PROJECT REPORT

ON

MENTAL AND PHYSICAL HEALTH CARE

By

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DEPARTMENT OF INFORMATION TECHNOLOGY

LJ POLYTECHNIC, AHMEDABAD

2024-2025

DEPARTMENT OF INFORMATION TECHNOLOGY

LJ POLYTECHNIC, AHMEDABAD

2024-2025

CERTIFICATE

Date:___/___/_____

This is to certify that ***Ms. MUSKAN HASANJI, Ms. NANDANI PATEL, Mr. AYUSH GONDALIYA, Mr. SAHIL DEVANI, Mr. ABBAS MISTER and Mr. VED KALARIYA*** from LJ POLYTECHNIC having Enrollment No. 22***012250410198,*** 22***012250410200,*** 22***012250410259,*** 22***012250410271, 22012250410277 and 22012250410314*** have completed project documentation and development on the problem definition of semester VI during the academic year 2024-25 having Title ***MENTAL AND PHYSICAL HEALTH CARE*** in a group consisting of 6.

Institute Guide **Head of the Department**

ACKNOWLEDGEMENT

We would thank God for being able to complete this project with success. Then We would like to thank our faculty whose valuable guidance has been the ones that helped us patch this project and make it full proof success his suggestions and his instructions has served as the major contributor towards the completion of the project. Secondly we would also like to thank our parents who supported in our project.

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ABSTRACT

The "Balance 365" app is a comprehensive health care platform designed to enhance both physical and mental well-being through a suite of integrated features. It provides users with personalized exercise plans and nutrition guidance, allowing for tailored fitness and dietary routines that adapt to individual goals and progress. The app's detailed health tracking system offers insights into physical fitness metrics, enabling users to monitor their improvements and adjust their strategies as needed. For mental wellness, Balance 365 includes tools for stress management and access to a variety of resources aimed at promoting psychological balance and resilience. The app is further supported by an advanced chatbot that assists users with navigation and provides detailed information about its functionalities, ensuring a smooth and informative experience. Additionally, the dynamic user profile section centralizes personal health data and progress, creating a cohesive and user-friendly experience. By integrating these diverse health management tools into one platform, Balance 365 empowers users to take proactive control of their overall health with a streamlined and efficient approach.

CHAPTER 1

INTRODUCTION

1.1 Need of the system

- As of the most recent WHO (World Health Organization) available, it is estimated that about **30%** of the world's adult population has high blood pressure (BP). This figure translates to roughly **1.4 billion** people globally. approximately **80%** of adolescents and about **27%** of adults worldwide do not meet the recommended levels of physical activity.
- Our app provide a solution for Health related issues like BP Management, Weight Management, Mental Health , etc. Problems. I gives a perfect suggestion for manage your health according the vitals. In modern world we can also live better using this type of technology.

1.2 Detailed problem definition

- Design of a mobile application to fulfill requirements such as mental and physical health tracking, wellness tips, and personalized health plans.
- Well-designed database to store user health information.
- User-friendly interface for easy interaction with the app's features.
- Personalized user profiles allowing users to update their information and track progress.
- Ability for users to log and monitor mental and physical health activities.
- Provision of daily wellness tips and activity suggestions tailored to users' needs.

- Functionality for scheduling appointments and consulting with health professionals.

1.3 Viability of the system

- The viability of Balance 365 focusing on physical and mental health hinges on strong market demand due to rising health awareness, a unique value proposition that integrates both physical and mental wellness, and the ability to deliver a personalized and user-friendly experience. Technical feasibility, including seamless data integration and expert-driven content, is crucial for sustained user engagement and differentiation from competitors.

1.4 Presently available system

- Samsung health
- HealthPlix
- Health (for Iphone)
- Its is not to more efficient to maintain health.
- In this system is not very User-Friendly.

1.5 Future prospects

- We can add the monthly graph functionality with weekly graph.
- Use for mobile sensors for the detection of various vitals like blood pressure, heart rate, etc.
- We add Also the various subscription plans for the client to access the exclusive features of the application.
- In future the AI integration with chatbot is possible.
- News and facts related to health can also be made.

CHAPTER-2

ANALYSIS

2.1. Requirement Analysis

User Authentication and Authorization

- User registration via email or social media (Google, Facebook).
- Secure user login.
- Password reset functionality.
- User profile management.

Health Data Input and Management:

- Ability for users to input various health metrics (age, weight, blood pressure, etc.).
- Flexibility to add other health metrics based on user needs (heart rate, glucose level, sleep data, etc.).
- Option to track health data over time (charts, graphs, or trends).

Data Visualization and Reporting:

- Clear and intuitive display of health data (charts, graphs).
- Ability to generate reports for personal use or sharing with healthcare professionals.
- Personalized insights based on health data trends.

Mental Health Quiz:

- A series of questions designed to assess the user's mental well-being.
- Questions should cover various aspects of mental health (stress,

anxiety, depression, etc.).

- Scoring mechanism to provide an overall mental health assessment.
- Option to retake the quiz periodically to track progress.

Mental health Resources:

- Provide relevant information and resources based on quiz results.

Video Suggestion Engine:

- Analyze user's health data and preferences.
- Recommend relevant health-related videos based on individual needs.
- Categories could include exercise routines, healthy recipes, stress management techniques, etc.
- Option for users to filter or search for specific video types.

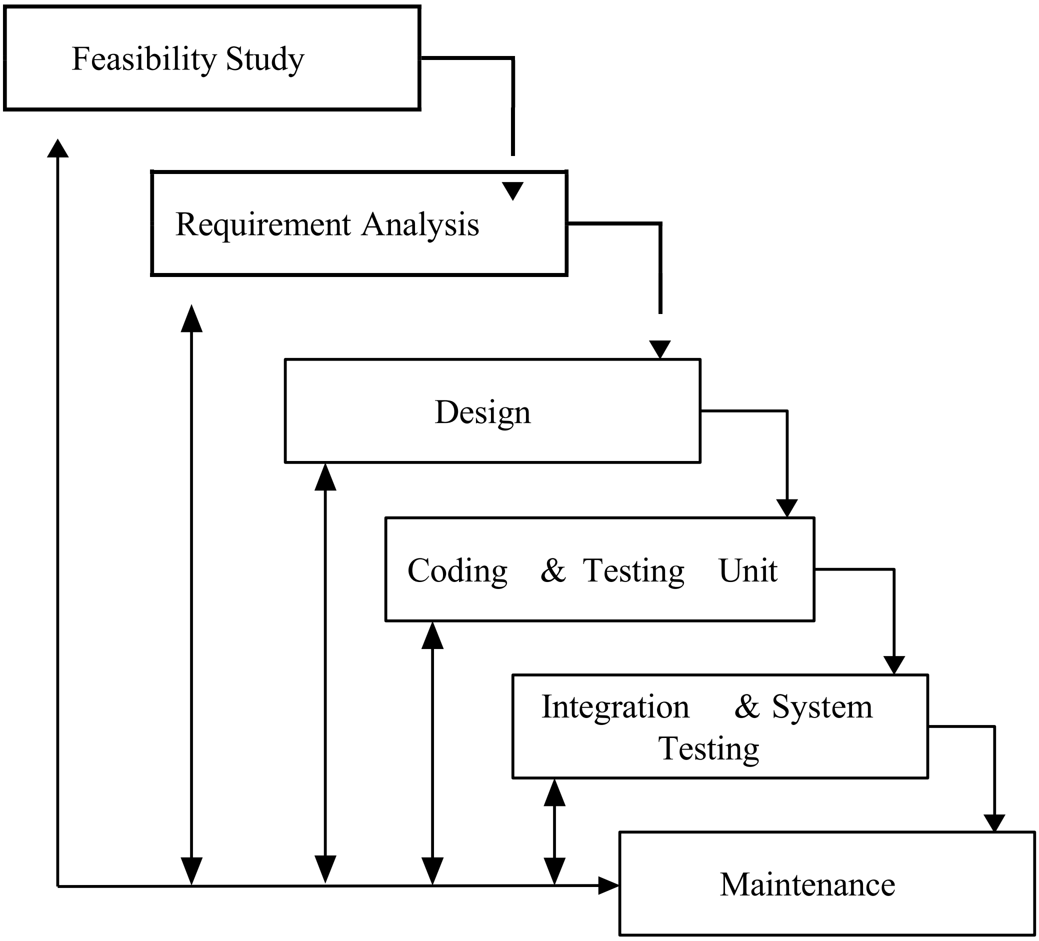
Video Content Management:

- Curation or sourcing of high-quality health-related video content.
- Categorization and tagging of videos for efficient retrieval.
- Regular updates to the video library.

User Interaction with Videos:

- Ability to play, pause, and control video playback within the app.
- Option to save or favorite videos for later viewing.
- Integration with video platforms (e.g., YouTube) for content access.

2.2 Project Model



[Figure 1: Iterative Waterfall Model]

- This application is developed using Iterative model. Almost everyother model is derived from the waterfall model.
- The phase of detecting errors is close to its points of introduction isknown as face containment of errors.
- Incremental model is also referred as the successive version of waterfall model using incremental approach and evolutionary model. In this model, the system has broken down into several modules whichcan be incrementally implemented and delivered.
- First develop the core model and when customer evaluate the system then the initial product skeleton is redefined into increasing levels capacity by adding new functionalities in

successive versions.

Advantages

- Each successive version performing more useful work thanprevious versions.
- The core modules get tested thoroughly, thereby reducing change oferror in final product.
- The model is more flexible and less costly to change the scope andrequirement.
- User gets a change to experiment with partially developed software.
- This model helps finishing exact user requirements.
- Feedback providing at each increment is useful for determining thebetter final product.

2.3 Schedule Representation

Generalized project scheduling tools and technique can be applied with little modification to software projects.Project evolution and review technique and critical paths method are two project scheduling method that can be applied to software development. Both techniques are driven by information already developed in earlier project planning activities:

- A decomposition of the product function.
- The selection of appropriate process model and task set.
- Estimate of effort.
- Decomposition of data.

