

**Corona Doctor: An Android Based Application for Self-Assessing the
Necessity of Performing COVID-19 Test using Questions Based Approach**

By

Julekha Akter Keya

ID: 171-35-176

Maiesha Farjana Esha

ID: 171-35-177

This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Bachelor of Science in Software Engineering

Supervised By

SK. Fazlee Rabby

Lecturer

Department of SWE

Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

JUNE 2021

APPROVAL

This project titled “Corona Doctor: An Android Based Application for Self-Assessing the Necessity of Performing COVID-19 Test using Questions Based Approach”, submitted by Julekha Akter Keya and Maiesha Farjana Esha to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Software Engineering (SWE). The presentation has been held on June 2021 and approved as to its style and contents.

DECLARATION

We hereby declare that this project work has been completed by us under the supervision of SK. Fazlee Rabby, Lecturer, Department of Software Engineering, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree.

Supervised by:



SK. Fazlee Rabby
Lecturer
Department of SWE
Daffodil International University

Submitted by:



Julekha Akter Keya
ID: 171-35-176
Department of SWE
Daffodil International University

Submitted by:



Maiesha Farjana Esha
ID: 171-35-177
Department of SWE
Daffodil International University

ABSTRACT

Since a large number of people in Bangladesh were afraid to get tested for COVID-19, we decided to research and find a ranking of people with symptoms of covid-19 but still not getting tested. These people are spreading Covid-19 more than usual. And these people stay away from any covid-19 calculation. We aim to get them to get tested for covid-19 and if they show any symptoms. In addition, we collect data about people so that we can keep it in pen and paper calculations while studying this data. Using the mobile app, people will tell us their current symptoms and we will motivate them to take tests and collect data to study them. Through our app Users also can detect the charge of their symptoms. They can request for COVID test at home so they don't need to step out for the test since the features are free users can easily go through it and Users can call an Ambulance at emergency situation.

Motivation

It's time for a global pandemic from the COVID-19 virus and together anyone can stop it. The World Health Organization (WHO) has said more tests and tests can help prevent it. However, the people of Bangladesh have a general fear of the disease. If someone tests positive for Covid-19, it is considered a social crime. This is why a large number of people in Bangladesh are unwilling to take COVID-19 tests. However, these selfless people are spreading COVID-19 more than pen-and-paper calculations. We aim to at least motivate people to get tested for COVID-19 if they have at least some symptoms. Users are free to use the mobile app and this mobile app is not intended as a COVID-19 tester but as a consultant to suggest whether people are using tests or not. The data we get from it can easily be used to study the results of a study of people in Bangladesh who show symptoms of Covid-19 and are not being tested.

Objectives

- Add Questions from a valid source so a close to perfect result can be achieved
- Add multiple animations to improve user experience
- Make create post section So doctors can create a post
- Add Review functionality in post so users can review post

Expected Outcome

A fully-fledged android app where users can answer multiple questions and know their result if he/she should test for covid or not. Doctors can also provide some helpful Information through the create post section in the app

TABLE OF CONTENTS

Contents	Page
APPROVAL	ii
DECLARATION	iii
ABSTRACT	iv
MOTIVATION, OBJECTIVES, EXPECTED OUTCOME	v
TABLE OF CONTENTS	vi-vii
CHAPTER 1: INTRODUCTION	
1.1 Project Overview	1
1.2 Project Purpose	1
1.2.1 Background	1
1.2.2 Benefits & Beneficiaries	1
1.2.3 Goals	1
1.3 Stakeholders	2
1.4 Proposed System Model (block diagram)	2
1.5 Project Schedule	
1.5.1 Gantt Chart	3
1.5.2 Release Plan/Milestone	3
CHAPTER 2: SOFTWARE REQUIREMENT SPECIFICATION	
2.1 Functional Requirements	4
2.2 Non-Functional Requirements	4
CHAPTER 3: SYSTEM ANALYSIS	
3.1 Use Case Diagram	5
3.2 Use Case Description (for each use case)	6-11
3.3 Activity Diagram (for each use case)	12-13
CHAPTER 4: System Design Specification	
4.1 Data Flow Diagram	14-15
4.2 Database Design Diagram	16
4.3 Development Tools & Technology	
4.3.1 User Interface Technology	17
4.3.2 Implementation Tools & Platforms	17

CHAPTER 5: SYSTEM TESTING	
5.1 Testing Features	18
5.2 Testing Strategies	18
5.3 Testing Environment (hardware/software requirements)	18
5.4 Test Cases	19
CHAPTER 6: USER MANUAL	
6.1 User Manual (Users)	20-25
6.2 User Manual (Doctors)	26-29
CHAPTER 7: PROJECT SUMMARY	
7.1 GitHub Link	30
7.2 Limitations and Challenges	30
7.3 Future Scope	30
REFERENCES	31

CHAPTER 1

INTRODUCTION

1.1 Project Overview

Corona doctor is an android application which will help users by providing a predicted covid possibility with some questions. So that after seeing the result the user is motivated to do the test for covid cause in Bangladesh we are seeing that lots of people do not want to test even if they have some severe symptoms. Corona Doctor will let user to save his/her predicted result so that later he can do it again and can see if he/she has gotten better. Corona doctor will also provide helpful information about COVID-19 like what to do and what not do. And users can consult with a doctor registered in the app. Currently Corona doctor is featuring messaging option. Registered doctors in the app can provide helpful tips by creating a post and the users of the app will see those posts.

1.2 Project Purpose

1.2.1 Background

The idea of Corona doctor came from the unwillingness to test for covid even if someone has some severe symptoms. Peoples have some kind of fear in their mind because of lack of knowledge. But he/she doesn't know that by testing if he is covid positive he/she can keep distance from his family and spend some time in quarantine and everyone will be safe. But without testing he is putting everyone into danger.

1.2.2 Benefits & Beneficiaries

- Motivates users to test for COVID-19
- Provides necessary helpful information related to COVID-19
- Consult with a Registered Doctor (Messaging)

1.2.3 Goals

- Build 2 android application one for users and one for doctors
- Let user give the ability to save his/her predicated result so he/she can see it later

