Design Document

for

Infrastructure Complaint Reporting

Version 1.0

Prepared by Team 4:
(Based on SRS Version 2.1 prepared by Team 4)

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Project Owner: **Ankur Sharma**

Course: **CS4096 Software Engineering Laboratory**

Date: **01-March-2020**

Glossary

App	Application
IDE	Integrated Development Environment
UI	User Interface
Admin	College Administration
ER Diagram	Entity Relationship Diagram

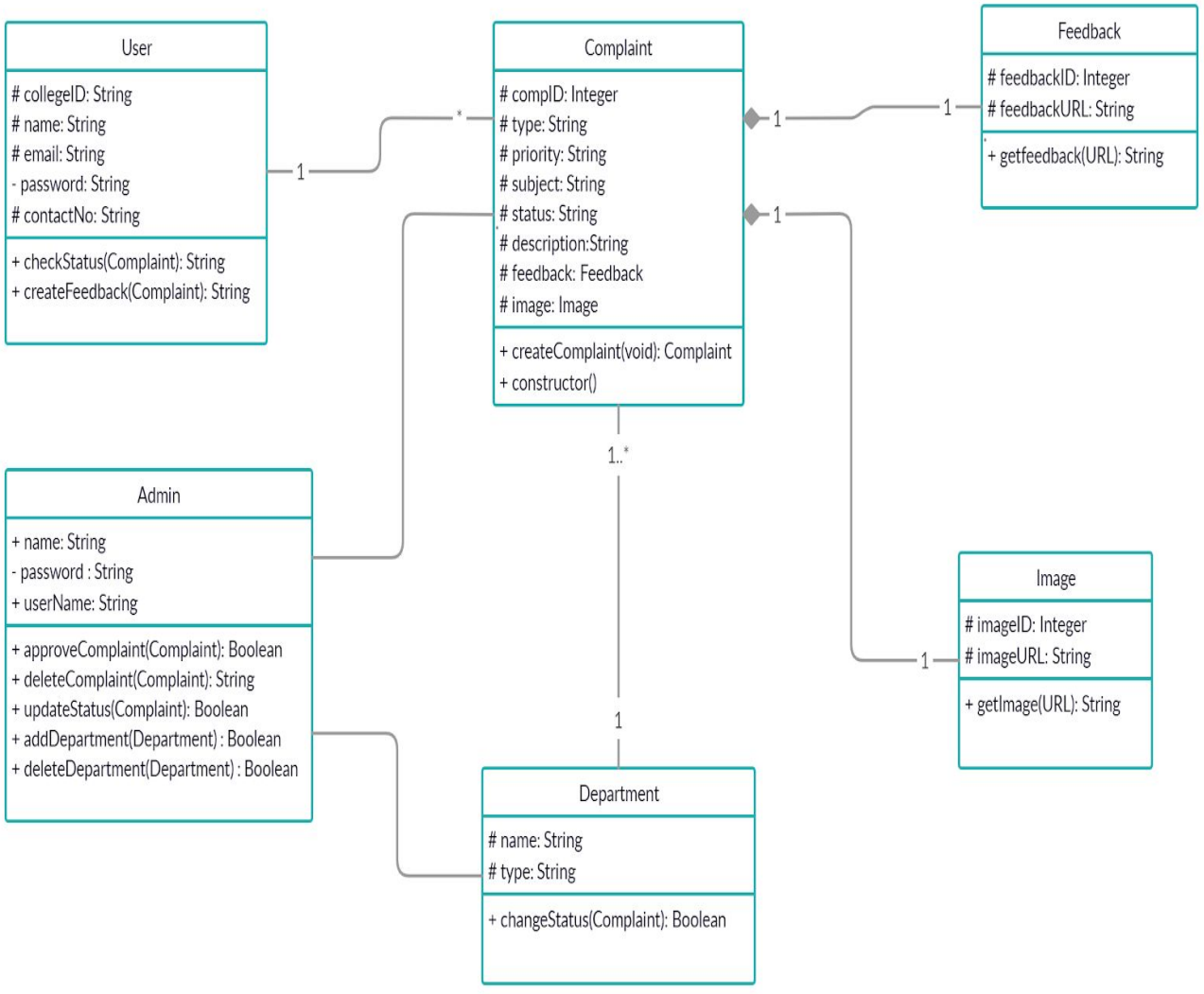
Table of contents

1. Detailed Design through UML diagrams

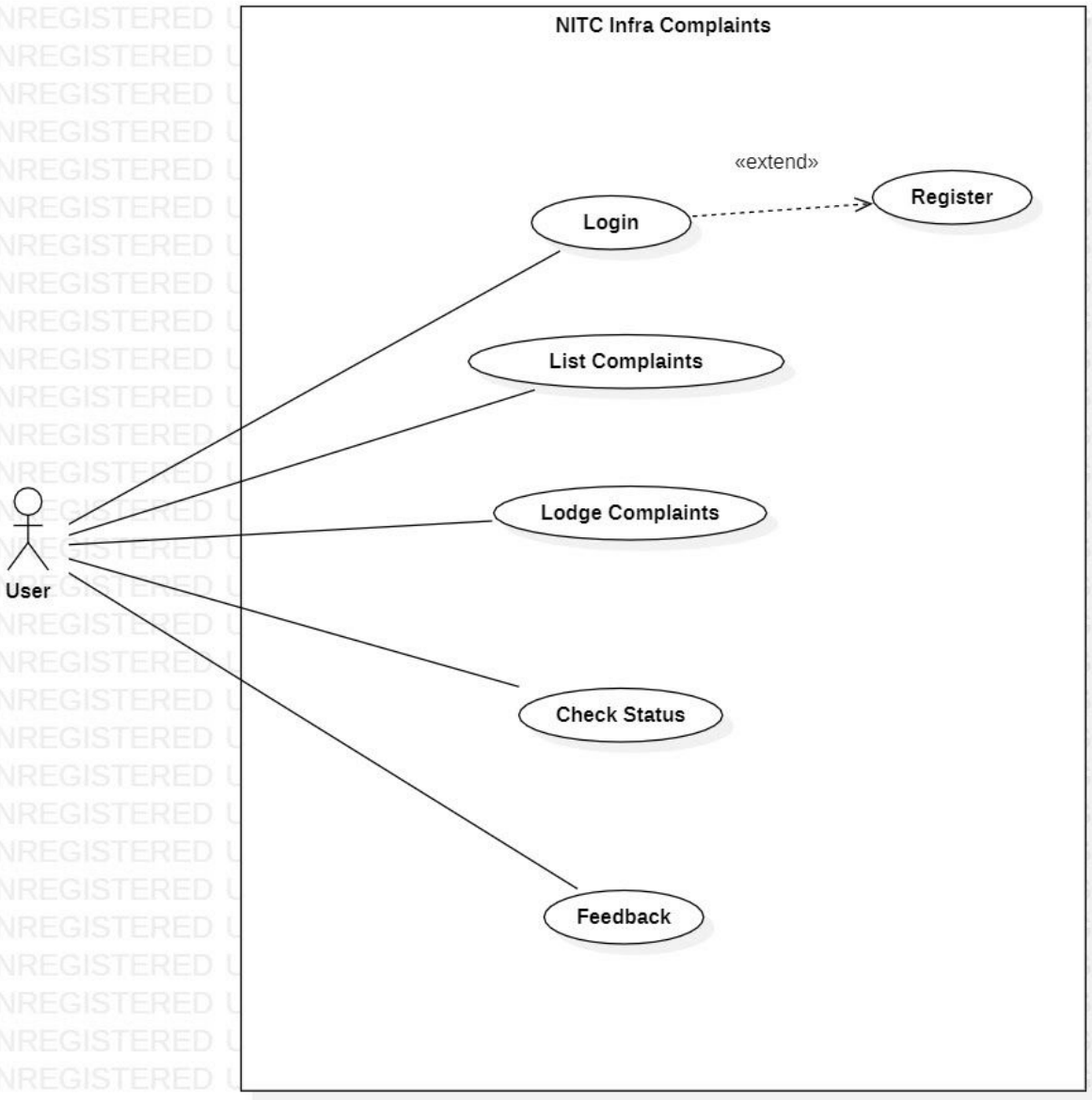
1.1 System model using Class Diagram

Class Diagram in the Unified Modelling Language 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 classes.