[Table 1 : Schedule Representation]

ACTIVITY	START DATE	FINISH DATE
Requirement Analysis		
System Analysis		
System Design		
System Coding		
Testing and Integration		

2.4 Feasibility Study:

2.4.1 Technical Feasibility:

- The proposed system for the mental and healthcare application will be developed as a web-based and mobile-friendly application using Flutter and Dart. These technologies are well-suited for creating a seamless and responsive user experience across various devices.

- Firebase will be used as the Database Management System (DBMS), offering real-time data synchronization and efficient data handling, which are critical for the application.

- The necessary technology stack, including Flutter, Dart, and Firebase, is available and capable of meeting the system's requirements.
- Currently available web technology – Flutter, Dart, etc.
- DBMS – Firebase, etc.

2.4.2 Economical Feasibility:

- Economic feasibility, commonly known as cost/benefit analysis, will be applied to evaluate the effectiveness of the mental and healthcare application. This involves calculating the expected benefits and savings from the system and comparing them with the development and operational costs. If the benefits outweigh the costs, the system will be designed and implemented.

2.4.3 Operational Feasibility:

- Operational feasibility measures how well the proposed system addresses the issues identified during the scope definition and problem analysis phases, and how effectively it meets the requirements set out in the requirement analysis phase.

- The application will be user-friendly, with healthcare professionals and patients expected to find the interface intuitive. Training needs will be minimal due to the familiar and accessible design.

- The system can be implemented within existing networks, with Firebase offering robust security features at both the network and application levels. The use of Flutter and Dart will support an object-oriented approach, ensuring the system's flexibility and smooth operation.

- Data security will be prioritized, with different access levels established for various users. Firebase's authentication, authorization, and audit features will support secure system management.

- Efficient data retrieval processes will be implemented, leveraging Firebase's capabilities for real-time data access.

CHAPTER-3

DESIGN

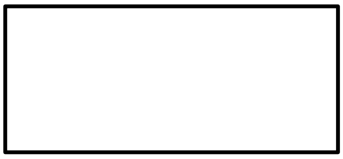
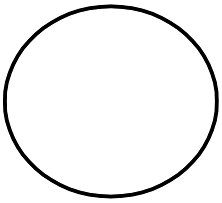
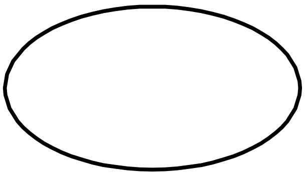
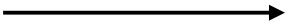
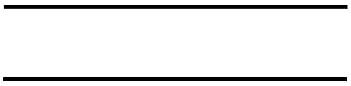
3.1 Data Flow Diagram

- DFD (data flow diagram) is also known as bubble chart or data flow graph.
- DFD’s are very useful in understanding the system and can be effectively used during analysis. It shows flow of data through a system visually. The DFD is a hierarchical graphical model of a system the different processing activities or functions that the system performs and the data interchange among these functions.
- It views a system as a function that transforms the inputs into desired output.
- Each function is considered as a process that consumes some input data and produces some output data.
- Function model can be represented using DFD.
- DFD graphically representing the functions, or processes, which capture, manipulate, store, and distribute data between a system and its environment and between components of a system.
- The visual representation makes it a good communication tool between User and System designer.
- Structure of DFD allows starting from a broad overview and expand it to a hierarchy of detailed diagrams.

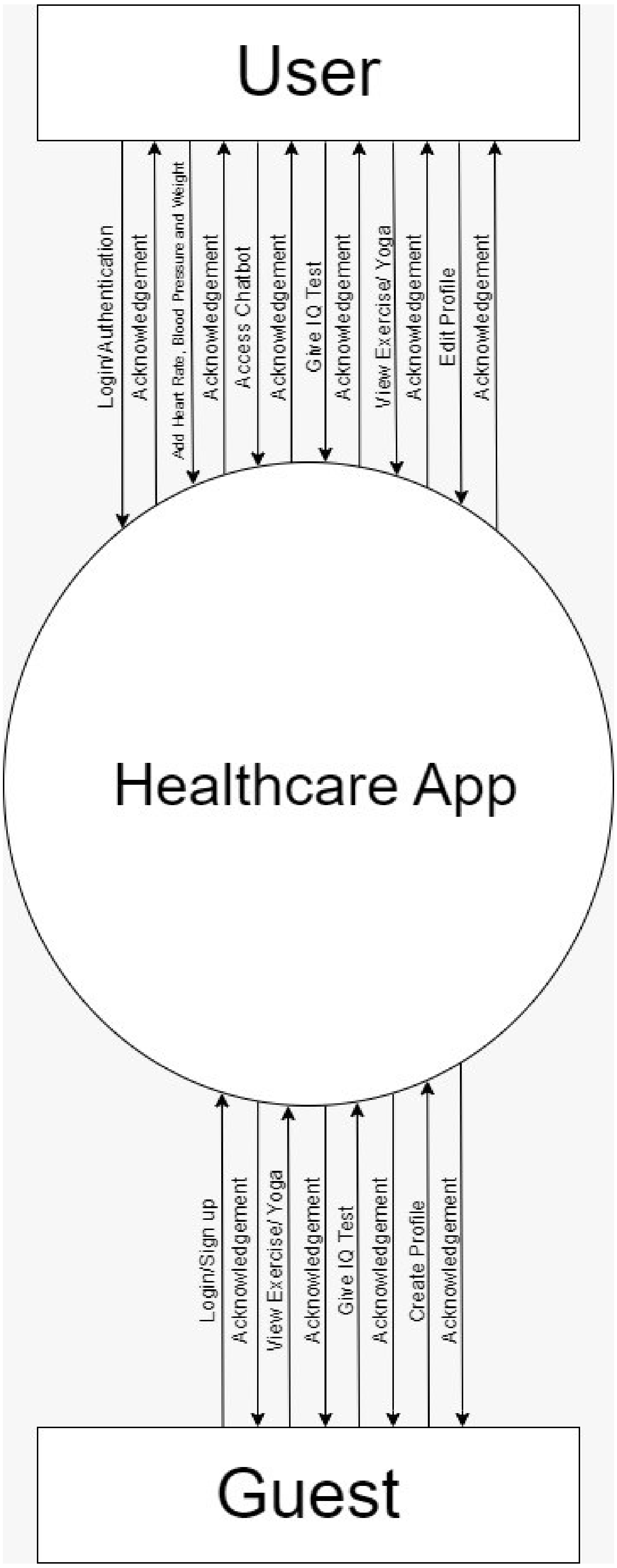
- DFD has often been used due to the following reasons:

1. Logical information flow of the system.
2. Determination of physical system construction requirements.
3. Simplicity of notation.
4. Establishment of manual and automated systems requirements.

[Table 2: Data Flow Diagram Symbols]

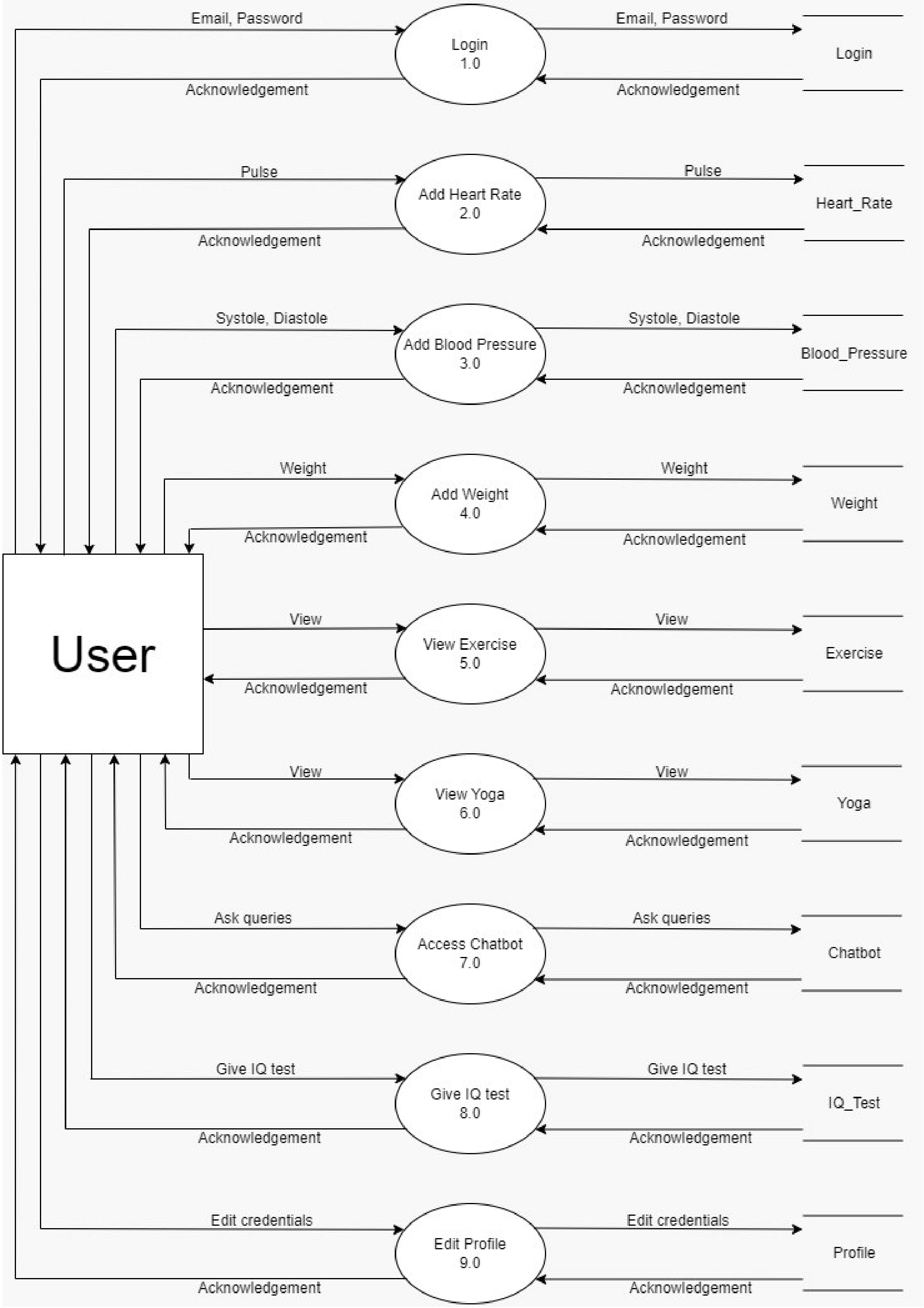
Symbols	Description
	**Entity:** Entities are external to the system which interacts by inputting the data.
	**System:** It shows the system name.
	**Process:** It shows the part of the system that transforms into outputs.
	**Data Flow:** It passes the data from one part to another.
	**Data Store:** Data store is represented by two parallel lines. It is generally logical file or database.