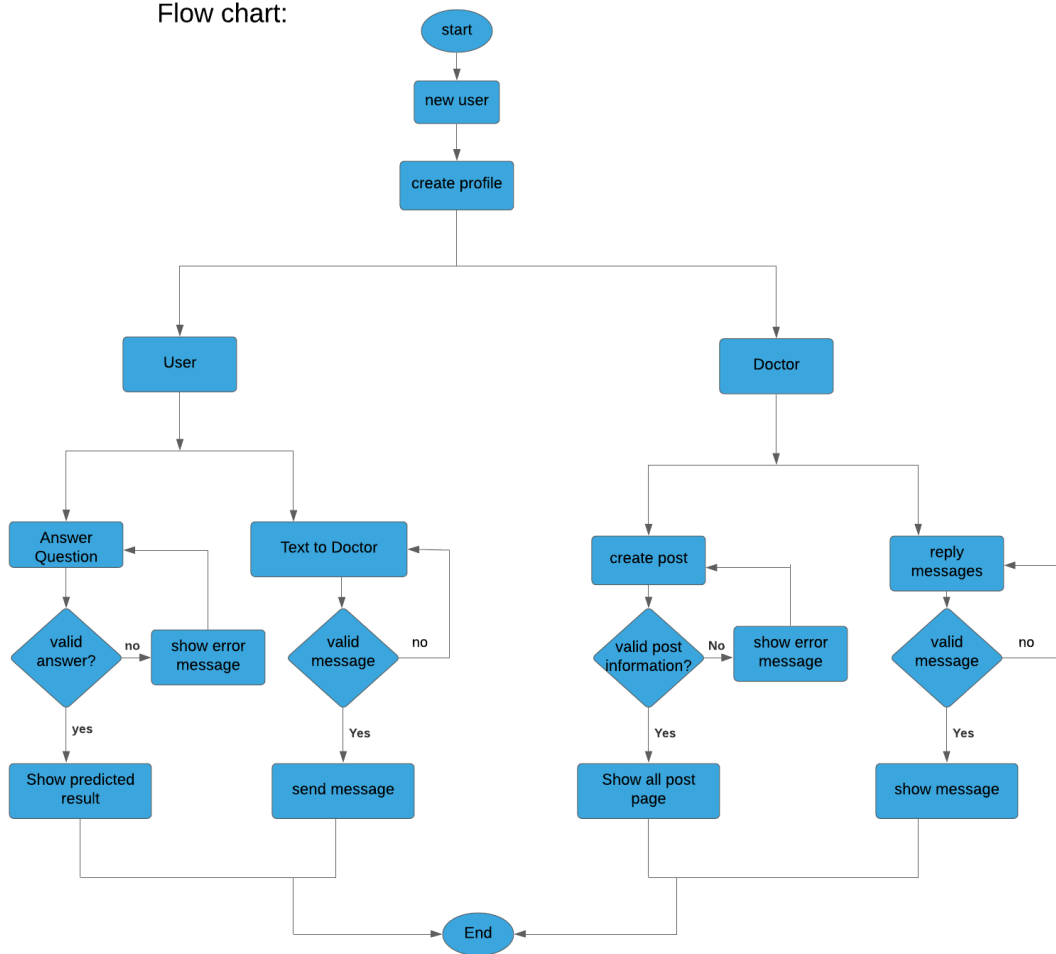
1.3 Stakeholders

There are 2 types stakeholders in Corona Doctor

- Regular Users
- Registered Doctors

1.4 Proposed System Model (block diagram)

Flow chart:



1.5 Project Schedule

1.5.1 Gantt Chart

TASK	ASSIGNED TO	PROGRESS	START	END	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	
Corona Doctor APP for Regular Users																				
Build Questions Page	Julekha Akter Keya	100%	6/1/21	6/4/21																
Prediction function	Julekha Akter Keya	100%	6/4/21	6/6/21																
Develop user profile	Maiesha Esha	100%	6/6/21	6/7/21																
Let User save predicted result	Maiesha Esha	100%	6/7/21	6/8/21																
Doctor App for registered doctors																				
Registration & Authentication	Maiesha Esha	90%	6/1/21	6/3/21																
Create Post page	Maiesha Esha	100%	6/4/21	6/6/21																
Post Edit and delete	Julekha Akter Keya	100%	6/6/21	6/9/21																
Messaging	Julekha and Maiesha	100%	6/9/21	6/14/21																

1.5.2 Release Plan/Milestone

On the beta release of Corona Doctor, we wanted to build following features. The first beta release of corona doctor was in 06/14/2021

- Users will be able to answer questions and view predicted result
- Users will view helpful information
- Authentication System
- Doctors can Register and Create Post
- Messaging functions

CHAPTER 2

SOFTWARE REQUIREMENT SPECIFICATION

2.1 Functional Requirements

- User Authentication System
- User will be able to answer questions
- Predicted result will be shown based on given answers
- Doctors can create post
- User will be able to consult with a doctor using the messaging feature
- A minimal User interface
- User will be able to call ambulance
- User can request for COVID test at home

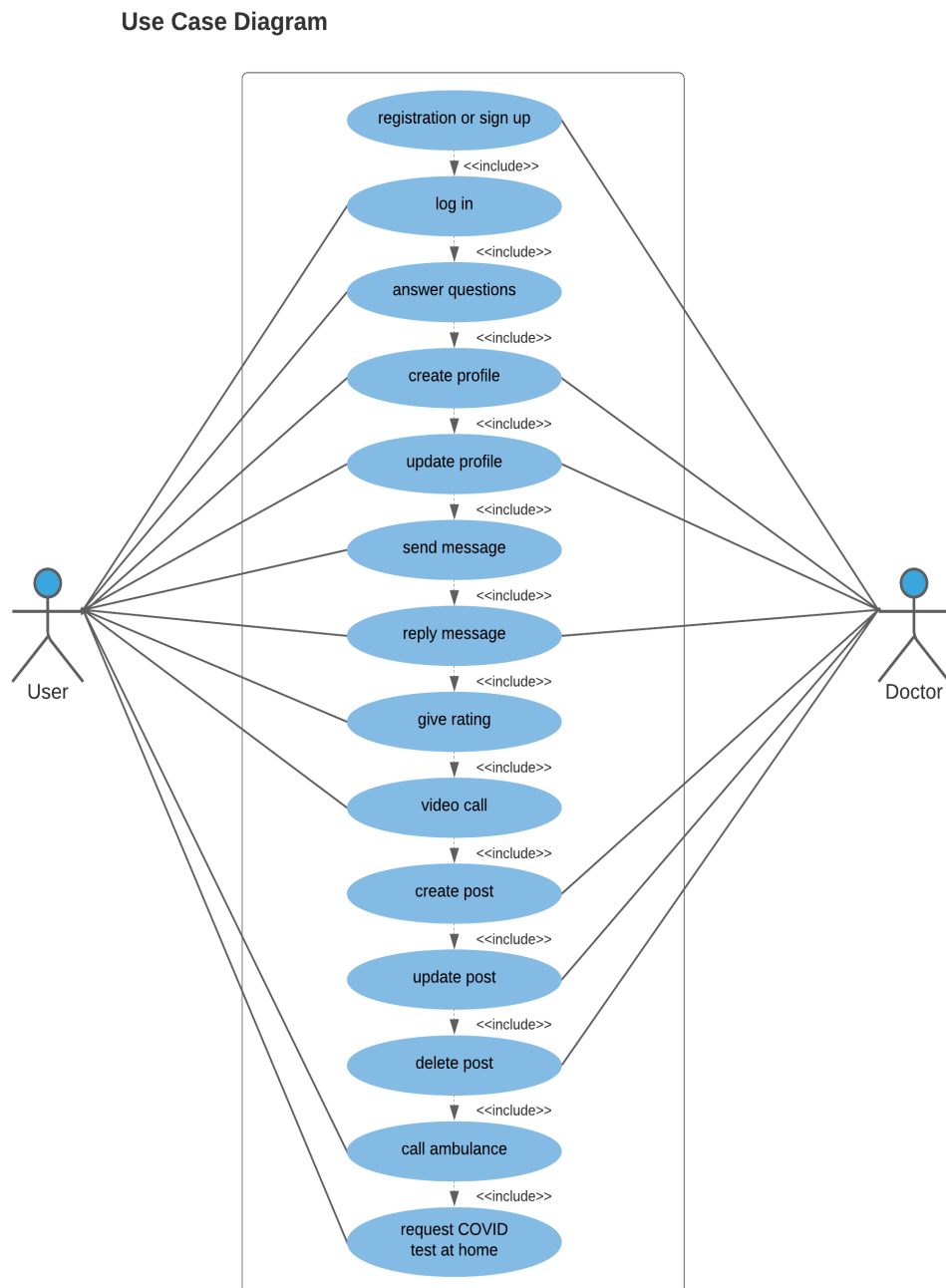
2.2 Non-Functional Requirements

- Users can give a rating to doctors
- Doctors can edit delete post
- Overhaul UI update

CHAPTER 3

SYSTEM ANALYSIS

3.1 Use Case Diagram



3.2 Use Case Description

Login

Use Case Name	Login	
Use Case Description	Login is required for doctors and users to access profile	
Actors	Doctor, User	
Pre-Condition	User must need to registered	
Post-Condition	Successful Login will redirect to Profile page	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter username Enter password
	2	Validate credentials
	3	Redirect to Profile page
	2a	Invalid credentials show error message

Answer Questions

Use Case Name	Answer Questions	
Use Case Description	User will be prompted with questions to answer	
Actors	User	
Pre-Condition	None	
Post-Condition	Successful Answers will show predicted answer	
Main Scenarios	Serial No	Steps
Actors/Users	1	Answer Questions
	2	Validate answers
	3	Redirect to Predicted result page
	2a	Invalid answers will show error message

Create Profile

Use Case Name	Create Profile	
Use Case Description	Users and Doctor will be able to create profile	
Actors	Doctor, User	
Pre-Condition	User must need to registered	
Post-Condition	Successful Registration will redirect to Profile page	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter username Enter password Enter Registration No (Doctors only) Enter Age Enter Occupation Enter Category (Doctors only)
	2	Validate information
	3	Redirect to Profile page
	2a	Invalid information show error message