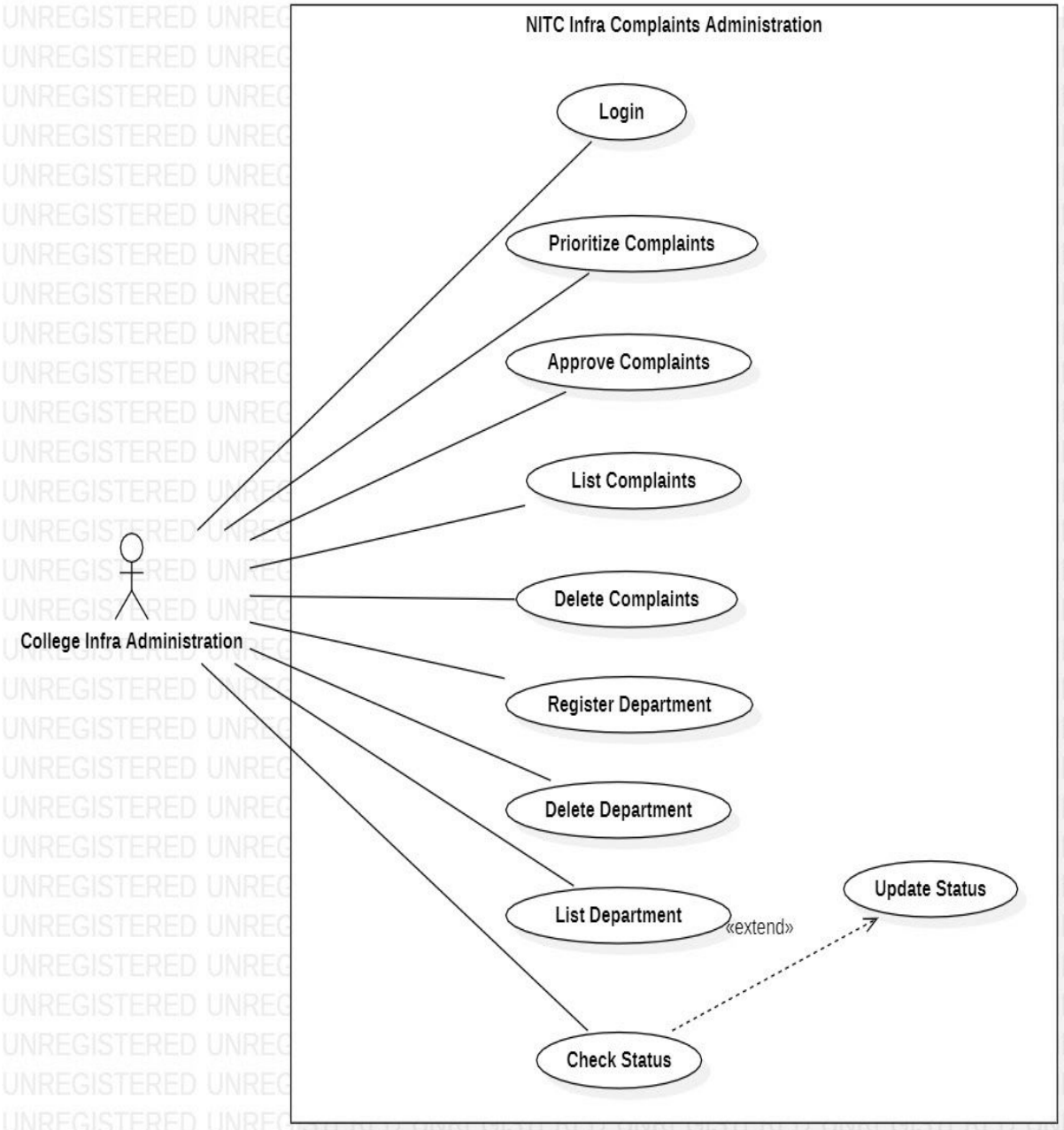
1.1.1 Class Diagram



1.2 Responsibilities - Use Case Diagram

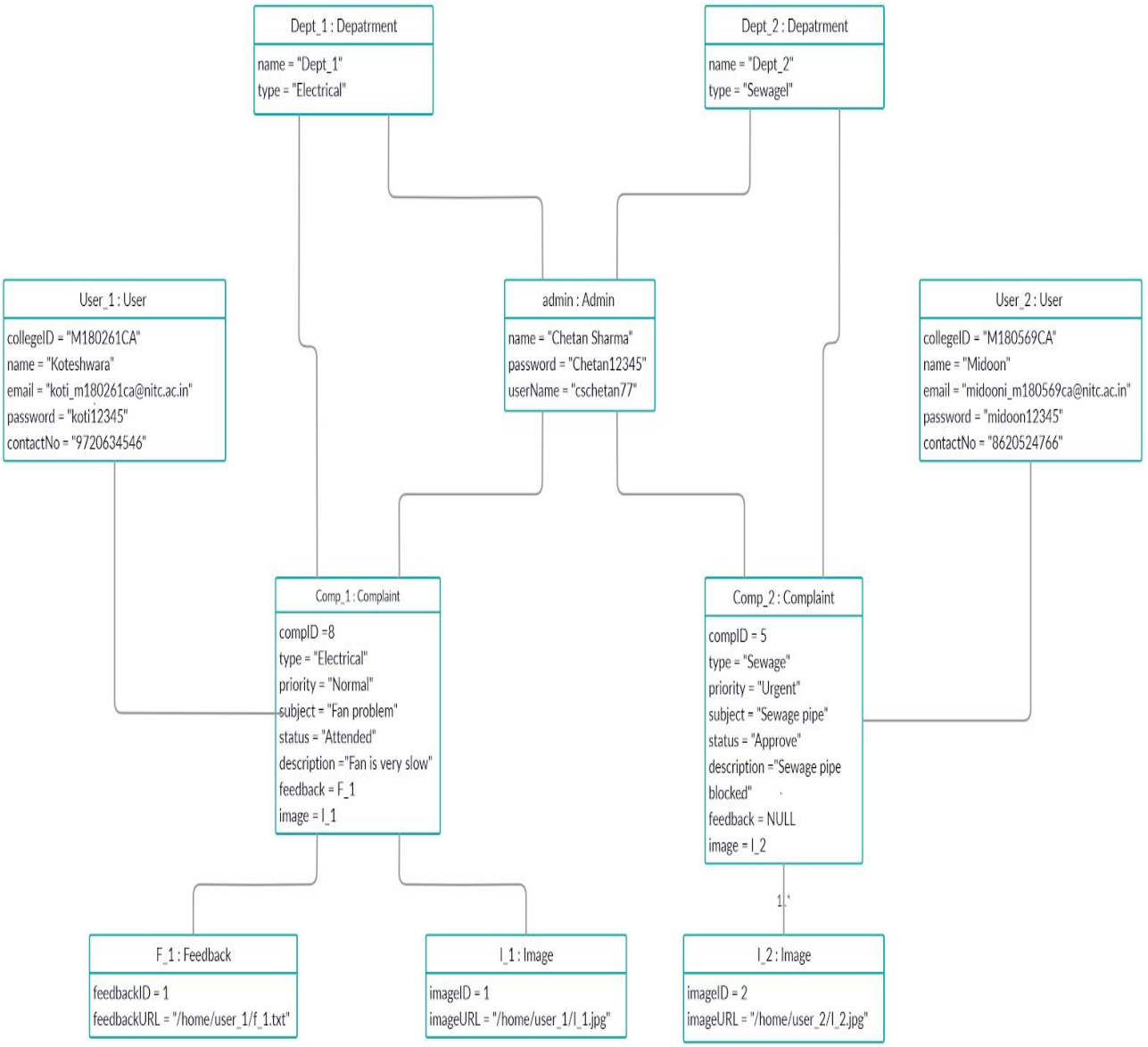


NITC Infra Complaints User App



NITC Infra Complaints Administration App

1.3 Static snapshot of the system - Object Diagram

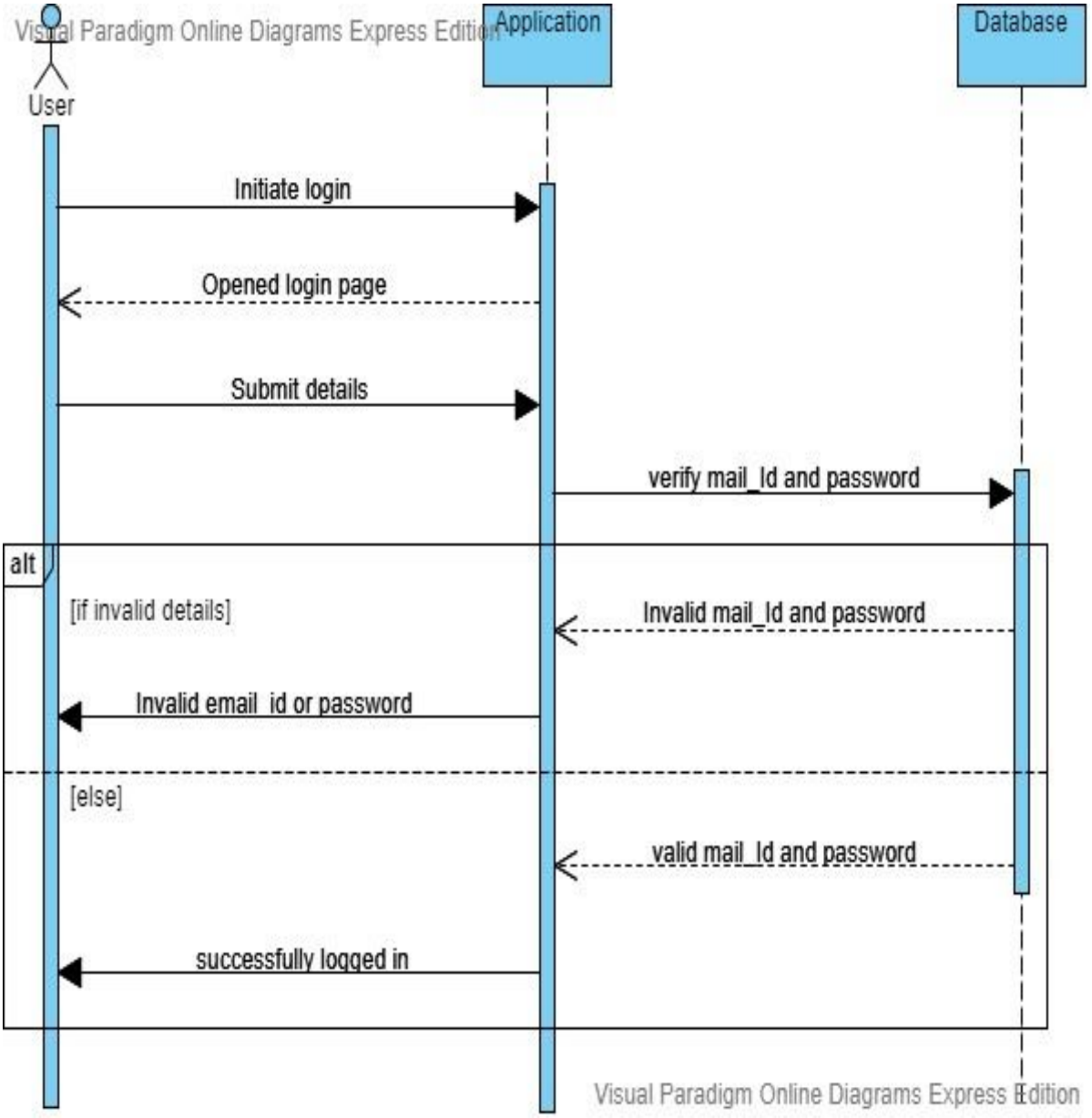


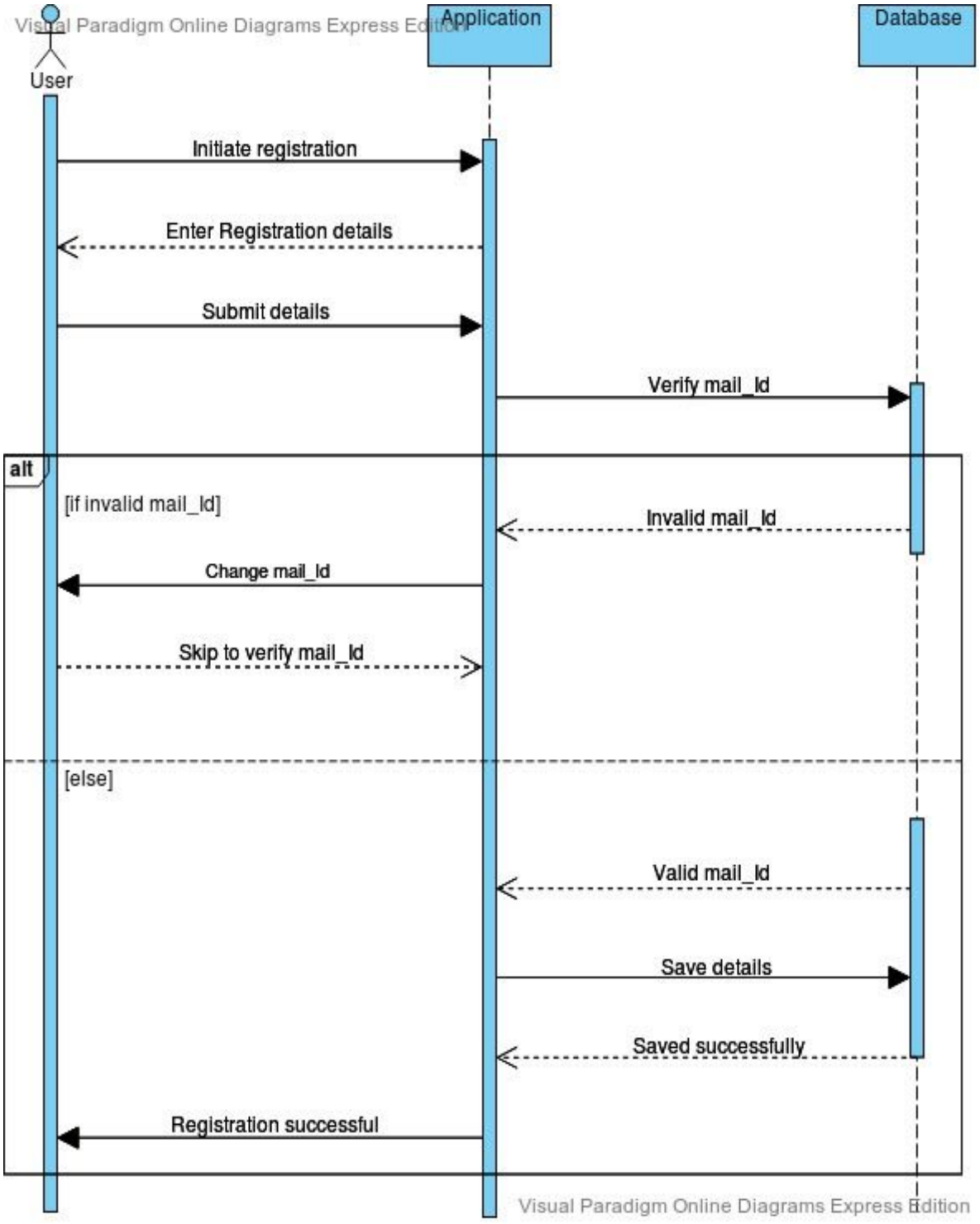