Level 0: Context Level



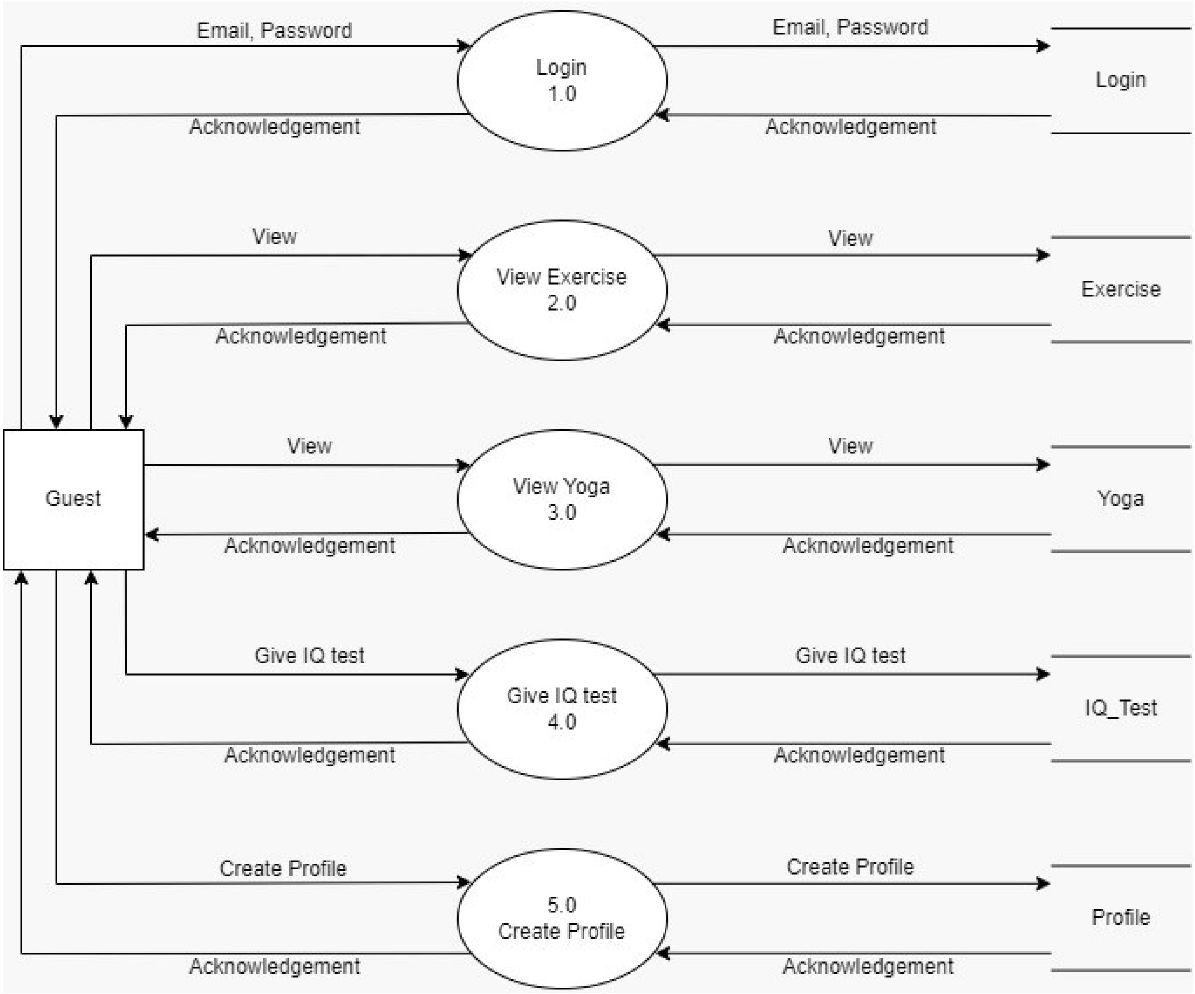
[Figure 2: Context level]

Level 1: USER



[Figure 3: DFD Level 1: USER]

Level 1: GUEST

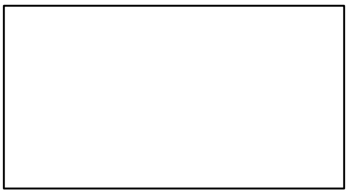
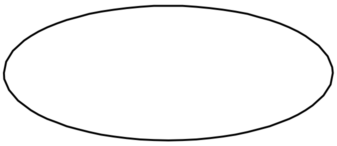
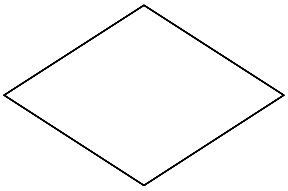
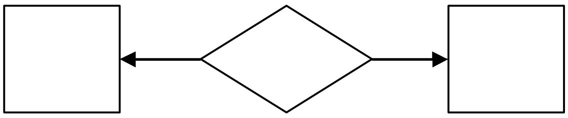
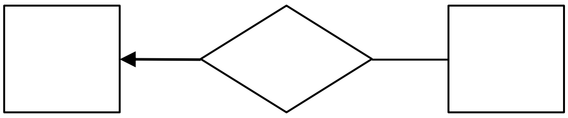
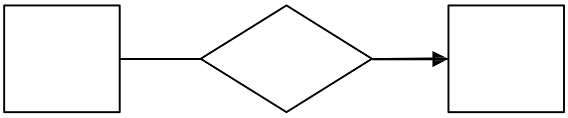
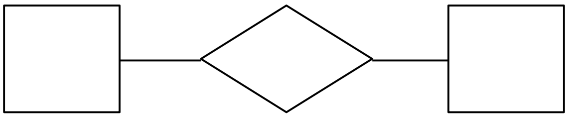


[Figure 4: DFD Level 1: GUEST]

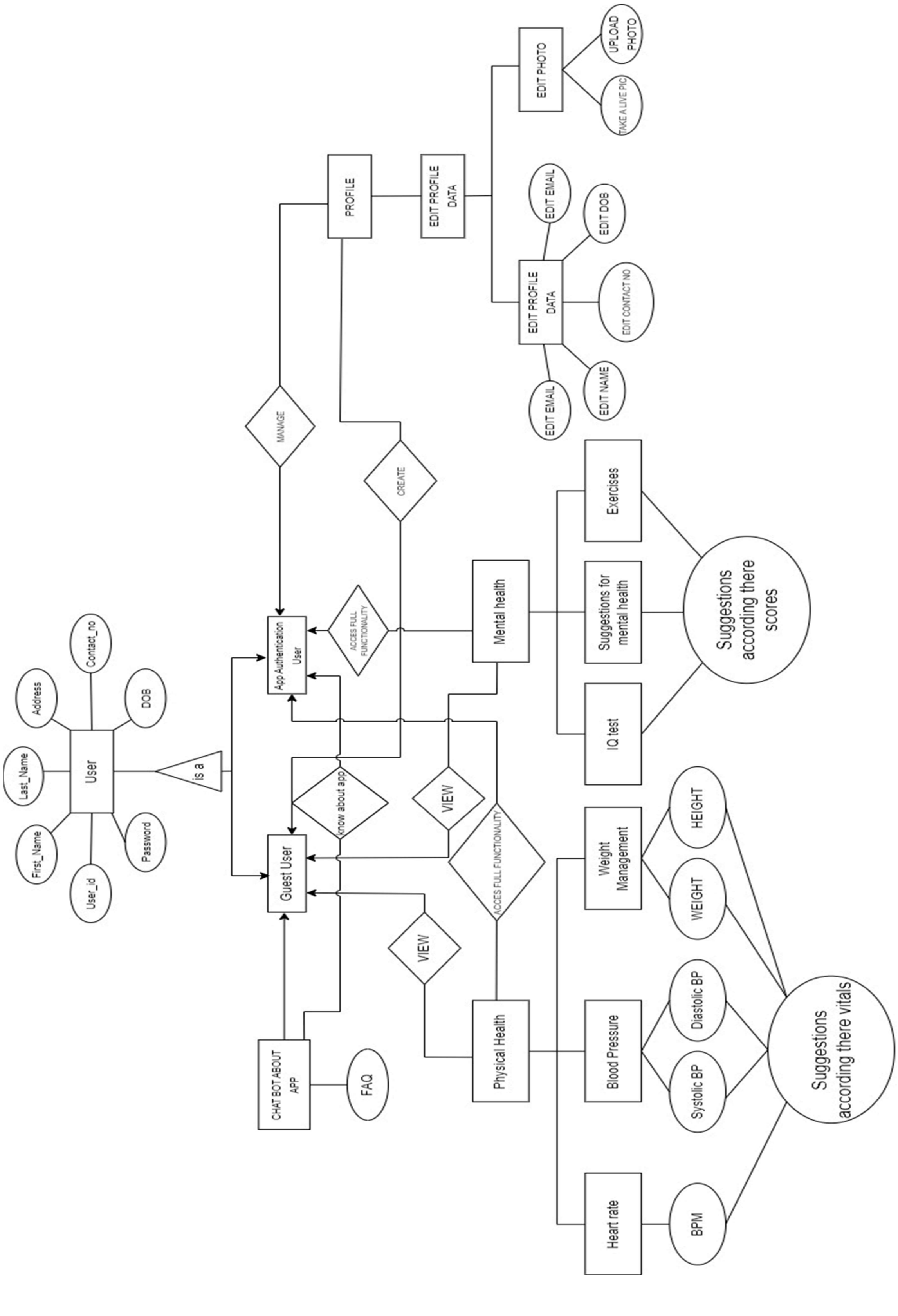
3.2 ER-Diagram

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how “entities” such as people, objects or concepts relate to each other within a system. ER Diagrams are most often used to design or debug relational databases in the fields of software engineering, business information systems, education and research. Also known as ERDs or ER Models, they use a defined set of symbols such as rectangles, diamonds, ovals and connecting lines to depict the interconnectedness of entities, relationships and their attributes. They mirror grammatical structure, with entities as nouns and relationships as verbs.

