



International Institute of Information Technology, Bangalore

CS 837 - Healthcare Application Development

Project No. 6 : ManoSarthi
Extending care to the home - enabling health workers

under guidance of

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Video link- [HAD_Team9_Demo](#)

GitHub - [ManoSarthi](#)

API - [API Document](#)

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Abstract

This report presents a tablet application designed to empower field health workers in extending healthcare services, particularly focusing on mental health, from hospitals to homes. The app streamlines screening, referral, and follow-up processes, enhancing community access to vital care. Key features include standardised screening questionnaires, simplified diagnosis entry, scheduling, offline capability, and multi-lingual support. The application also facilitates data management and integrates with state-level dashboards for program monitoring.

Introduction

In recent years, there's been a growing understanding that healthcare shouldn't just be limited to hospitals and clinics. Especially when it comes to mental health, many people in remote areas face challenges like stigma and lack of resources. So, our team made a mobile app for field health workers. It helps them bring healthcare directly to people's homes. This app is a big step in making healthcare fairer for everyone. It gives frontline workers tools to find, refer, and help people with mental health issues.

The app starts with a simple questionnaire that checks everyone in a family for mental health problems. If someone needs help, the app quickly connects them with local doctors for treatment. It also makes keeping track of appointments easy, even without internet. And it doesn't stop there. The app also helps doctors see patient info and trends in their area. Plus, it links up with a big dashboard so officials can track how well healthcare programs are doing. This way, we're using technology to make sure everyone gets the healthcare they need, no matter where they live.

Project Scope & Requirements

Scope:

- The project encompasses the development of a tablet-based application for field health workers.
- It includes the creation of user-friendly interfaces for seamless navigation and efficient use by frontline workers.
- The application will be designed to run on both online and offline modes to ensure uninterrupted service delivery.
- The application will be designed to run on both online and offline modes to ensure uninterrupted service delivery.
- Multi-lingual support will be provided to cater to the linguistic diversity among field workers.
- Integration with a state-level dashboard will be facilitated through API implementation for real-time data sharing and program evaluation.

Assumptions

- Worker need to sync data at least once in 3 days
- Doctor cannot be reassigned or deleted if 2nd doctor is not there and patients are assigned to the doctor
- Only 2 doctors can be assigned to a subdistrict
- Minimum one follow is given for new patient registered

Functionality achieved

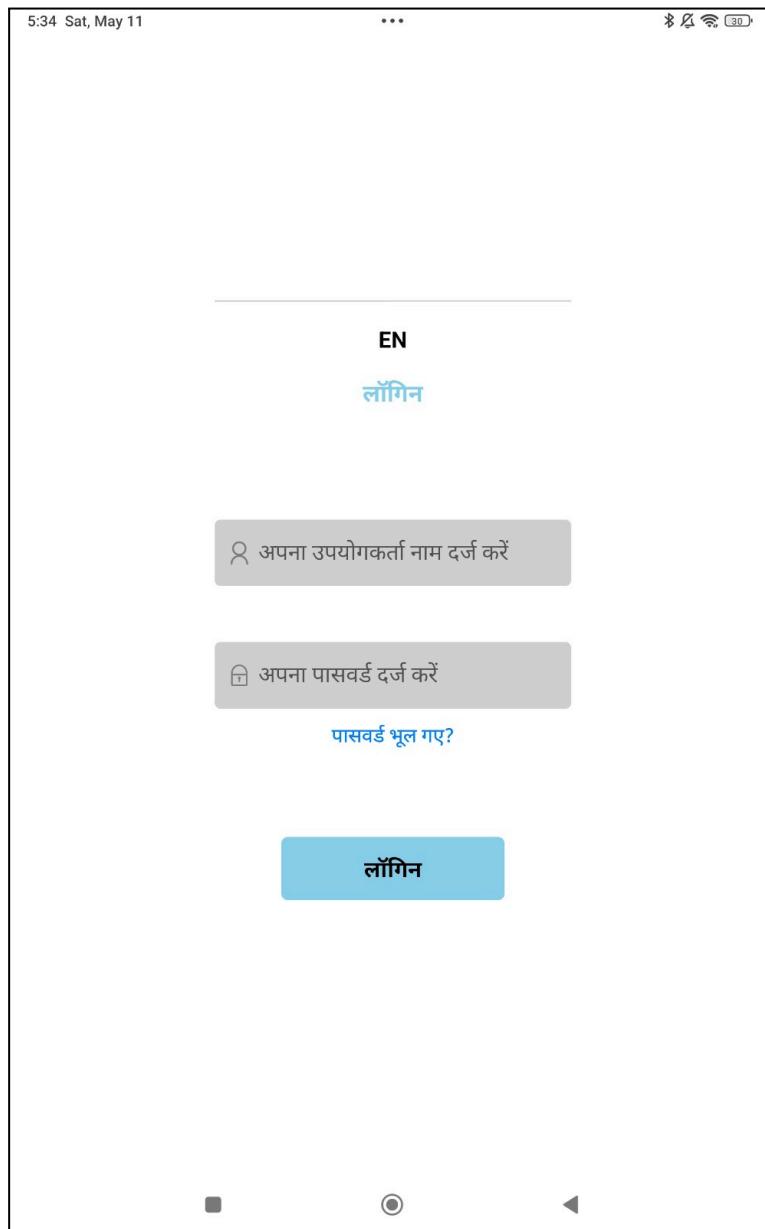
- Actor Wise Functionality Implemented:-

- a. Worker:

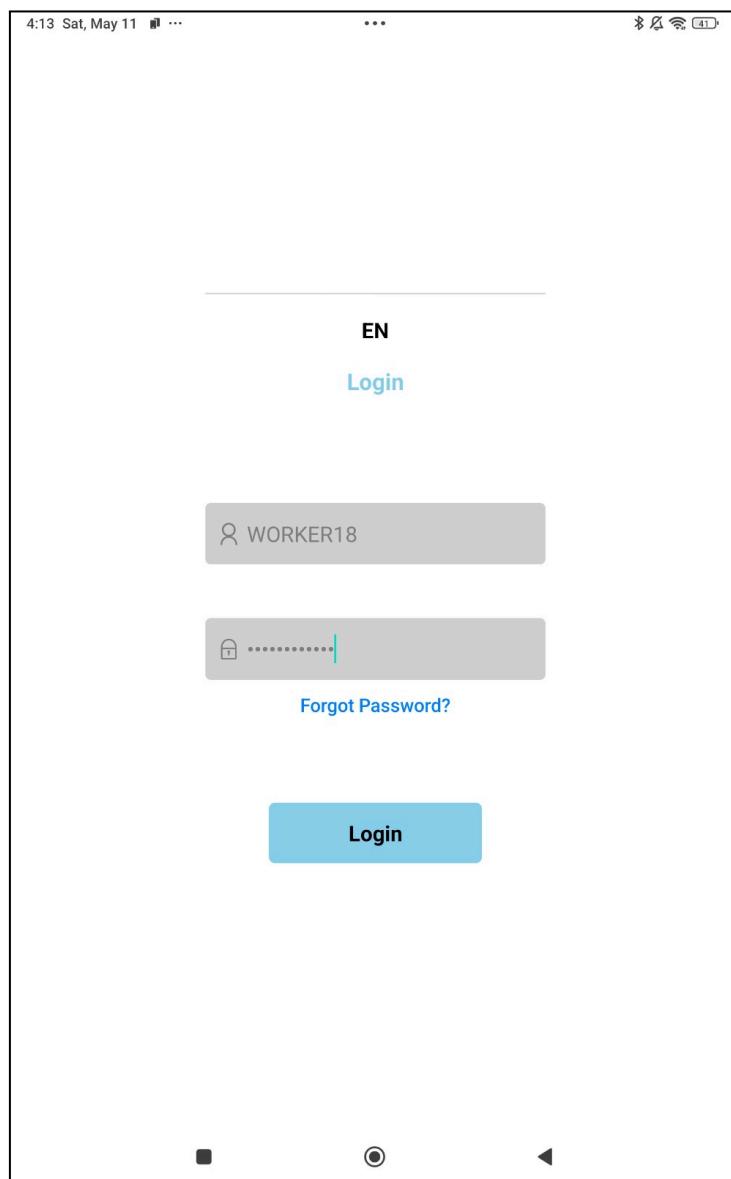
- Location based follow up for health worker
 - Offline working of App
 - Auto syncing of offline data
 - Alert for missed follow up
 - Giving Prescription to patient
 - Multilingual app
 - Registering patient and follow up