1.4 System Interactions through Sequence Diagrams

Sequence diagrams are interaction diagrams that show the sequence of messages exchanged by the set of objects performing a certain task. A sequence diagram shows, as parallel vertical lines (lifeline), different processes or objects that live simultaneously, and as horizontal arrows, the messages exchanged between them, in the order in which they occur.

1.4.1 Login and register

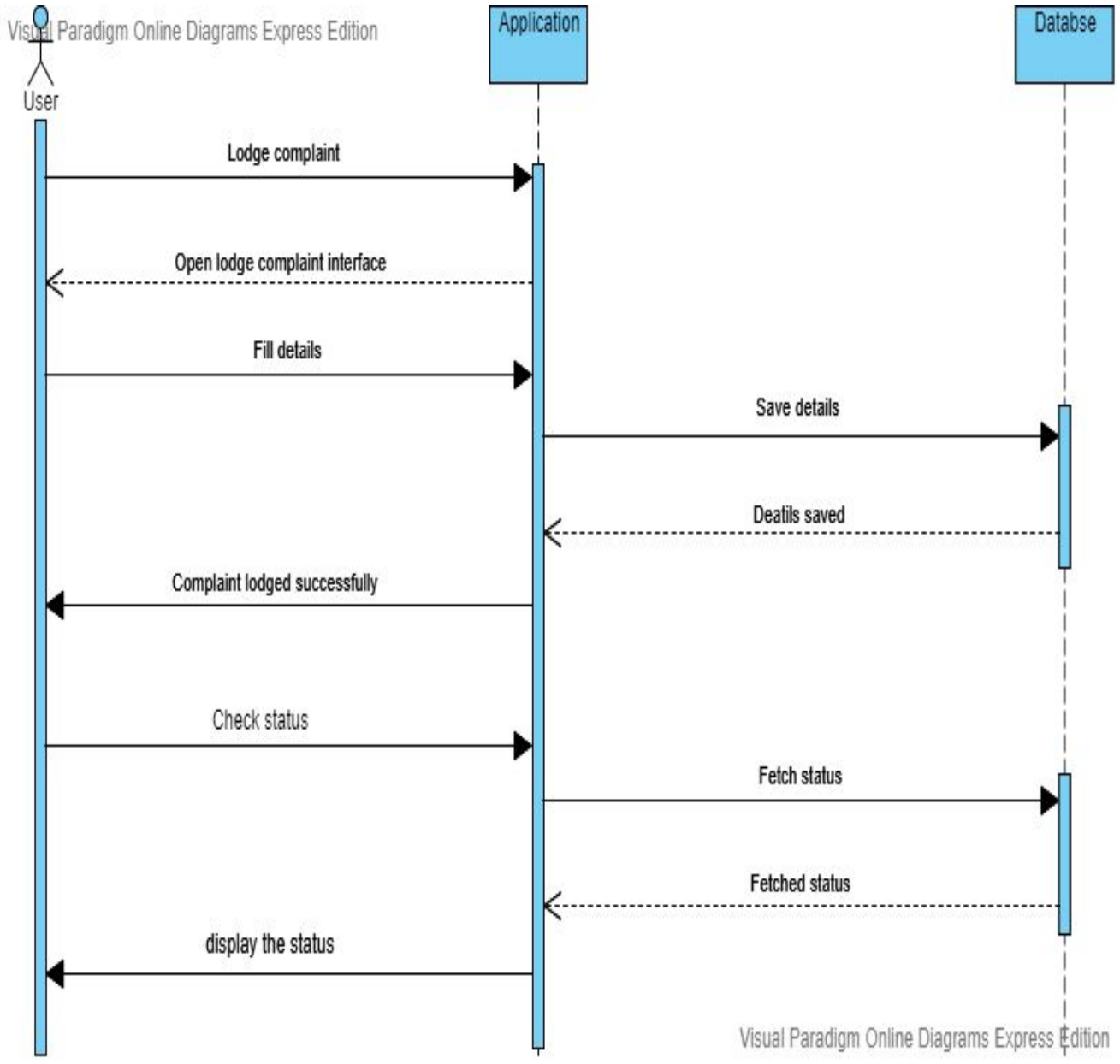
This sequence diagram describes the login and registration process for the user in the user-app. If login validation fails then the app again displays the login page. At the registration process if mail_id is invalid then the app asks to change mail_id.




