Abstract

This is a proposal for a hospital appointment system We plan on making an application for Android (Flutter) for the patients' side and a web-app for the hospitals where the appointments can be managed. In this document we outline what our approach is, what technologies we will use when implementing the system, what are the potentials risks involved, etc. Our system aimsto replace the traditional phone-based systems for appointment booking that is slow & prone to error.

Contents

List of Figures

List of Table

1. Introduction

1.1 About Domain/Area

One of the major challenges existing hospital management systems faces is around operational efficiency and waiting time between different departments and patients.

Nowadays the major problem is that, there is no such type of facilities which provide to the patients to book appointment with the doctor in very urgent medical situations, rather the patient has to wait for the appointment of the doctor. While it gets too late till the doctor provides proper treatment to the patient.

1.2 Objective

Our mobile application that will make it easy for laypeople to book an appointment at hospitals. Our simple system that makes use of modern technologies and take advantage of the ubiquity of smart phones in today's world to make the process of booking an appointment at thehospital an easy and seamless process. This will greatly reduce the amount of work required by humans to coordinate and manage appointments. It will increase efficiency, accuracy and provide greater control over the information to both the hospitals and patients.

1.3 Users

- Patients
- Doctor
- Lab Assistance

1.4 Module and Functionality

1. We are creating an Android Flutter application for patient which they can use to Book an appointment.
2. We are creating a web application at hospital side using Flutter which will help hospital staff to manage all appointments

2. Literature Survey

2.1 Existing System

One of the major challenges existing hospital management systems faces is around operational efficiency and waiting time between different departments and patients. Nowadays the major problem is that, there is no such type of facilities which provide to the patients to book appointment with the doctor in very urgent medical situations, rather the patient has to wait for the appointment of the doctor. While it gets too late till the doctor provides proper treatment to the patient. We will build an application which provide all the facilities such as, online appointment for all the available doctors at any time. clients can also view doctor's profile and can also give feedback to the hospital and also view the previous feedback given by the other patients. The patients can also directly pay for the appointment via any payment gateway. They can view and download their reports which will also send to the doctor so that doctor can analysis the report for better treatment. This will make patient's life efficient and secure and also ensure that they get the best service at their fingertips. Ultimately these facilities will help for the betterment of patient's health.

2.2 Working of the current system

- practo app is used for online consultation to doctor
- Mfine having only 375 doctors and mfine connects the person with the doctor within a period of 30-40 minutes after appointment
- TATA health is providing 24*7 online consultation and also provide chats to doctor
- Docon The app lets the person consult a doctor through video call. Prescription is also given digitally and your medical history too is maintained on the app

2.3 Problem Summary

This is a project for a hospital appointment system. We plan on making an application (Android (Flutter)) for the patients' side and a webapp for the hospitals where the appointments can be managed.

3. Detailed Design.

3.1 Functional Requirements

There are a lot of software requirements specifications included in the functional requirements of which contains various process, namely Registration, Check out, Report Generation, and Database.

- ***Registration Process***
  - Adding Patients: The Hospital Management enables the staff in the front desk to include new patients to the system.
- ***Check Out:***
  - Deleting Patient ID: The staff in the administration section of the ward can delete the patient ID from the system when the patient's checkout from the hospital.
- ***Report Generation:***
  - Information of the Patient: The Hospital Management System generates a report on every patient regarding various information like patient’s name, Phone number, bed number, the doctor's name whom its assigns, ward name, and more.
- ***Database:***
  - Mandatory Patient Information: Every patient has some necessary data like phone number, their first and last name, personal health number, postal code, country, address, city, 'patient's ID number, etc.
  - Updating information of the Patient: The hospital management system enables users to update the information of the patient as described in the mandatory information included.

3.2 Tools and Technologies

We are targeting three platforms:

• Web

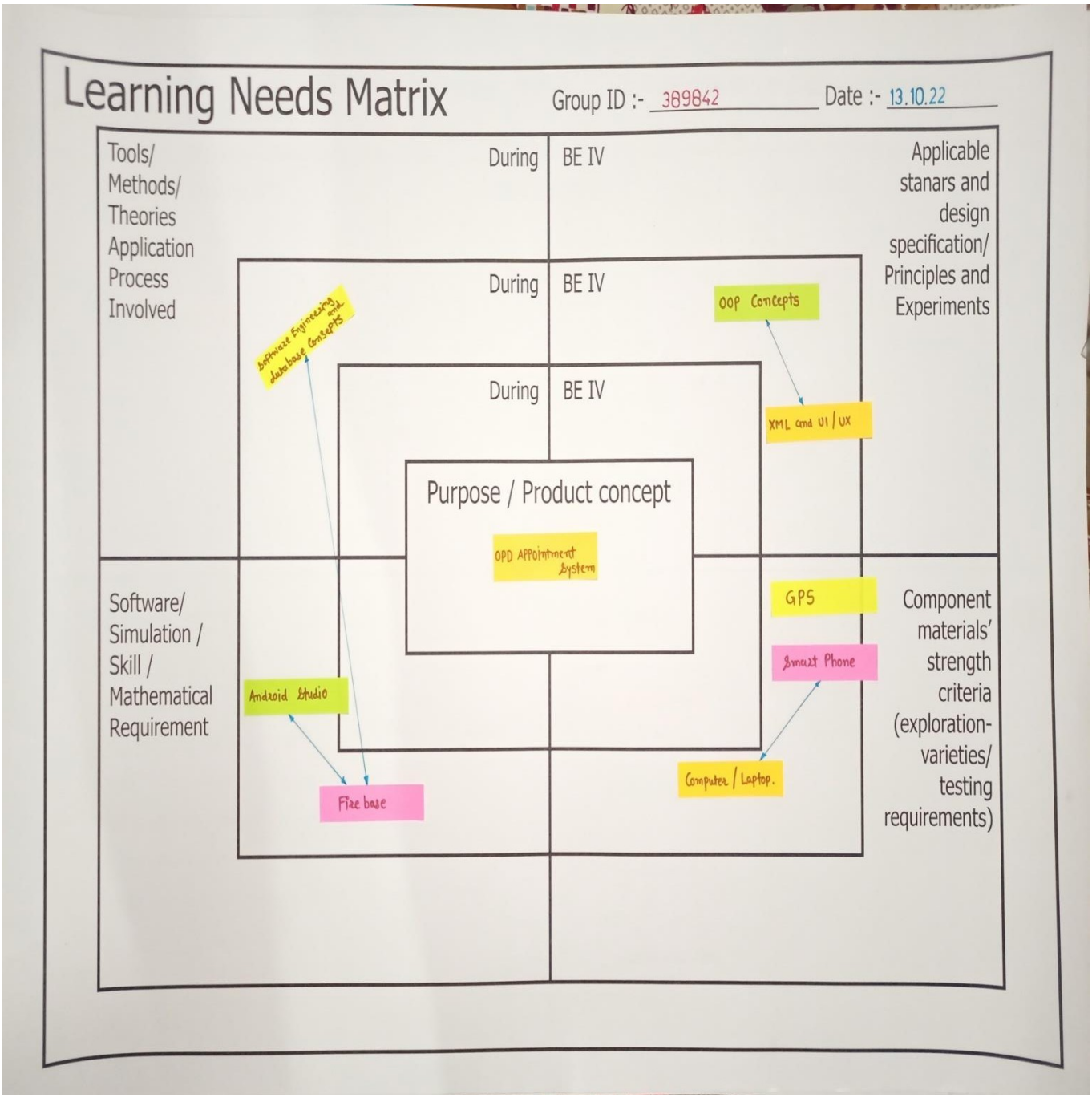
• Android

We chose these three platforms because they cover 99.99% of the use-cases of our app.

