Software Requirement Specification Document for Health Tracking App Medication Reminders ad Measurements

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October 2020

SRS Version	Date	Reason for Change
1.0	18-October-2020	SRS First version's specifications and requirements are defined
1.1	25-October-2020	Second version's specifications and requirements are defined
1.2	8-November-2020	Third version's specifications and requirements are defined

Table 1: Document version history

GitHub: https://github.com/MariaGeorge55/MedicalMeApp

Contents

1 Introduction

First of all, the vast majority of people always seek to maintain their physical health well being through a healthy life choices. However, most people tend to fail to care about their health due to several reasons. However, mistreating physical health can result in a poor mental healt state. Therfore, this project will provide the users with a simple mobile application that grants the capability to easily maintain and track their pysical health. Subsequently, this will have a significant impact on the users mental health.

1.1 Purpose of this document

To begin with, the main purpose of this SRS document is to highlight the main requirements and specifications needed to allow all our users to be able to track their overall health and help users maintain a healthy life choices and habits through different functionalities. In this document we will mainly draw up how this app shall be used in order to gain a better understanding of the whole system. This project's main focus is to to exhibit an application of Health Tracking and Medical Assistant as a tool for enhancing quality of our user's lives by offering better health data gathering ,as well as , encouraging our users to have a healthy life style by enabling them to track their health status.

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1.2 Scope of this document

The scope of this document is linked to and concerns all patients who seeks any sort of medical help or assistance , in addition to , providing our users the assistance and motivation needed through out their rehabilitation journey through different functionalities within our app such as our personalized pill reminders for every day and drug interaction warnings . Also, our system provides our users by an E-diary which is capable of analysing and detecting the user's sentiments from their text.As a result, users would be able to track and maintain a healthy mental health .The system is eventually a Mobile Application that can be acquired by literally everyone regardless of their age.

1.3 Overview

This system is a mobile application that is meant to aid people of different ages to maintain the well-being of their overall health. Users can have access to this app whenever they want as long as they have access to the internet [1]. This mobile application's main aim is to mainly eliminate the users problem of non-adherence to long-term medications. As a result, the overall health of the users will significantly improve if they followed the app instructions.

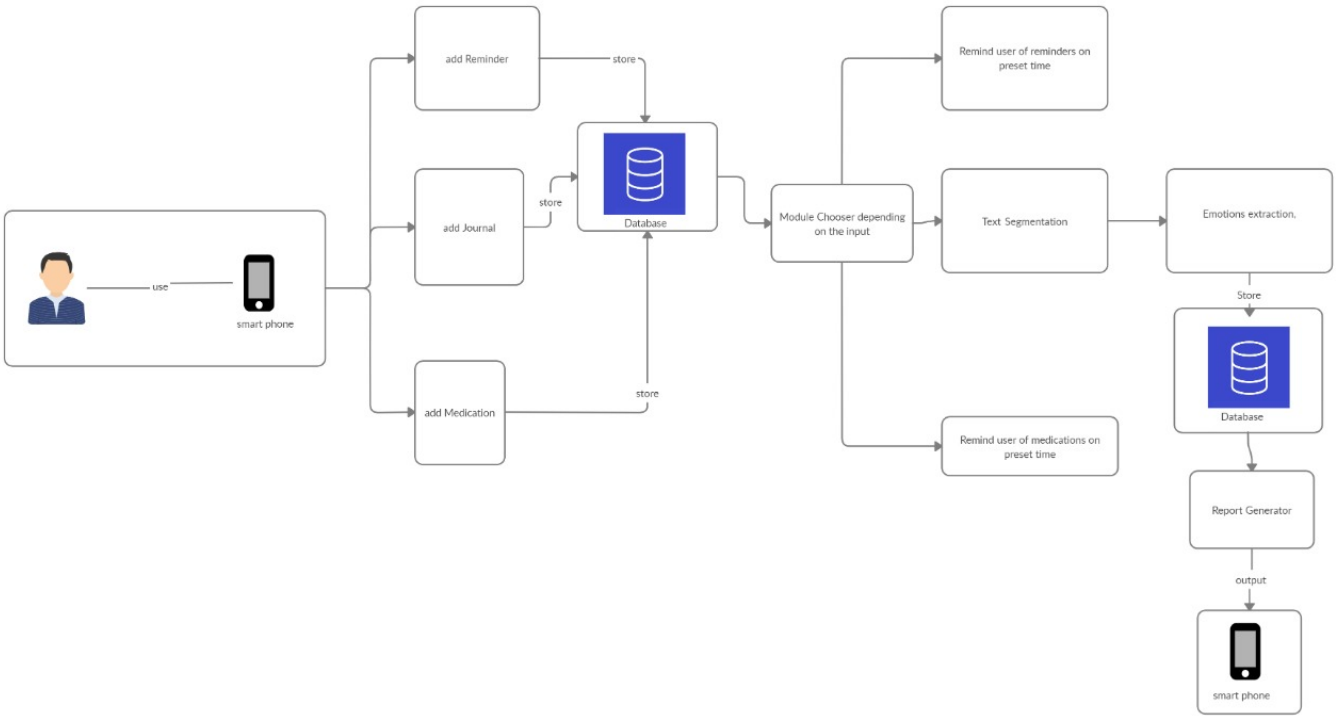


Figure 1: System overview

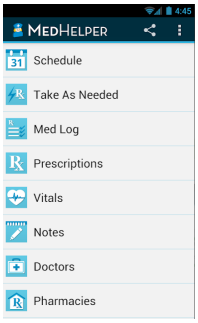
2 General Description

2.1 Product Functions

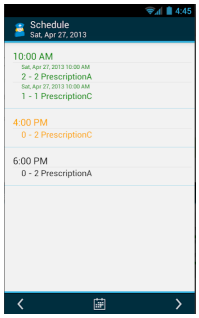
This applications allows it's users to input their medications schedule and how often do they need to take them. On the other hand, the system shall generate alerts to remind the users to take their medications. Also, the system shall alert the users with any possible drug interaction warnings. Furthermore, this application will have to notify the users to refill their medications whenever a user is about to run out of medication. Moreover, the application offers the users the facility of sentiment analysis by going through their dairies using natural language processing. Finally, a Chatbot service is provided for users to talk to and express their feelings.

2.2 Similar System Information

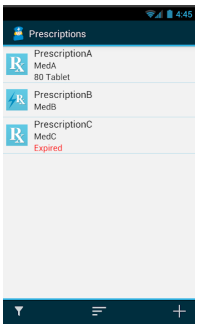
Med Helper Pill Reminder [2] is world wide used app on google store. Med Helper app makes sure to track all your medications and prescriptions activity , subsequently the app shall generate alerts to remind the users to take their medications at the previously specified timings. Further more, the app alerts the users to refill their medications when meds are running low.



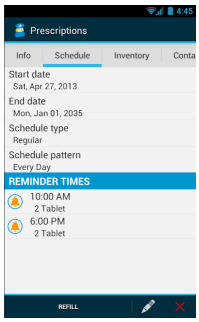
(a) Menu



(b) Schedule



(c) Prescription



(d) Reminds

Figure 2: Med Helper Pill Reminder

Mango Health [3] is an app concerned with physical health. This app reminds patients when it's time to take their medications and records each dose. Also, this app alerts users of potentially dangerous interactions between drugs or even food and drink. Furthermore, this app allows the users with the facility to write down how a drug or a medication made them feel and these notes are saved and could be shared with a doctor in the next appointment.

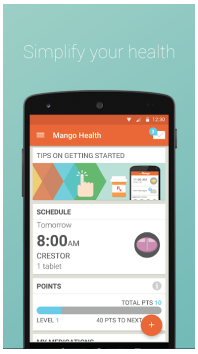
2.3 User Characteristics

The system have mainly two types of users, which are Admin and User. The application's user aren't expected to have certain expertise with the software system. A user will just have to enter their medications info(name, schedule). Then the system will automatically generate medications reminders and drug interactions warning. The user can write in his/her own diary or chat with the smart chat-bot provided. Also, users can submit questions in the contact us page and preview the frequently asked questions in the QA page. .On the other hand, the admin Can edit,delete or answer users questions.