Visual Paradigm Online Diagrams Express Edition
User
Application
Database
Initiate registration
Enter Registration details
Submit details
Verify mail_Id
alt
[if invalid mail_Id]
Invalid mail_Id
Change mail_Id
Skip to verify mail_Id
[else]
Valid mail_Id
Save details
Saved successfully
Registration successful
Visual Paradigm Online Diagrams Express Edition

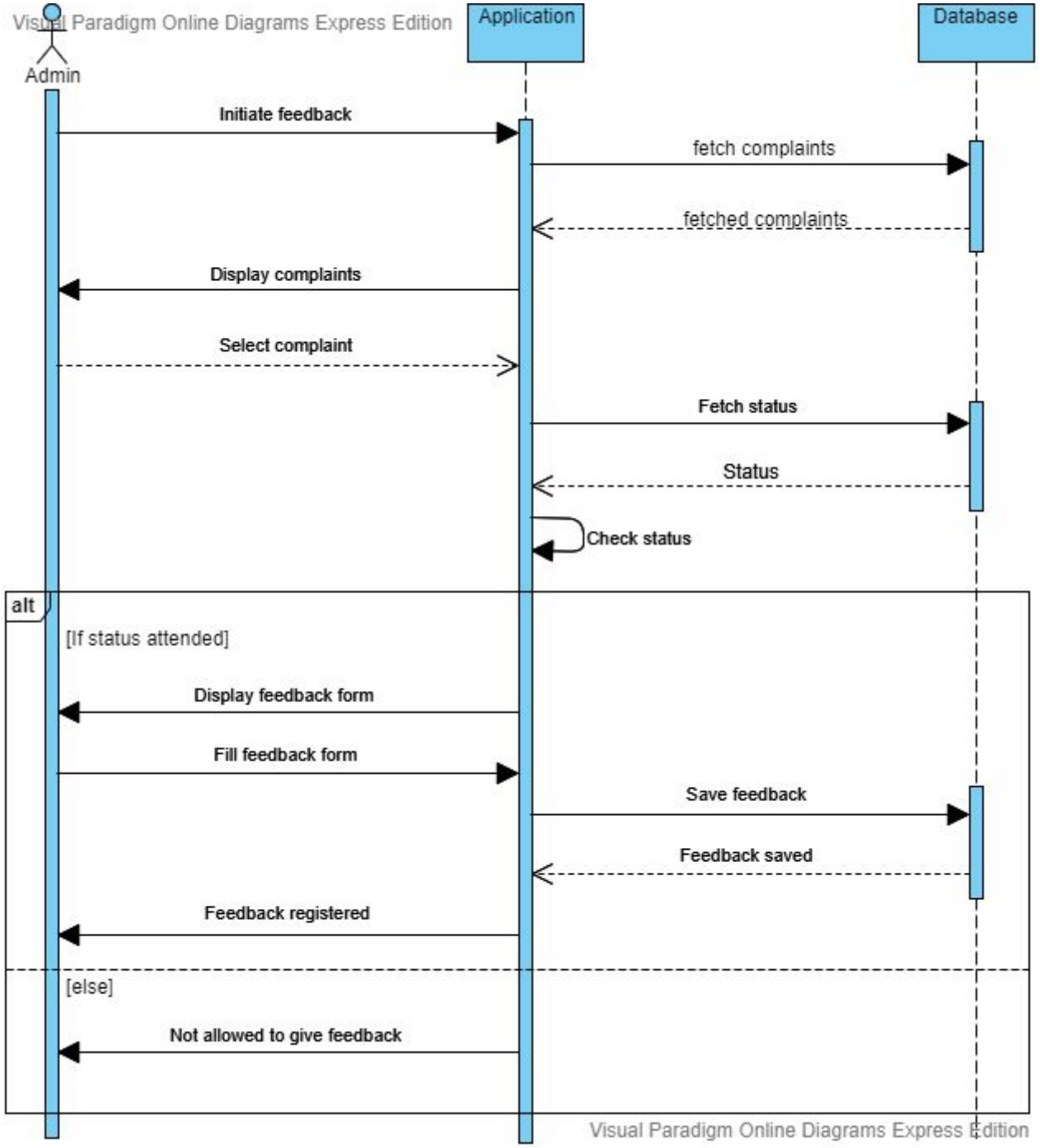
1.4.2 Lodge complaint and complaint status

This sequence diagram shows the process of lodge complaint and checks complaint status. For the complaint status if a complaint is found from the database then only the user can check the complaint status.