Images:-

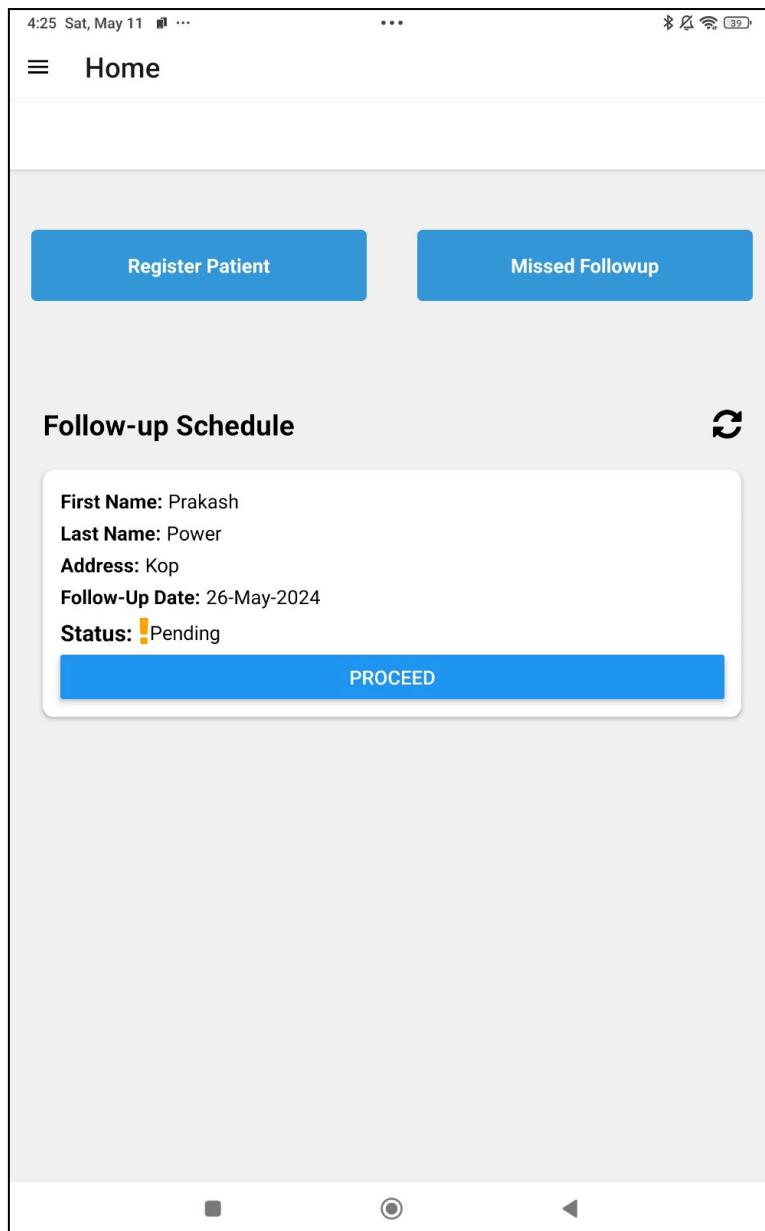
Multilingual for Tablet App



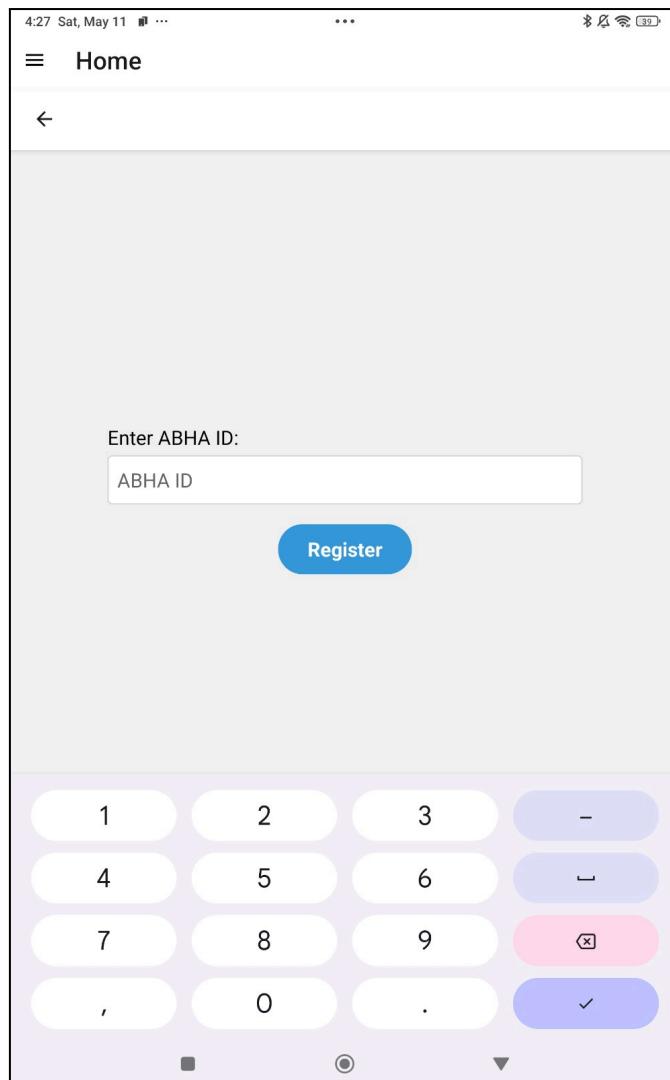
Login Screen :



HomeScreen-



Verify AbhaId First while Registering a Patient



Register a Patient -

5:28 Sat, May 11

Home

First Name:*

Ankush

Last Name:*

Patil

Email:

ankush@gmail.com

Gender:*

Male

Female

Other

Age:*

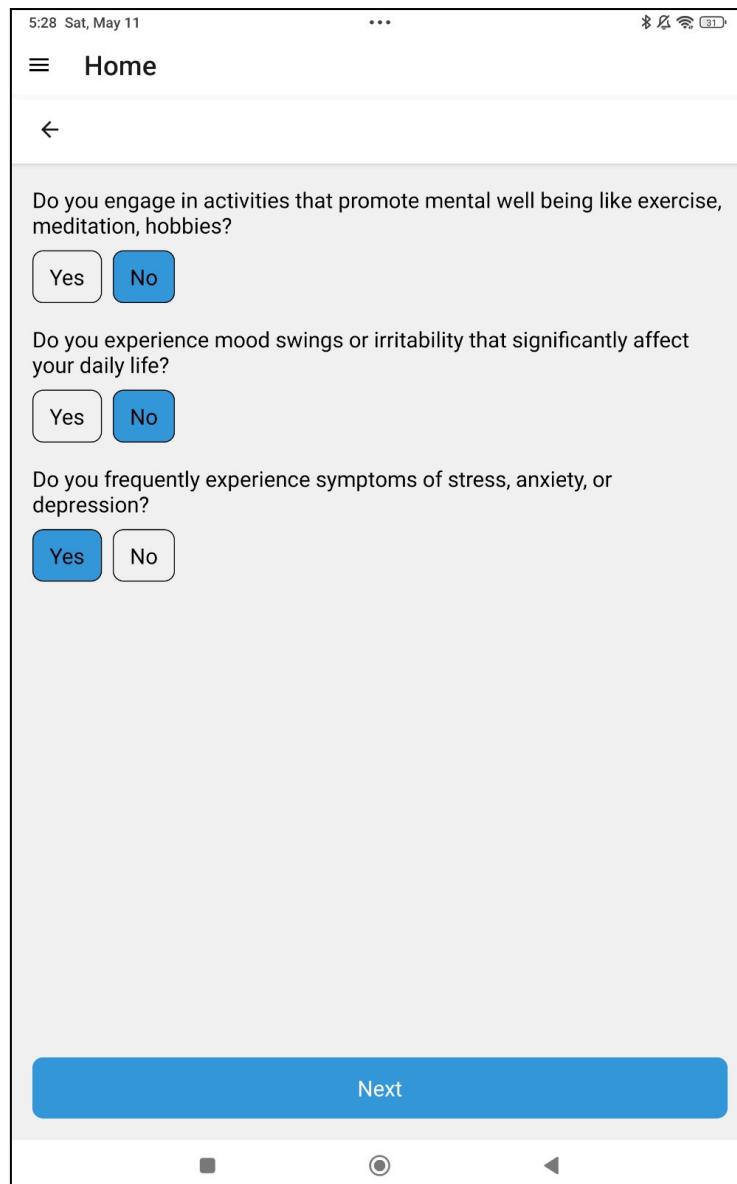
25

Address:*

Veer Sandra

SUBMIT

Questionnaire -



Medical History

4:36 Sat, May 11 ⚡ ... ***

≡ Home

Are there any mental health disorders that run in your family?

Do you currently use or have you ever used substances such as alcohol, tobacco, or recreational drugs?

How are you

heloooo

hiii

good

bad

Helloo

Comments:

Very bad

CLICK PICTURE



Next

Preview and Submit :

4:36 Sat, May 11 ⚡ ...

≡ Home

←

Preview and Submit

Patient Details:

Aabha ID: 3645
First Name: Ankush
Last Name: Patil
Email: ankush@gmail.com
Gender: male
Age: 25
Address: Veer Sandra
Status: 0

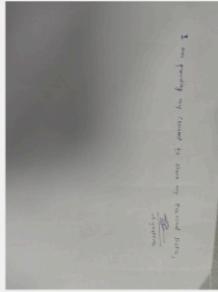
Survey Questionnaire:

Are you facing any issue - yes
How are you - yes
How are you felling now? - no
How are you felling now? - no
Hellooo - no

Medical Details:

Are there any mental health disorders that run in your family?- no
Do you currently use or have you ever used substances such as alcohol, tobacco, or recreational drugs?- yes
How are you- no
hellooo- yes
hiii- yes
good- no
bad- yes
Helloo- no
Comment: Very bad

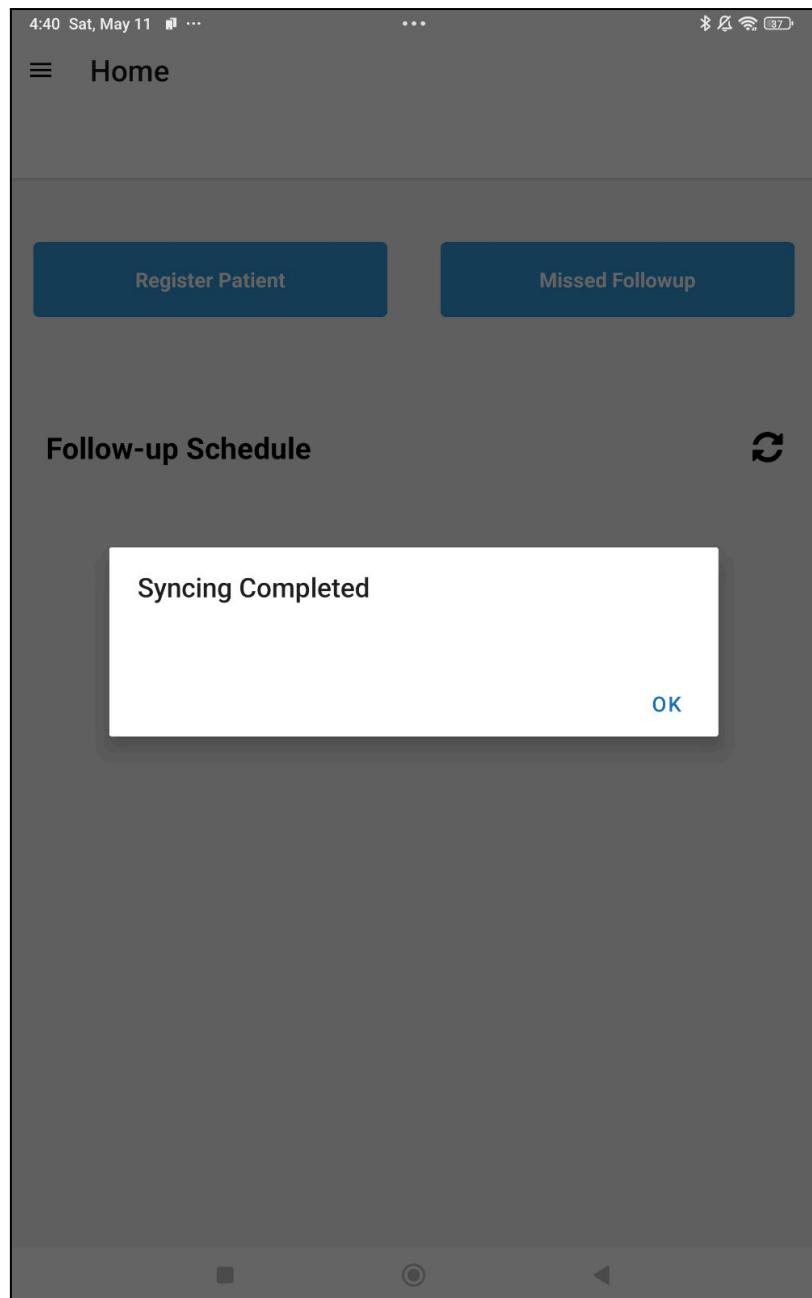
TAKE CONSENT



Consent of patient

Submit

Sync Complete



FollowUp:-

While taking Followup:-

5:24 Sat, May 11

≡ Home

Have you been taking your medication as prescribed?

Have you experienced any significant changes in your mood since your last visit?

Have you been experiencing any unusual thoughts or beliefs?

Have you been able to maintain regular sleeping patterns?

Have you noticed any changes in your appetite or eating habits?

Have you engaged in any harmful behaviors towards yourself or others?

Have you been feeling overwhelmed or unable to cope with daily stressors?