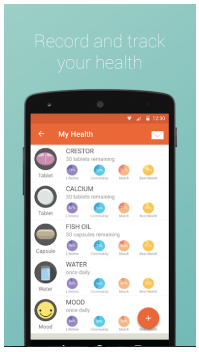
2.4 User Problem Statement

Our system aims to enhance and sustain the overall health of the users. The applications targets to solve the global problem of non-adherence to long-term medications. Also, this app allows the users to keep track and preview the progress achieved per medication. At last, the app is concerned with the users mental health, therefore a sentiment analysis algorithm is applied to the user diaries.

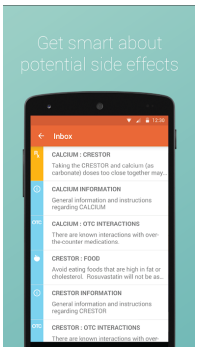
3 Functional Requirements



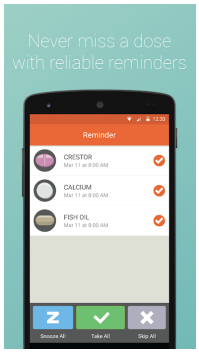
(a) Home



(b) Health



(c) Inbox



(d) Reminder

Figure 3: Mango Health App

4 Interface Requirements

This section describes how the software interfaces with other software products or users for input or output. Examples of such interfaces include library routines, token streams, shared memory, data streams, and so forth.

4.1 User Interfaces

ID	LGI
Title	Login
Description	The function enables a patient to log into his/her account
Input	String (password , username)
Action	Checks if all fields are filled and then checks if this user actually exists in our database by comparing data entered by those stored in our database.
Output	A message is sent indicating logging in successfully or request error.
Precondition	Patient is already registered i our database .
Postcondition	Redirected to home page.

ID	SGU
Title	Sign up
Description	The function enables a patient to create his/her own account
Input	String (password , username , doctor/patient) , age , medical history (if any)
Action	Checks if all fields are filled and then checks if this username isn't taken or exists in the database
Output	login page is previewed and a successful sign up message is shown or an error message
Precondition	Patient isn't already registered in our database .
Postcondition	Redirected to login page.

4.1.1 GUI

ID	SMR
Title	Set Medication Reminders
Description	The function enables a patient to create his/her own medication reminders .
Input	String (Pill name) , Int (how often do you need to take them) , Date/time (pill schedule)
Action	First checks if all fields are filled and then checks whether this medication already existed in this user's database records
Output	Success or error message is triggered .
Precondition	Patient isn't already loged in to our system .
Postcondition	

ID	SPT
Title	Set Pill Taken
Description	The function enables a patient to turn current reminder off by setting it the pill taken to true
Input	check box ticked , Drug name
Action	checks if the check box is ticked and then checks drug name in the database and subtract one from the pill count in the database
Output	success message is shown or error message .
Precondition	Patient isn't already loged in to our system .
Postcondition	

ID	UMR
Title	Update Medication Reminders
Description	The function enables a patient to edit his/her own medication reminders details such as how often does he need to take them or change pill schedule .
Input	String (Pill name) , Int (how often do you need to take them) , Date/time (pill schedule)
Action	First checks if medication name actually exists in the reminders records of the patient and then edit existing database records with new entered information.
Output	Success or error message is triggered .
Precondition	Patient is already loged in to our system .
Postcondition	

4.2 API

A flutter widget will be used called flutter unity widget which will integrate a unity scene for sentiment analysis into the flutter project and use it as a personal diary for the user where he can type his text input into a gui text field and when he presses the save button the system shall analyse the text and show the user how positive or negative was his text. Saving both the analysis and the text to the database.

5 Design Constraints

A smart phone that must have a connection with the internet.

6 Other non-functional attributes

6.1 Security

The system shall be secure and not easily accessible because of the confidential information it contains; the user's name, email and password. Each account is secured with a username and password that no other user can access.

6.2 Reliability

The system shall be reliable because it can calculate how much the user have finished from their medicine course and remind them to re-supply before they run out.

ID	RMA
Title	Refill Medication Alert
Description	The function alerts it's users when they're running low of medication and need to refill .
Input	String (Pill name) , Int (how often do you need to take them) , Date/time (pill schedule)
Action	Checks count of pill taken by user from database records .
Output	Alert message is shown up to remind users of refill .
Precondition	Medication info and schedule is stored in the database .
Postcondition	

ID	SJ
Title	Save Journal
Description	The function allows a user to save his/her text to the database.
Input	String (diary text)
Action	function checks if text field is not null and then takes the text written by the user and insert it in the database records of his/her diary. .
Output	Success or error message is shown.
Precondition	User must be logged in .
Postcondition	

6.3 Maintainability

The system ensures maintainability because it's developed by Flutter which is an open-source UI software development kit created by Google. It is used to develop applications for Android, iOS, Linux, Mac, Windows, Google Fuchsia, and the web from a single code base.

6.4 Portability

The system shall be 100% portable as flutter provides creating the project cross platform with the same code base.

7 Operational Scenarios

7.1 Scenario 1

From the home page the user selects reminders subsequently shall add a new reminder then specifies the type of reminder. In this scenario the user chose medicine reminder. After entering the medication course details the user saves the reminder, The System then adds the user's reminder to a secure database leading to the user receiving reminders ten minutes before every time the medication needs to be taken

7.2 Scenario 2

From the home page the user selects Journals subsequently shall add a new journal secondly the user inserts the journal's title and writes the journal entry.lastly the system analysis the sentiments detected in the journal entry and saves the journal and it's analysis to the database.

ID	SA
Title	Sentiment Analysis
Description	The function provides the users with the ability to analyse their diary for sentiment detection .
Input	String (diary text)
Action	function checks if text field is not null and takes the text written by the user and analyse it then save
Output	Output the analysis results to the user.
Precondition	User must be logged in .
Postcondition	

ID	VJ
Title	View Journal
Description	This function lets the user view his own journals saved in the database.
Input	String (username)
Action	function retrieves the user's journals from the database and presents the data to the user's screen.
Output	Success message is shown to the user to state that the journals are loaded successfully.
Precondition	User must be logged in
Postcondition	

7.3 Scenario 3

From the home page the user selects the heart shaped icon placed at the bottom right. Leading the user to a visualized representation of their progress. In this page the user shall see how much progress has been achieved in their medication course.

8 Project Plan

ID	VMP
Title	View Medication Progress
Description	This function shows the user his overall medication course progress.
Input	String (Pill name)
Action	function retrieves the medication data from the database and calculates the overall progress in the course based on how often the medication is taken and for how long.
Output	Percentage completed in the medication.
Precondition	User must have medication inserted.
Postcondition	

ID	VR
Title	View Reminders
Description	This function shows the user all his pre-inserted reminders
Input	
Action	Retrieves reminders from database based on the username and presents them to the user
Output	Show user reminders on the screen.
Precondition	User must have reminders inserted
Postcondition	

9 GitHub

10 Appendices

10.1 Collected material

10.1.1 Datasets

- Emobank. https://codeload.github.com/JULIELab/EmoBank/zip/master
- Affective Tweets. from Kaggle https://codeload.github.com/felipebravom/AffectiveTweets/zip/master
- Text Emotion. https://www.kaggle.com/icw123/emotion
- And Brains. https://www.kaggle.com/iwilldoit/emotions-sensor-data-set
- Data. https://www.kaggle.com/lucasgreenwell/16-factor-personality-test-responses

11 References

References

[1] Karla Santo, Clara K Chow, Aravinda Thiagalingam, et al. "MEDication reminder APPs to improve medication adherence in Coronary Heart Disease (MedApp-CHD) Study: a randomised controlled trial protocol". In: *BMJ Open* 7.10 (Oct. 2017), e017540. DOI: 10.1136/bmjopen-2017-017540. URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5640083/pdf/bmjopen-2017-017540.pdf.

[2] URL: https://play.google.com/store/apps/details?id=com.earthflare.android.medhelper.lite&hl=en&gl=US.

ID	AR
Title	Add Reminders
Description	Function allows users to save their reminders to the database.
Input	String(Reminder type),String (Reminder name),Int (times per day), Int (Time of medication), Int (Course duration)
Action	Saves reminder to database
Output	Sucess message that shows reminder is sucessfully saved.
Precondition	User must be logged in.
Postcondition	

[3] URL: https://play.google.com/store/apps/details?id=com.mangohealth.mango&hl=en&gl=US.