[Table 3: ER-Diagram Symbols]

Symbols	Description
	**Entity:** Data object is real world entity or thing. It is represented by a rectangle shape. An entity is an object or concept about which you want to store information.
	**Attributes:** An attribute is property of characteristic of an entity. It is represented by oval shape.
	**Relationship:** Entity are connected each other via relations. Generally, relationships in binary because there are two entities are related to each other.
	**Cardinality (One to One):** An instance of entity A can relate to one instances of entity B.
	**Cardinality (One to Many):** An instance of entity A can relate to one or many instances of B but we can only relate one instance of A.
	**Cardinality (Many to One):** One or more instances of entity A can relate to one instances of B.
	**Cardinality (Many to Many):** One or more instances of entity A can relate to one more instance of entity B.

ER-Diagram:



[Figure 7: ER Diagram]

CHAPTER-4

SYSTEM MODELING

4.1 Database Dictionary

4.1.1. Table Name : Auth

Primary Key : User_id

Foreign key : User_id

[Table 4: Auth]

SR.NO	FIELD NAME	DATATYPE(SIZE)	CONSTRAINT	DESCRIPTION
1	User_id	Varchar(12)	Primary key	User's Id
2	E_mail	Varchar(15)	Not null	User's email id
3	Password	Varchar(15)	Not null	Password

4.1.2. Table Name : (User_id)

Foreign key: User_id

[Table 5: (User_id)]

SR.NO	FIELD NAME	DATATYPE(SIZE)	CONSTRAINT	DESCRIPTION
1	User_id	Varchar(12)	Foreign key	User's Id
2	F_name	Varchar(15)	Not null	User's firstname
3	L_name	Varchar(15)	Not null	User's lastname
4	Password	Varchar(15)	Not null	Password of User
5	Contact_no	Bigint(13)	Not null	Contact no of User
6	Email	Varchar(30)	Not null	Email of User
7	Address	Varchar(100)	Not null	Address of User
8	DOB	Date	Not null	User's DOB

4.1.3. **Table Name:** PHYSICAL_HEALTH_(User_id)
Foreign key: User_id

[Table 6: PHYSICAL_HELATH_(User_id)]

SR.NO	FIELD NAME	DATATYPE(SIZE)	CONSTRAINT	DESCRIPTION
1	User_id	Varchar(12)	Foreign key	User's Id
2	Timestamp	Date	Unique key	Time of Entry
3	Systole	Number(3)	Not null	User's Systole
4	Diastole	Number(3)	Not Null	User's Diastole
5	Pulse	Number(3)	Not Null	User's Pulse
6	Weight	Number(3)	Not Null	User's Weight
7	Height	Number(3)	Not Null	User's Height
8	BMI	Number(3)	Not Null	User's BMI

4.1.4. **Table Name:** MENTAL_HEALTH_(User_id)
Foreign key: User_id

[Table 7: PHYSICAL_HELATH_(User_id)]]

SR.NO	FIELDNAME	DATATYPE(SIZE)	CONSTRAINT	DESCRIPTION
1	User_id	Varchar(12)	Foreign key	User's Id
2	IQ_Score	Number(3)	Not null	User's Iq Score
3	GK_Score	Number(3)	Not null	User's GK Score
4	Mental Age	Number(3)	Not null	User's Mental Age Score

4.1.5. Table Name: Links

[Table 8: Links]

SR.NO	FIELDNAME	DATATYPE(SIZE)	CONSTRAINT	DESCRIPTION
1	Link_type	Varchar(12)	Not null	Describe link type
2	Platform	Varchar(10)	Not null	From which platform
3	Link	Varchar(30)	Not null	Links

CHAPTER-5

TECHNICAL SPECIFICATION

5.1 Hardware Specification:

- **5.1.1 Ram :** 4 GB
- **5.1.3 Hard drive Storage Needed (Mobile Phone) :** 16 GB
- **5.1.3 Network Connection :** 4G (VoLTE)

5.2 Platform:

- **5.2.1 Supported Operating System:** Android 7 and above.

5.3 Framework:

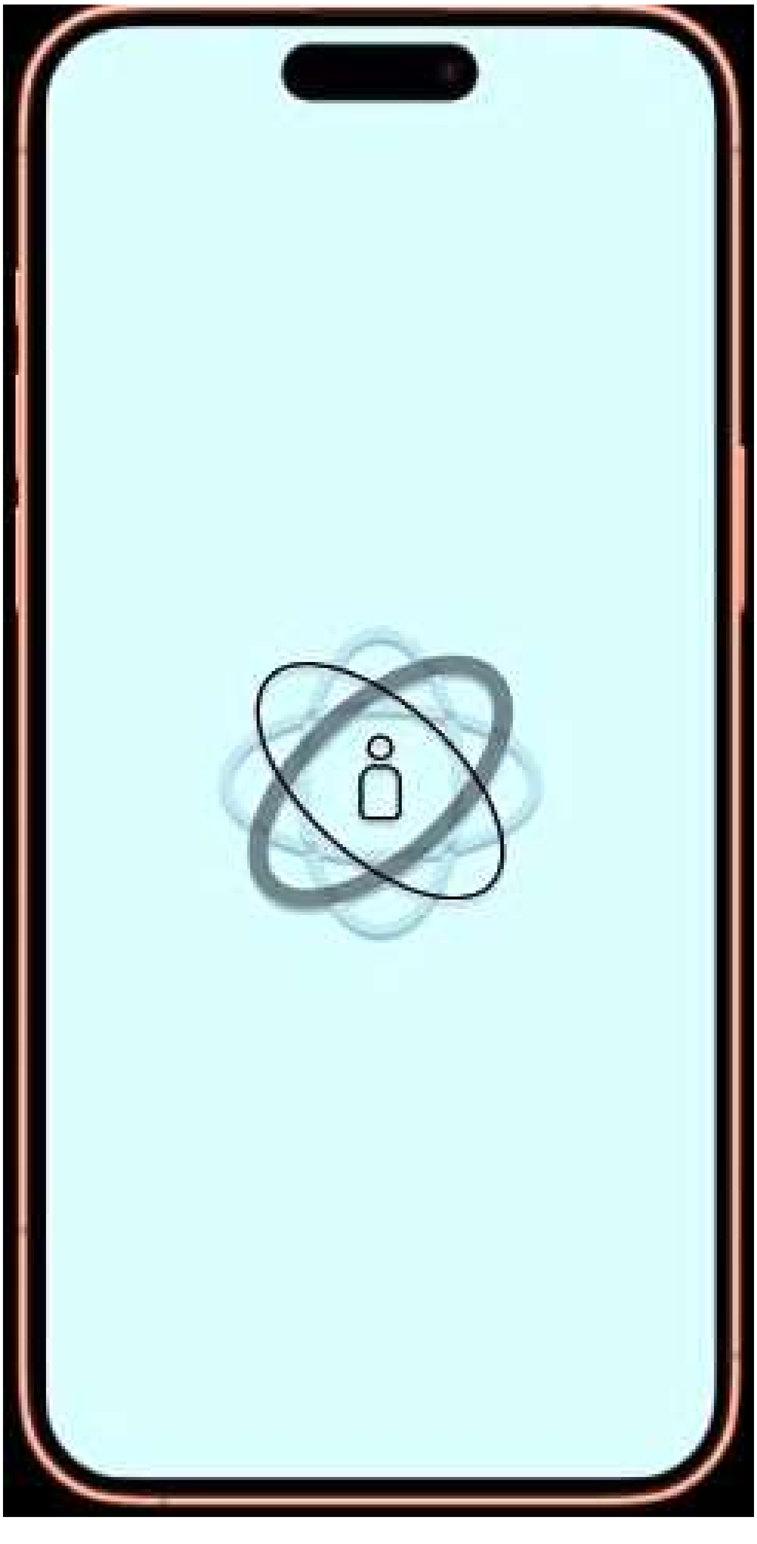
- **5.3.1 Framework:** Flutter.
- **5.3.2 Programming Language:** Dart 3.5

5.4 Technical Specification:

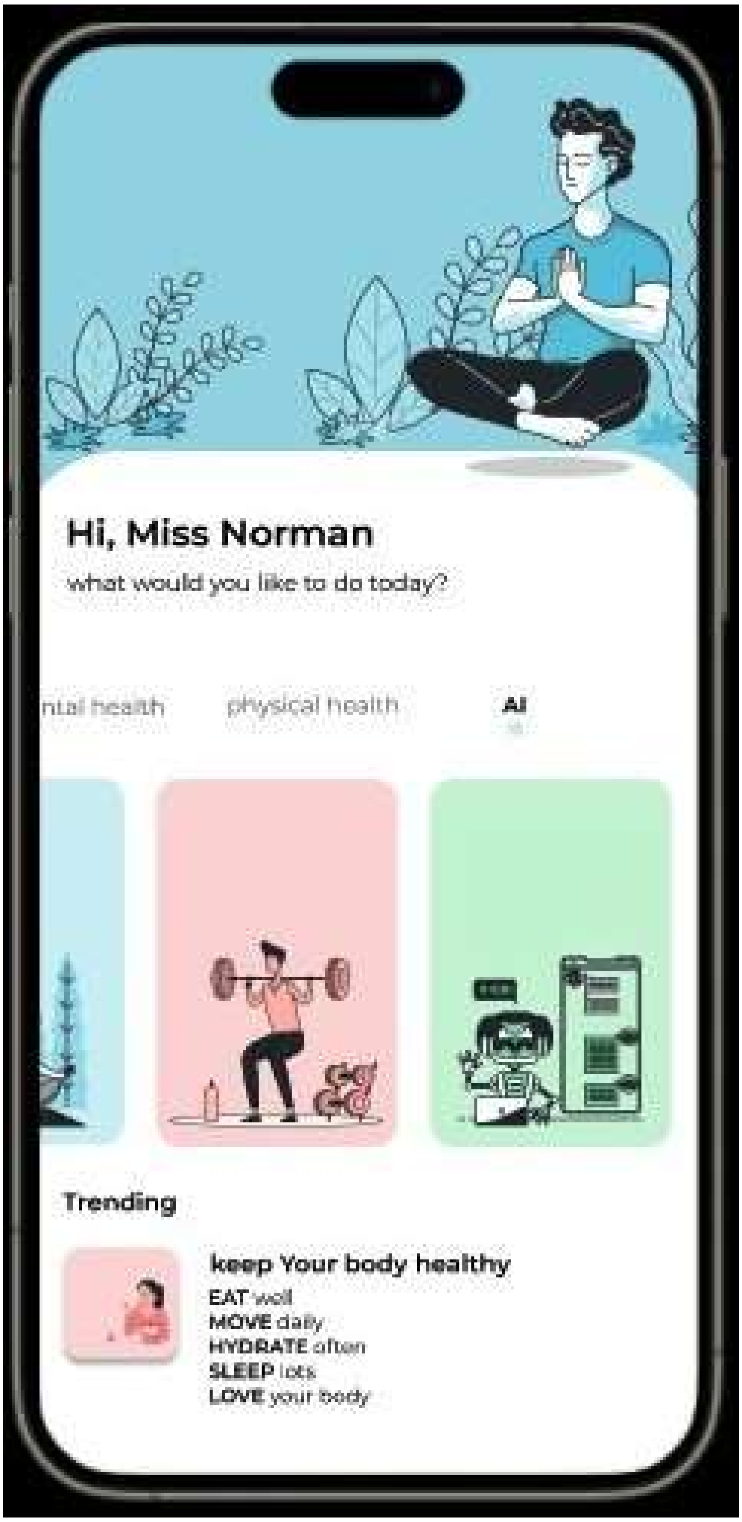
- **5.4.1 Front-End:** Dart
- **5.4.2 Back-End:** Dart & Firebase
- **IDE Tools:** Android studio koala & Visual Studio Code
- **UML Tools:** Draw.io
- **SRS Tools:** Microsoft Word 2021.

