts and their relationships, that is used to identify the relationships among all the entities within the scope of the problem domain.



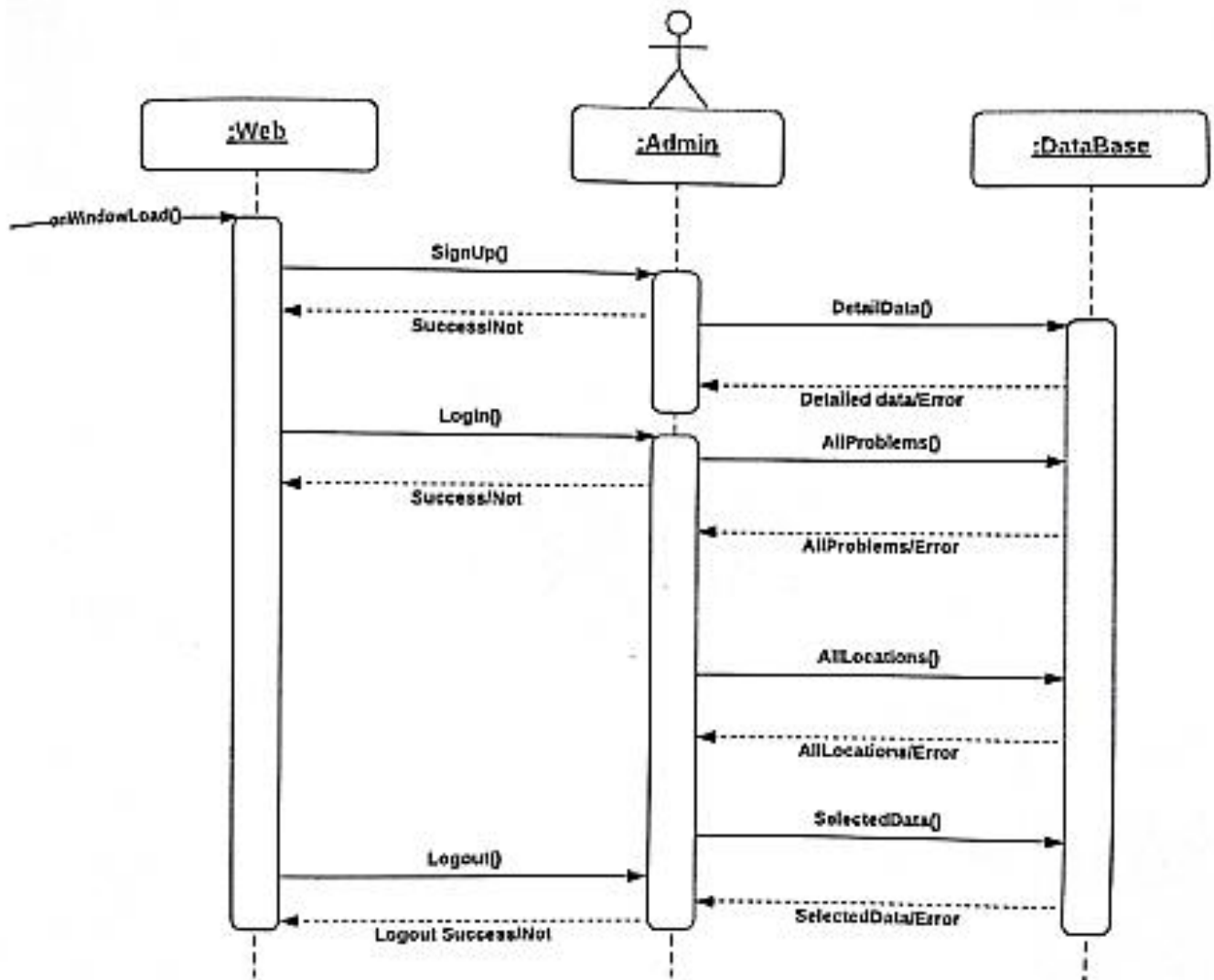
5. System Design Specification

5.1. Sequence Diagrams

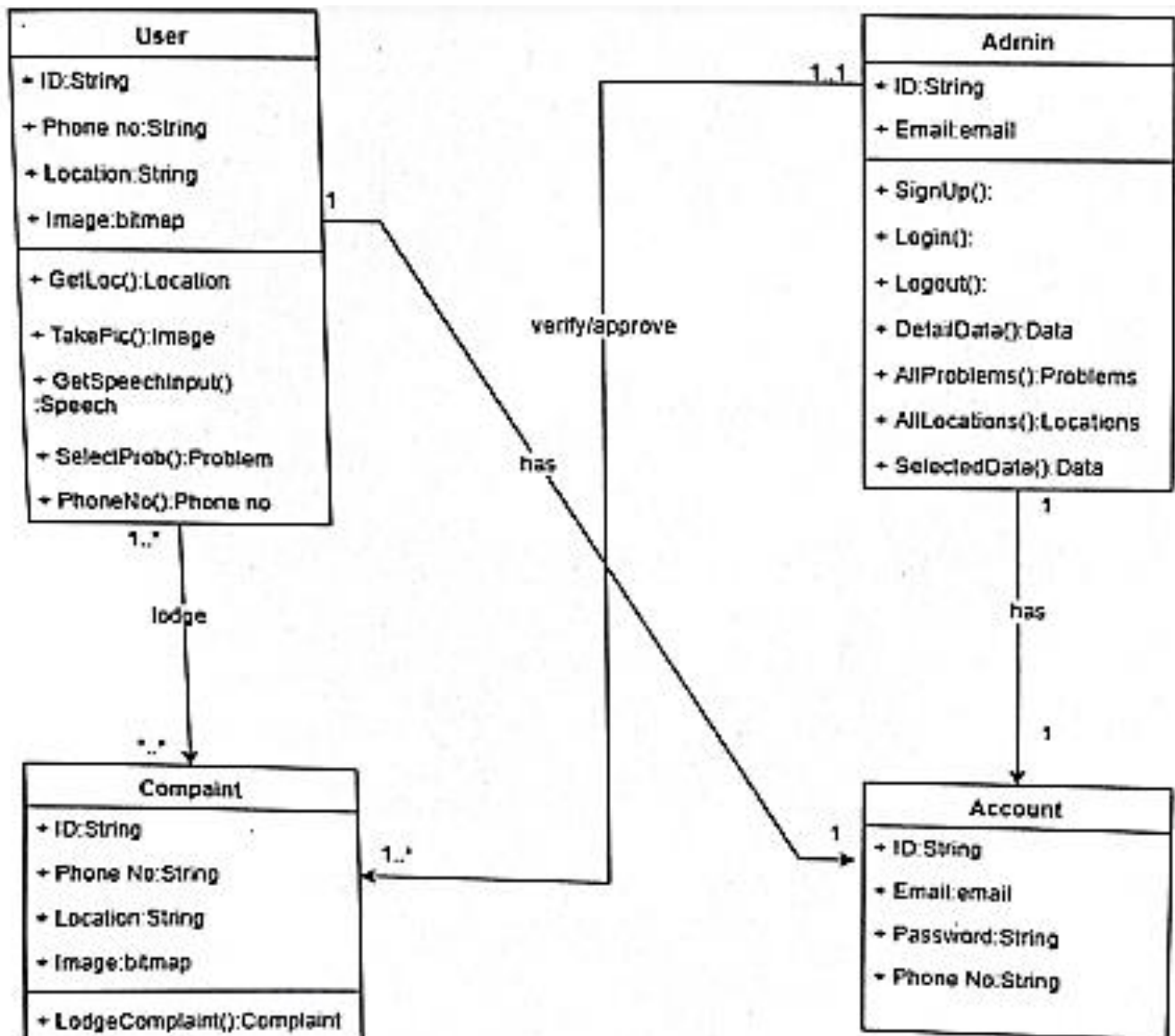
i. Sequence Diagram of Android System



ii. Sequence Diagram of Website



5.2. Class Diagram:



6. Software Testing:

6.1. Introduction

Software test document is a type of document under which tester will determine whether a system under test works correctly. The process of developing test cases can also help to find problems in the requirements or design of application. This section describes the objectives and extends of the tests.

6.2. System Overview

This section focusing on the structural aspects of testing, provides an overview of the system in terms of the components that are tested during the unit test.

6.3. Test Approach

A test approach is the test strategy implementation of a project, defines how testing will be carried out. I will use the acceptance test approach for testing the SP. Acceptance test is a test conducted to determine if the requirements of a specification are met. The main purpose of this test is to evaluate the system's compliance with the business requirements and verify if it is having met the required criteria for the delivery to end users.

6.4. Test Plan

A test plan outlines the strategy that will be used to test an application, the resources that will be used, and the test environment in which testing will be performed and the total time spent on testing.

- Features to be tested
- Location Permission
- Phone Number
- Select Problem
- Upload image and Add detail

- Mic Functionality
- Admin Login
- Verify Complaint
- Testing Tools and Environment
- Laptop/Computer
- Mobile Phone
- Internet Connection
- Test Cases

TC-1 Location Permission

Test ID	T001
Description	For complaint current location permission needed
Setup	Granted location permission
Instruction	Get real time location