Preview and Submit

5:24 Sat, May 11 *** ⚡ ⚡ ⚡

≡ Home

←

Preview and Submit

Patient Details:

First Name: Kuldip
Last Name: Bhatale
Address: Kolhapur
Follow up Date: 25-May-2024
Age: 32
Status: Pending

Followup Questionnaire:

Have you been taking your medication as prescribed? - no
Have you experienced any significant changes in your mood since your last visit? - no
Have you been experiencing any unusual thoughts or beliefs? - yes
Have you been able to maintain regular sleeping patterns? - yes
Have you noticed any changes in your appetite or eating habits? - no
Have you engaged in any harmful behaviors towards yourself or others? - no
Have you been feeling overwhelmed or unable to cope with daily stressors? - yes

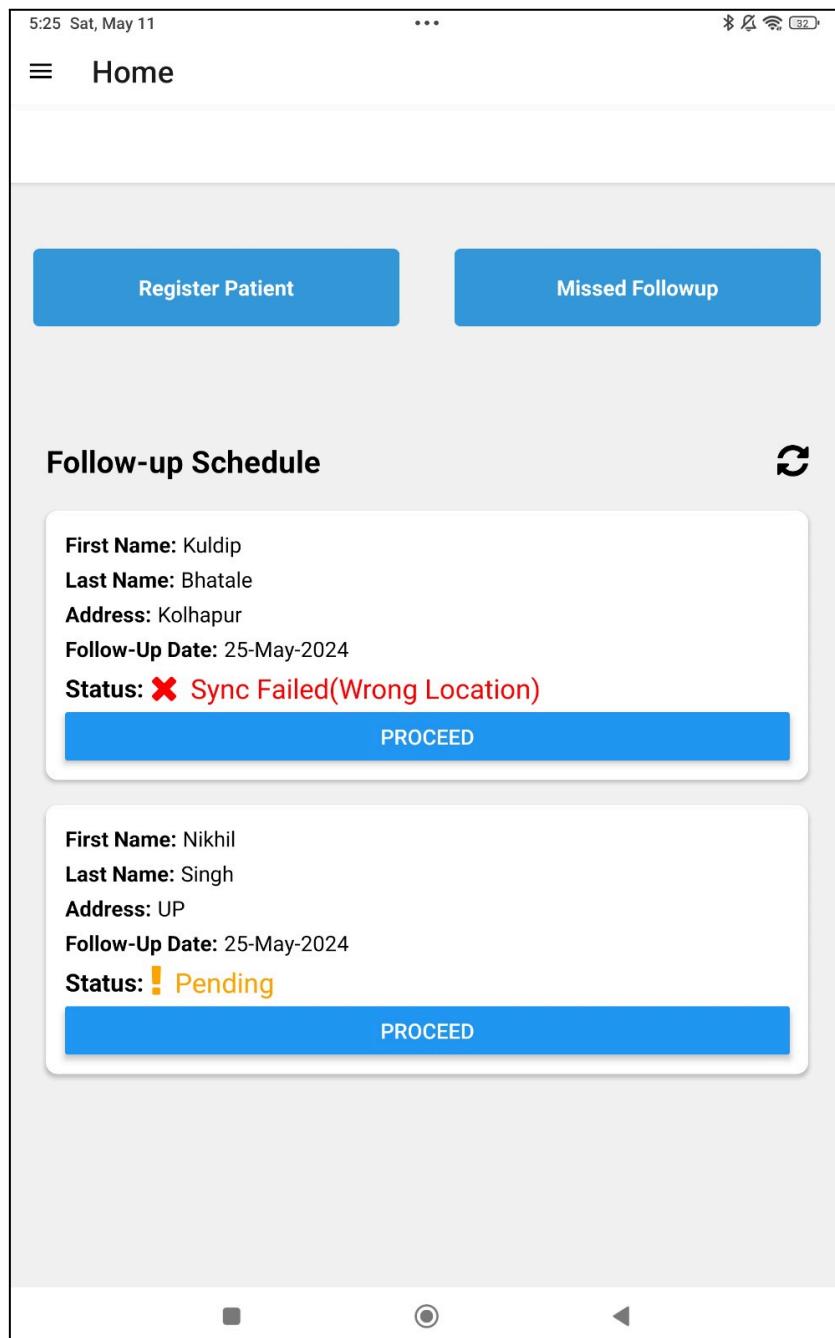
TAKE FOLLOWUP PIC



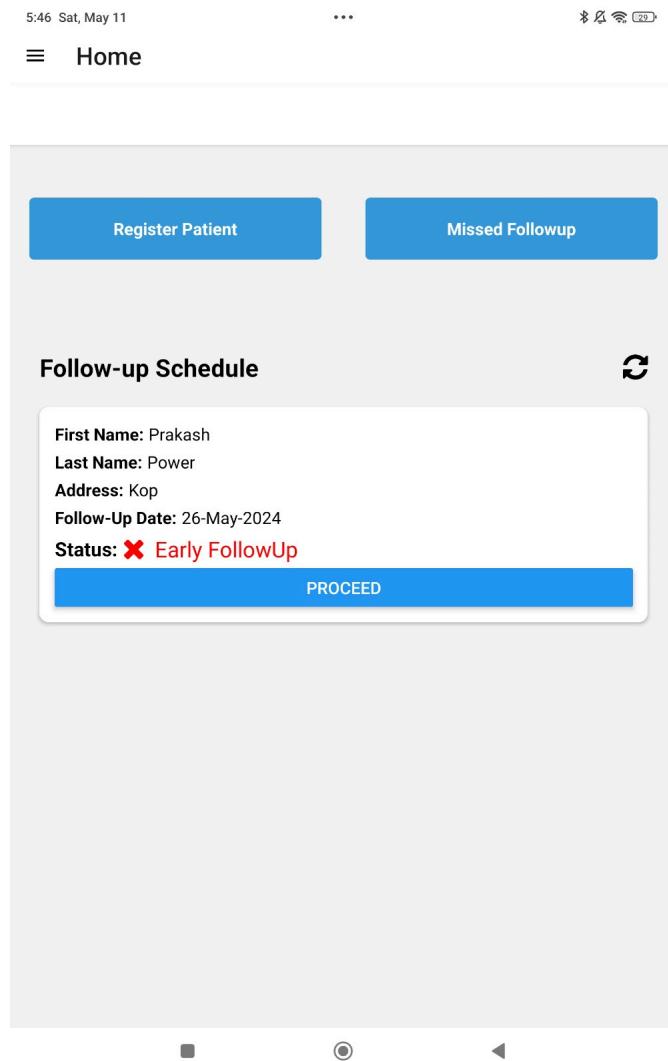
Consent of patient

Submit

Wrong Location Error If HealthWorker has taken up the followup from wrong location -



Cannot Take Early Followup :



b. Doctor:

- Simplified entry of diagnoses using ICD10 codes for efficient record-keeping.
- Scheduling and alert functionalities to facilitate follow-up appointments and ensure continuity of care.

- View Ongoing patient details

Images:

New Patient List :

First Name	Last Name	Village	Gender	
Soham	Patil	Konappana Agrahara (Ct)	male	<button>View Details</button>
Parth	Patel	Konappana Agrahara (Ct)	male	<button>View Details</button>
Ankush	Patil	Konappana Agrahara (Ct)	male	<button>View Details</button>

Medical History:-

Ankush Patil

Village : Konappana Agrahara (Ct)
Age : 25
Gender : male

Follow Up Details
Survey Registration

FollowUp Date: 21-June-2024
Assigned Health Worker: kuldip Bhatale

Medical History

1. Are there any mental health disorders that run in your family?no
2. Do you currently use or have you ever used substances such as alcohol, tobacco, or recreational drugs?yes
3. commentVery bad
4. How are youno
5. helioooyes
6. hiiyes
7. goodno
8. badyes
9. Helooonno

Survey Questionnaire:

The screenshot shows the ManoSarthi application interface. On the left sidebar, there are three buttons: 'Medical History' (disabled), 'Survey Questionnaire' (highlighted in blue), and 'Add Prescriptions'. The main content area displays a patient profile for 'Ankush Patil' with details: Village: Konappa Agrahara (C), Age: 25, Gender: male. To the right, 'Follow Up Details' show a survey registration with a follow-up date of 21-June-2024 and an assigned health worker named kuldip Bhatale. Below this, a section titled 'Survey Questionnaire Responses' contains a list of survey questions and their answers:

Survey Details
1. Are you facing any issue? - yes
2. How are you? - yes
3. How are you felling now?? - no
4. How are you felling now?? - no
5. Hellooo? - no

Patient Image clicked by Healthworker while registering

The screenshot shows the ManoSarthi application interface. On the left sidebar, there are three buttons: 'Medical History' (disabled), 'Survey Questionnaire' (highlighted in blue), and 'Add Prescriptions'. The main content area displays a 'Patient Image' of a person's leg with a white bandage wrapped around the ankle. The image is labeled 'Patient Image' above it.

Doctor adding prescription for surveyed Patient:

Add diseases -

ManoSarthi

Home Select Language ▾ Profile Logout

Medical History Survey Questionnaire Add Prescriptions

Prescription Form

Patient ID: 30

Category: Mood [affective] disorders

Sub-Category: Major depressive disorder, recurrent

Disease: Severe intellectual disabilities x Major depressive disorder, recurrent severe without psychotic features x

Medicine: Medicine2

10ml Evening

Add Medicine

Add Medicines -

Prescription Form

Patient ID: 30

Sr. No	Medicine	Dosage	Timing	Remove
1	Medicine1	5ml	Morning	X

Follow Ups:

Weekly 1

Submit

Ongoing Patient List (Patients currently undergoing follow-up)

Ongoing Patients:

First Name	Last Name	Village	Gender	View Details
Ankush	Patil	Konappana Agrahara (Ct)	male	View Details

Previous **Next**

Patient History -

The screenshot shows the ManoSarthi application interface. At the top, there is a navigation bar with links for Home, Select Language, Profile, and Logout. On the left, a sidebar menu includes Patient History, FollowUp Questionnaire (which is selected), and View Prescriptions. The main content area displays a patient profile for "Ankush Patil". The profile includes a placeholder user icon, the name "Ankush Patil", and details such as Village: Koneppana Agrahara (CT), Age: 25, and Gender: male. To the right of the profile is a "Follow Up Details" section titled "Survey Registration" with a note about the FollowUp Date: 21-June-2024 and Assigned Health Worker: kuldip Bhatale. Below the profile is a "Medical History" section containing a numbered list of questions:

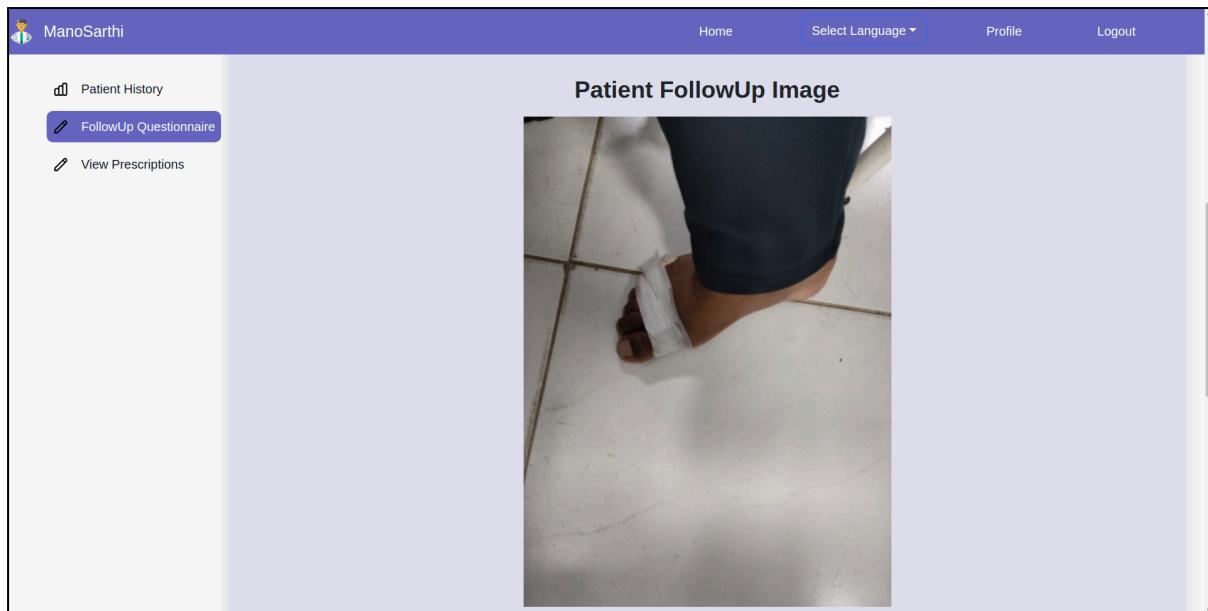
1. Are there any mental health disorders that run in your family? - no
2. Do you currently use or have you ever used substances such as alcohol, tobacco, or recreational drugs? - yes
3. comment - Very bad
4. How are you - no
5. helooo - yes
6. hiii - yes

Questionnaire administered during follow-up appointments -

The screenshot shows the ManoSarthi application interface. The layout is similar to the previous one, with a sidebar menu on the left and a main content area on the right. The "FollowUp Questionnaire" option is selected in the sidebar. The main content area displays a patient profile for "Ankush Patil" and a "Follow Up Details" section with the same information as before. Below these is a "Survey Questionnaire Responses" section. It shows a note "Follow Up Number : 0" followed by a numbered list of questions:

1. Are you facing any issue? - yes
2. How are you? - yes
3. How are you felling now?? - no
4. How are you felling now?? - no
5. Helooo? - no

Captured patient images during follow-up appointments.

A screenshot of the same healthcare application showing a prescription. The top navigation bar includes "Patient History", "FollowUp Questionnaire" (highlighted in blue), and "View Prescriptions". The main content area is titled "Prescription" and displays a table of diseases and a table of medicines. The "Diseases" table has columns: Sr. No, Category, SubCategory, and Disease Name. It lists two entries: "Mood [affective] disorders" and "Intellectual disabilities". The "Medicine" table has columns: Sr. No, Medicine, Dosage, and Timing. It lists one entry: "Medicine1" with dosage "5ml" and timing "Morning".

Sr. No	Category	SubCategory	Disease Name
1	Mood [affective] disorders	Major depressive disorder, recurrent severe without psychotic features	Major depressive disorder, recurrent
2	Intellectual disabilities	Severe intellectual disabilities	Severe intellectual disabilities

Sr. No	Medicine	Dosage	Timing
1	Medicine1	5ml	Morning

View Prescription

The screenshot shows a web-based healthcare application interface. At the top, there is a navigation bar with the logo 'ManoSarthi' and links for 'Home', 'Select Language ▾', 'Profile', and 'Logout'. On the left side, there is a sidebar with three buttons: 'Patient History' (with a patient icon), 'FollowUp Questionnaire' (with a clipboard icon), and 'View Prescriptions' (with a prescription icon). The main content area is titled 'Prescription'. It displays patient information: 'Patient ID : 30', 'Patient Name : Ankush Patil', and 'Date : 21-June-2024'. Below this, there is a section titled 'Disease:' with a table:

Sr. No	Category	SubCategory	Disease Name
1	Mood [affective] disorders	Major depressive disorder, recurrent severe without psychotic features	Major depressive disorder, recurrent
2	Intellectual disabilities	Severe intellectual disabilities	Severe intellectual disabilities

Below the disease section, there is a section titled 'Medicine:' with a table:

Sr. No	Medicine	Dosage	Timing
1	Medicine1	5ml	Morning

c. Supervisor:

- Add/Re-Assign/Delete worker
- Alert for missed follow up by worker
- Monitor worker activity

Images:-

Add Healthworker

Fill The HealthWorker Information :

Village: Janwad

First Name: Ankush

Last Name: Patil

Mobile No.: 8805576809

Email: ankushpatil488@gmail.com

Gender: Male Female

Date of Birth: 12/05/2024

ADD

Update Healthworker

HealthWorker Fristname	HealthWorker Lastname	Email	Village	Action
Saurabh	PATIL	SANKETSP29@GMAIL.COM	Shamanewadi	Update
Mohak	PATIL	kuldip.bhatale@iiitb.ac.in	Malikwad	Update

Previous **Next**

Delete Healthworker

The screenshot shows a web application interface for managing healthworkers. On the left, there is a sidebar with various navigation options: Dashboard, Add HealthWorker, Update HealthWorker, Delete HealthWorker (which is highlighted in blue), Show Activity, and Actor.Missed FollowUps. The main content area has a header "Choose Village:" followed by a dropdown menu set to "Select". Below this is a table listing healthworkers:

HealthWorker Firstname	HealthWorker Lastname	Email	Village	Action
Saurabh	PATIL	SANKETSP29@GMAIL.COM	Shamanewadi	<button>Delete</button>
Mohak	PATIL	kulidip.bhatale@iitb.ac.in	Malikwad	<button>Delete</button>

At the bottom of the table are two buttons: "Previous" and "Next".

Supervisor Profile

The screenshot shows a supervisor profile page. At the top, it says "Supervisor Profile" and displays a placeholder profile picture. Below it, the name "Ankush Patil" is shown with the username "SUP1" underneath. A "Change Password" button is located at the bottom of this section.

Other Details

Email :	ankushpatil459@gmail.com
District :	Belagavi
Subdistrict :	Chikodi
Gender :	Male

Worker activity

Health Worker Follow Ups Activity:

Select Village: Konappa Agrahara (Ct)

HealthWorker ID: 18
Name: kuldip Bhatale
Village: Konappa Agrahara (Ct)
Email: nikhilnagesh.singh@iiitb.ac.in

Total Followup Missed: 2
Current Missed Count: 1

Previously Missed Followups Details:

Sr. No	Village Name	Missed Count
1	Konappa Agrahara (Ct)	1

Current Missed Followups Details:

Sr. No	Village Name	Patient Name	Missed Followup Date
1	Konappa Agrahara (Ct)	Prakash Power	26-May-2024

Previously Missed Followups Details:

Sr. No	Village Name	Patient Name	Missed Followup Date	Completed Date
1	Konappa Agrahara (Ct)	Prakash Power	19-May-2024	01-June-2024

d. Admin:

Add/Re-Assign/Delete Doctor and Supervisor

ADD

Fill The Actor Information :

Select Actor to Add:*

Doctor

District:*

Belagavi

Subdistrict:*

Chikodi

First Name:*

kuldip

Last Name:*

Bhatale

Email:*

kuldipbhatale111@gmail.com

Gender:*

Male Female

Date of Birth:*

14/06/2000

Delete-

The screenshot shows the 'Reassign Actor' page of the ManoSarthi application. The sidebar on the left has the following menu items:

- Dashboard
- + Add
- Update
- Delete** (highlighted)
- + Add Questionnaire

The main content area is titled "Reassign Actor". It includes dropdown menus for "Actor:" (set to Doctor), "District:" (set to Belagavi), and "Subdistrict:" (set to Athni). Below these is a table with the following data:

Doctor Name	District	Subdistrict	Email	Action
Ankush	Belagavi	Athni	ankush.patil@iiitb.ac.in	Delete
Ankush	Belagavi	Athni	manasipurkar2001@gmail.com	Delete

At the bottom are "Previous" and "Next" navigation buttons.

Reassign (Doctor/Supervisor)

Reassign Actor

Doctor Name	District	Subdistrict	Email	Action
Ankush	Bengaluru Urban	Bengaluru South	ankushpatil459@gmail.com	Reassign
Ankush	Bengaluru Urban	Bengaluru South	nns972000@gmail.com	Reassign

Previous Next

State Level Dashboard

Total Surveys: 21

- Referred: 20
- Not Referred: 1
- Treated: 0

Age wise patients stats

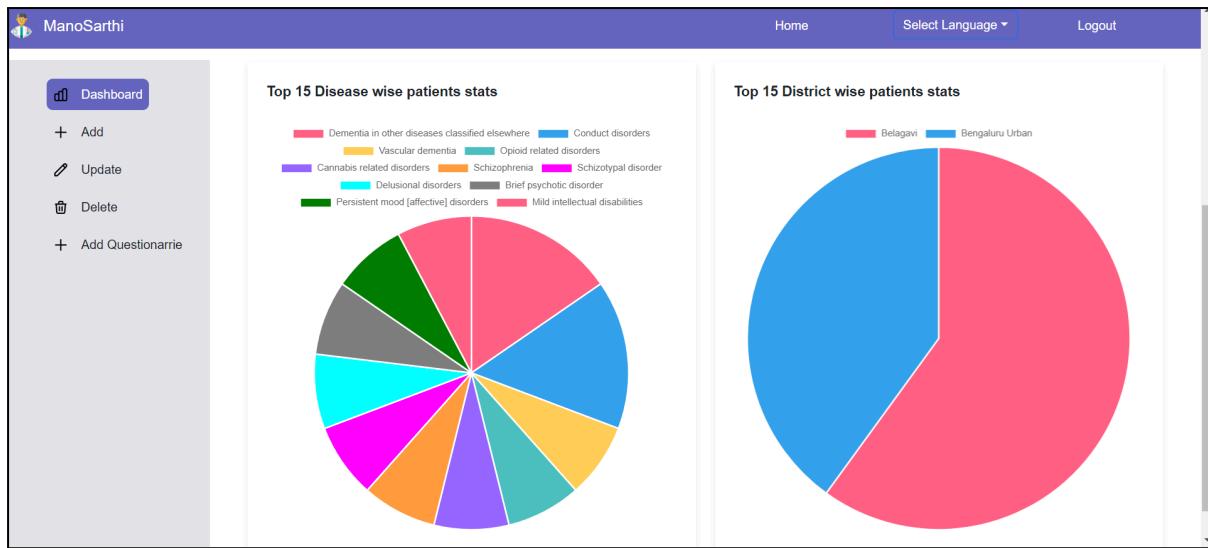
Age Group	Patients
Below 20	0
20 - 40	20
40 - 60	0
Above 60	0

Top 15 Disease wise patients stats

Disease Category	Patients
Dementia in other diseases classified elsewhere	10
Conduct disorders	10

Top 15 District wise patients stats

District	Patients
Belagavi	10
Bengaluru Urban	10



Add Questionnaire

The form allows users to define a new questionnaire. It includes fields for Survey Type (set to Survey), Survey Type (dropdown), Question (text input), Answer (dropdown), Age (dropdown), and a table for managing individual questions.