5.5 DESIGN LAYOUT

[Figure 8:Design Layout]



[Figure : SPLASH SCREEN]



Hi, Miss Norman

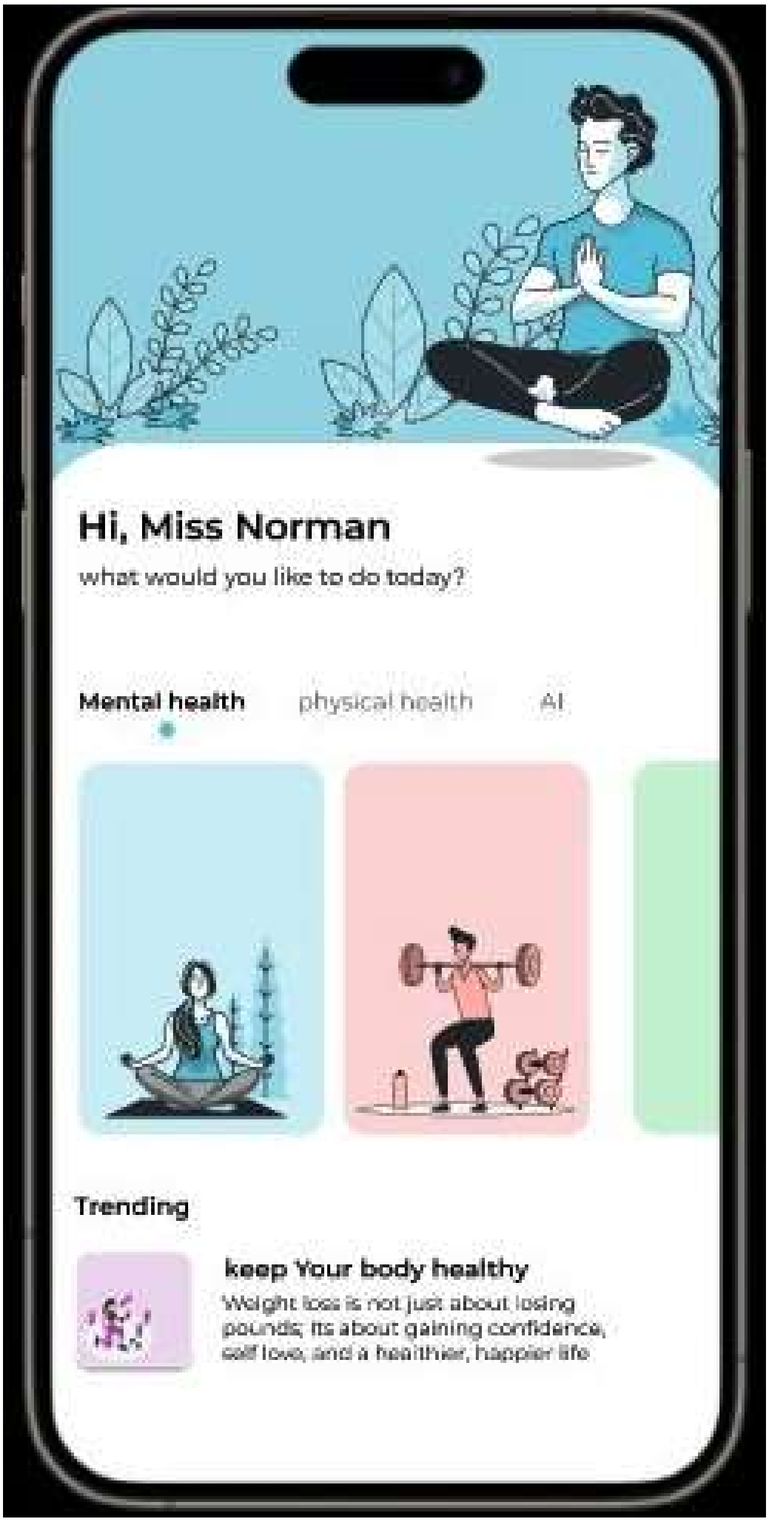
what would you like to do today?

Trending

keep Your body healthy

EAT well
MOVE daily
HYDRATE often
SLEEP lots
LOVE your body

[Figure : Homepage]



Hi, Miss Norman

what would you like to do today?

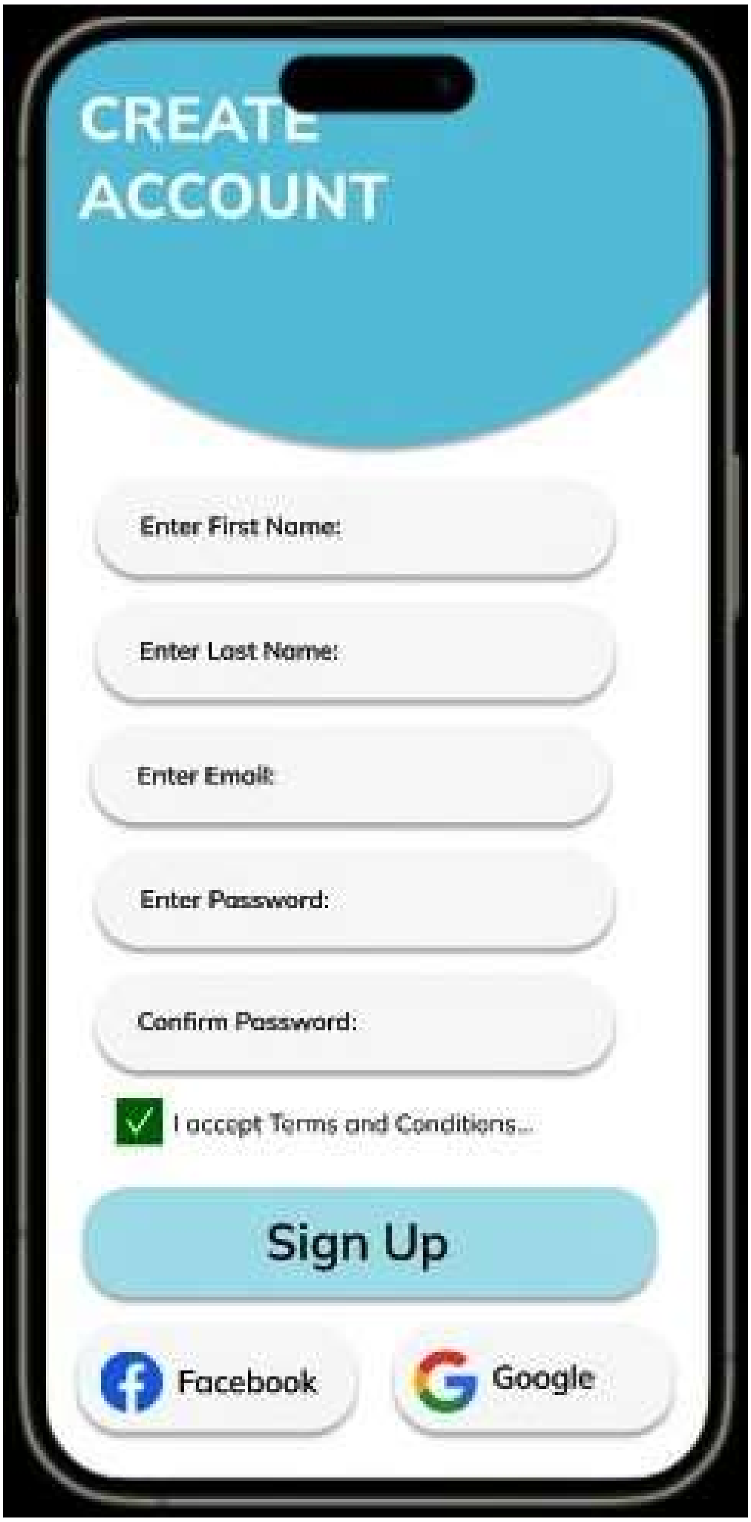
Trending

keep Your body healthy

Weight loss is not just about losing pounds; its about gaining confidence, self love, and a healthier, happier life

[Figure : Homepage]

AUTHENTICATION:-



CREATE ACCOUNT

Enter First Name:

Enter Last Name:

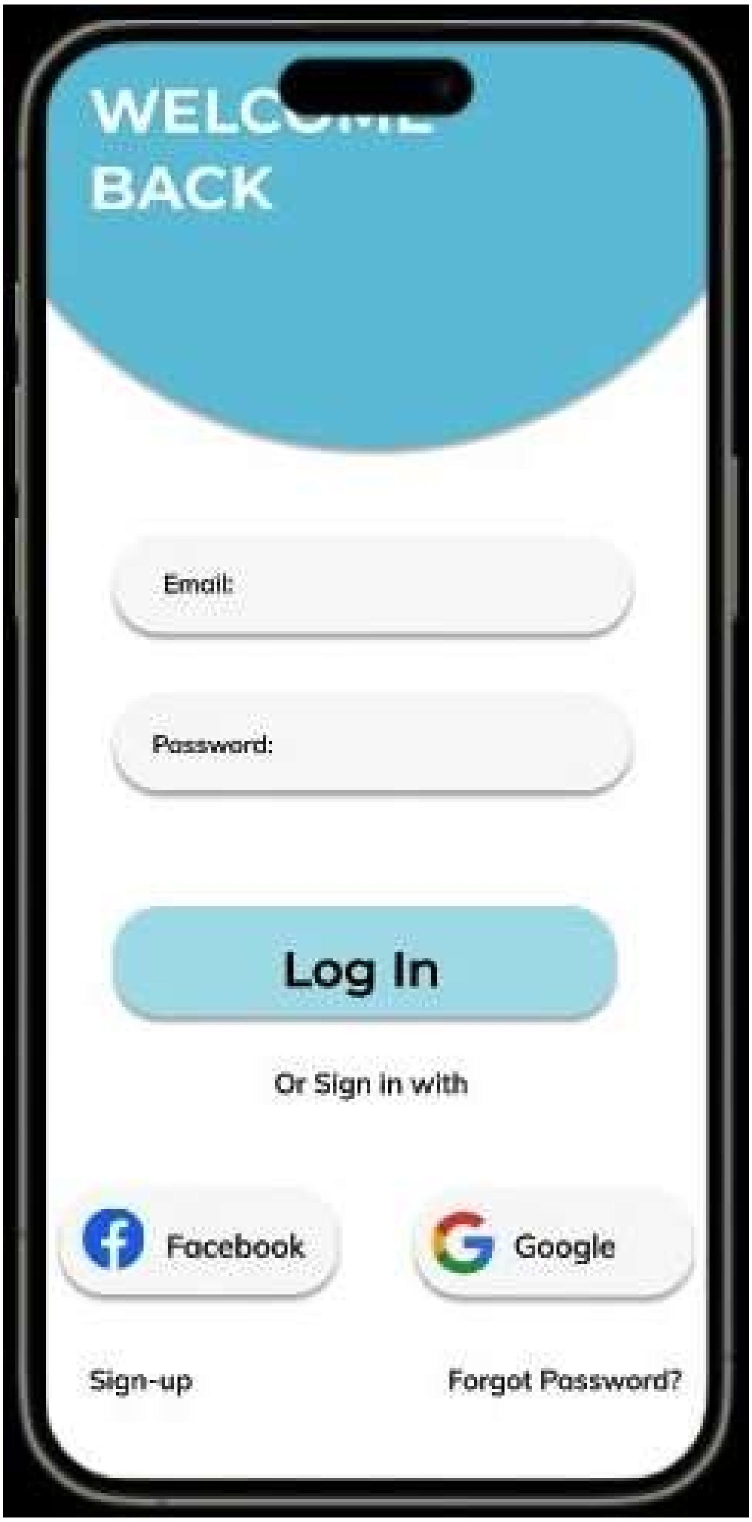
Enter Email:

Enter Password:

Confirm Password:

☑ I accept Terms and Conditions...

[Figure : SIGN UP]


WELCOME BACK

Email:

Password:

Log In

Or Sign in with

Facebook

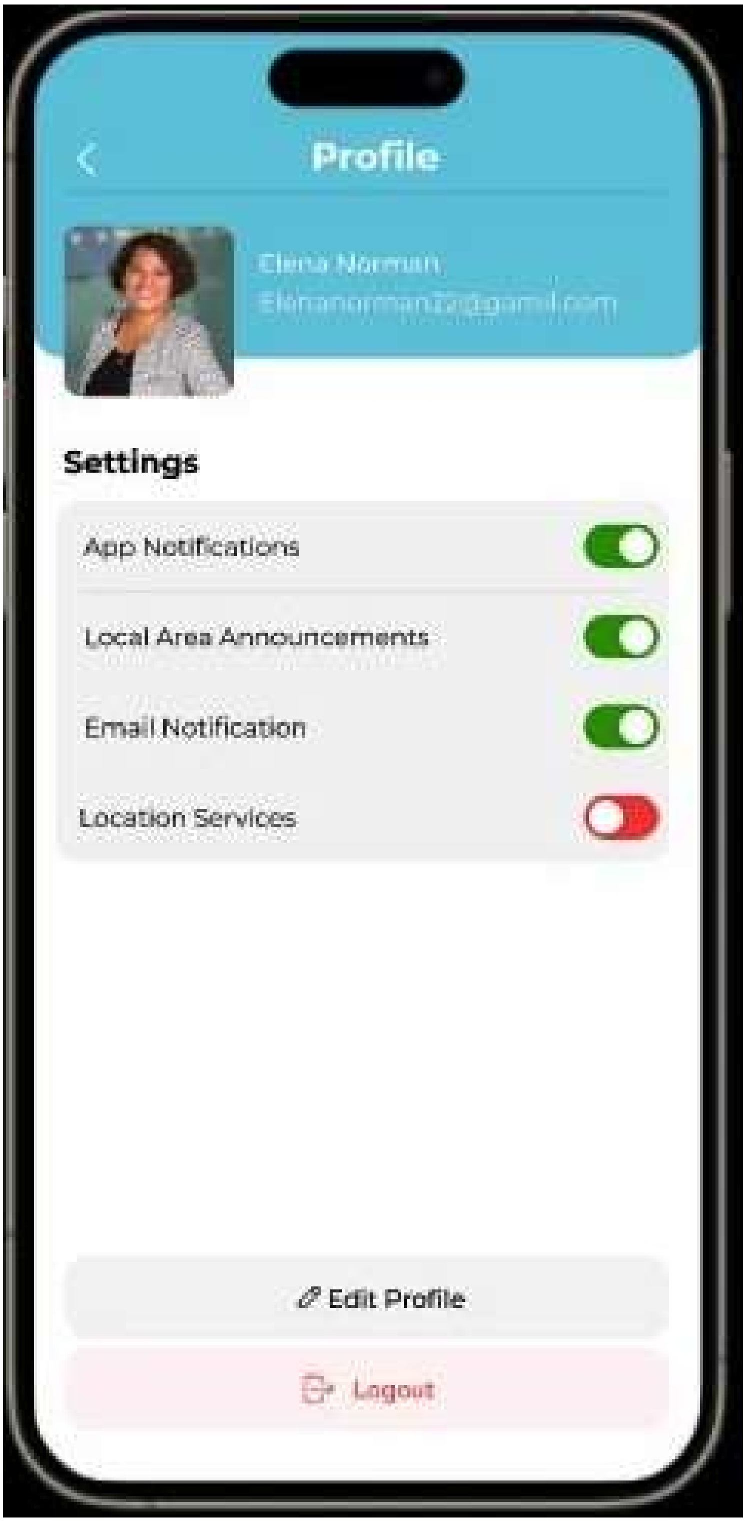
Google

Sign-up

Forgot Password?

[Figure : LOG IN]

c



Elena Norman

Elenanorman22@gamil.com

Settings

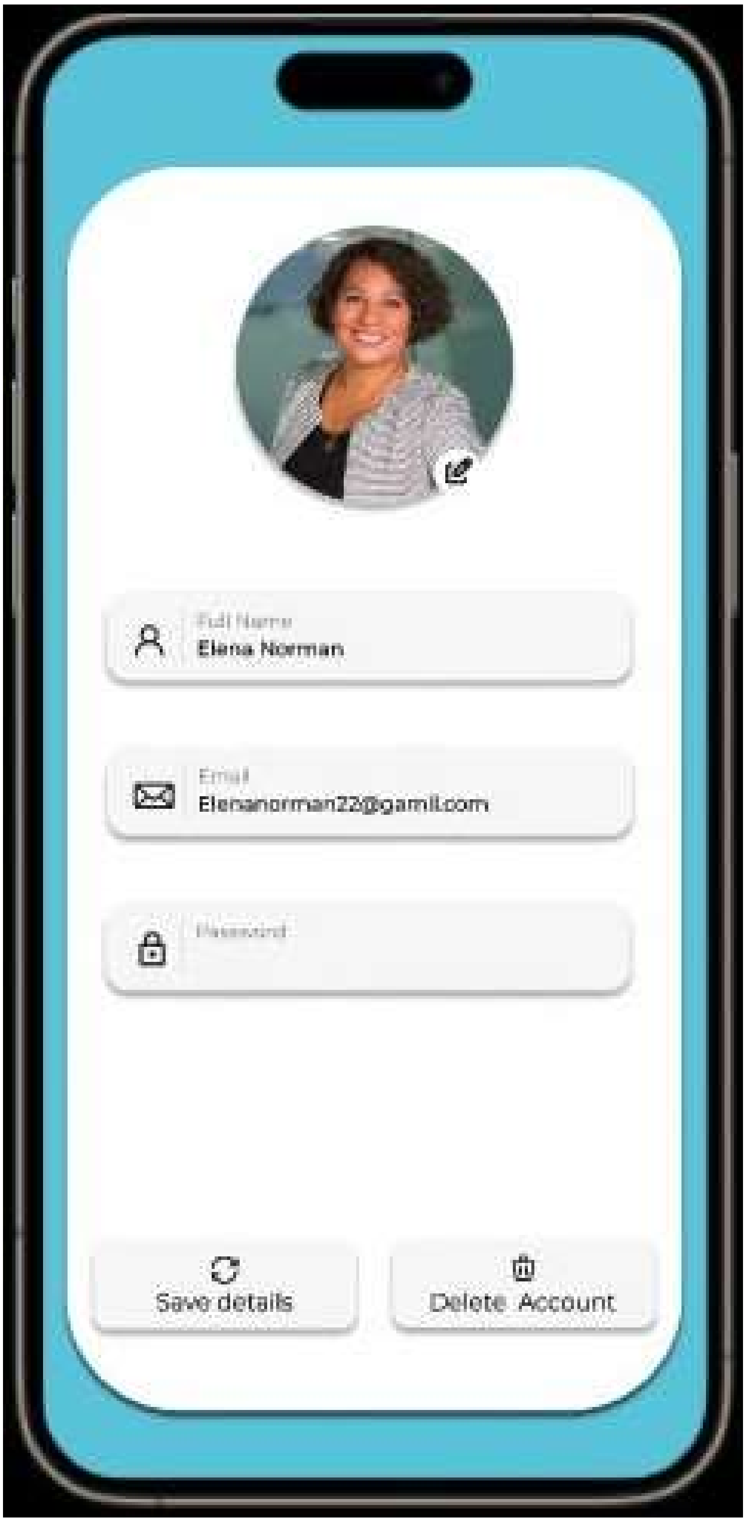
App Notifications ●

Local Area Announcements ●

Email Notification ●

Location Services ○

[Figure : PROFILE]