For designing and implementing the project the following technologies were used:

1. Flutter: Flutter is an open-source UI software development kit created by Google. It is used to develop cross platform applications for Android, iOS, Linux, mac OS, Windows, Google Fuchsia, and the web from a single codebase.
2. Firebase: Firebase is a platform developed by Google for creating mobile and web applications and this is efficient with flutter application

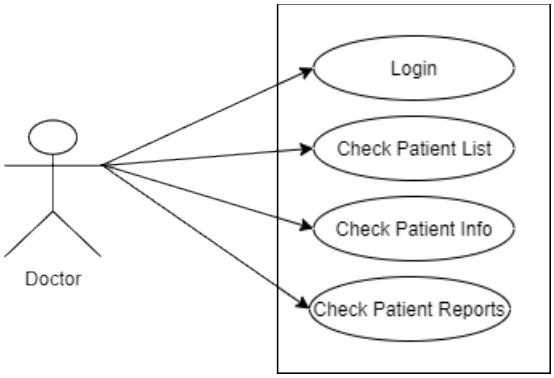
3.3 LNM Canvas



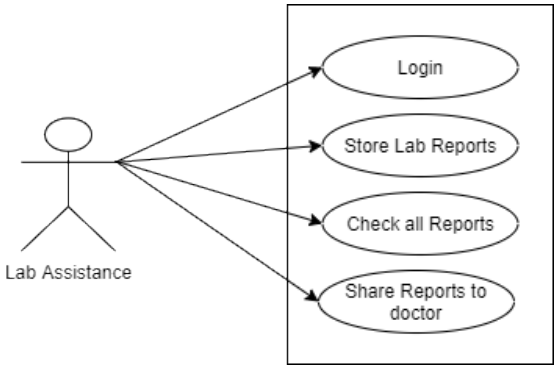
3.4.1 LNM Canvas

4. Design

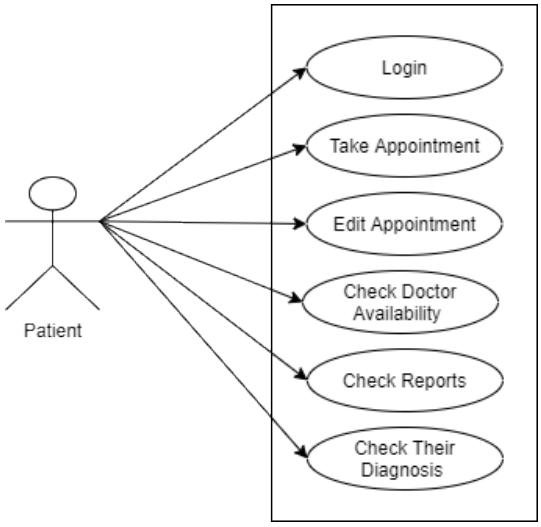
4.1 Use Case Diagram



4.1.1 Doctor Use case

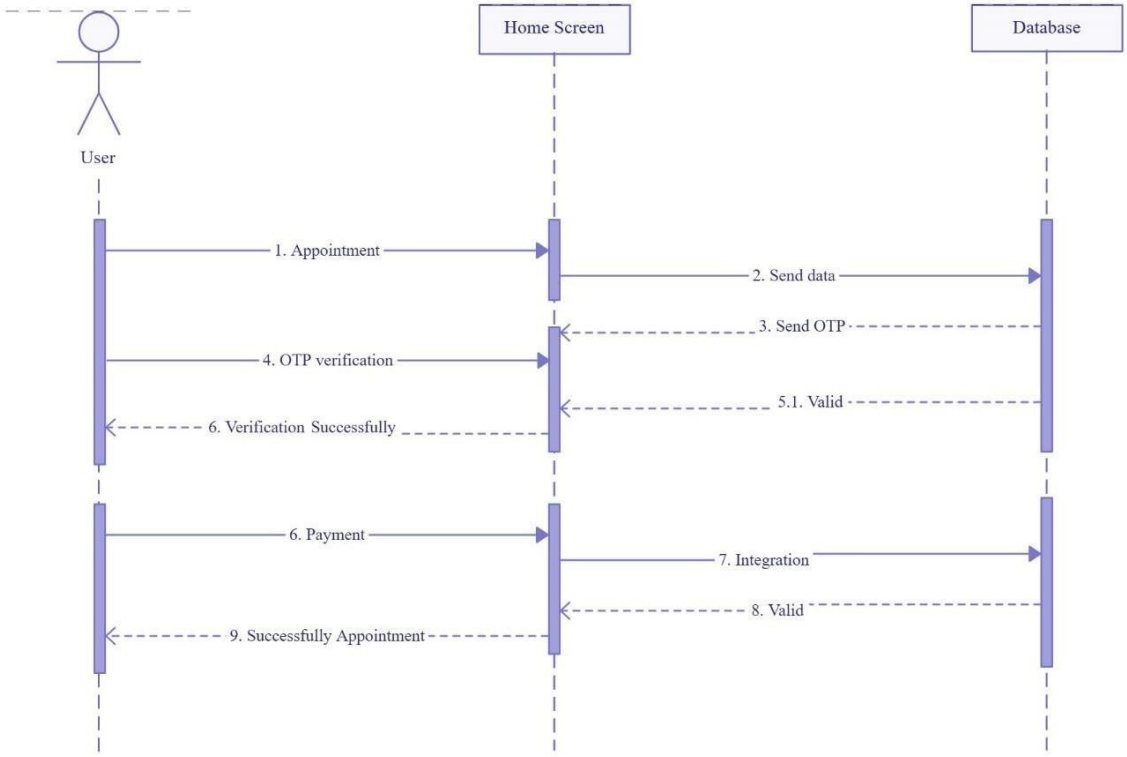


4.1.2 Lab Assistance Use

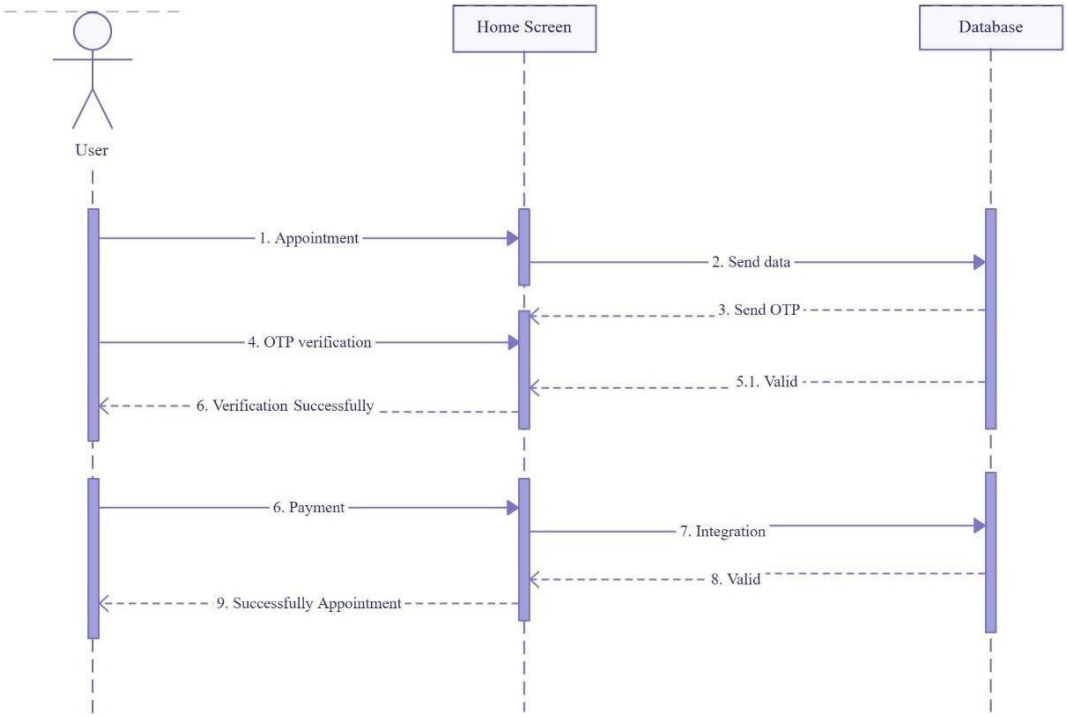


4.1.3 Patient Use case