Select Questionarie Form Type Survey

Survey Type: Select

Question: Question

Answer: Select

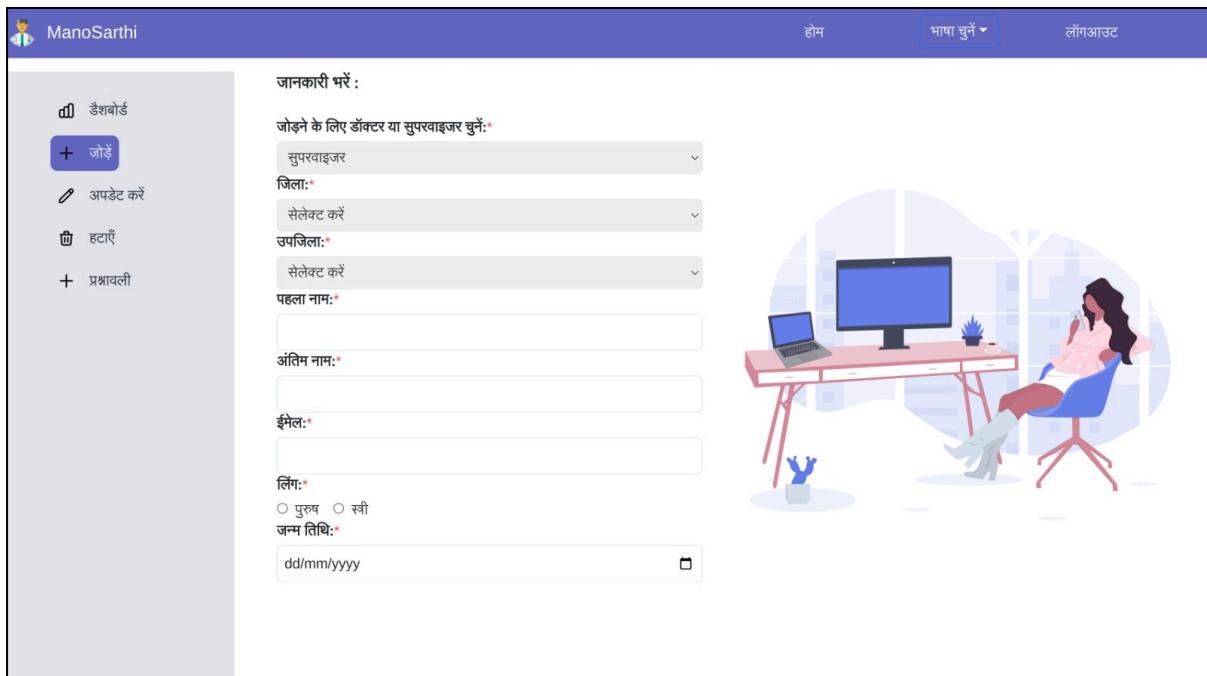
Age: 40-60

Add Question

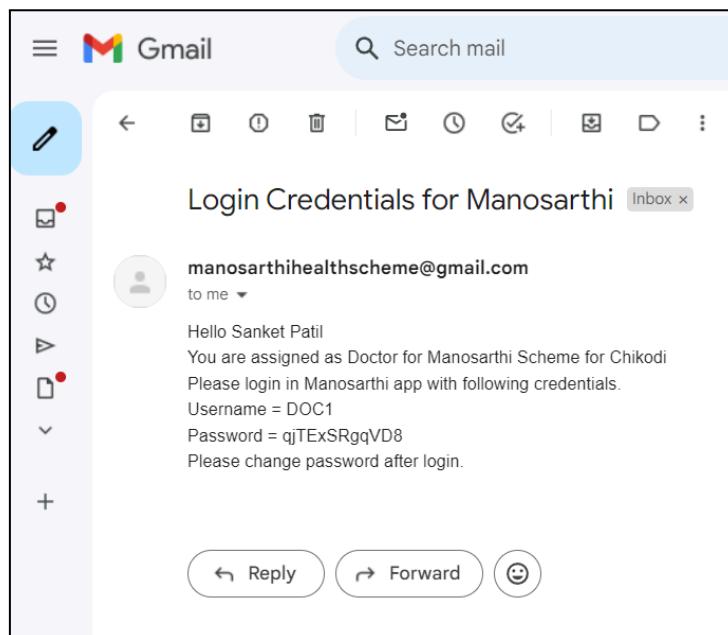
Sr. No	Question	Answer	Type	Age	Remove
1	What are you doing?	yes	followup	40 - 60	X

Submit

- MultiLingual Functionality



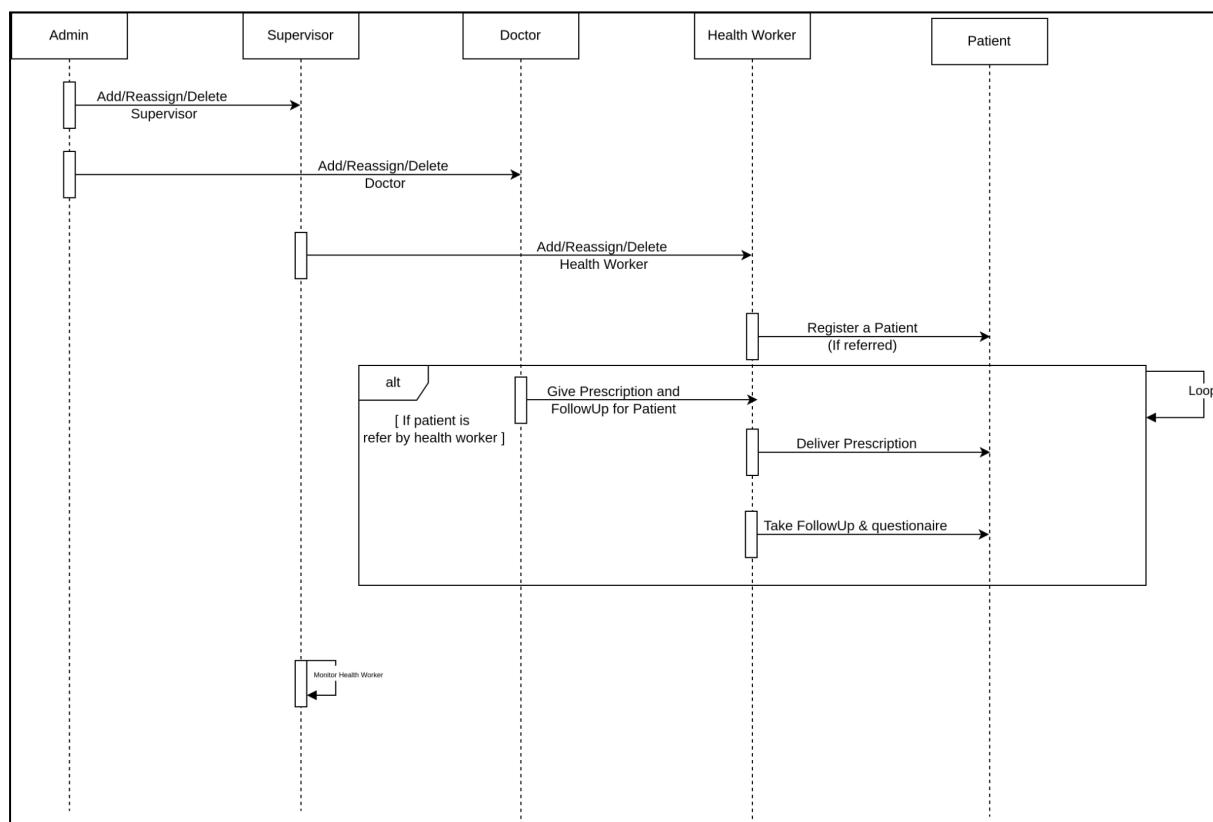
- Login Details will be sent to user's email address.