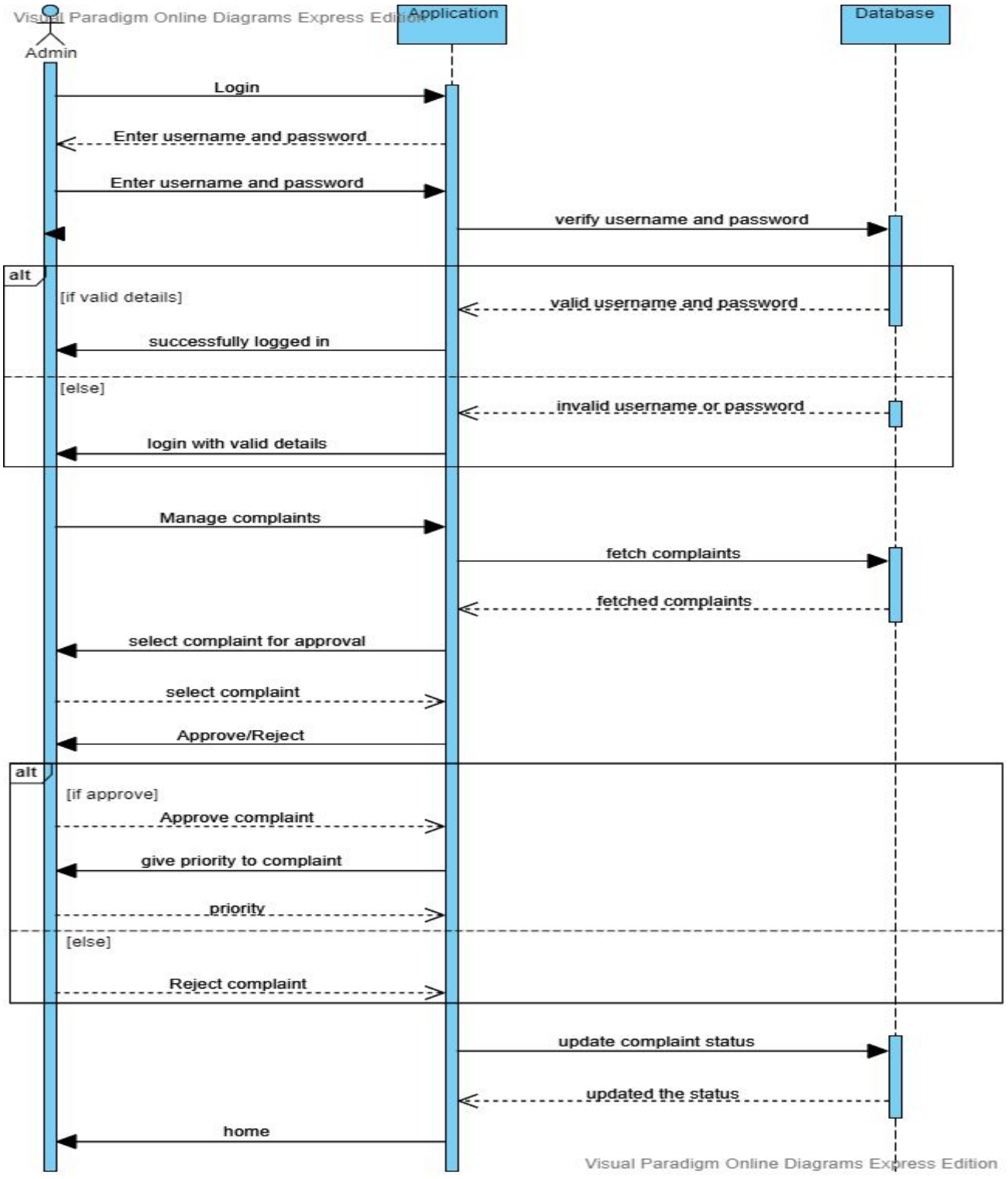
1.4.3 Feedback

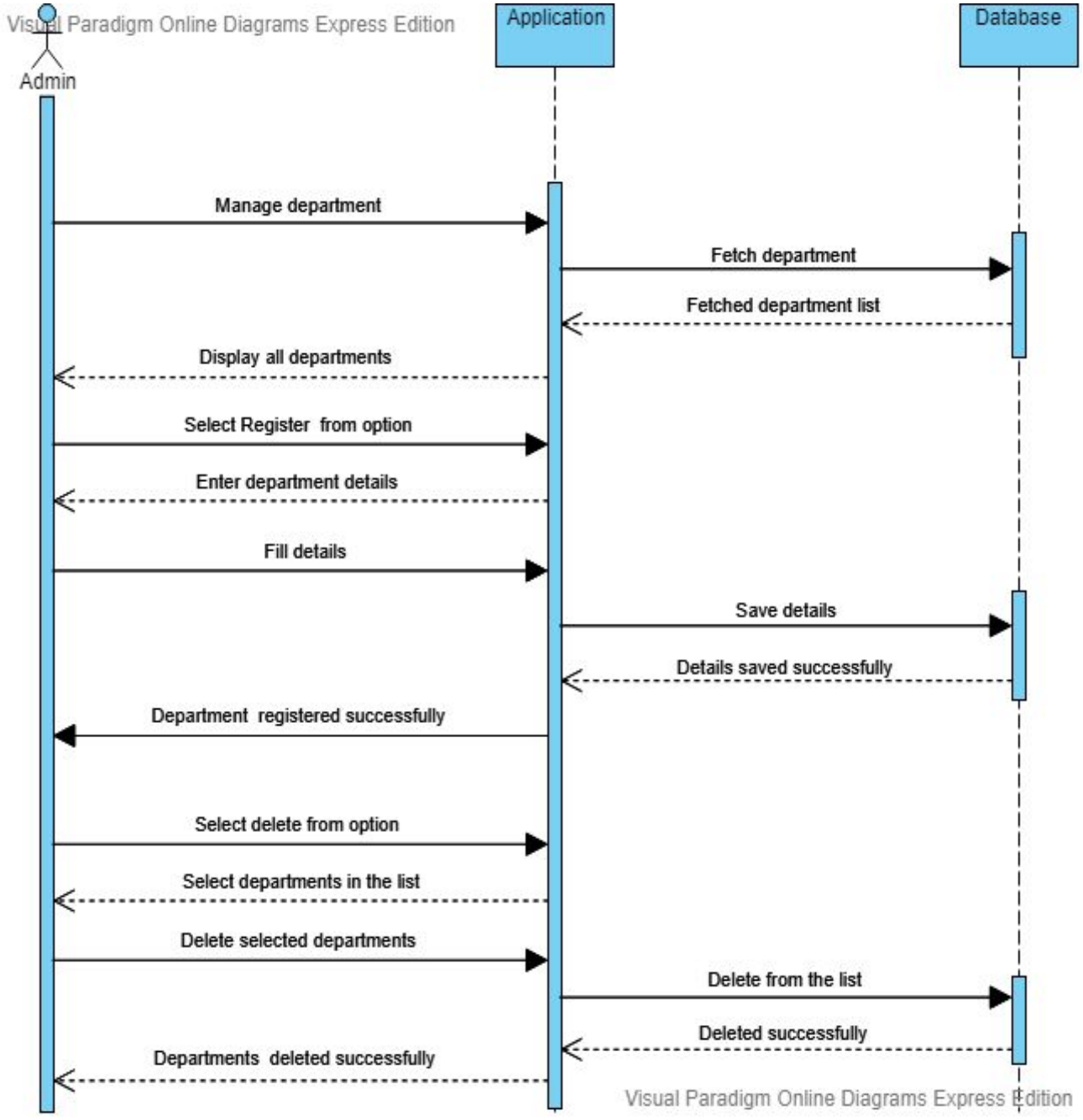
This sequence diagram describes how a user can give feedback. First, the application checks whether the selected complaint has been attended or not. If the complaint has been attended then only the user can give feedback to the complaint.