4.2 Sequence Diagram

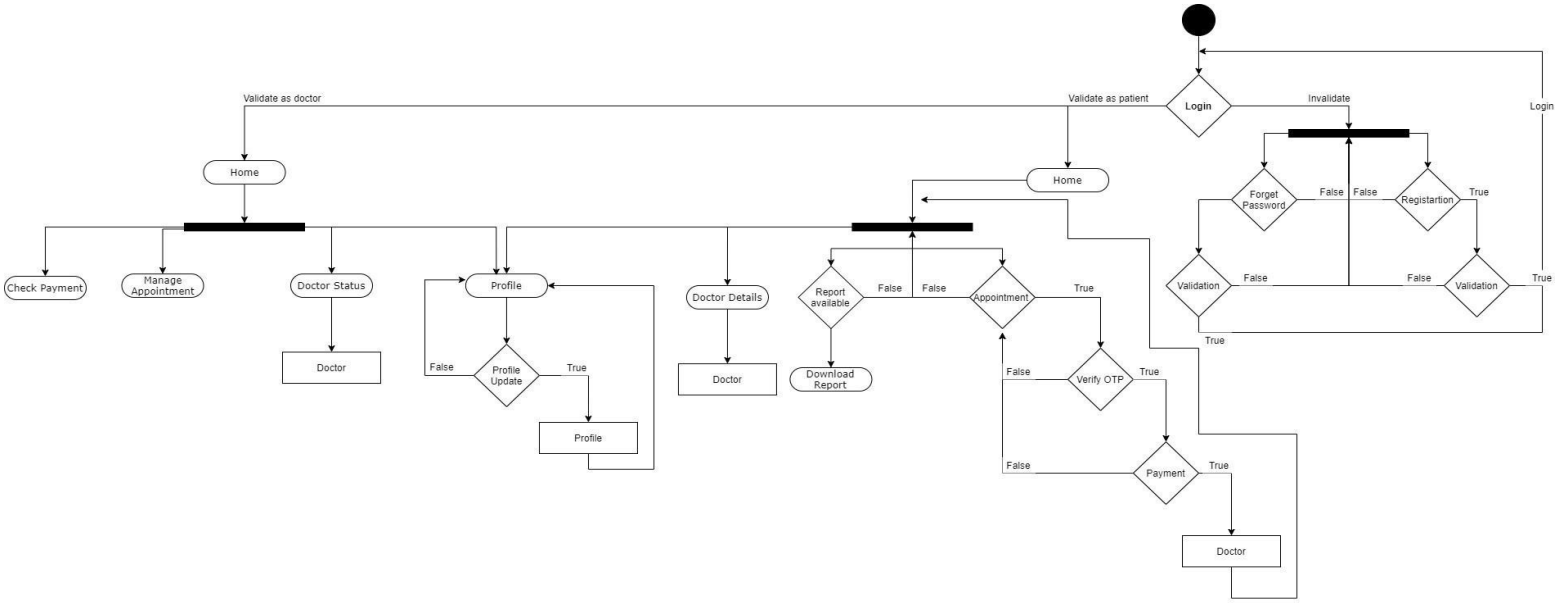


4.2.1 User Sequence Diagram



4.2.2 User-login Sequence Diagram

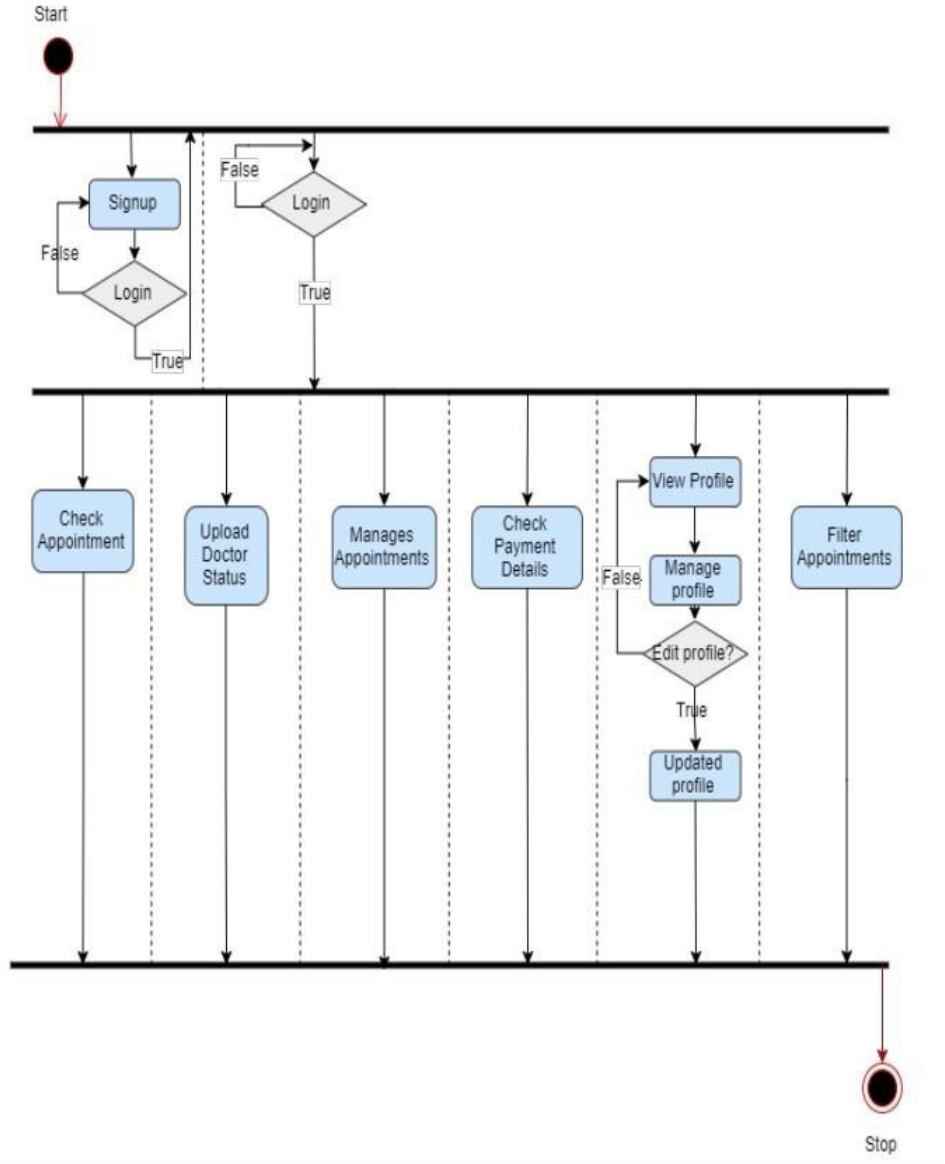
4.3 Activity Diagram



4.3.1 Activity Diagram

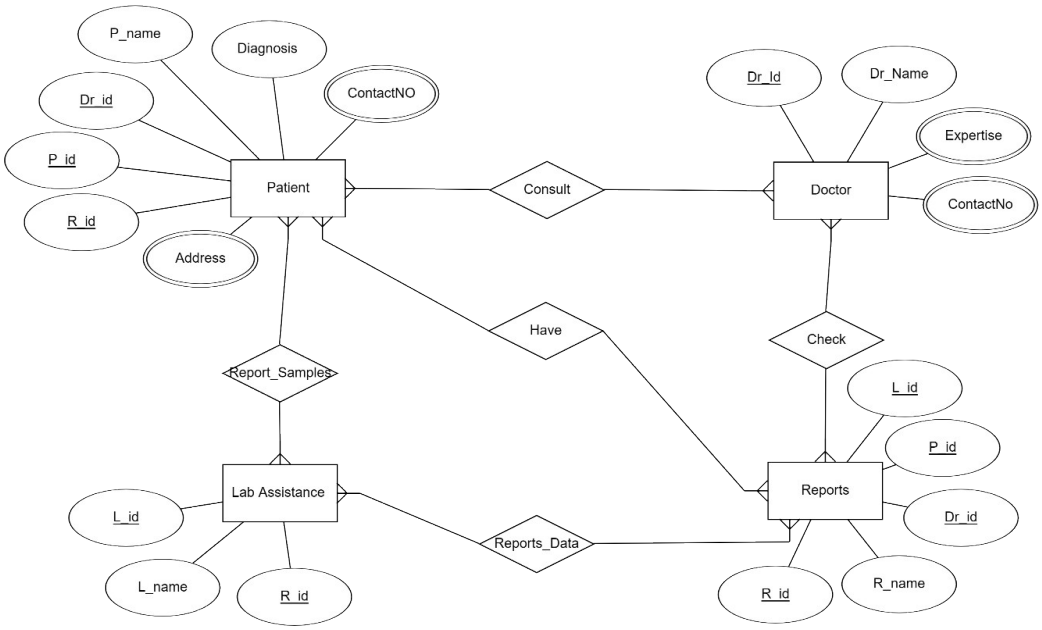
4.4 Data flow Diagram

- Hospital Flow Diagram



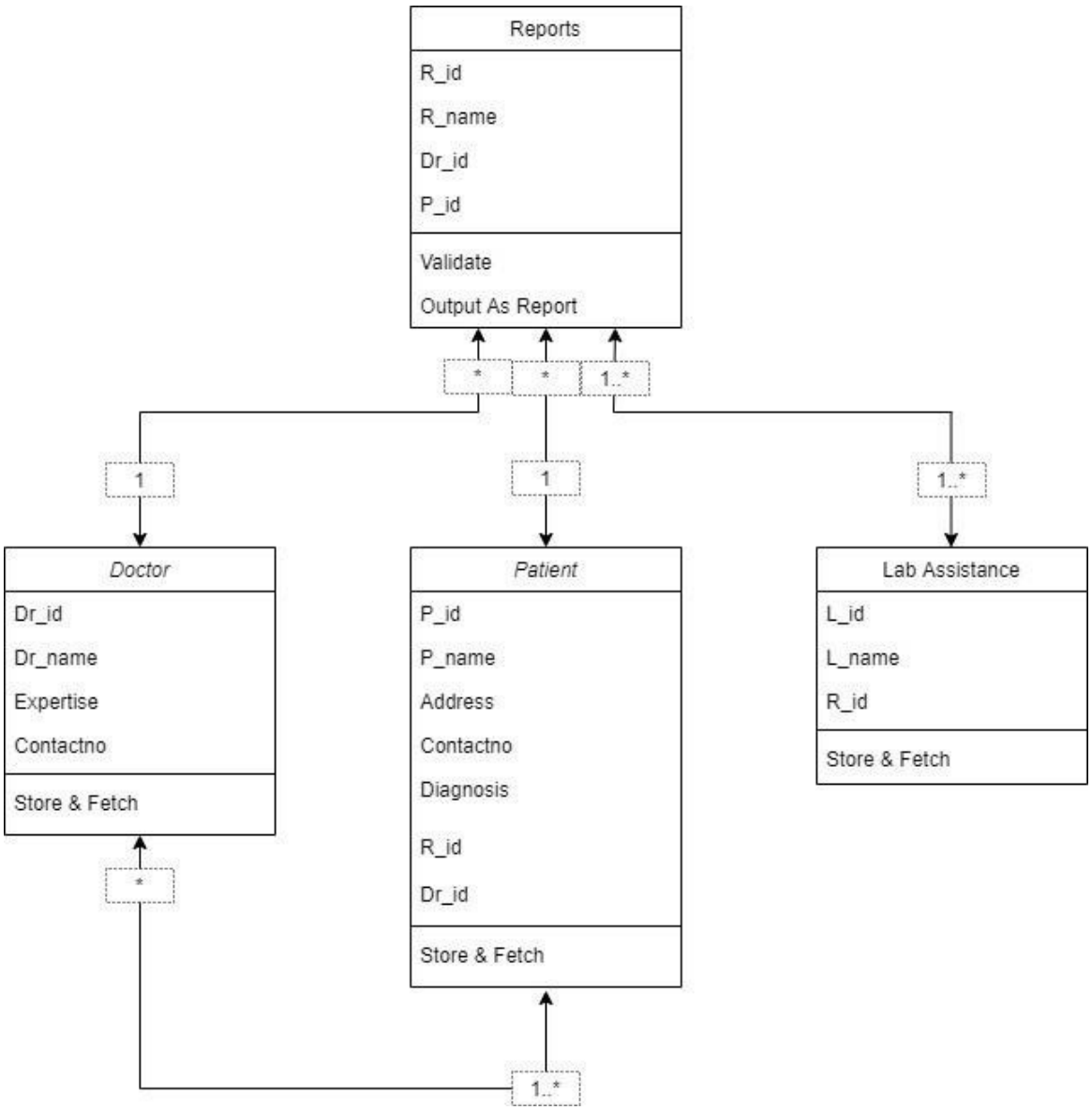
4.4.1 Hospital Flow Diagram

4.5 E-R Diagram



4.5.1 E-R Diagram

4.6 Class Diagram



4.6.1 Class Diagram

4.7 Data Dictionary

Table Name	Table Description	Primary Key
Patient	Stores all Data About Patient	P_id
Doctor	Stores all Data About Doctor	Dr_id
Lab Assistance	Store all data about lab assistance	L_id
Reports	Stores all Data About reports	R_id

4.7.1 Database Table List

Patient Table

Column Name	Data Type	Description	Constraints
P_id	Varchar	Store Patient ID	Primary Key