Update Profile

Use Case Name	Update Profile	
Use Case Description	Users and Doctors will be able to update profile	
Actors	Doctor, User	
Pre-Condition	User must need to have a profile	
Post-Condition	Successful update will redirect to Profile page	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter update information
	2	Validate information
	3	Redirect to Profile page
	2a	Invalid information show error message

Send Message

Use Case Name	Send Message	
Use Case Description	Users and Doctors will be able to send a message	
Actors	Doctor, User	
Pre-Condition	User must need to registered	
Post-Condition	Successful message will send a message to recipient	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter message
	2	Validate message
	3	Send message
	2a	Invalid message show error message

Reply Message

Use Case Name	Reply Message	
Use Case Description	Users and Doctors will be able to reply to a message	
Actors	Doctor, User	
Pre-Condition	User must need to registered	
Post-Condition	Successful message will send a reply to sender	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter message
	2	Validate message
	3	Reply message
	2a	Invalid message show error message

Create Post

Use Case Name	Create Post	
Use Case Description	Doctors will be able to create post	
Actors	Doctors	
Pre-Condition	Doctors must need to registered	
Post-Condition	Successful information will create a new post to database	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter post information
	2	Validate post information
	3	Create post
	2a	Invalid post show error message

Update Post

Use Case Name	Update Post	
Use Case Description	Doctors will be able to update post	
Actors	Doctors	
Pre-Condition	Doctors must need to registered	
Post-Condition	Successful information will update a post in database	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter updated post information
	2	Validate post information
	3	Update post
	2a	Invalid post show error message

Delete Post

Use Case Name	Delete Post	
Use Case Description	Doctors will be able to delete a post if they want	
Actors	Doctors	
Pre-Condition	Doctors must have a post	
Post-Condition	Successful action will delete a post in database	
Main Scenarios	Serial No	Steps
Actors/Users	1	Complete delete action
	2	Validate action
	3	Delete post
	2a	Invalid action show error message

Call Ambulance

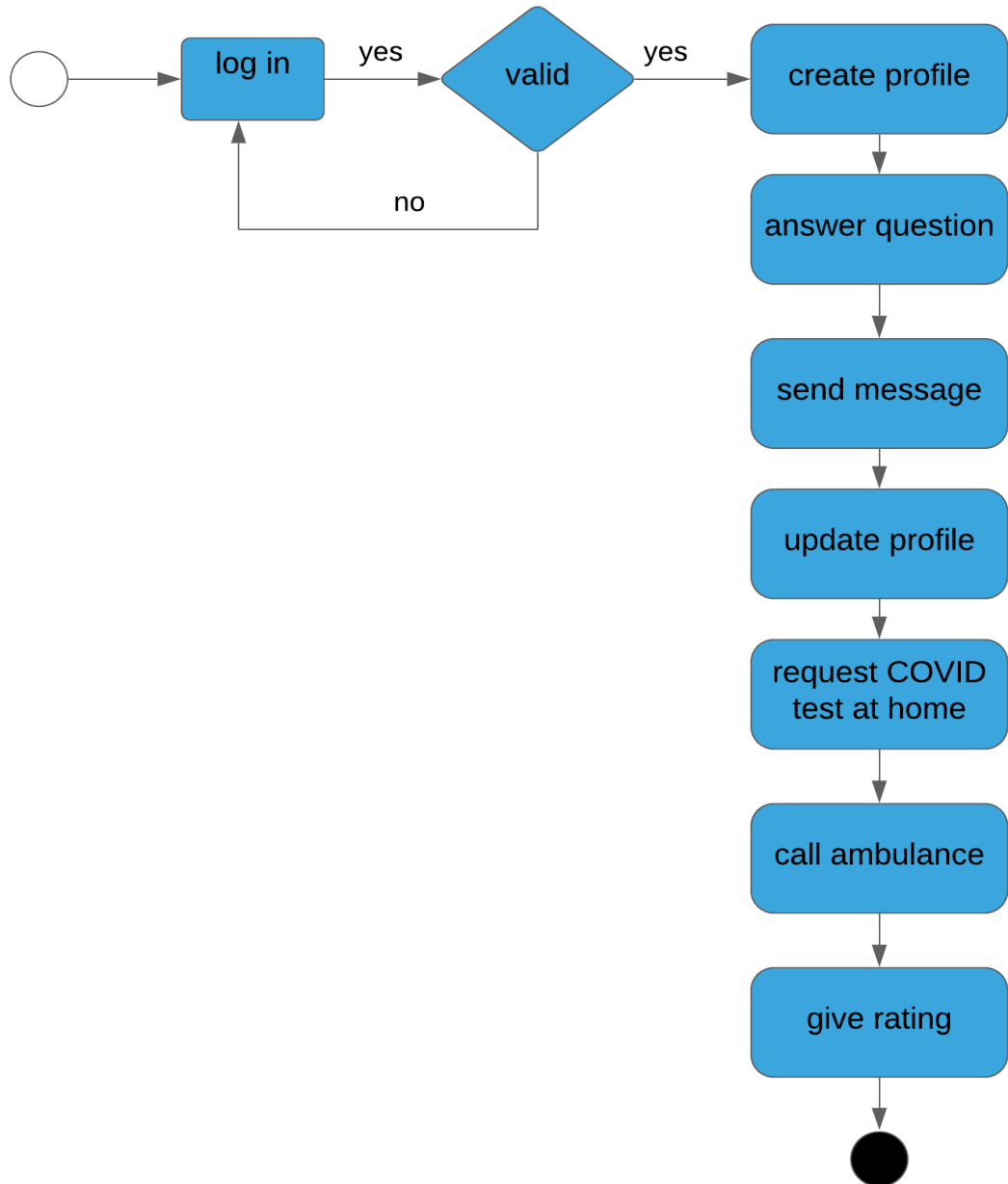
Use Case Name	Call Ambulance	
Use Case Description	Users will be able to call an ambulance for emergency	
Actors	Users	
Pre-Condition	None	
Post-Condition	Successful action will call an ambulance	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter address
	2	Validate address
	3	Call 999
	2a	Invalid address show error message

Request Covid test at home

Use Case Name	Request Covid test at home	
Use Case Description	Users will be able to request covid test at home	
Actors	Users	
Pre-Condition	None	
Post-Condition	Successful action requests covid test at current location	
Main Scenarios	Serial No	Steps
Actors/Users	1	Enter address
	2	Validate address
	3	Call COVID Emergency Number
	2a	Invalid address show error message

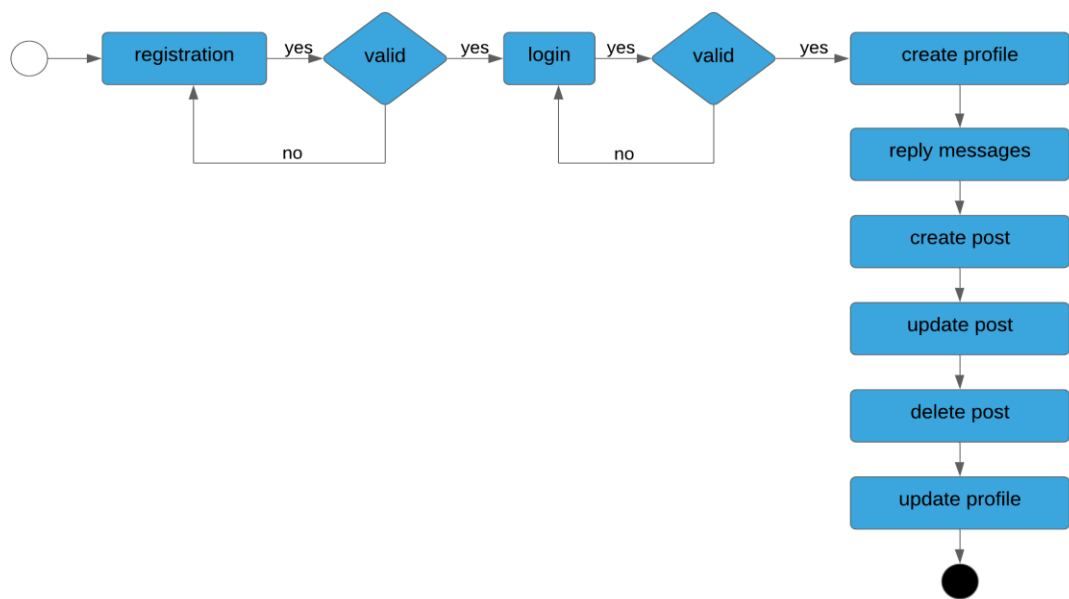
3.3 Activity Diagram (User)