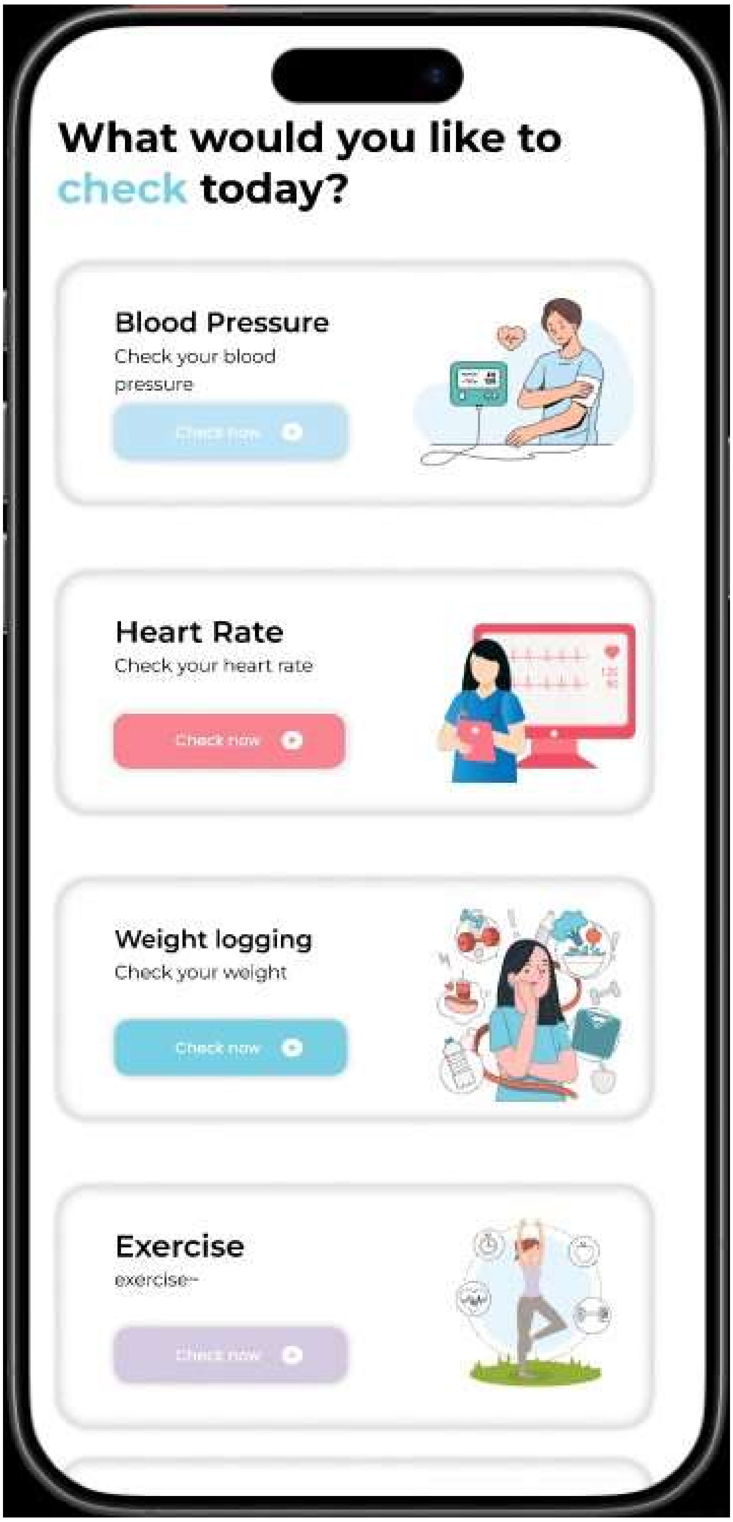
Full Name
Elena Norman

Email
Elenanorman22@gamil.com

Password

[Figure : EDIT PROFILE]

PHYSICAL HEALTH:-



What would you like to check today?