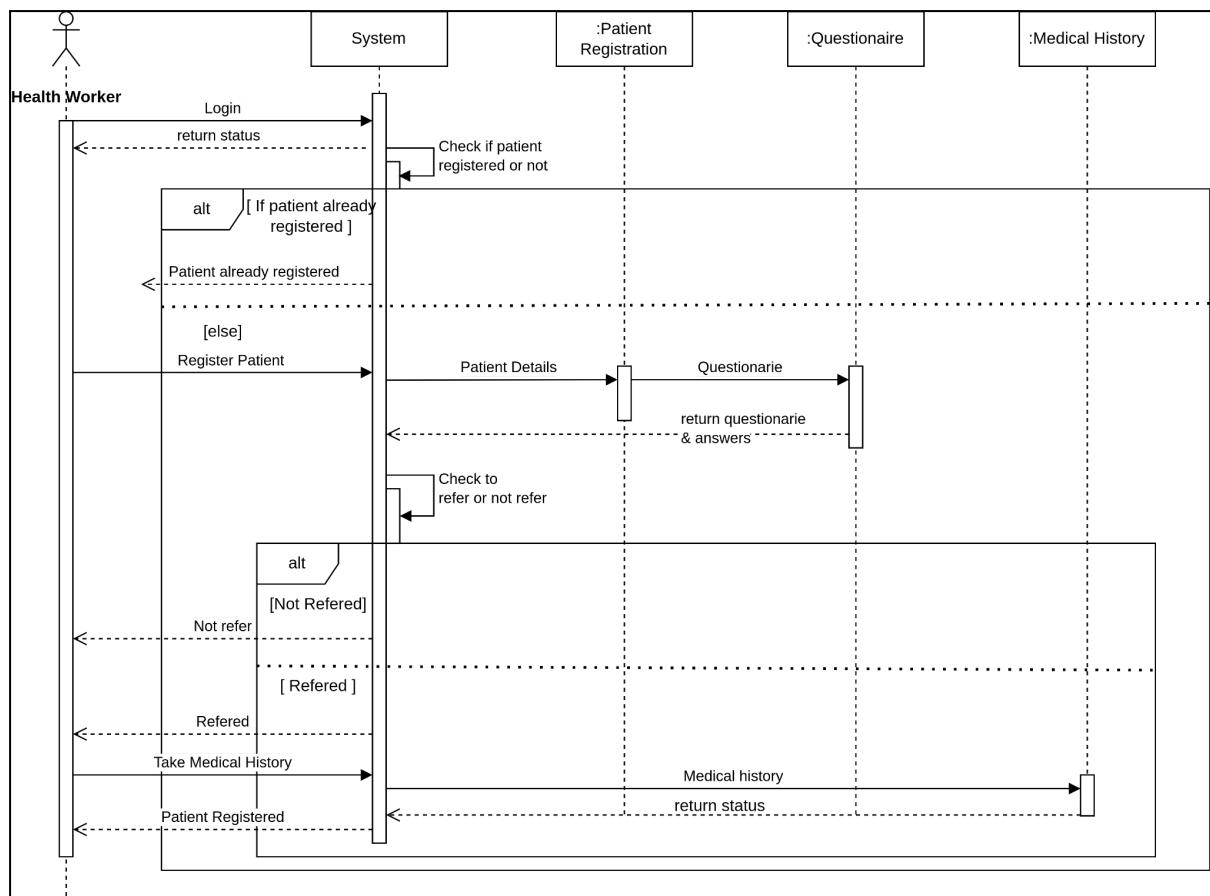
Key design documents

a. Sequence Diagram

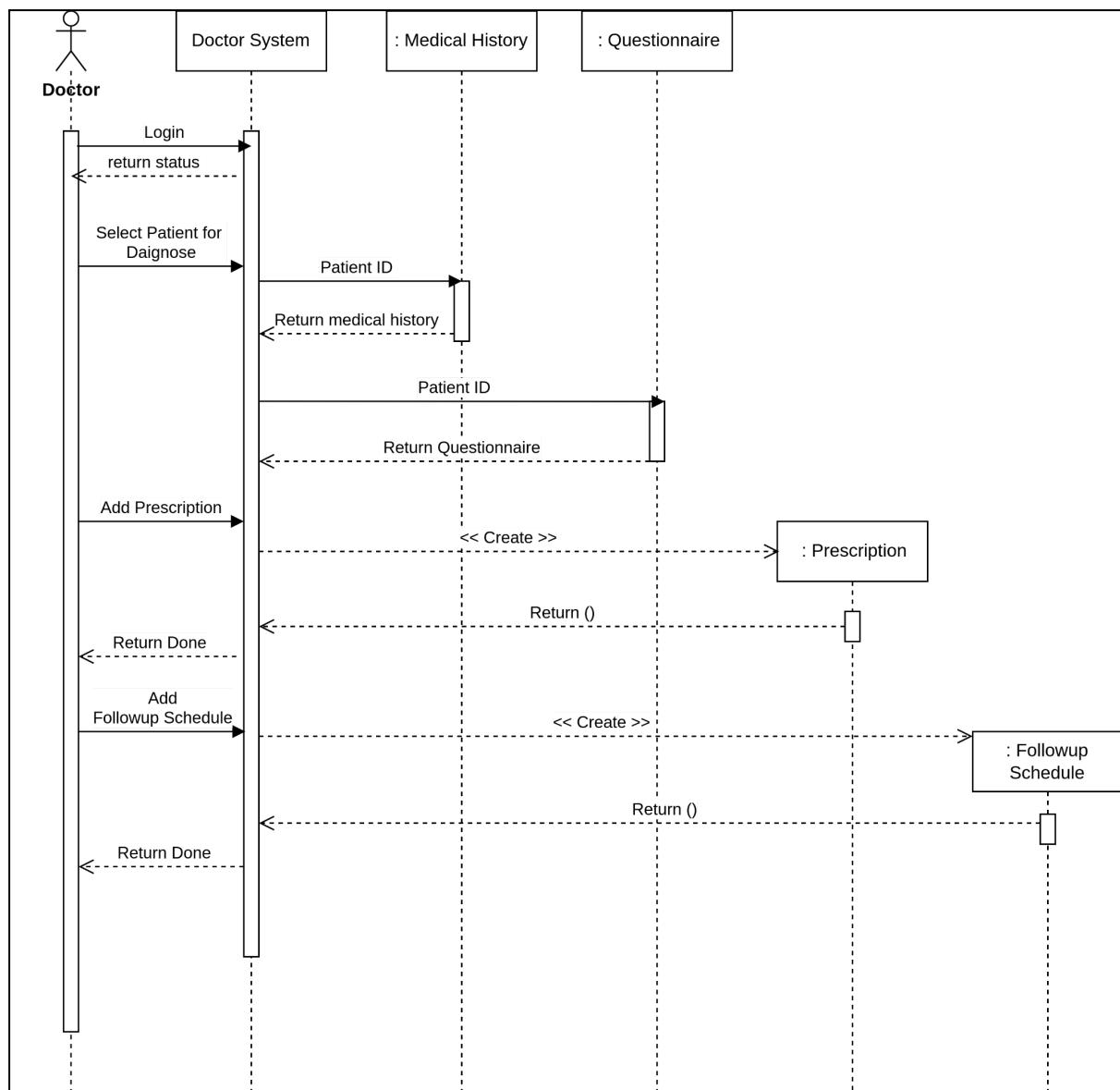
Actor Sequence Diagram



Patient Registration Sequence Diagram

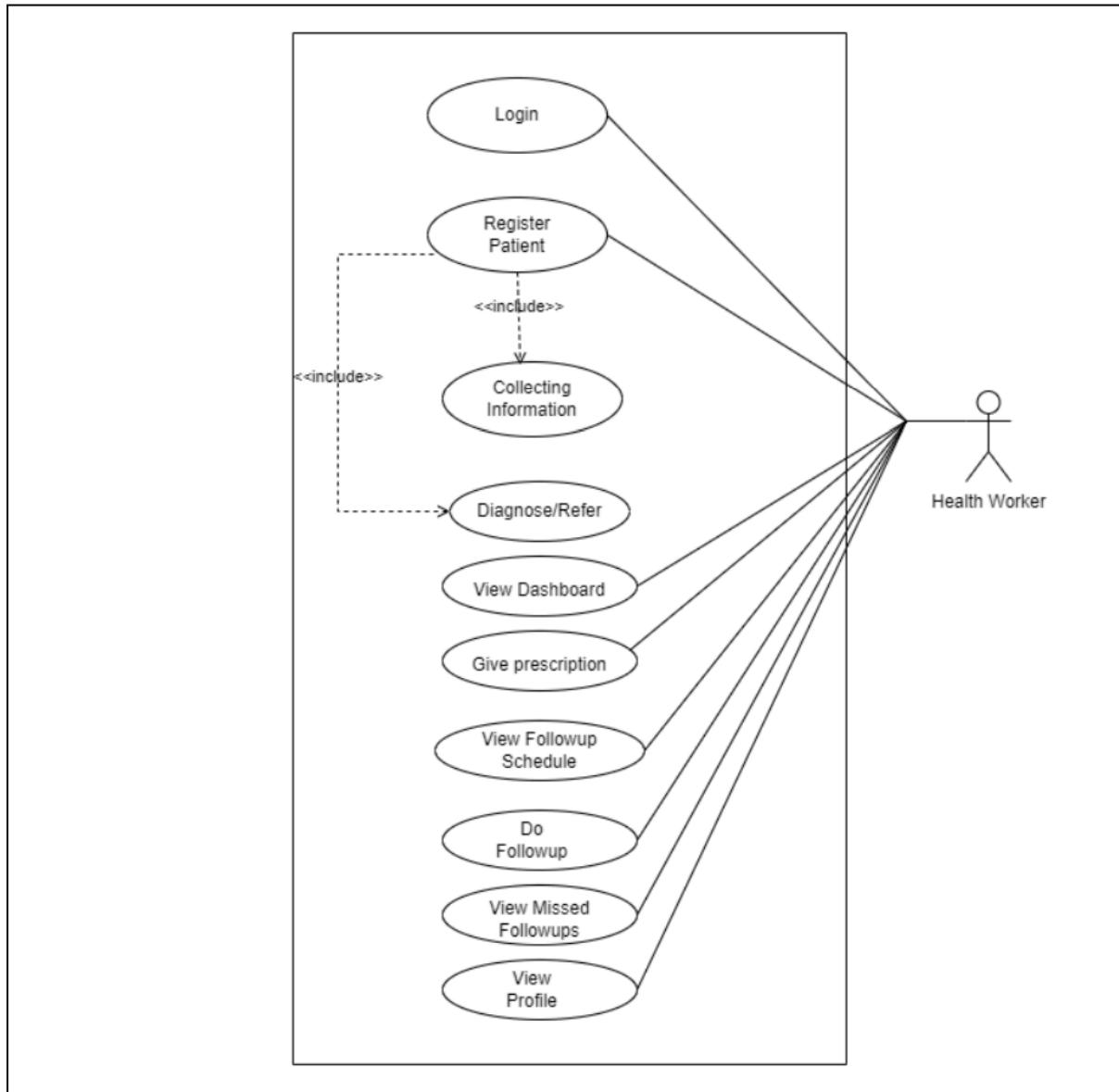


Prescription Sequence Diagram

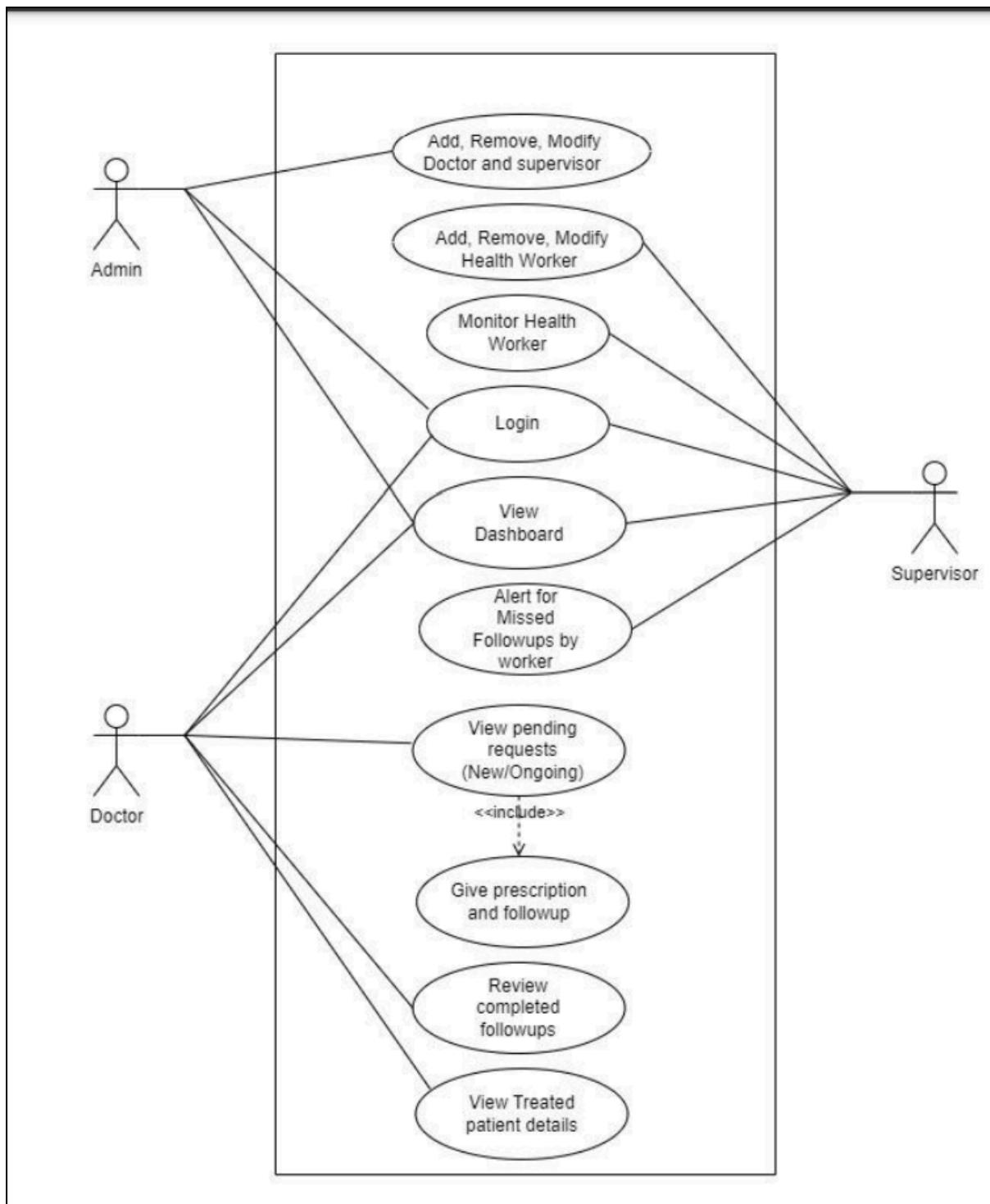


b. Use Case Diagram

For Mobile Application (Health Worker)