Dr_ID	Varchar	Store Doctor ID	Foreign Key
P_name	Varchar	Store Patient Name	-
Diagnosis	Varchar	Store All Diagnosis info	-
R_Id	Varchar	Store Report ID	Foreign Key
Address	Varchar	Store Patient Address	-
Contactno	Number	Store Patient Contact Number	-

4.7.2 Patient Table

Doctor Table

Column Name	Data Type	Description	Constraints
Dr_ID	Varchar	Store Doctor ID	Primary Key
D_name	Varchar	Store Doctor Name	-
Expertise	Varchar	Store All Expertise info	-
Contactno	Number	Store Doctor Contact Number	-

4.7.3 Doctor Table

Lab Assistance

Column Name	Data Type	Description	Constraints
L_ID	Varchar	Store Lab Assistance ID	Primary Key
L_name	Varchar	Store Lab Assistance Name	-
R_id	Varchar	Store All Report ID	Foreign Key

4.7.4 Lab Assistance Table

Reports

Column Name	Data Type	Description	Constraints
R_id	Varchar	Store Report ID	Primary Key
R_name	Varchar	Store Report Name	-
Dr_id	Varchar	Store Doctor ID	Foreign Key
P_id	Number	Store Patient ID	Foreign Key

4.7.5 Report Table

5. Conclusion and Future work

5.1 Conclusion

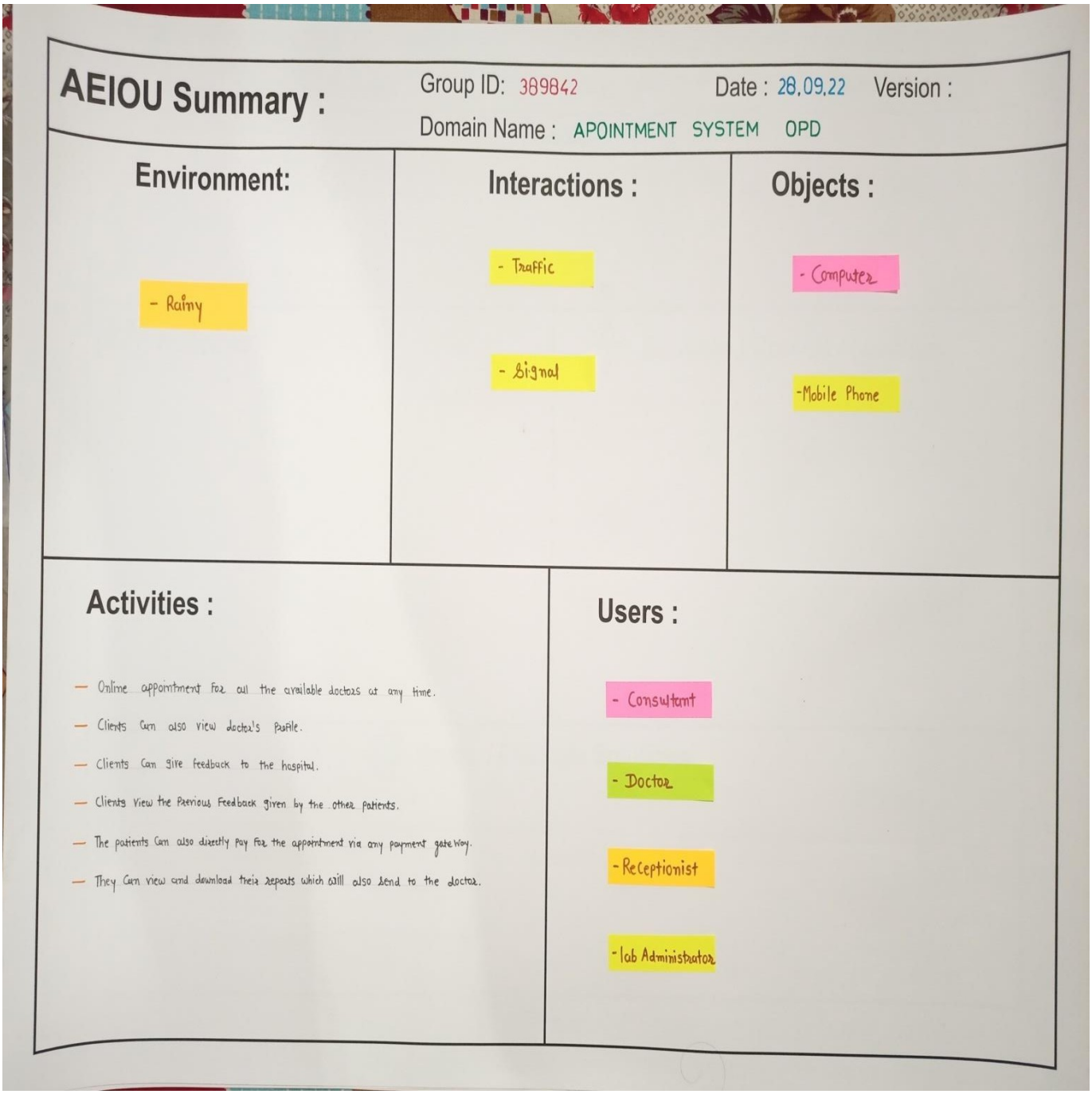
Our mobile application that will make it easy for lay people to book an appointment at hospitals. Our simple system that makes use of modern technologies and take advantage of the ubiquity of smart phones in today's world tomake the process of booking an appointment at the hospital an easy and seamless process. This will greatly reduce the amount of work required by humans to coordinate and manage appointments. It will increase efficiency, accuracy and provide greater control over the information to both the hospitals and patients.