1.4.4 Admin

These two sequence diagrams describes how the admin views and approves complaints listed on it's interface.And also describes addition and deletion of departments.




Visual Paradigm Online Diagrams Express Edition
Admin
Application
Database
Manage department
Fetch department
Fetched department list
Display all departments
Select Register from option
Enter department details
Fill details
Save details
Details saved successfully
Department registered successfully
Select delete from option
Select departments in the list
Delete selected departments
Delete from the list
Deleted successfully
Departments deleted successfully
Visual Paradigm Online Diagrams Express Edition

1.5 Control and Data Flows through Activity Diagrams

This activity diagram describes the flow of the process of how the user and admin use the applications. It shows the full process of the user and admin activities in these applications for simple understanding.

1.5.1 List Complaint

This diagram shows a simple view flow of the user interacting with the app and performing list and reading operation.

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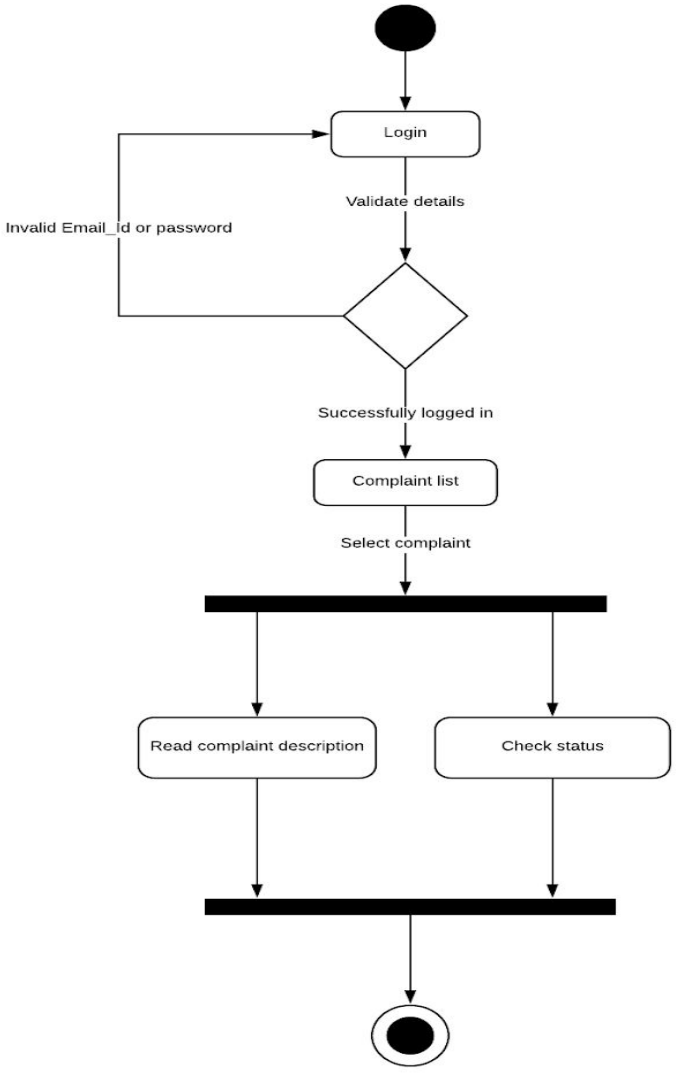
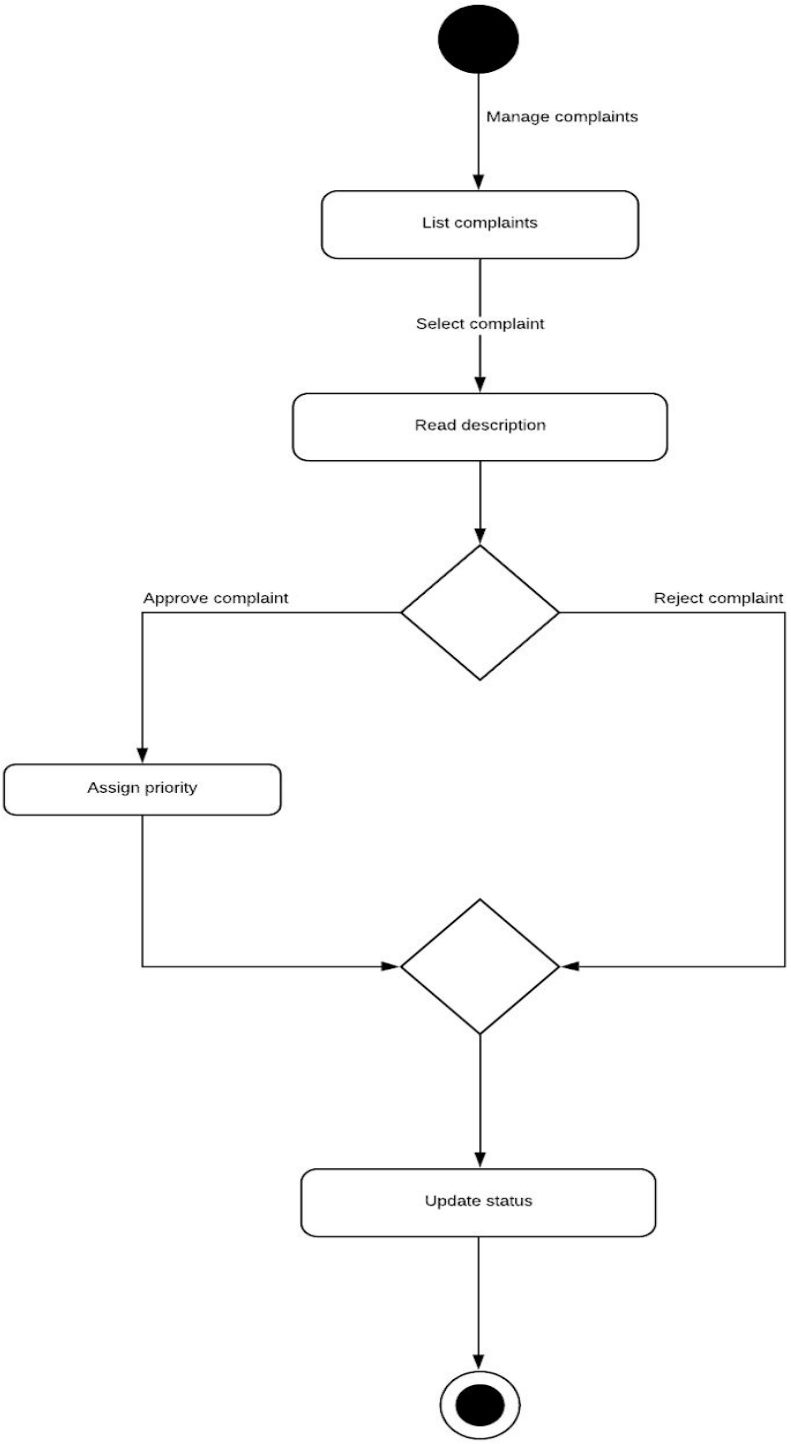
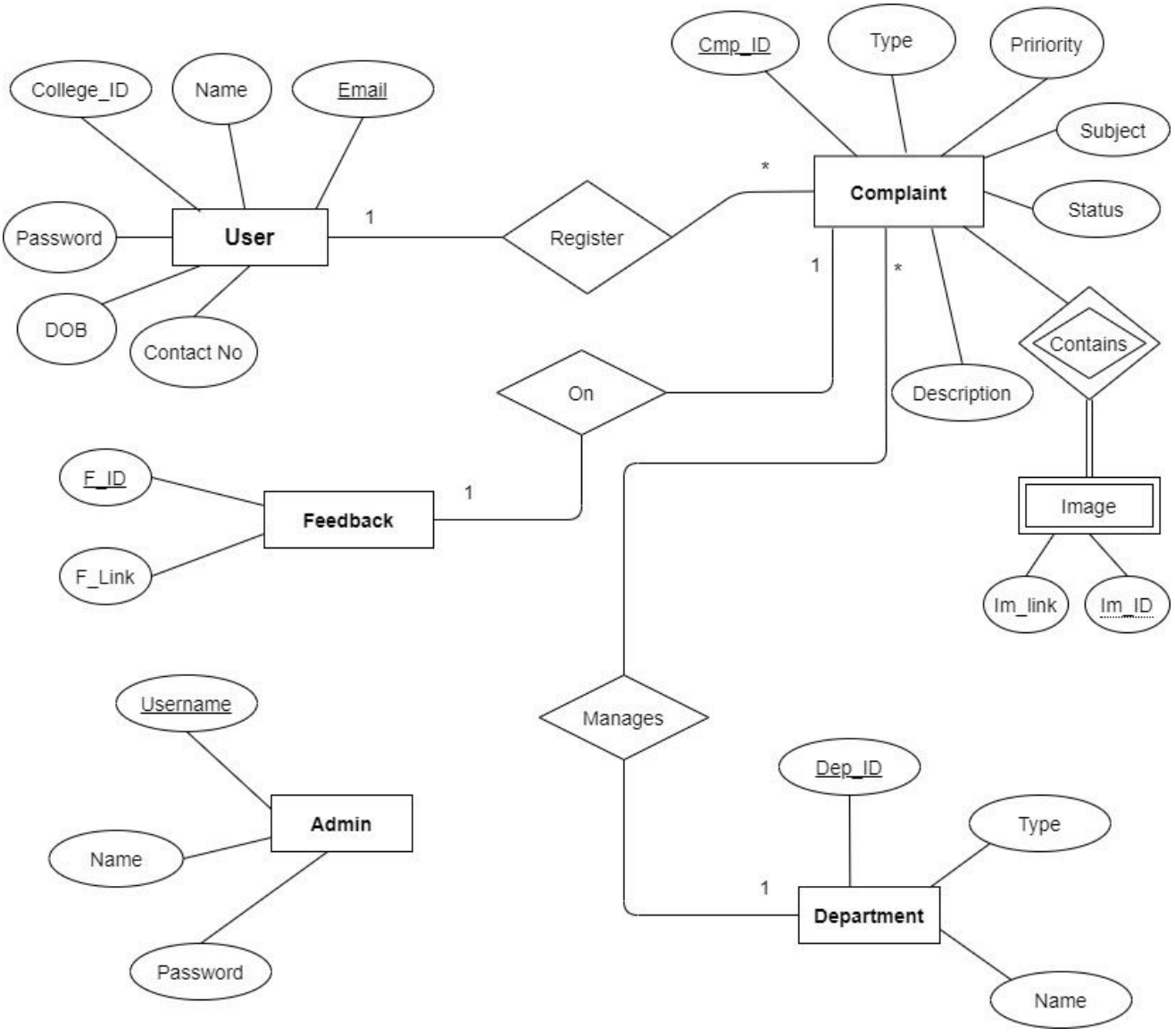