Activity Diagram For User



3.3 Activity Diagram (Doctor)

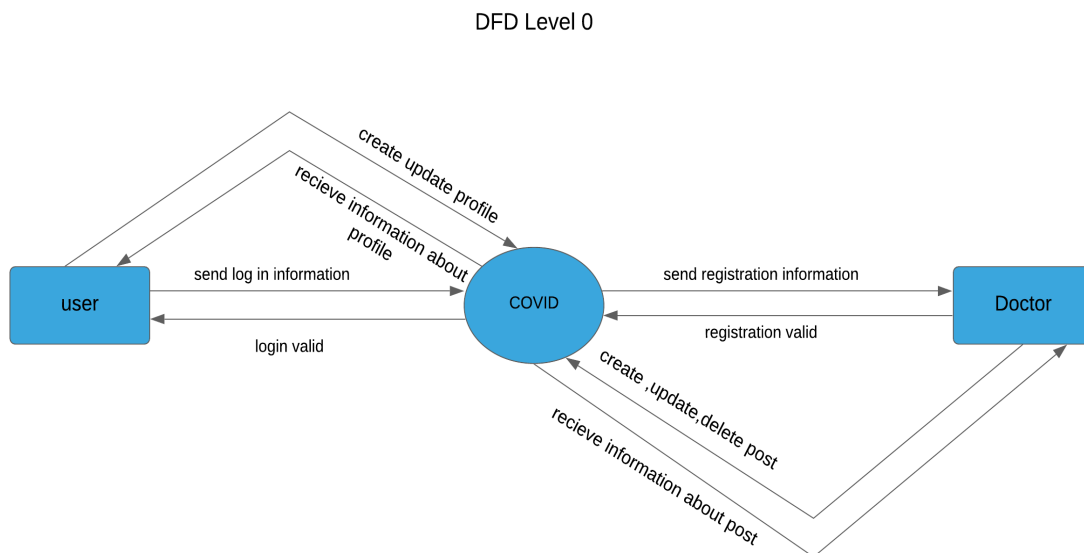
Activity Diagram For Doctor



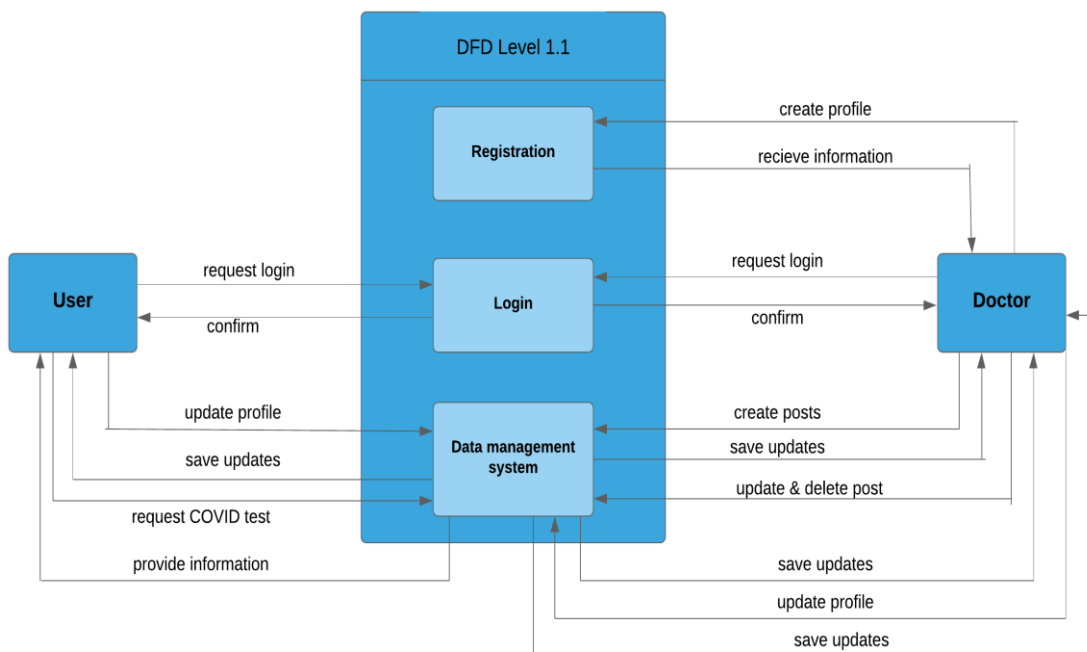
CHAPTER 4

SYSTEM DESIGN SPECIFICATION

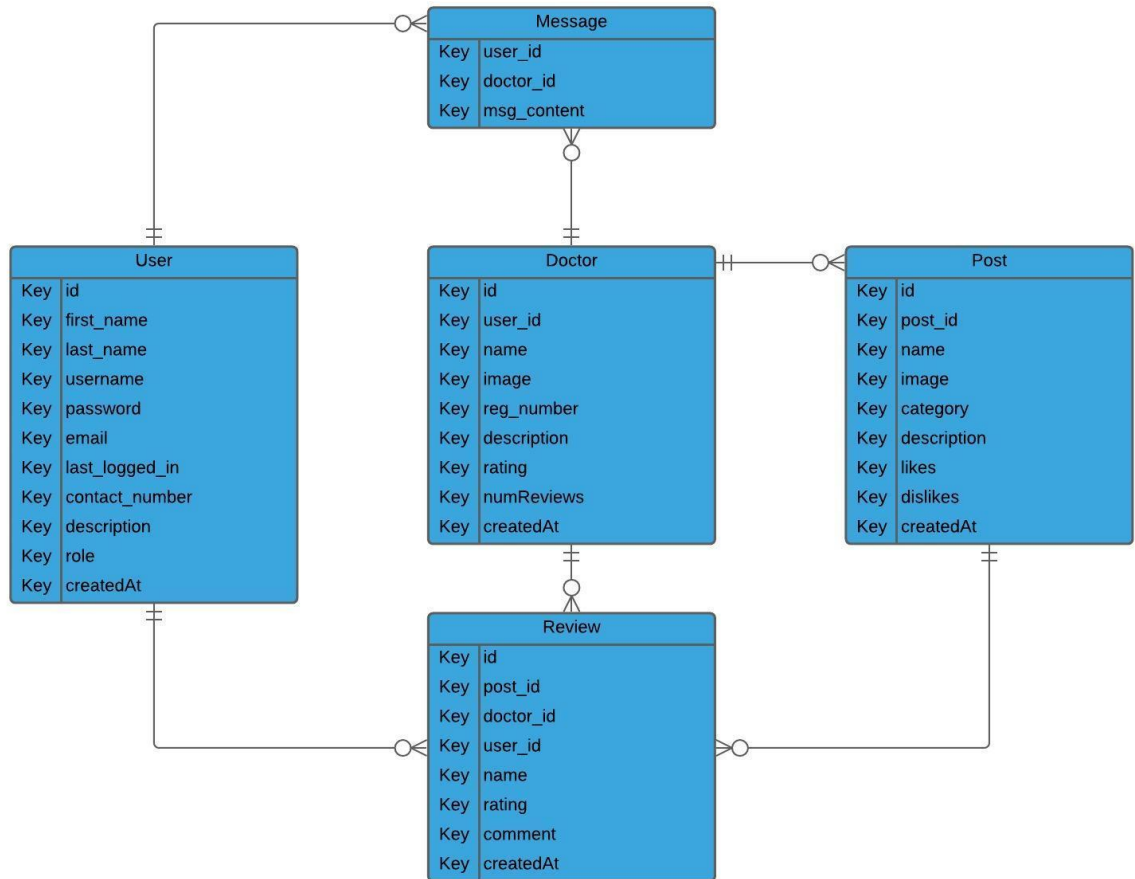
4.1 Data Flow Diagram (Level 0)



4.2 Data Flow Diagram (Level 1.1)



4.3 Database Design Diagram



4.5 Development Tools & Technology

4.5.1 User Interface Technology

- 4.5.1.1 XML
- 4.5.1.2 Figma
- 4.5.1.3 JAVA
- 4.5.1.4 Google Fonts

4.5.2 Implementation Tools & Platforms

- 4.5.2.1 Android Studio
- 4.5.2.2 Firebase (Firebase Authentication, Firebase Real Time Database)