5.2 Future Work

1. Video Conferencing integration
2. Patient messaging to Hospital
3. Calendar Sync

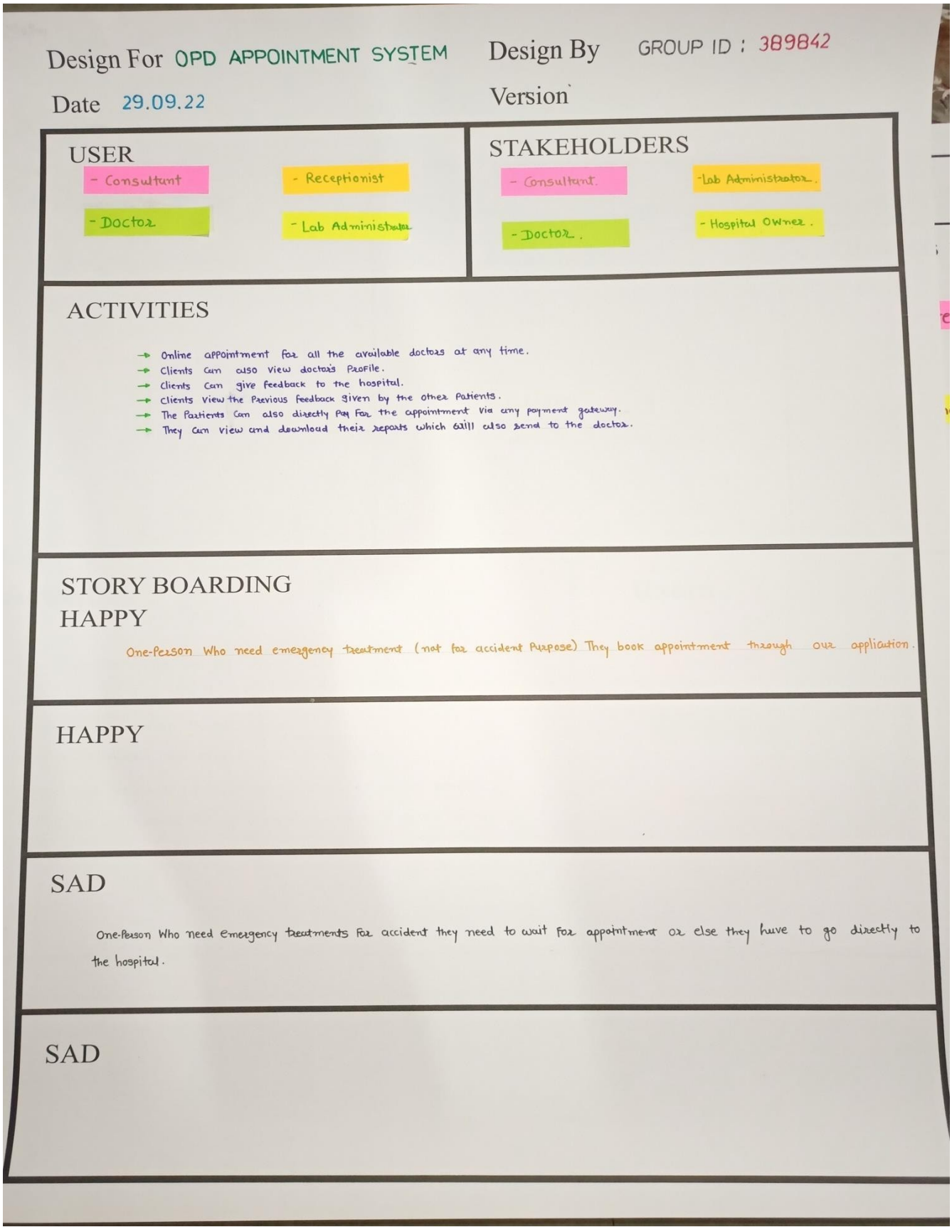
6. Appendix Canvases

6.1.1 AEIOU Canvas

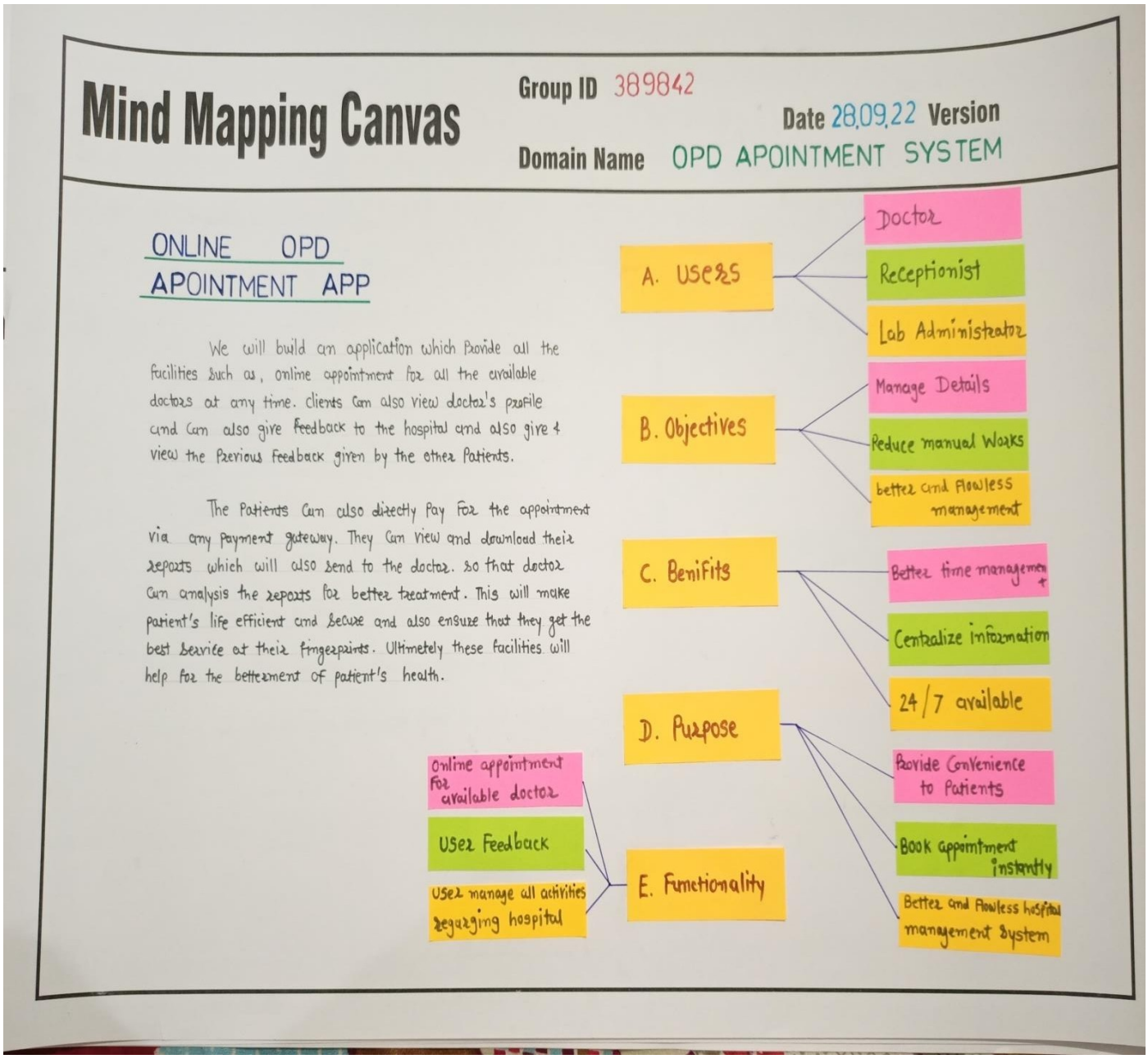


6.1.1 AEIOU Canvas