1.5.2 Admin approving complaints



2. Database Design

2.1 ER Diagram



3. Implementation Plans

3.1 Technology Stack

1. Backend - Java
Java is the most widely used Android App Programming language. Java is an official language for Android App Development and is most dominantly used object-oriented programming language for development. Being an open-source programming language, it offers the developers rich libraries and development tools.

2. Framework - Android Studio
Android Studio is an Integrated Development Environment (IDE) that is used by the developers to write the code, do performance tooling, and debugging to create quality Android Applications. Developers need to download & install the Android SDK for a specific device that helps to write programs with current or new features.

3. Platform used - Windows 10
Windows 10 provides a great and smooth UI which definitely eases the process of App development. Android Studio response is also good compared to Linux distributions.

4.User Interfaces - XML
XML stands for Extensible Markup Language. XML is a markup language much like HTML used to describe data. XML tags are not predefined in XML. We must define our own Tags. Xml as itself is well readable both by human and machine. Also, it is scalable and simple to develop. In Android we use xml for designing our layouts because xml is lightweight language so it doesn't make our layout heavy.

5.Database - Google Firebase
Firebase is a mobile platform that helps you quickly develop high-quality apps, grow your user base, and earn more money. Firebase is made up of complementary features that you can mix-and-match to fit your needs, with Google Analytics for Firebase at the core.

3.2 Work Estimates

Description	**Time Estimate (Hours)**	**Date of Completion**
Chetan Sharma ● Manage Complaints (Admin) ○ Add ○ Delete ● Image mapping to database ● Learning	 3 3 2 5	18-03-2020
Ajit Kumar Chaurasiya ● Login ● Registration ● Learning	 2.5 2.5 3	11-03-2020
Naman Chandel ● Manage Department (Admin) ○ Add ○ Delete ● Learning	 3 3 5	18-03-2020
Kathi Koteswara Rao ● Design all User App Interfaces ● Design all Admin App Interfaces ● Code revising and refactoring ● Learning	 6 6 5 3	18-03-2020
Anuj Kumar ● Complaint Creation ● Admin Login ● Learning	 3 2 6	15-03-2020

References

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Textbook by Lethbridge and Laganiere
25-02-2020

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https://www.draw.io/
28-02-2020

Creately:Chart,Diagram and Visual Canvas Software ; Drawing Class and Object Diagrams
https://creately.com/
29-02-2020

LucidChart:Online Diagram Software and Visual Solution ; Drawing Activity Diagram
https://www.lucidchart.com/
04-03-2020