CHAPTER 5

SYSTEM TESTING

5.1 Testing Features

5.1.1 Features to be tested

- User Authentication and Registration
- Doctors can create, update, delete post

5.1.2 Features not to be tested

- Loading animation

5.2 Testing Strategies

5.2.1 Test Approach

- Install Both apps on multiple devices

5.2.2 Pass/Fail Criteria

- Every activity should complete without showing error message

5.2.4 Testing Schedule

- 3 days from final release

5.3 Testing Environment (hardware/software requirements)

- Multiple devices to test both apps
- A Desktop to run the app on Android Studio

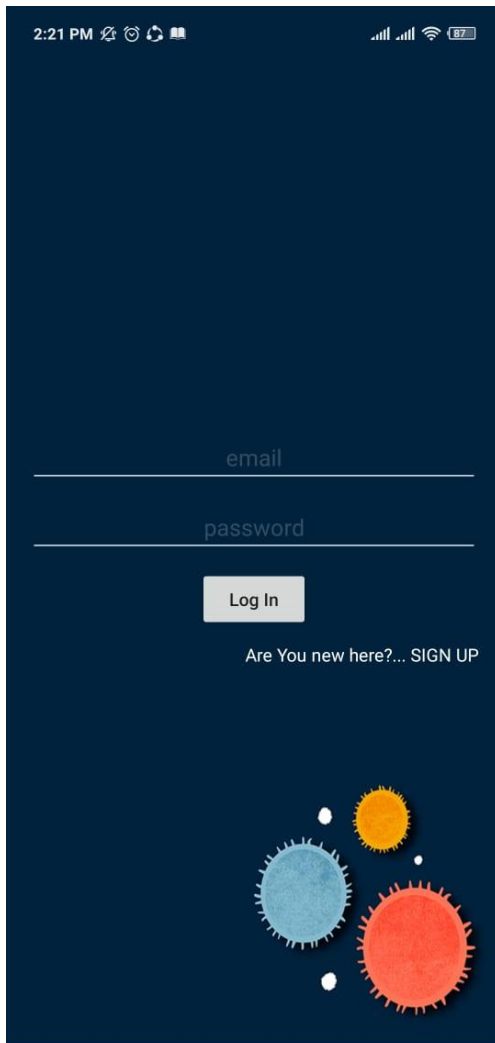
5.4 Test Cases

- Full app is functional in all kinds of devices
- Proper error message in case of error in activity
- Post can be created edited or deleted
- User is able to send message to a doctor
- Doctors are able to reply to User's messages
- Every time the test is done, it is automatically saved in the database

CHAPTER 6

USER MANUAL

6.1 User



2:21 PM 97%

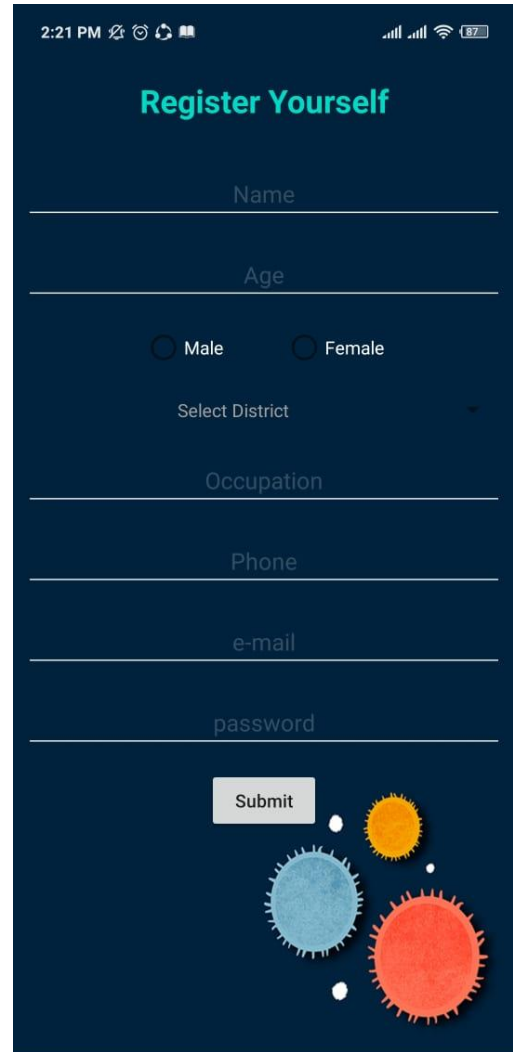
email

password

Log In

Are You new here?... SIGN UP

Illustration of three stylized virus particles (blue, yellow, and red) at the bottom.



2:21 PM 97%

Register Yourself

Name

Age

Male Female

Select District

Occupation

Phone

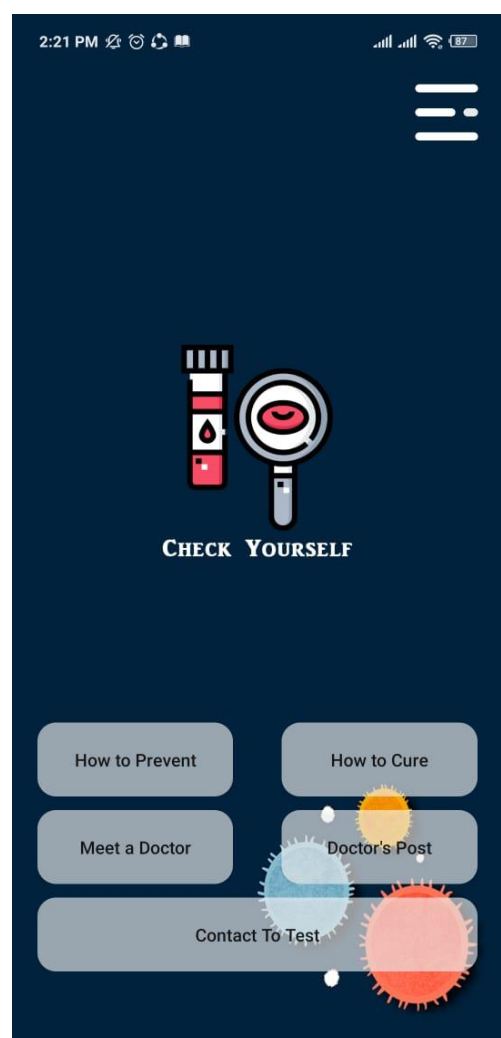
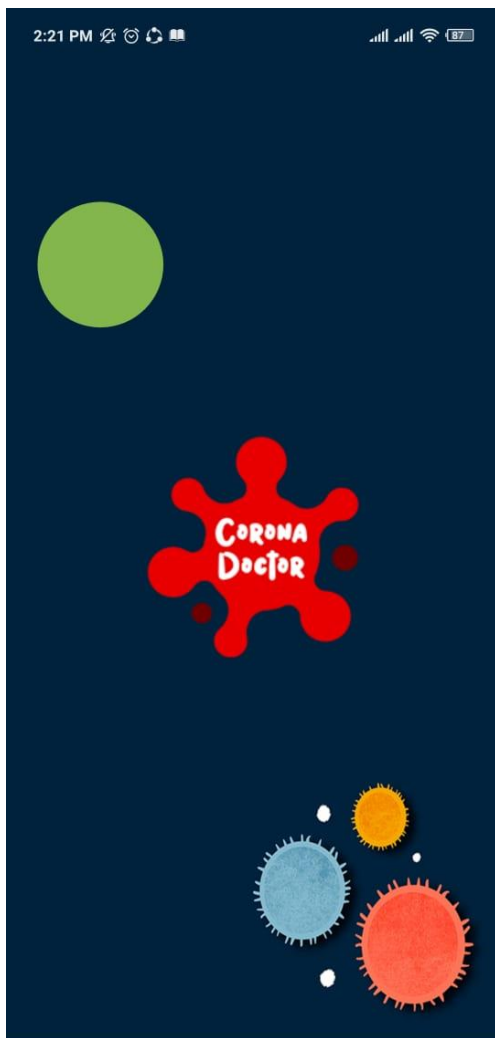
e-mail