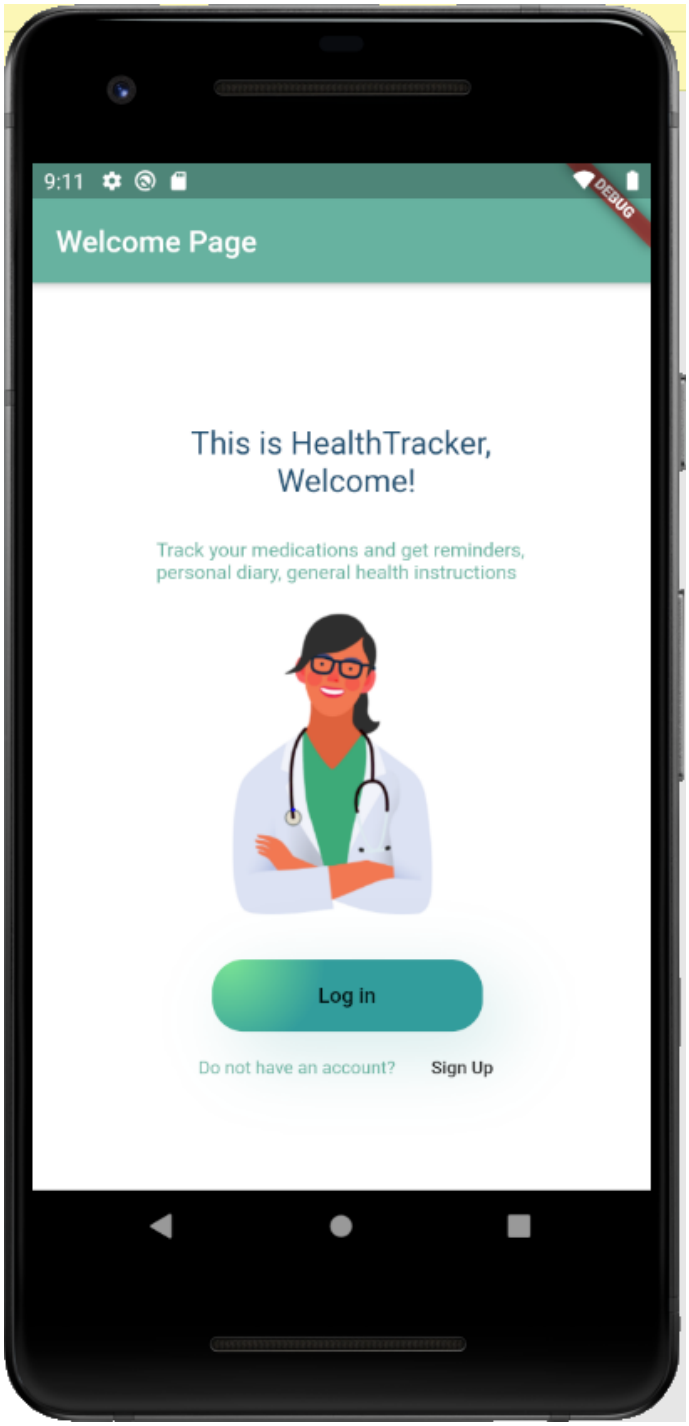


Figure 4: Welcome Page

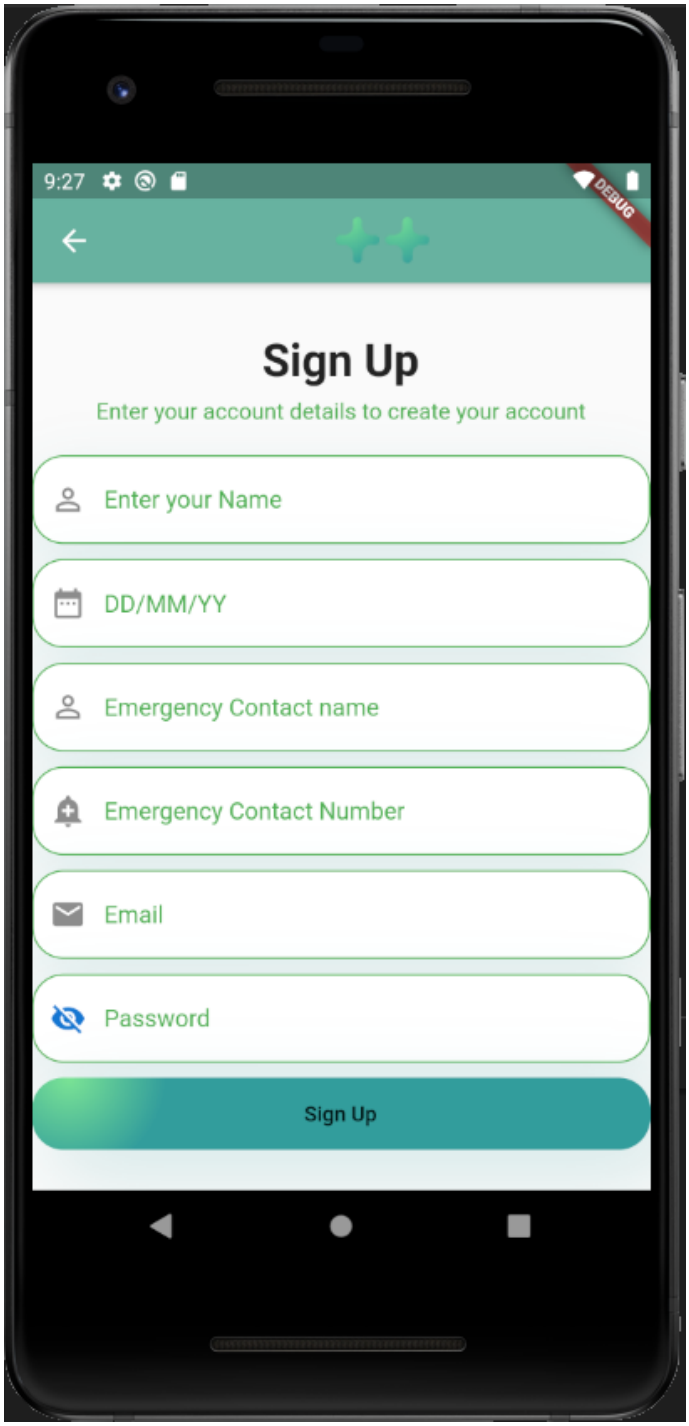


Figure 5: Signup Page

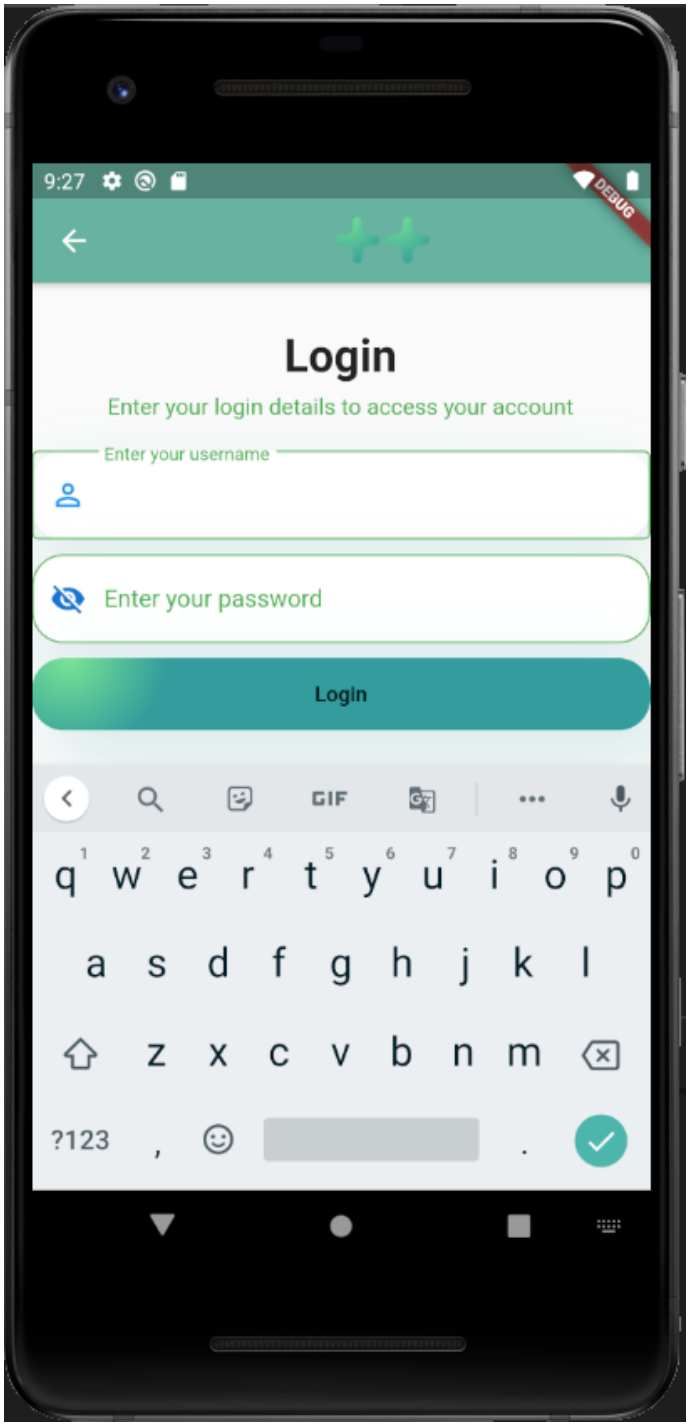


Figure 6: Login Page