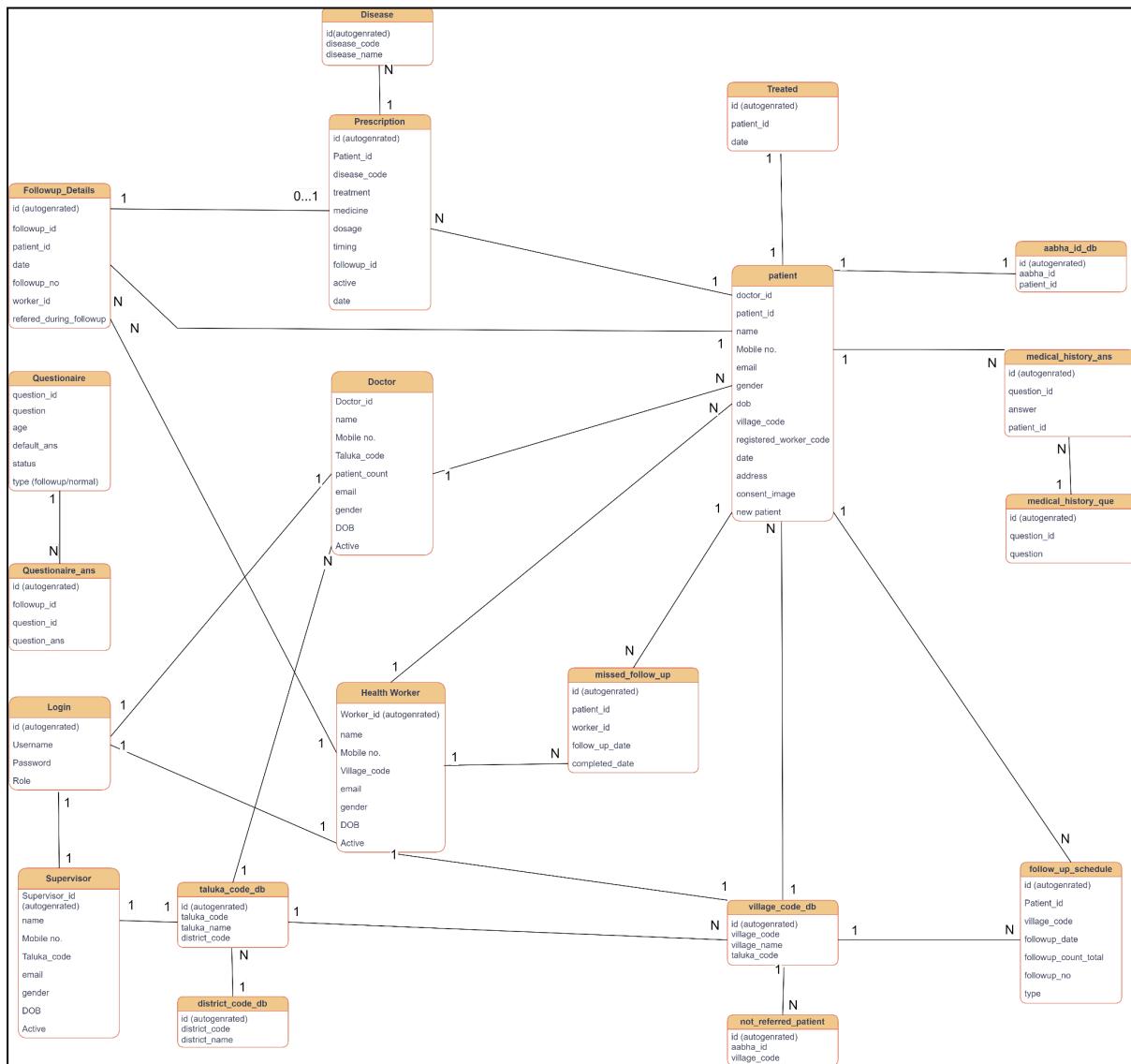


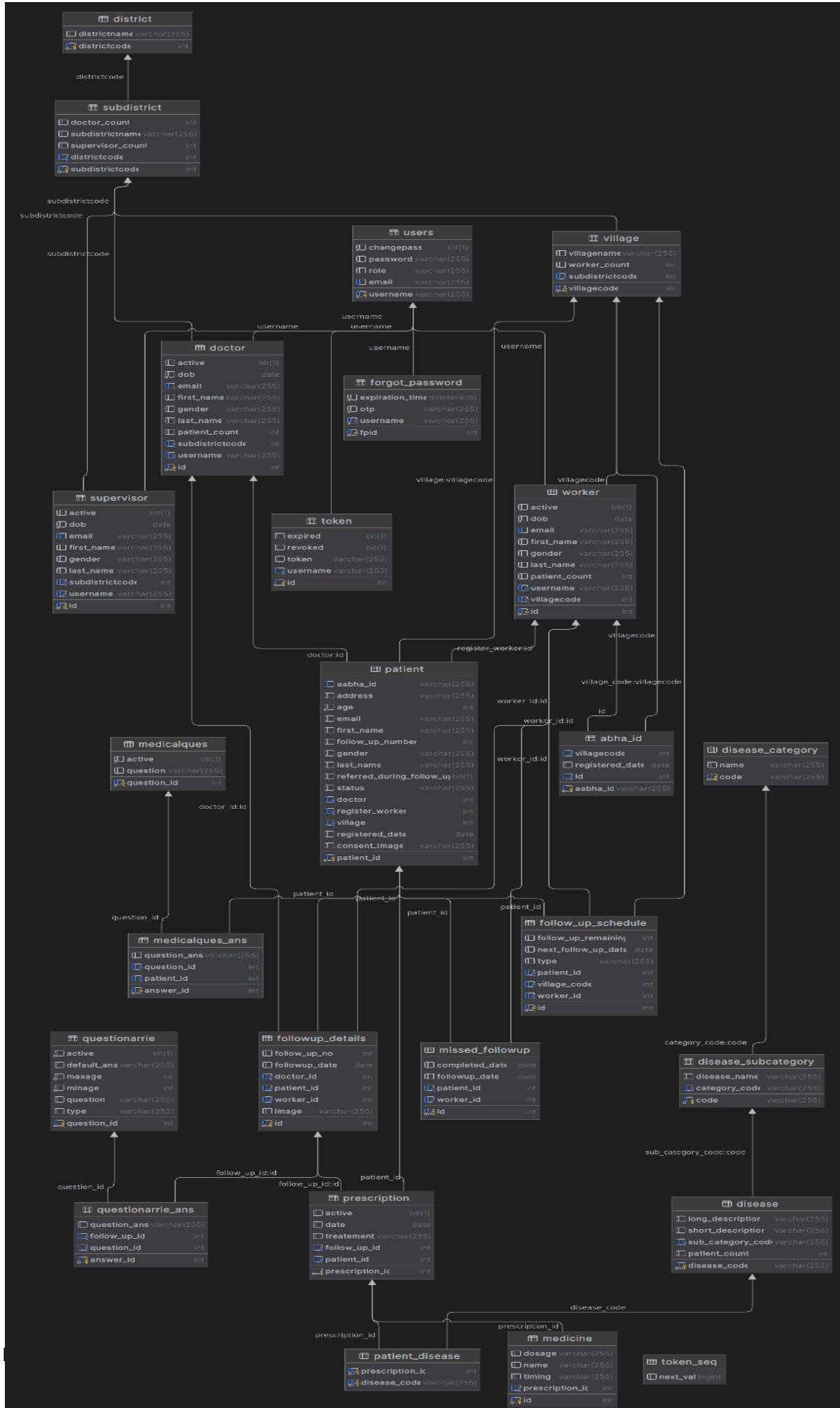
For Web Application (Doctor, Admin, Supervisor)



c. API : Link- [API Document](#)

d. Database Design





Security and Technical Safeguards

JWT Implementation

JWT, or JSON Web Token, is a compact, self-contained method for securely transmitting information between parties as a JSON object, typically used for authentication and authorization in web applications.

```
else if(userDetails.getAuthorities().stream()
    .anyMatch(authority -> authority.getAuthority().equals("ROLE_WORKER"))) {

    //Like above do for all role to get id

    System.out.println("Hello ROLE_WORKER here");
    id = workerRepository.findWorkerByUsername(userDetails.getUsername());
    System.out.println(id);
}

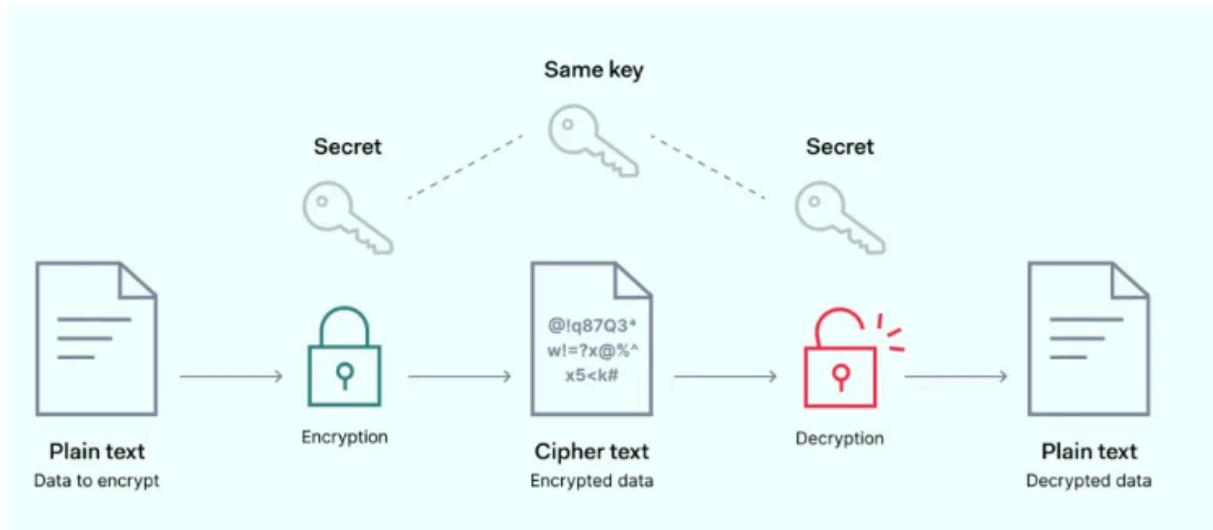
System.out.println("userDetails.getAuthorities() = "+userDetails.getAuthorities());

String userid=Integer.toString(id);
String token = this.helper.generateToken(userDetails, milliseconds,userid);

JwtResponse response = JwtResponse.builder()
    .jwtToken(token)
    .username(userDetails.getUsername()).role(userDetails.getAuthorities().toString()).build();
```

Encode and decode AABHA using AES encoder

AES (Advanced Encryption Standard) is a symmetric block cipher algorithm that encrypts data in blocks of 128 bits using cipher keys of 128, 192, or 256 bits. It is considered secure against all known attacks and is widely adopted as a standard for encrypting electronic data.