password

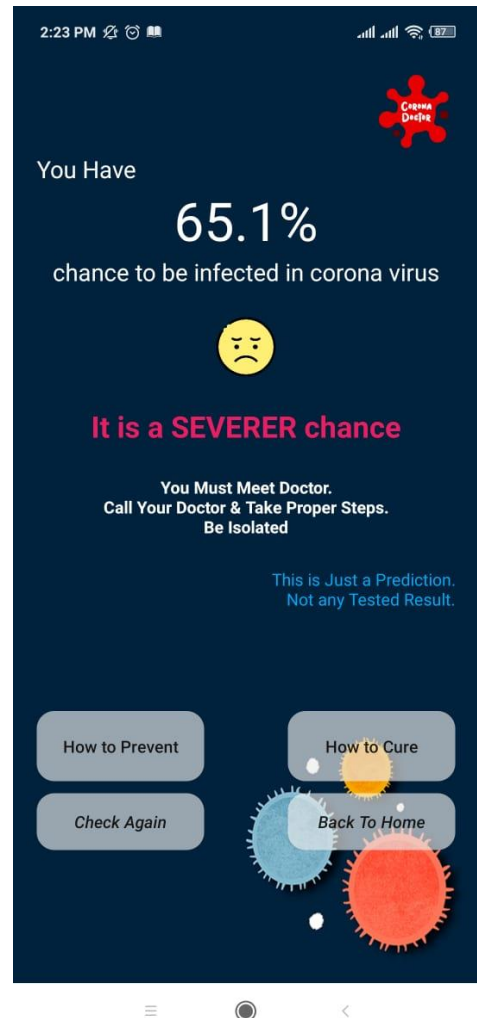
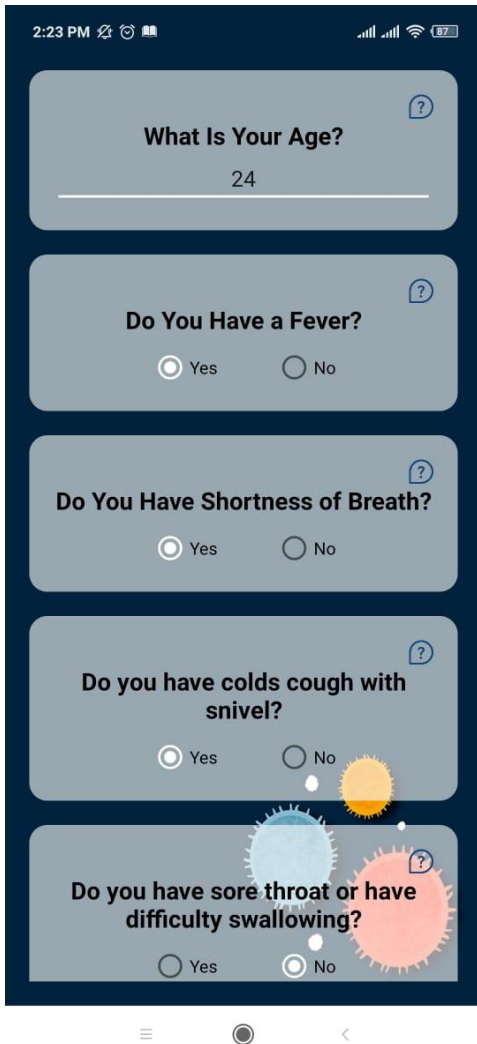
Submit

Illustration of three stylized virus particles (blue, yellow, and red) at the bottom.

User Login and Registration



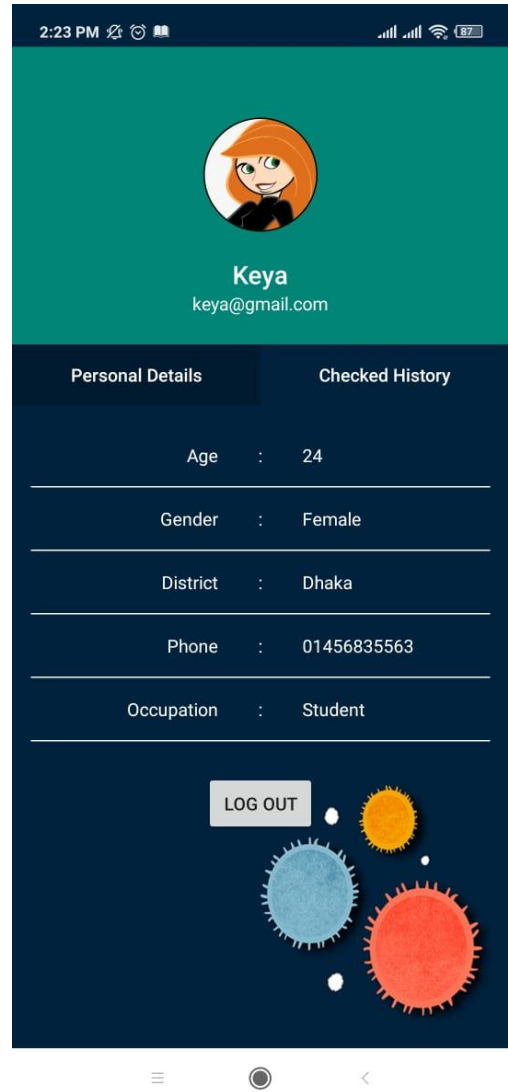
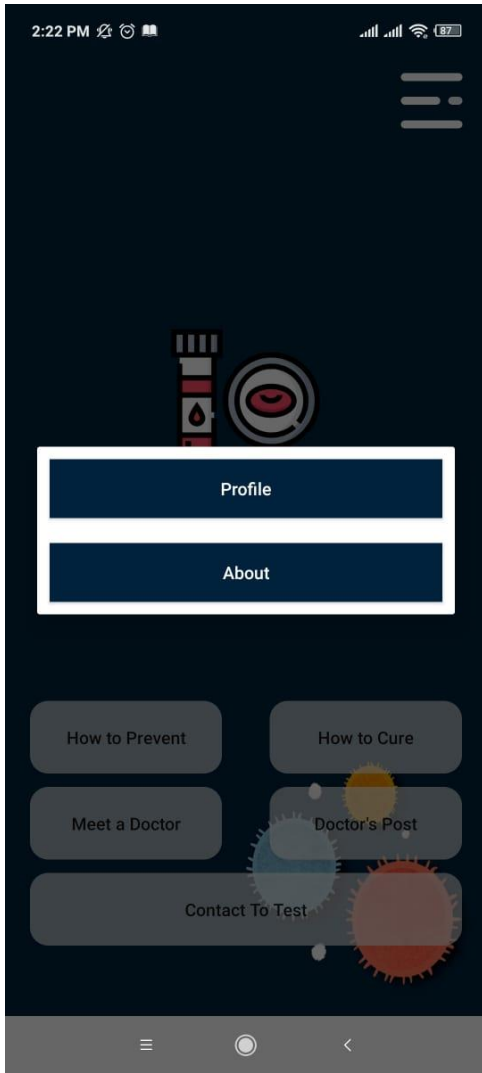
Splash screen and home page