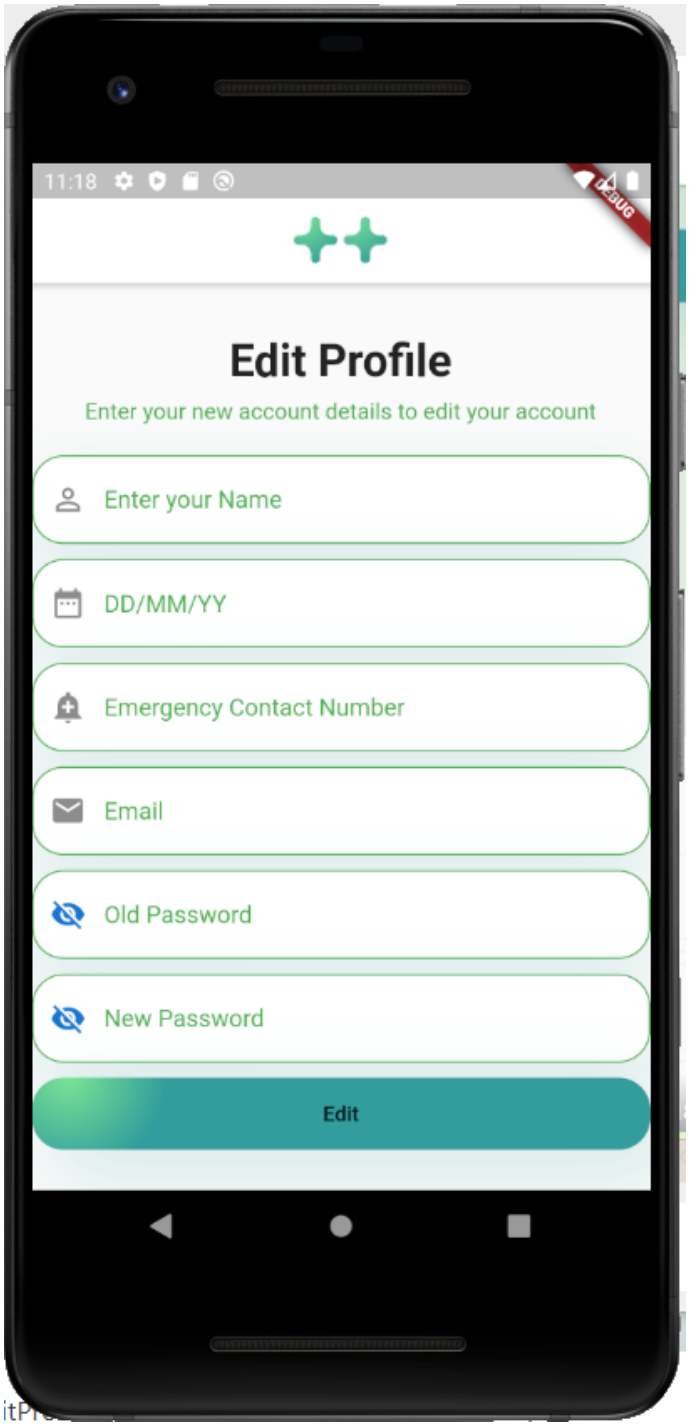


Figure 7: Edit Profile Page

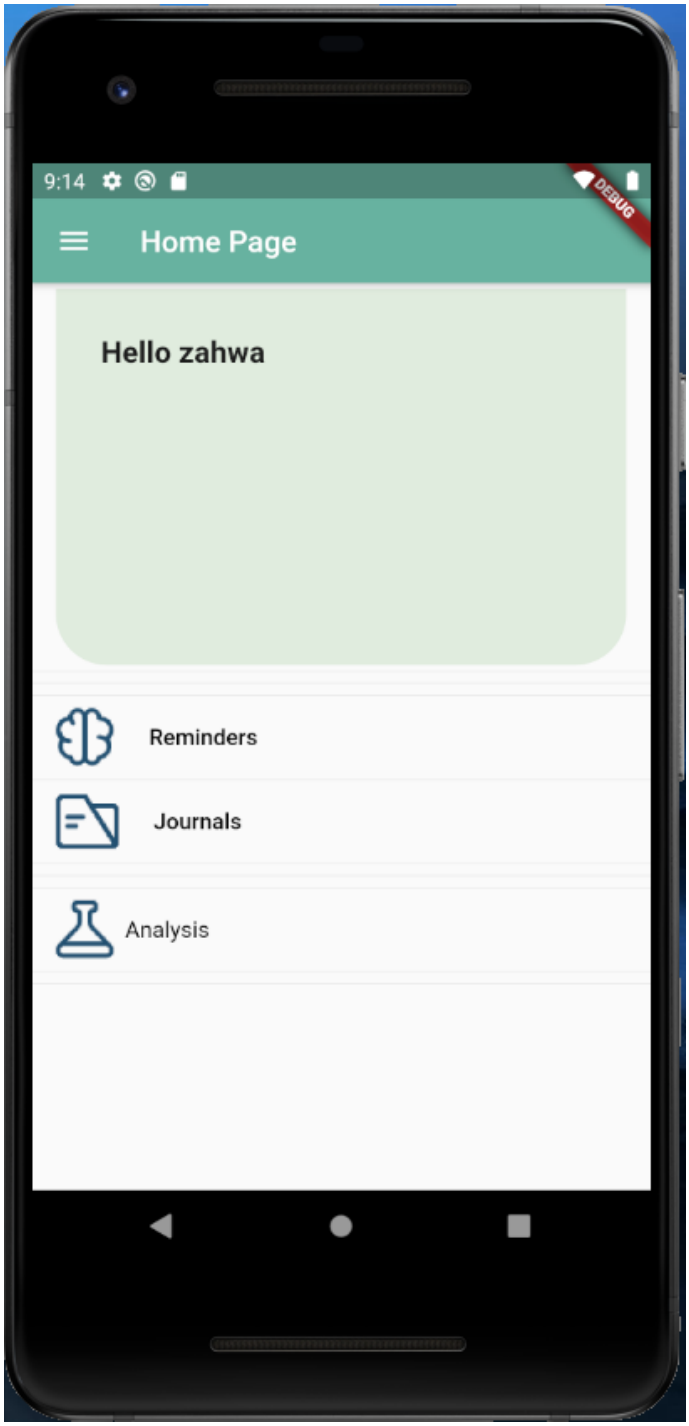


Figure 8: Home Page

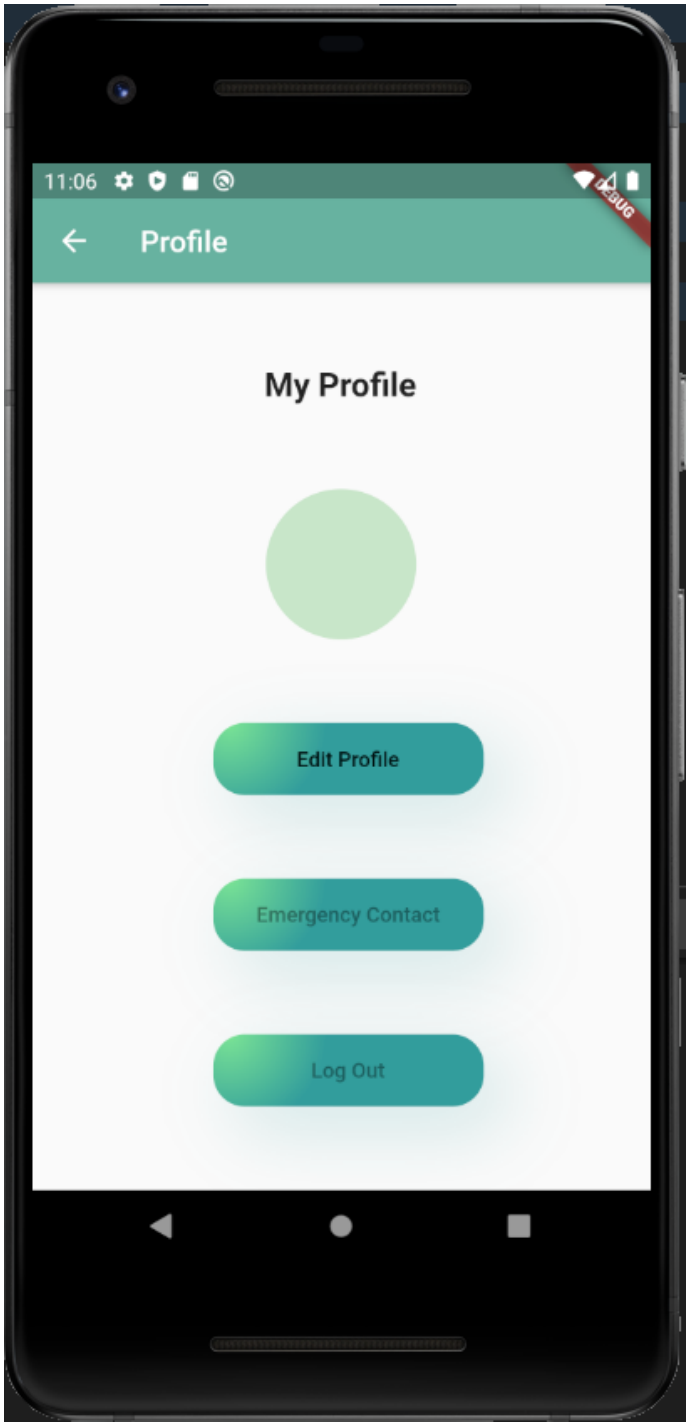