6.2.1 Empathy Canvas

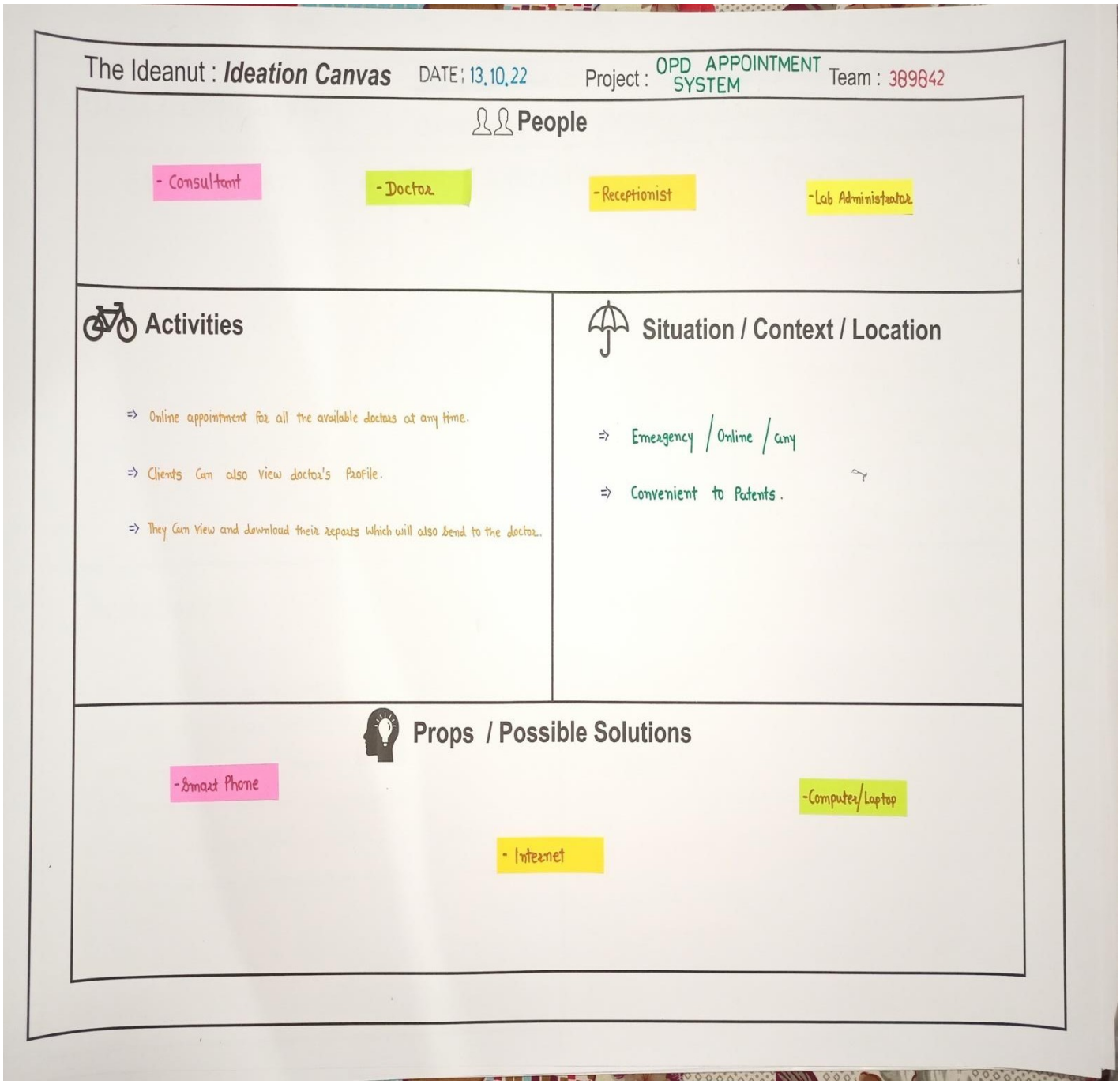


6.3.1 Mind Mapping



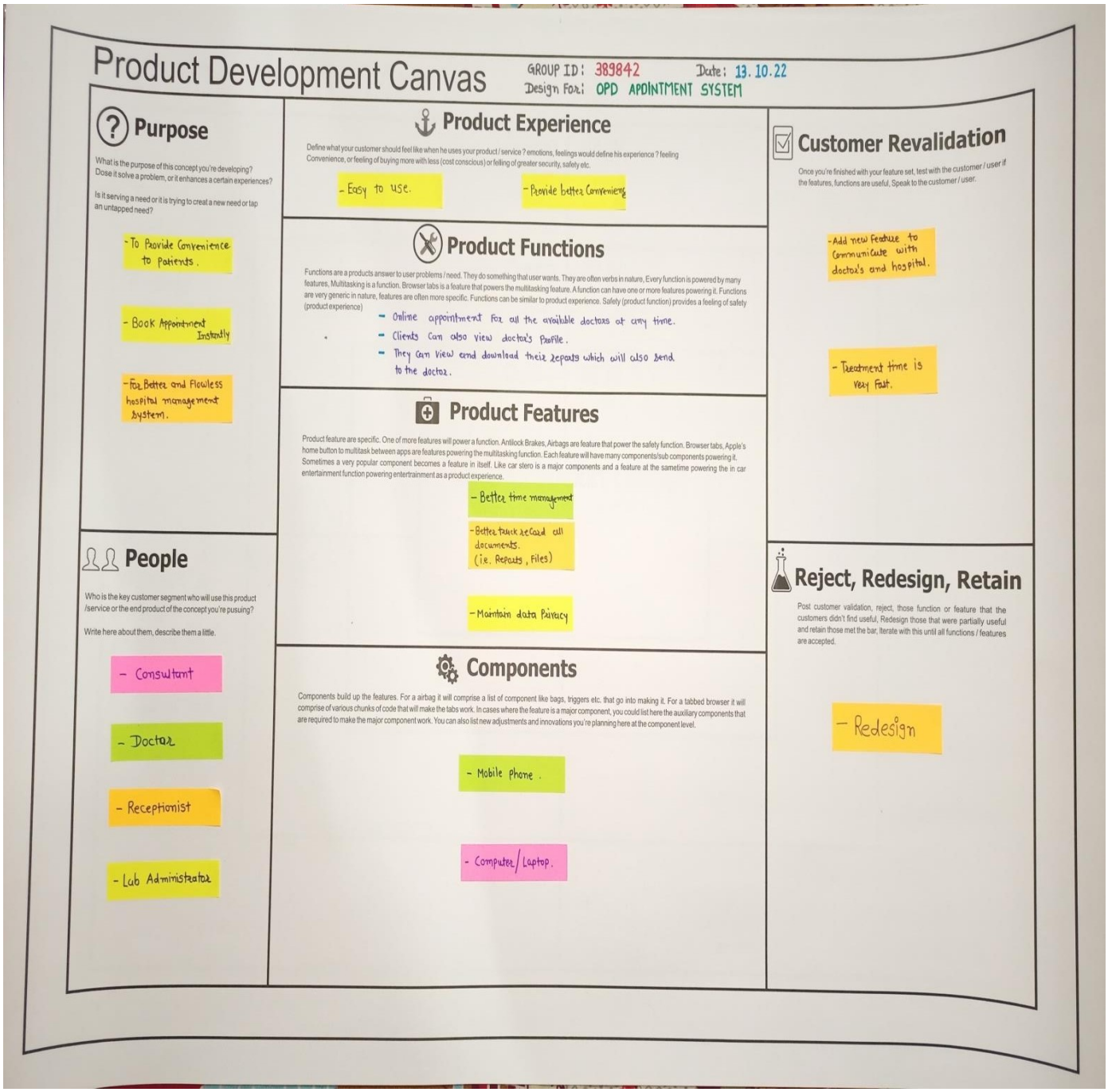
6.3.1 Mind Map Canvas

6.4.1 Ideation Canvas



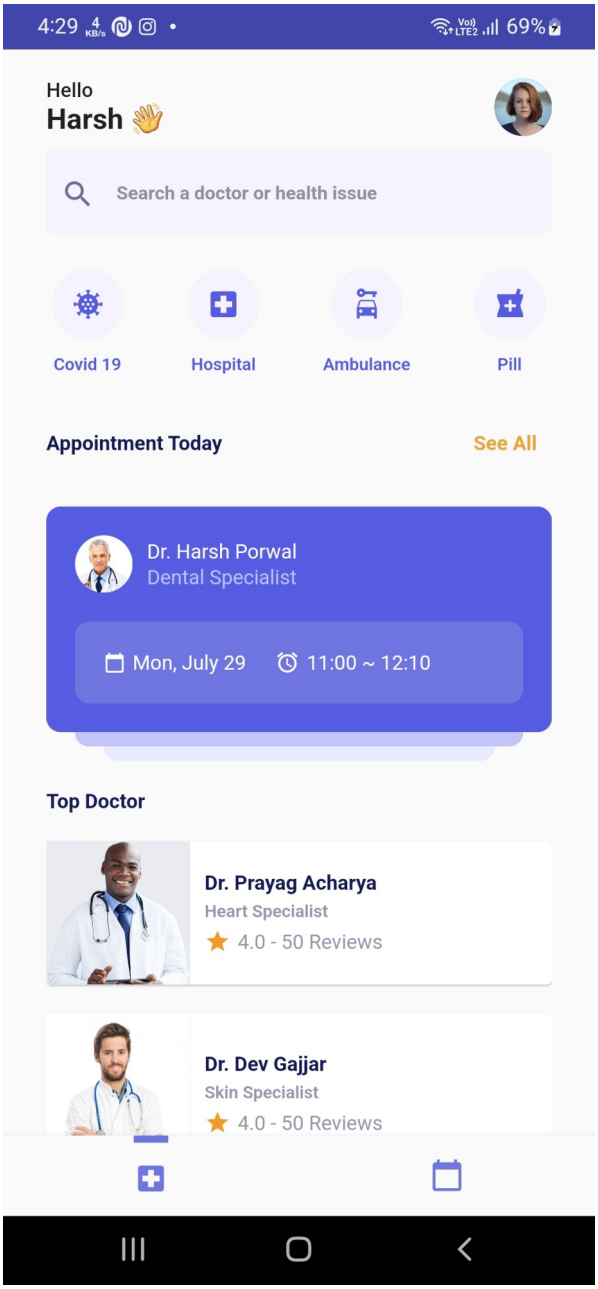
6.4.1 Ideation Canvas

6.5.1 Product Development Canvas