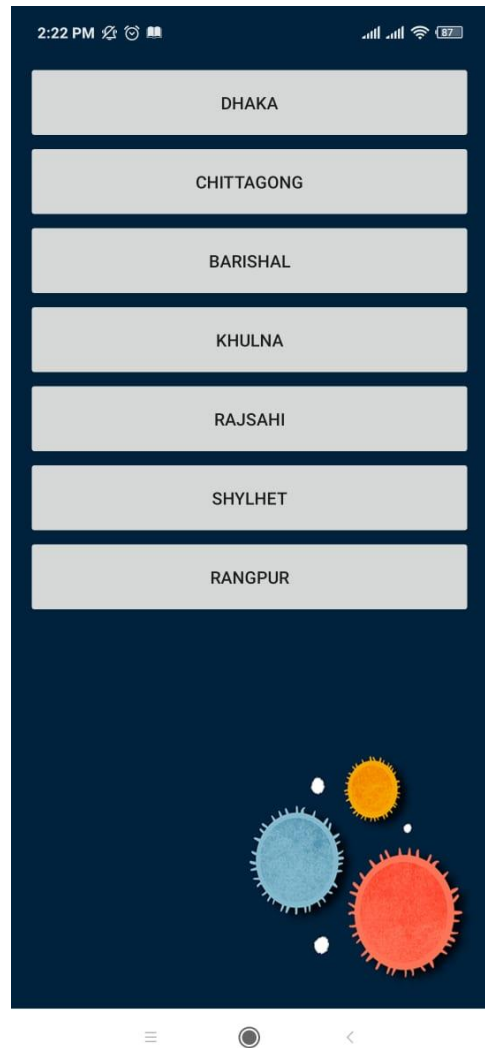
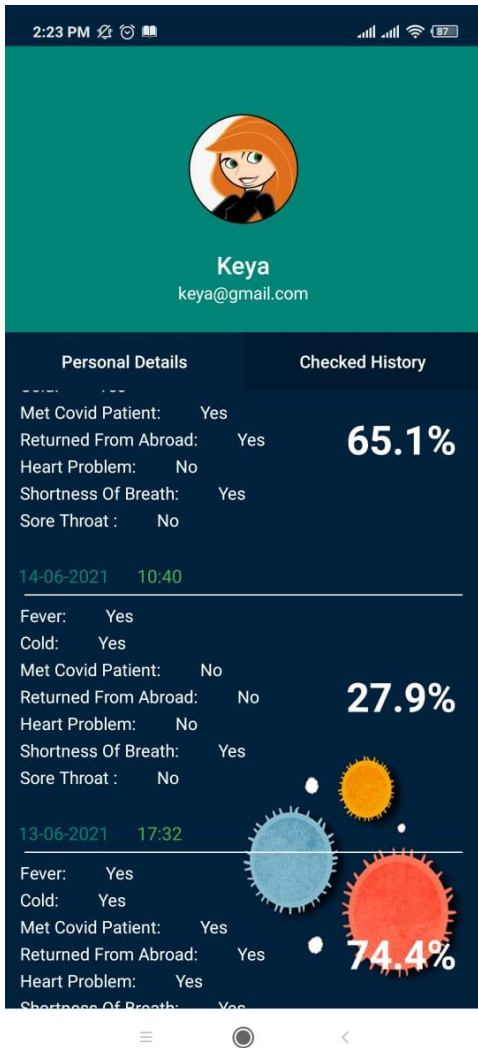
Question Page and Predicted Result



Helpful Info and Doctor's List

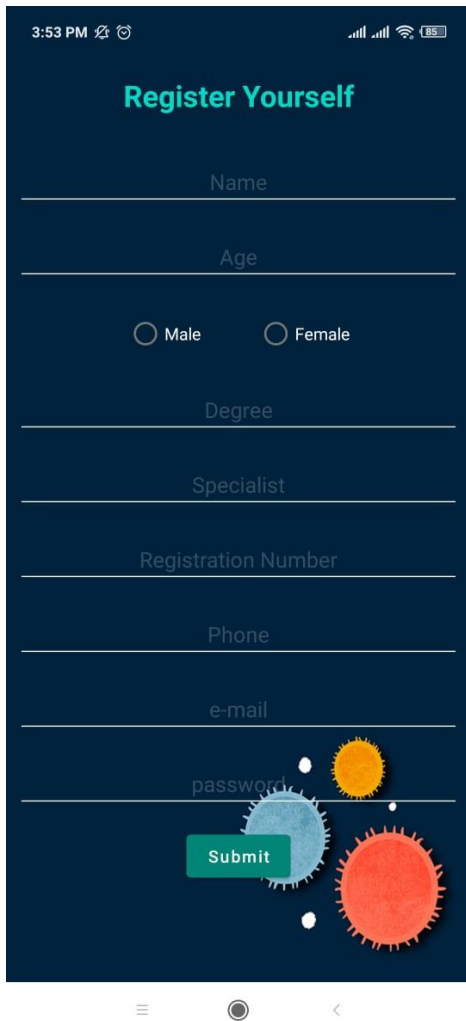


Navigation and Profile Page



History and City Page

6.2 Doctor



3:53 PM

Register Yourself

Name

Age

Male Female

Degree

Specialist

Registration Number

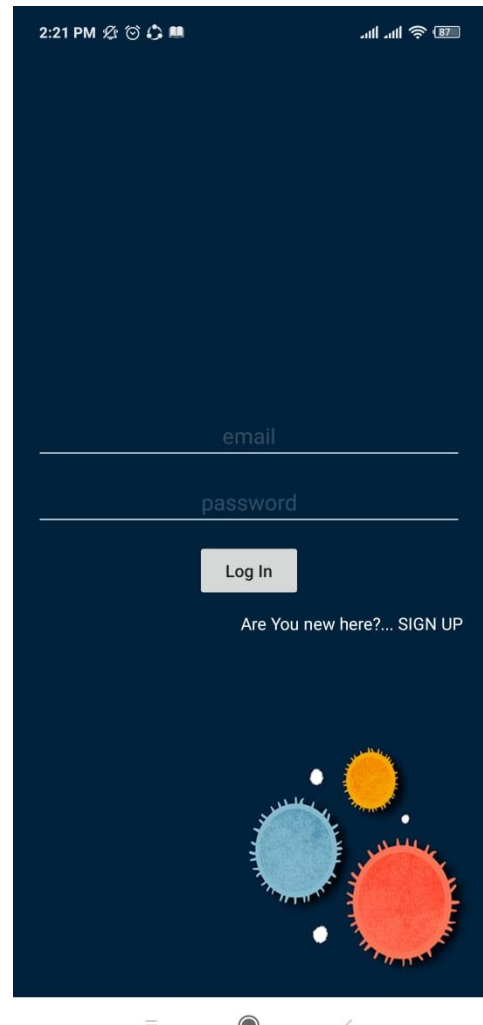
Phone

e-mail

password

Submit

The registration form includes fields for Name, Age, Gender (Male/Female), Degree, Specialist, Registration Number, Phone, e-mail, and password. A green 'Submit' button is located at the bottom of the form. The background features a dark blue theme with colorful virus-like graphics.



2:21 PM

email

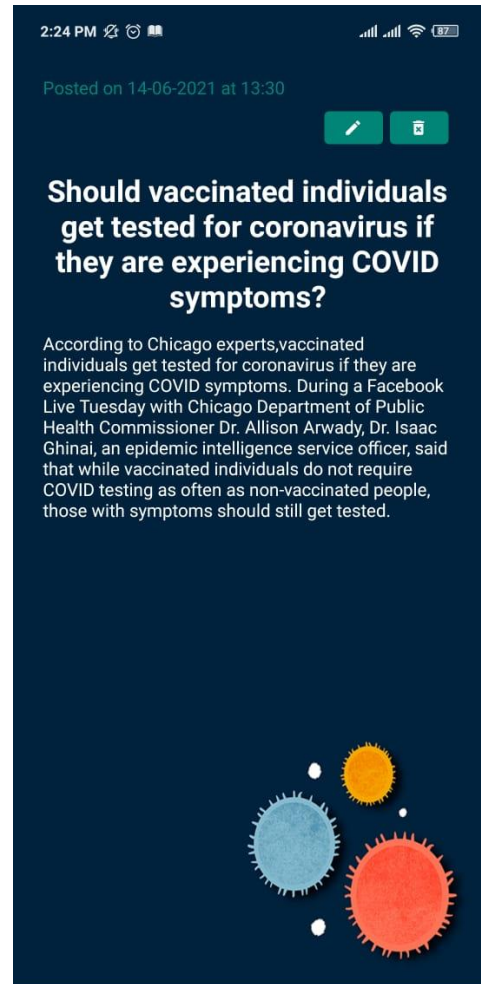
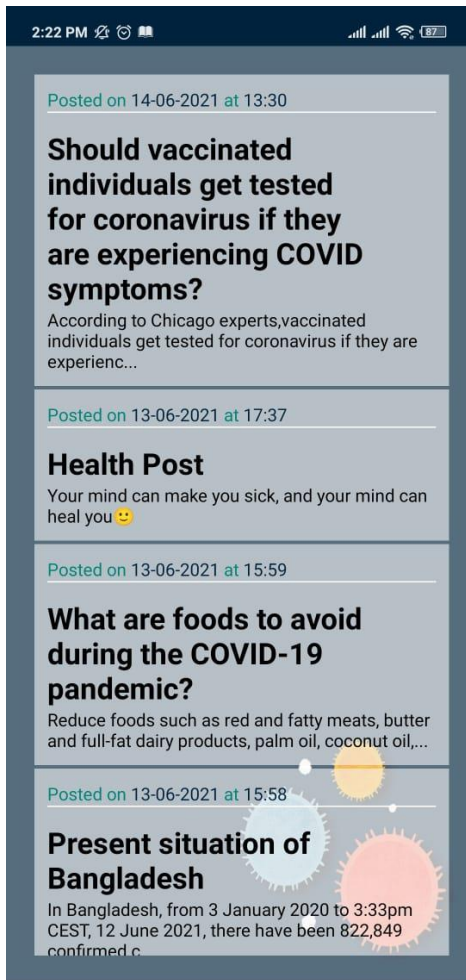
password