Ref- <https://nordlayer.com/blog/aes-encryption/>

```

public static String encrypt(String strToEncrypt, String secretKey, String salt) {

    try {

        SecureRandom secureRandom = new SecureRandom();
        byte[] iv = new byte[16];
        secureRandom.nextBytes(iv);
        IvParameterSpec ivspec = new IvParameterSpec(iv);

        SecretKeyFactory factory = SecretKeyFactory.getInstance(algorithm: "PBKDF2WithHmacSHA256");
        KeySpec spec = new PBEKeySpec(secretKey.toCharArray(), salt.getBytes(), ITERATION_COUNT, KEY_LENGTH);
        SecretKey tmp = factory.generateSecret(spec);
        SecretKeySpec secretKeySpec = new SecretKeySpec(tmp.getEncoded(), algorithm: "AES");

        Cipher cipher = Cipher.getInstance(transformation: "AES/CBC/PKCS5Padding");
        cipher.init(Cipher.ENCRYPT_MODE, secretKeySpec, ivspec);

        byte[] cipherText = cipher.doFinal(strToEncrypt.getBytes(charsetName: "UTF-8"));
        byte[] encryptedData = new byte[iv.length + cipherText.length];
        System.arraycopy(iv, srcPos: 0, encryptedData, destPos: 0, iv.length);
        System.arraycopy(cipherText, srcPos: 0, encryptedData, iv.length, cipherText.length);

        return Base64.getEncoder().encodeToString(encryptedData);
    } catch (Exception e) {
        // Handle the exception properly
        e.printStackTrace();
        return null;
    }
}

```

```

public static String decrypt(String strToDecrypt, String secretKey, String salt) {
    try {
        byte[] encryptedData = Base64.getDecoder().decode(strToDecrypt);
        byte[] iv = new byte[16];
        System.arraycopy(encryptedData, srcPos: 0, iv, destPos: 0, iv.length);
        IvParameterSpec ivspec = new IvParameterSpec(iv);

        SecretKeyFactory factory = SecretKeyFactory.getInstance(algorithm: "PBKDF2WithHmacSHA256");
        KeySpec spec = new PBEKeySpec(secretKey.toCharArray(), salt.getBytes(), ITERATION_COUNT, KEY_LENGTH);
        SecretKey tmp = factory.generateSecret(spec);
        SecretKeySpec secretKeySpec = new SecretKeySpec(tmp.getEncoded(), algorithm: "AES");

        Cipher cipher = Cipher.getInstance(transformation: "AES/CBC/PKCS5Padding");
        cipher.init(Cipher.DECRYPT_MODE, secretKeySpec, ivspec);

        byte[] cipherText = new byte[encryptedData.length - 16];
        System.arraycopy(encryptedData, srcPos: 16, cipherText, destPos: 0, cipherText.length);

        byte[] decryptedText = cipher.doFinal(cipherText);
        return new String(decryptedText, charsetName: "UTF-8");
    } catch (Exception e) {
        // Handle the exception properly
        e.printStackTrace();
        return null;
    }
}

```

Encode password using Bcrypt encoder

BCrypt encoder is a cryptographic hashing function commonly used for securely storing passwords. It offers high security through computational intensity, automatic salting, and adjustable cost factors. In Spring Security, BCrypt is frequently employed for password hashing and verification, enhancing the overall security of applications.

```

String password=PasswordGeneratorService.generatePassword();
user.setPassword(passwordEncoder.encode(password));

user.setRole("ROLE_DOCTOR");
User newuser = userRepository.save(user);

```

Data Validation

Jakarta Validation (formerly known as Bean Validation) is a specification that provides a unified way to express and enforce constraints on Java objects. It allows you to declaratively define validation rules using annotations, reducing boilerplate code and ensuring data integrity.

```

@NotNull(message = "first_name cannot be blank")
@Pattern(regexp="[a-zA-Z]+", message="Only characters are allowed")
@Column(name = "first_name")
private String firstname;

@NotNull(message = "last_name cannot be blank")
@Pattern(regexp="[a-zA-Z]+", message="Only characters are allowed")
@Column(name = "last_name")
private String lastname;

@NotNull(message = "Email cannot be blank")
@Email(message = "Enter valid email")
@Column(name = "email",unique = true)
private String email;

```

Only one token remains active at a time -

At a time only one token remains active, the other gets deactivated. When a user logs into the system multiple times previous tokens get deactivated.

1234	0x90	0x90	eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJ3MjI1LDRWVXOzLcLp1H0C1gWtCAnT0Q0S5hZMwJ3N0NEfINPMNTkScG8DQ3U1R0C9.833AcrtNKeMqFsw0324BefGmCC811bx77fIRMDA	MSQLER1B
2355	0x91	0x91	eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJ3MjI1LDRWVXOzLcLp1H0C1gWtCAnT0Q0S5hZMwJ3N0NEfINPMNTkScG8DQ3U1R0C9.833AcrtNKeMqFsw0324BefGmCC811bx77fIRMDA	SUP1
2356	0x91	0x91	eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJ3MjI1LDRWVXOzLcLp1H0C1gWtCAnT0Q0S5hZMwJ3N0NEfINPMNTkScG8DQ3U1R0C9.833AcrtNKeMqFsw0324BefGmCC811bx77fIRMDA	SUP1
2357	0x98	0x98	eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJ3MjI1LDRWVXOzLcLp1H0C1gWtCAnT0Q0S5hZMwJ3N0NEfINPMNTkScG8DQ3U1R0C9.833AcrtNKeMqFsw0324BefGmCC811bx77fIRMDA	SUP1
	0x01	0x01	SUP1	
	0x91	0x91	SUP1	
	0x98	0x98	SUP1	

Challenges Faced

- 1) **Connectivity Issues:** Despite offline capabilities, challenges related to internet connectivity in remote areas have persisted, affecting the real-time transmission of data and communication between field workers and healthcare providers.
- 2) **Data Integrity:** Ensuring the accuracy and integrity of data when syncing from offline to online modes is a bit challenging for us.
- 3) **GitHub:** GitHub version controlling and merge conflicts present challenges such as collaborative workflow management, resolving merge conflicts, handling branching complexity, reverting changes.
- 4) **Integrating location check for follow up:** Getting the location of worker in offline mode and checking the data while syncing when online

Conclusion & Future work

The proposed system for extending care to the home through enabling health workers presents a comprehensive approach to addressing mental health conditions within communities. By implementing standardised screening, referral processes, and treatment protocols, it ensures timely intervention and support for individuals in need. The integration of a tablet-based app for health workers, with offline capability, streamlines data collection and follow-up procedures, enhancing efficiency and accessibility even in remote areas. Moreover, the provision for doctors to access patient data and summary information facilitates informed decision-making and resource allocation at the local level. Additionally, the availability of a state-level dashboard API for Admin enables monitoring and evaluation of program effectiveness. Overall, this initiative embodies a scalable and inclusive model for community-based mental healthcare delivery.

Future work could involve refining the program's processes through ongoing evaluation, expanding services to address broader healthcare needs, integrating advanced technologies for improved care delivery, engaging communities through education and outreach and scaling up the program to reach more areas.

Privacy Policy Summary

Please answer the following in as much detail as you can provide. In the table below, “user” refers to the “data subject” – the person(s) whose personal data is being collected and processed in your application.

Data Fiduciaries <i>Identify the organizations/entities that “determine the purpose and means of processing of personal data”</i>	Manosarthi Application
Nature of the application/platform <i>Summarize the overall purpose of your solution – what it broadly does, and not how it does it</i>	This mobile application designed to empower field health workers in extending healthcare services, particularly focusing on mental health, from hospitals to homes. The app streamlines screening, referral, and follow-up processes, enhancing community access to vital care. Key features include standardized screening questionnaires, simplified diagnosis entry, scheduling, offline capability, and multi-lingual support. The application also facilitates data management and integrates with state-level dashboards for program monitoring.
Personal data collected	<i>For each item of personal and/or sensitive data, mention the item and the purpose for which it is collected List one data item per line</i>
Data Item	Purpose
Patient Name	Used to personally address the patient
Patient Aabha	To check patient already surveyed or not
Patient Age	Using for medical purpose and different questionnaires according to age
Patient Gender	For medical purpose
Patient Village	To check from where patients are surveyed
Patient Address	Worker can go to this address for followups and giving prescription
Patient Medical History	For medical purpose
Informed consent <i>List the steps at which user consent is obtained, and the mechanism of consent collection.</i>	While registering patient we are taking consent image which contains form signed by patient.
Data Minimization <i>Are all data items collected required for the proposed processing? Identify those that are not needed for the stated purposes</i>	NA
Confidentiality <i>How is this ensured. List any 3rd parties with whom the data is shared, and the purpose</i>	We are not sharing data to any 3 rd person. Data of one person cannot be viewed by other (like patients of one doctor cannot be seen by other doctor)
Purpose Limitation <i>Identify mechanisms in place to prevent data use for other than stated purposes</i>	We are not using data other than required purpose.

Security <i>List the security related mechanisms and technical safeguards to protect privacy</i>	JWT(JSON web token) used for authentication and authorization and securely transmitting information between parties as JSON object. Encrypting column data which is sensitive like abha id. Added validation on columns in both frontend and backend to prevent wrong data entry or SQL injection.
Data Retention <i>For what period of time is the collected data stored. What happens to the data at the end of that period</i>	Currently we haven't implemented a specific data retention period.
Data Deletion Requests <i>Describe the mechanism by which users can request deletion of some or all of their data. If no such mechanism exists, state so</i>	Currently we haven't implemented a specific data deletion request.
Account Deletion <i>How are requests for deletion of accounts by users handled. What happens to the data of accounts that are deleted</i>	Accounts are labeled as deactivated instead of deleting completely, so that data can be used for future reference, maintaining data integrity while making the account inactive.
Revoking Consent <i>Can users revoke some or all of the consent they have provided. What is the mechanism for revoking consent?</i>	a specific mechanism for revoking consent has not been incorporated.
Other Privacy related remarks	Actors can see and access data only related to them (one doctor cannot see patients of other doctor from same subdistrict)