Figure 9: Profile Page

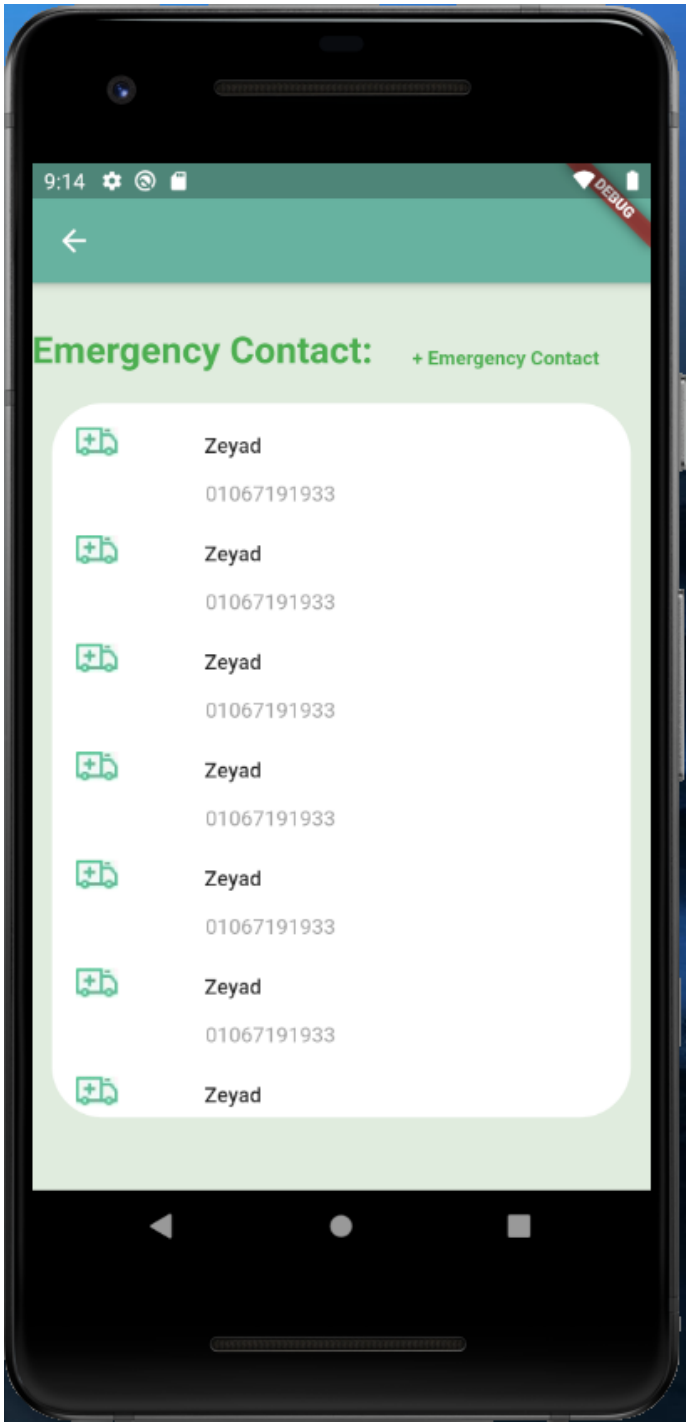


Figure 10: Emergency Contact Page

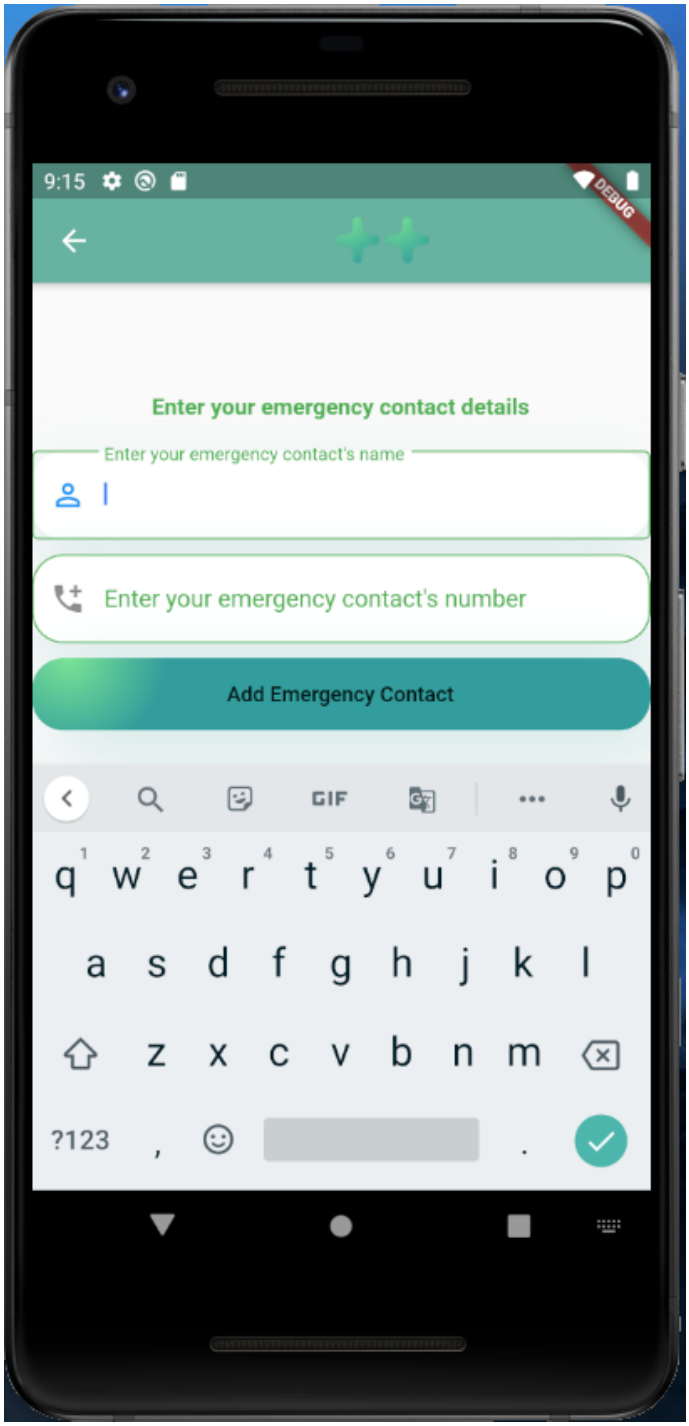


Figure 11: Add Emergency Contact details Page