Log In

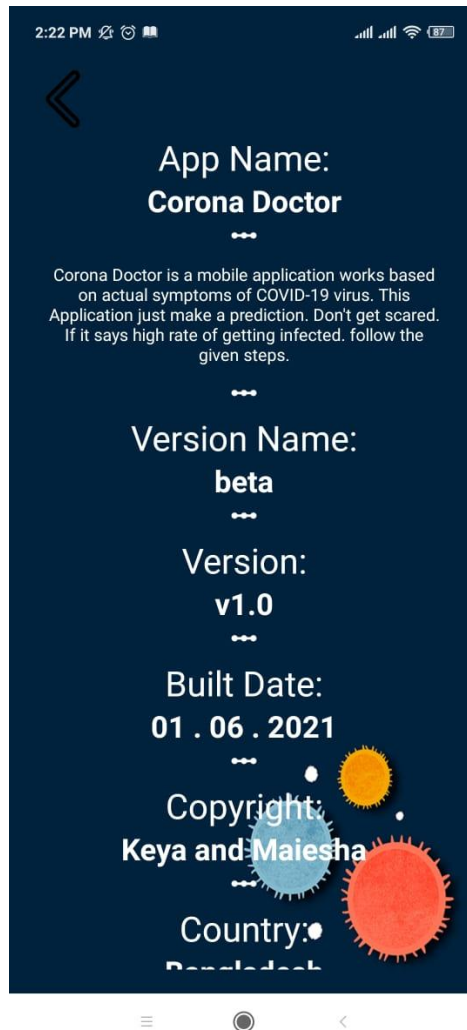
Are You new here?... SIGN UP

The login screen features input fields for email and password, a grey 'Log In' button, and a link for 'Are You new here?... SIGN UP'. The background is dark blue with colorful virus-like graphics.

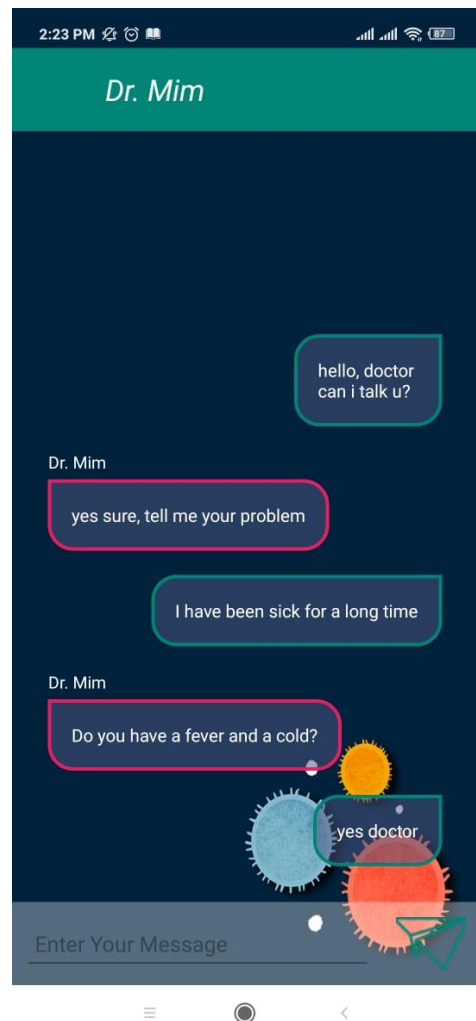
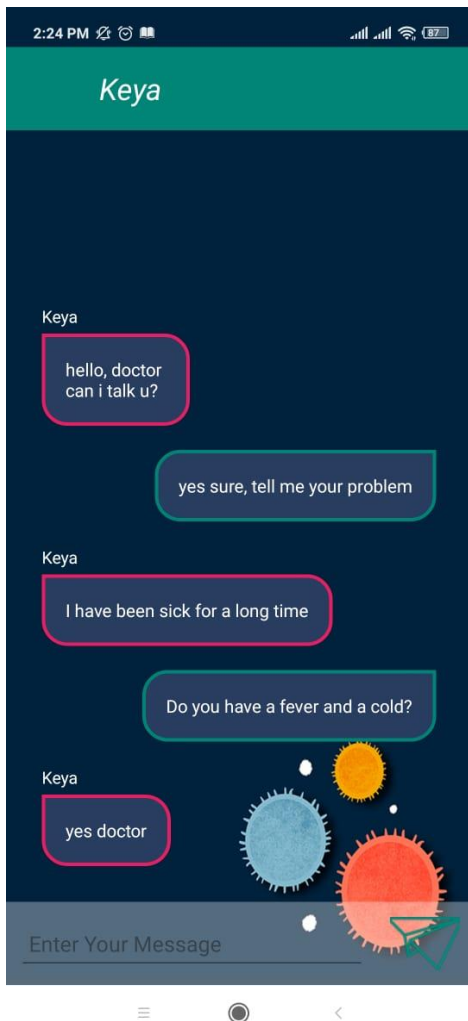
Doctors Registration and login



All posts and edit or delete post



About Corona Doctor



Messaging

CHAPTER 7

PROJECT SUMMARY

7.1 GitHub Link

7.2 Limitations and Challenges

One of the most important challenges we face in building this project as a whole. It is a limited time engagement of stakeholders.

The stakeholders were not connected fully and there was communication gap between stakeholders. We tried to keep all the stakeholders on the same page and finished the project within the deadline.

7.3 Future Scope

There are some beneficial scopes in corona doctor. Like here we are taking the user data like how old is he/she, and what is his occupation. By analyzing this data, we can know that what is the age of average peoples who are not interested testing for COVID, or people of which occupation are showing unwillingness etc.

7.5 Conclusion

COVID-19 planted some major fears in our mind. Like if we test for COVID it is dangerous for ourselves and our family. Which is totally not true. Keeping that in mind Corona doctor was built to help people reduce this fear and they can easily answer some questions and can know if they should test or not. We believe people will be benefitted by this.

REFERENCES

There are several research works are done that describes the necessity of a mobile application for testing covid possibility. Some publication titles are enlisted below.

[1] John Leon Singh, H., Couch, D., & Yap, K. (2020). Mobile Health Apps That Help With COVID-19 Management: Scoping Review. *JMIR Nursing*, 3(1). <https://doi.org/10.2196/20596>

[2] Davalbhakta, S., Advani, S., Kumar, S., Agarwal, V., Bhoyar, S., Fedirko, E., Misra, D. P., Goel, A., Gupta, L., & Agarwal, V. (2020). A Systematic Review of Smartphone Applications Available for Corona Virus Disease 2019 (COVID19) and the Assessment of their Quality Using the Mobile Application Rating Scale (MARS). *Journal of Medical Systems*, 44(9). <https://doi.org/10.1007/s10916-020-01633-3>

[3] Ming, L. C., Untong, N., Aliudin, N. A., Osili, N., Kifli, N., Tan, C. S., Goh, K. W., Ng, P. W., Al-Worafi, Y. M., Lee, K. S., & Goh, H. P. (2020). Mobile Health Apps on COVID-19 Launched in the Early Days of the Pandemic: Content Analysis and Review. *JMIR MHealth and UHealth*, 8(9). <https://doi.org/10.2196/19796>

[4] Anwar, S., Nasrullah, M., & Hosen, M. J. (2020). COVID-19 and Bangladesh: Challenges and How to Address Them. *Frontiers in Public Health*, 8. <https://doi.org/10.3389/fpubh.2020.00154>