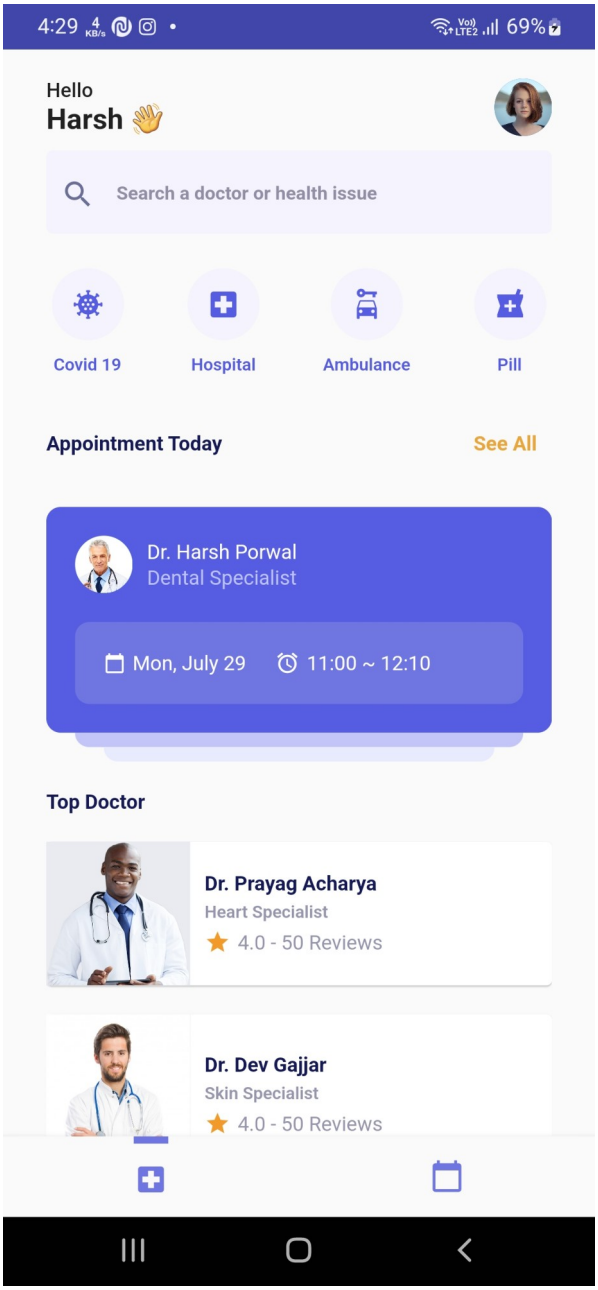


6.5.1 Product Development Canvas

7. Prototype



7.1.1 Home Page



7.2.1 Appointment Page

7. References

- https://flutter.dev/
- https://firebase.flutter.dev/
- https://firebase.google.com/