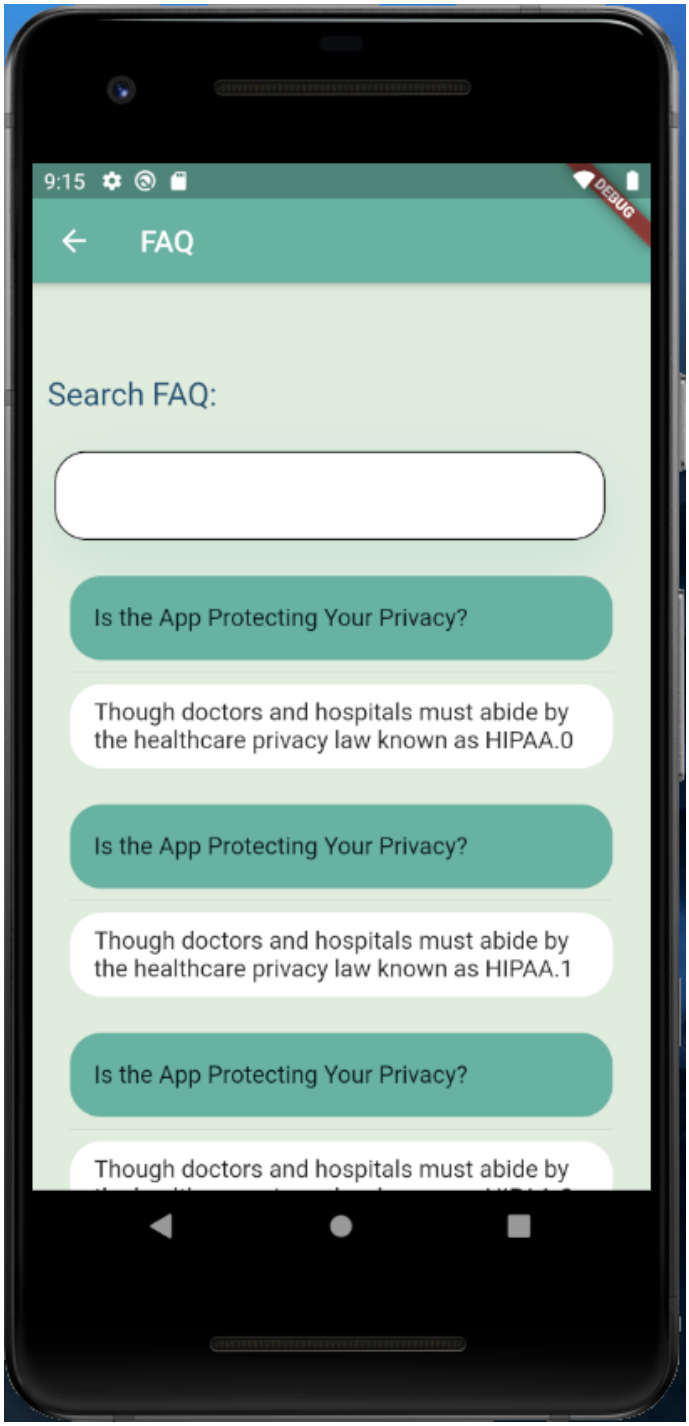


Figure 12: FAQ Page

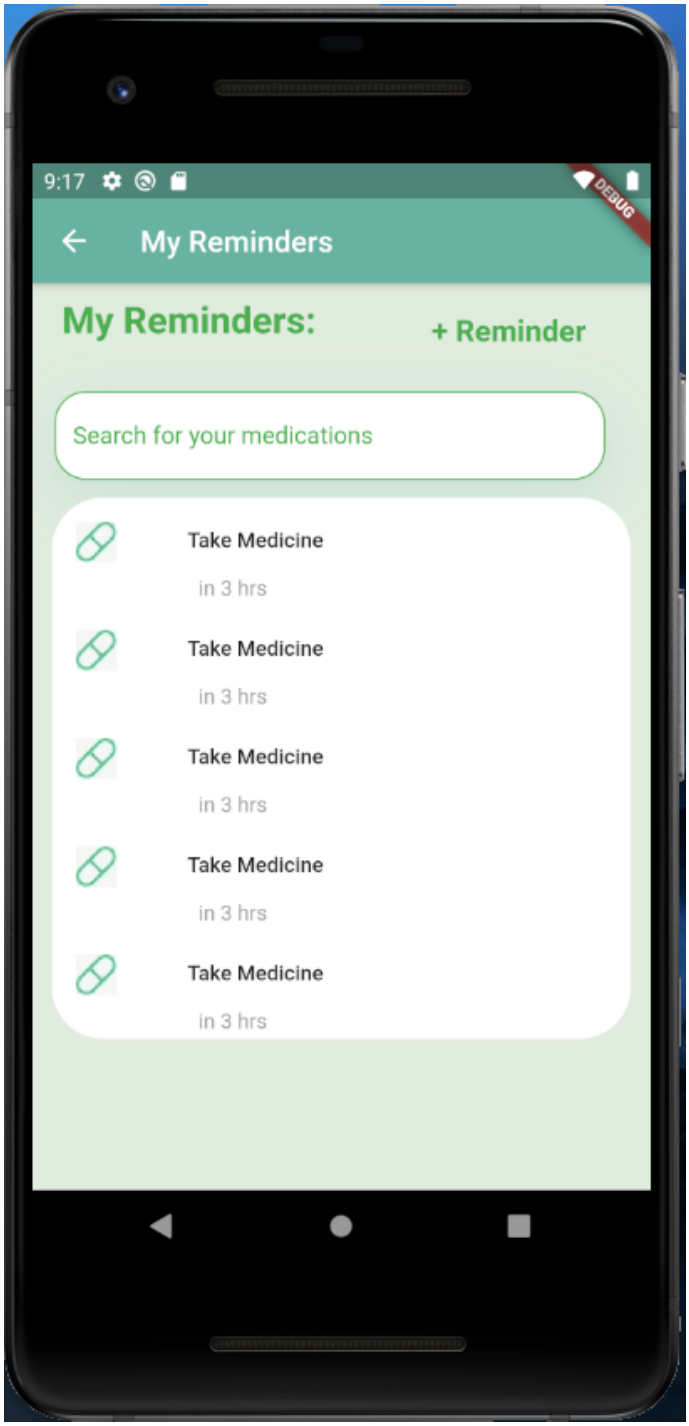


Figure 13: Reminders Page

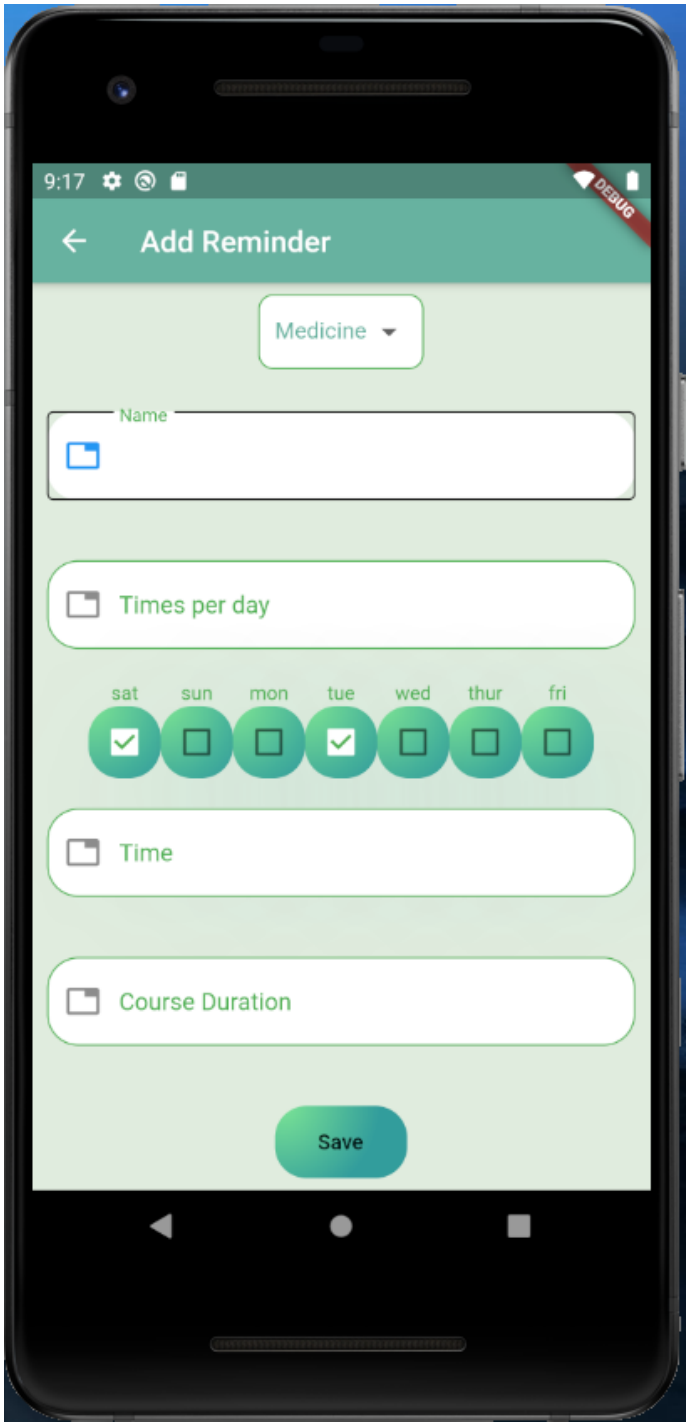