Expected Result	User should get permission for location
Observed Result	As expected
Verdict	Pass

TC-2: Phone Number

Test ID	T002
Description	For complaint current location permission needed
Setup	Location already fetched
Instruction	Users enter phone number
Expected Result	Get user's phone number
Observed Result	As expected
Verdict	Pass

TC-3: Select Problem

Test ID	T003
Description	User can select road problem
Setup	1. Application should be open properly. 2. User location must be gotten. 3. Users Phone number also gotten.
Instruction	Users select problem from given list
Expected Result	Problem should be selected
Observed Result	As expected,
Verdict	Pass

TC-4: Upload Image and add detail

Test ID	T004
Description	For upload image and add detail
Setup	1. Application should be open properly. 2. User location must be gotten. 3. Users Phone number also gotten.
Instruction	User upload image and add detail
Expected Result	Image and detail uploaded/added successfully
Observed Result	As expected,
Verdict	Pass

TC-5: Mic Functionality

Test ID	T005
Description	User microphone for select problem
Setup	1. Application should be open properly. 2. User location must be gotten. 3. Users Phone number also gotten.
Instruction	Using mic user select problem
Expected Result	Problem selected successfully
Observed Result	As expected,
Verdict	Pass

TC-6: Admin login

Test ID	T006
Description	Admin login
Setup	Login to the system
Instruction	<ol style="list-style-type: none">1. Click on the application.2. Enter the Username.3. Enter the password.4. Click Login
Expected Result	Admin Login Successfully
Observed Result	As expected,
Verdict	Pass

TC-7: Verify Complaint

Test ID	T007
Description	Admin can verify complaint.
Setup	Pending complaint must be available for approval
Instruction	<ol style="list-style-type: none">1. Admin select the complaint.2. Check conditions.3. Click on Verify Button
Expected Result	Complaint should be verified.
Observed Result	As expected,
Verdict	Pass