Figure 14: Insert Reminders Page

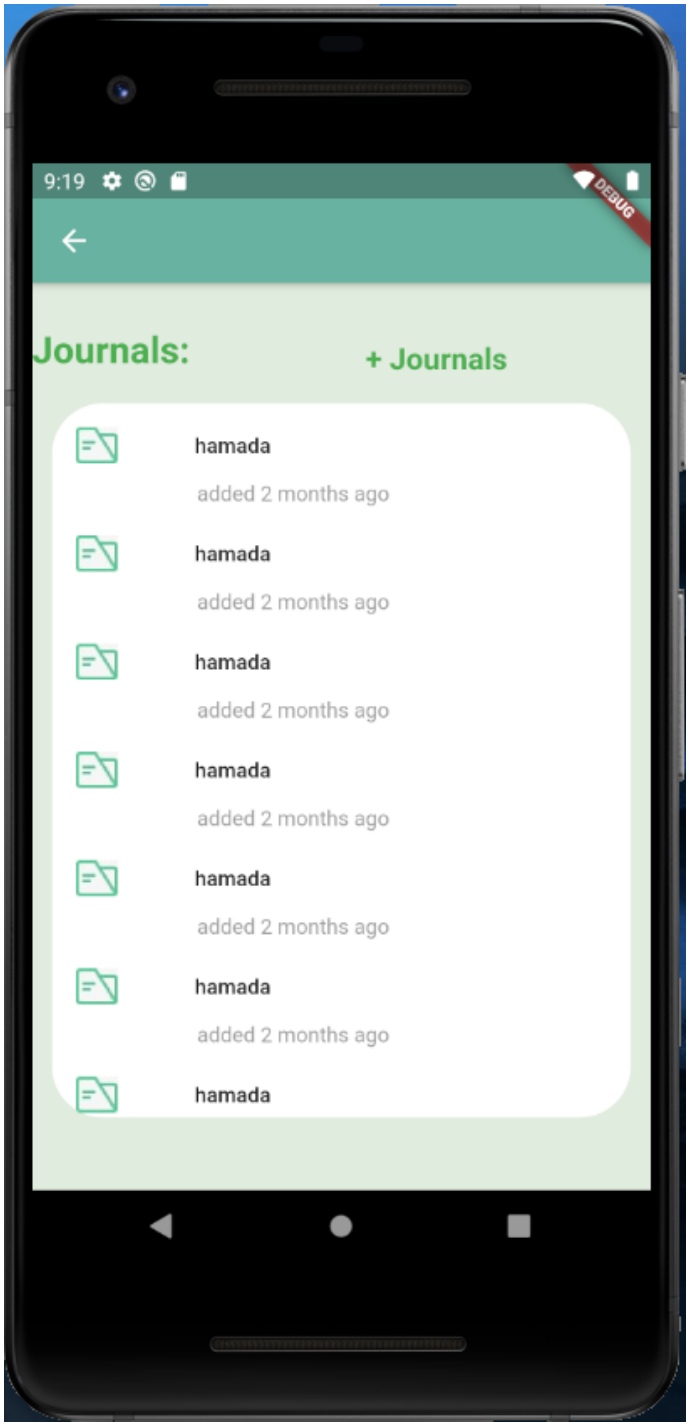


Figure 15: Journals Page

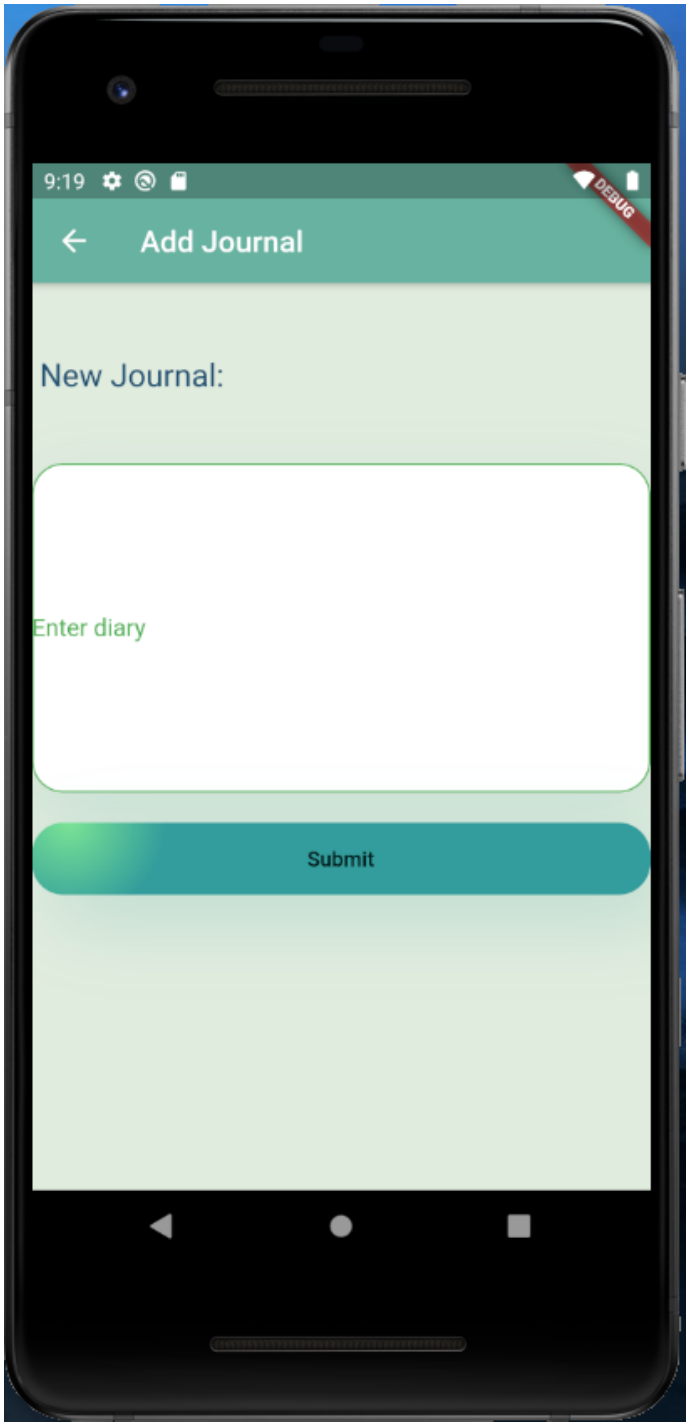


Figure 16: Add Journals Page

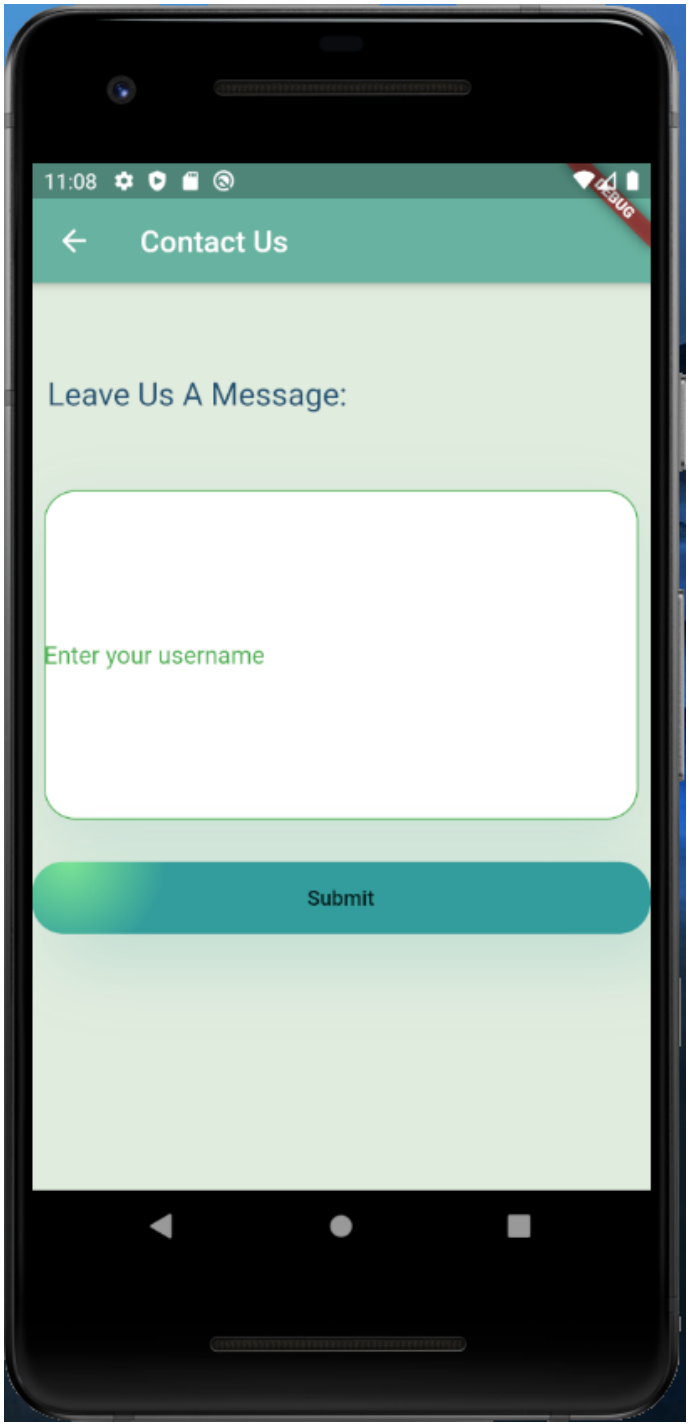


Figure 17: Contact us Page

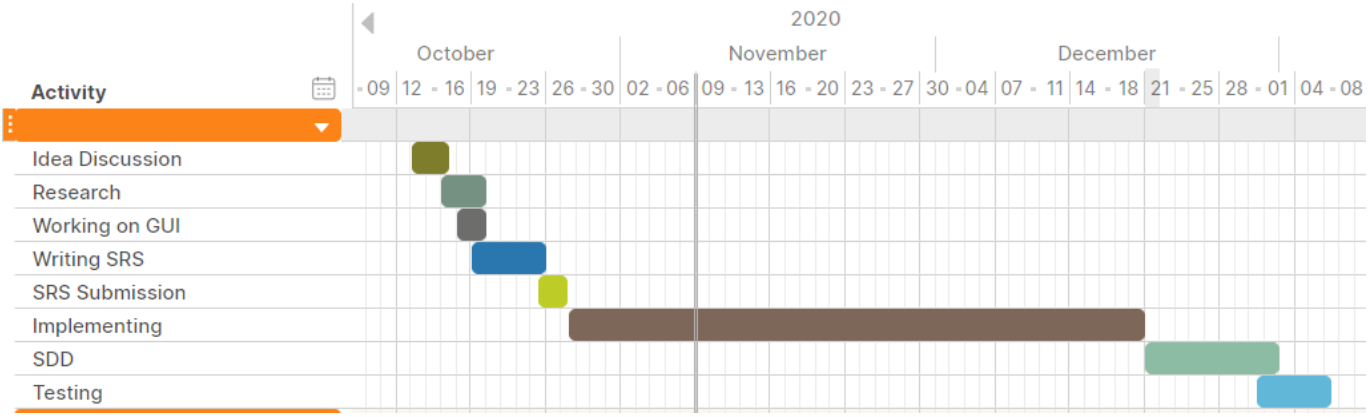


Figure 18: GANTT Chart

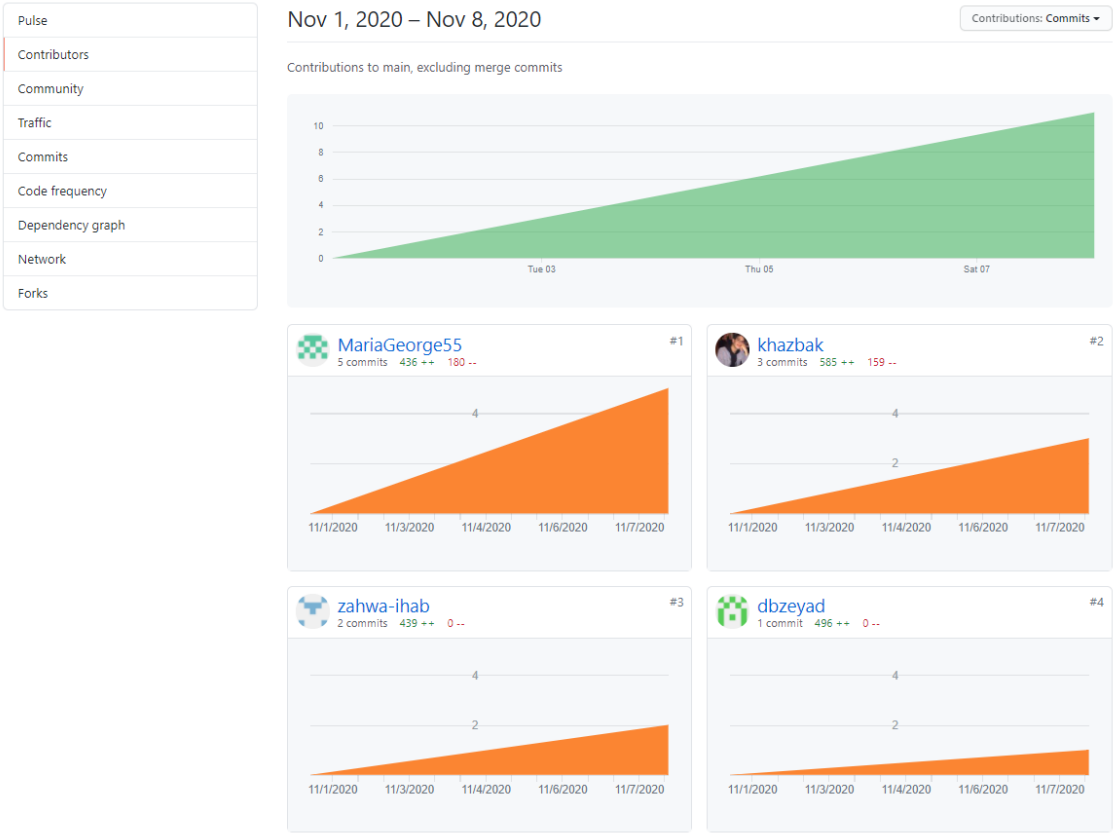


Figure 19: GitHub Commits