Blood Pressure

Check your blood pressure

Heart Rate

Check your heart rate

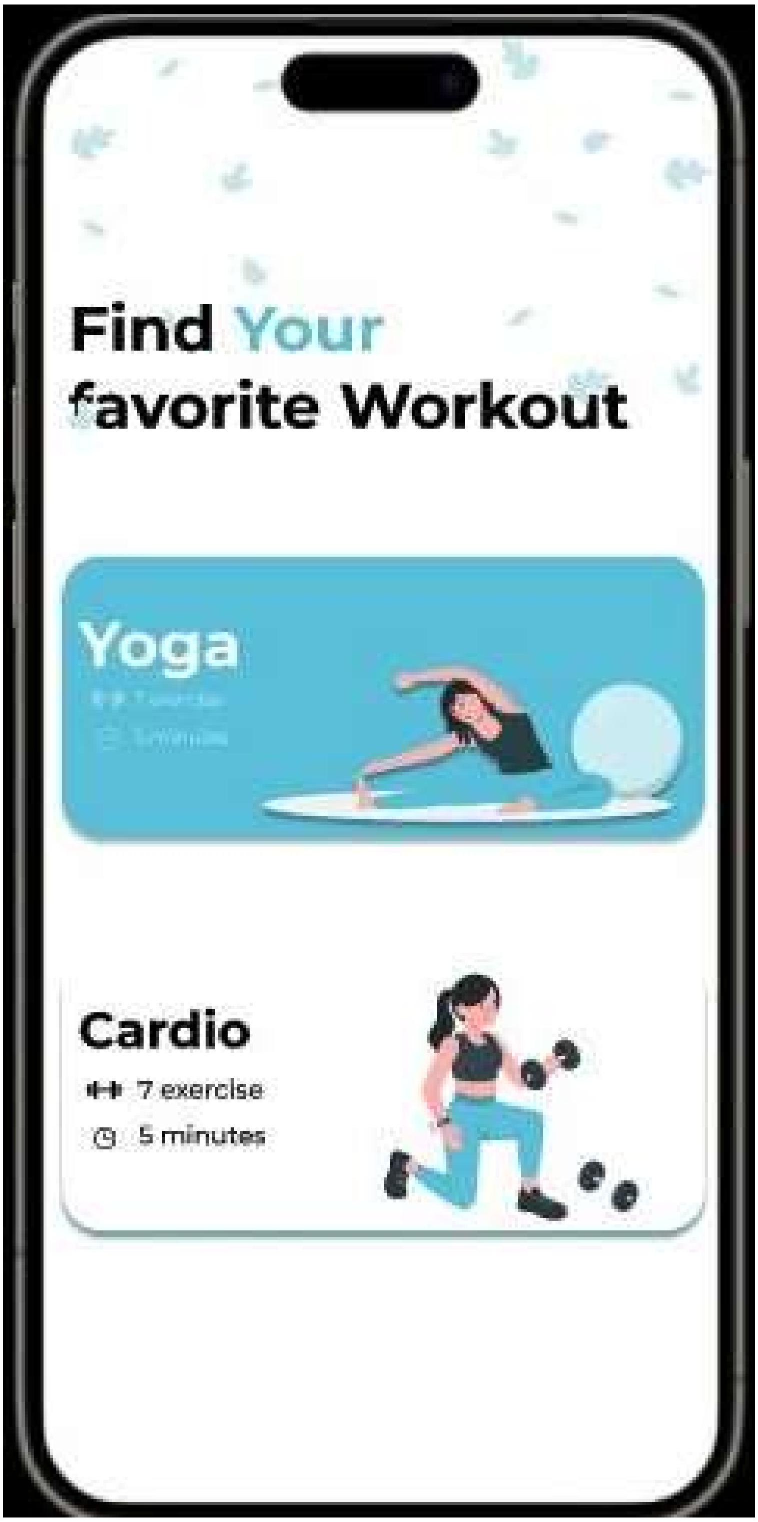
Weight logging

Check your weight

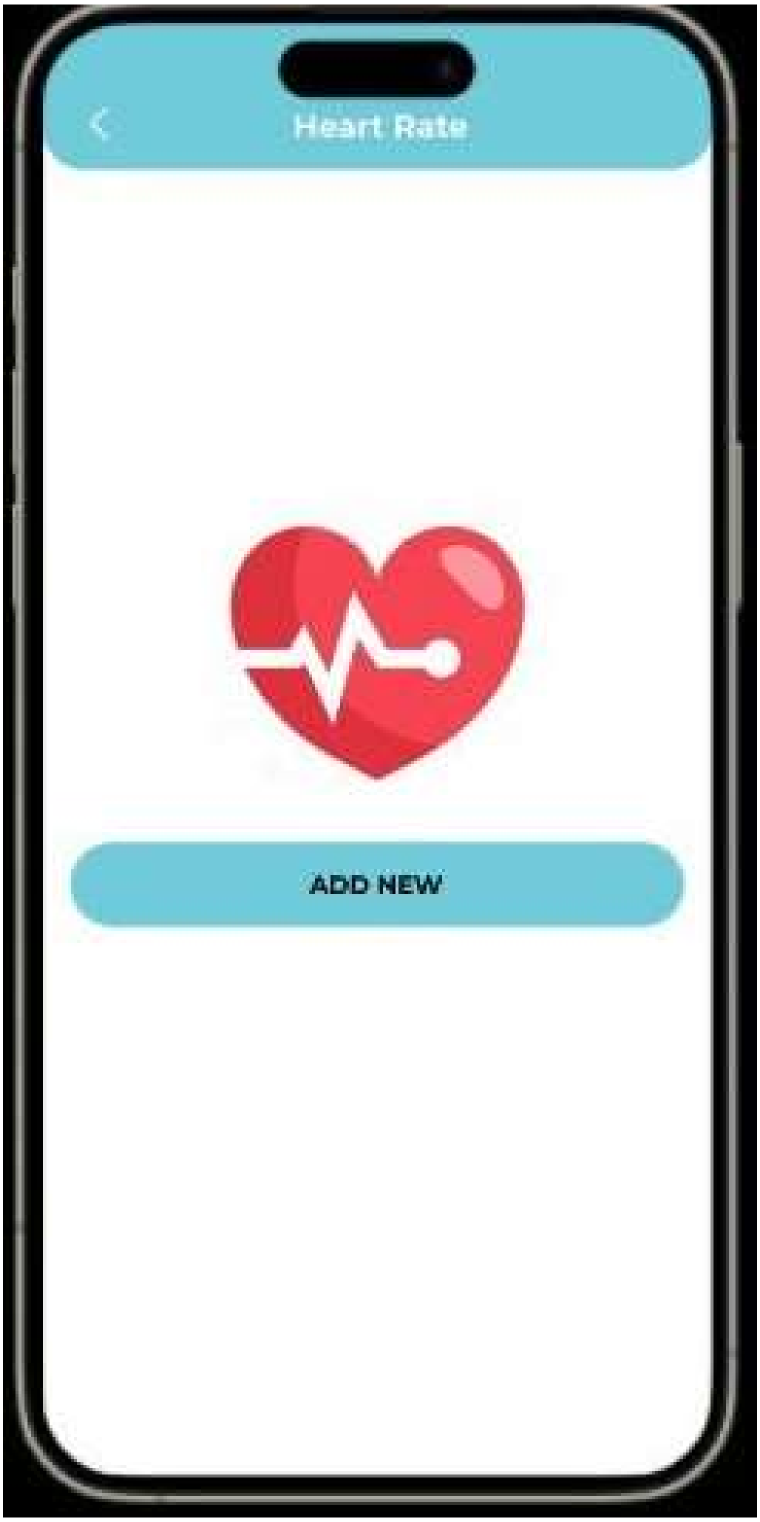
Exercise

exercise-

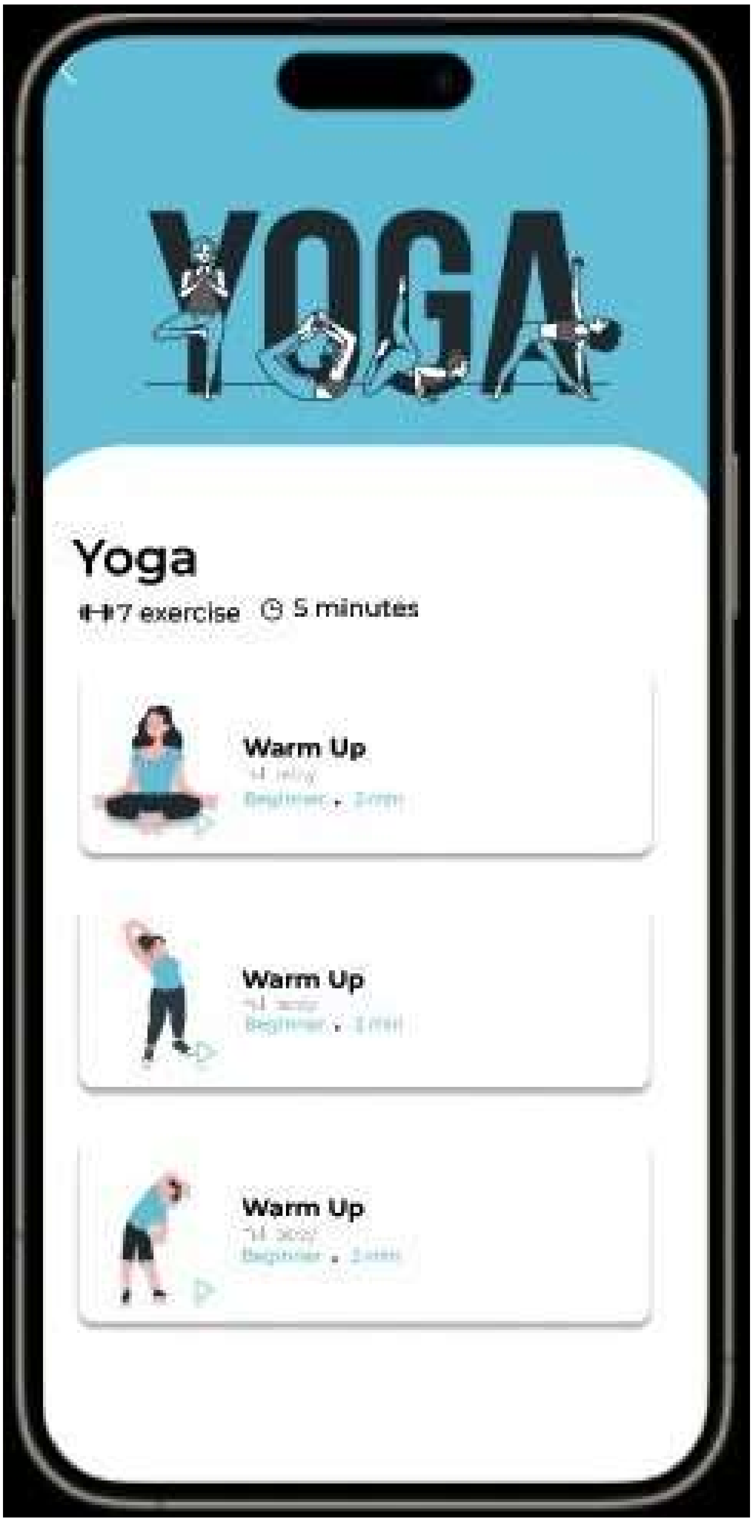
[Figure : PHYSICAL HEALTH]



[Figure : EXERCISE TYPE]



[Figure : ADD BLOOD PRESURE]



Yoga

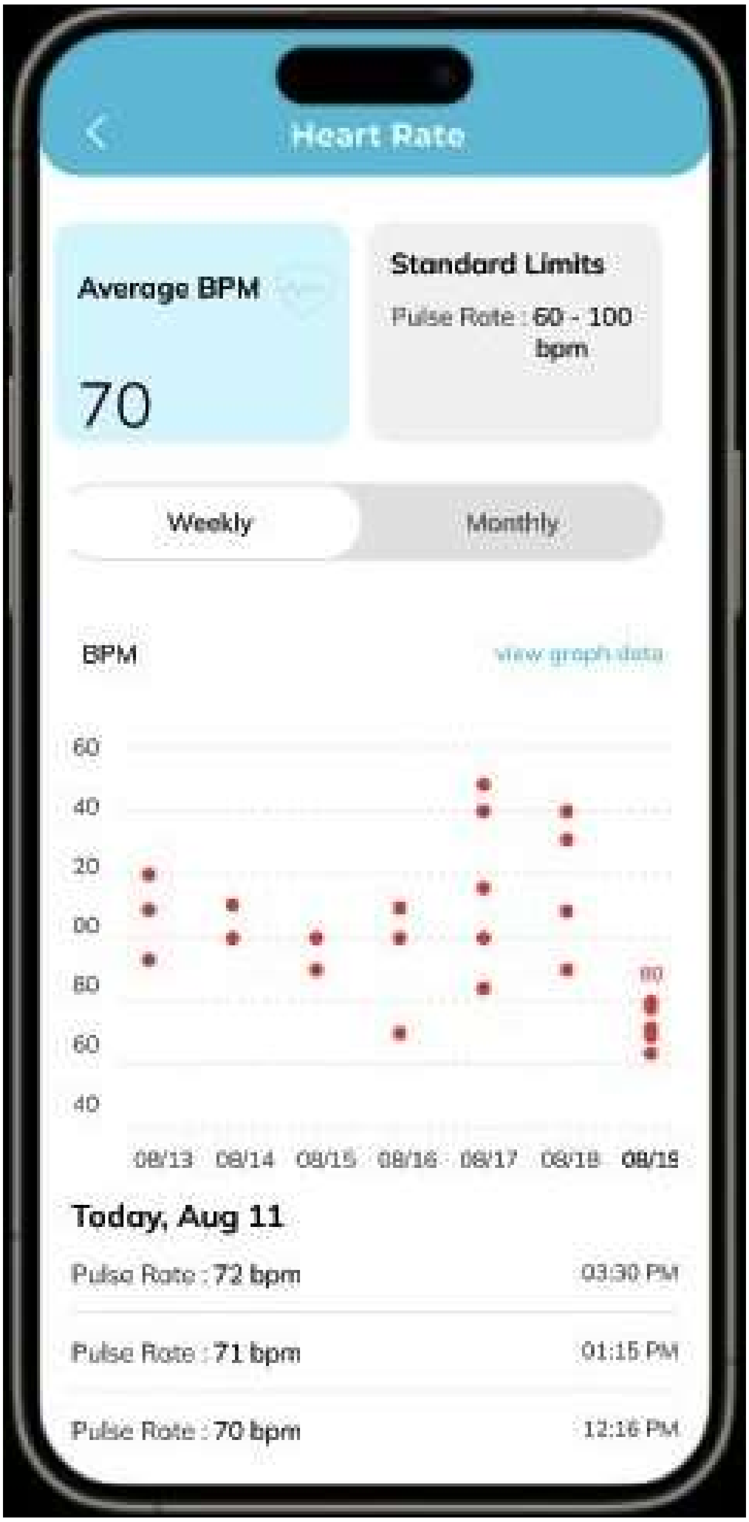
7 exercise 5 minutes

Warm Up
[illegible]
Beginner • 2min

Warm Up
[illegible]
Beginner • 1 min

Warm Up
[illegible]
Beginner • 2min

[Figure : YOGA EXERCISE]



Average BPM

70

Standard Limits

Pulse Rate : 60 - 100 bpm

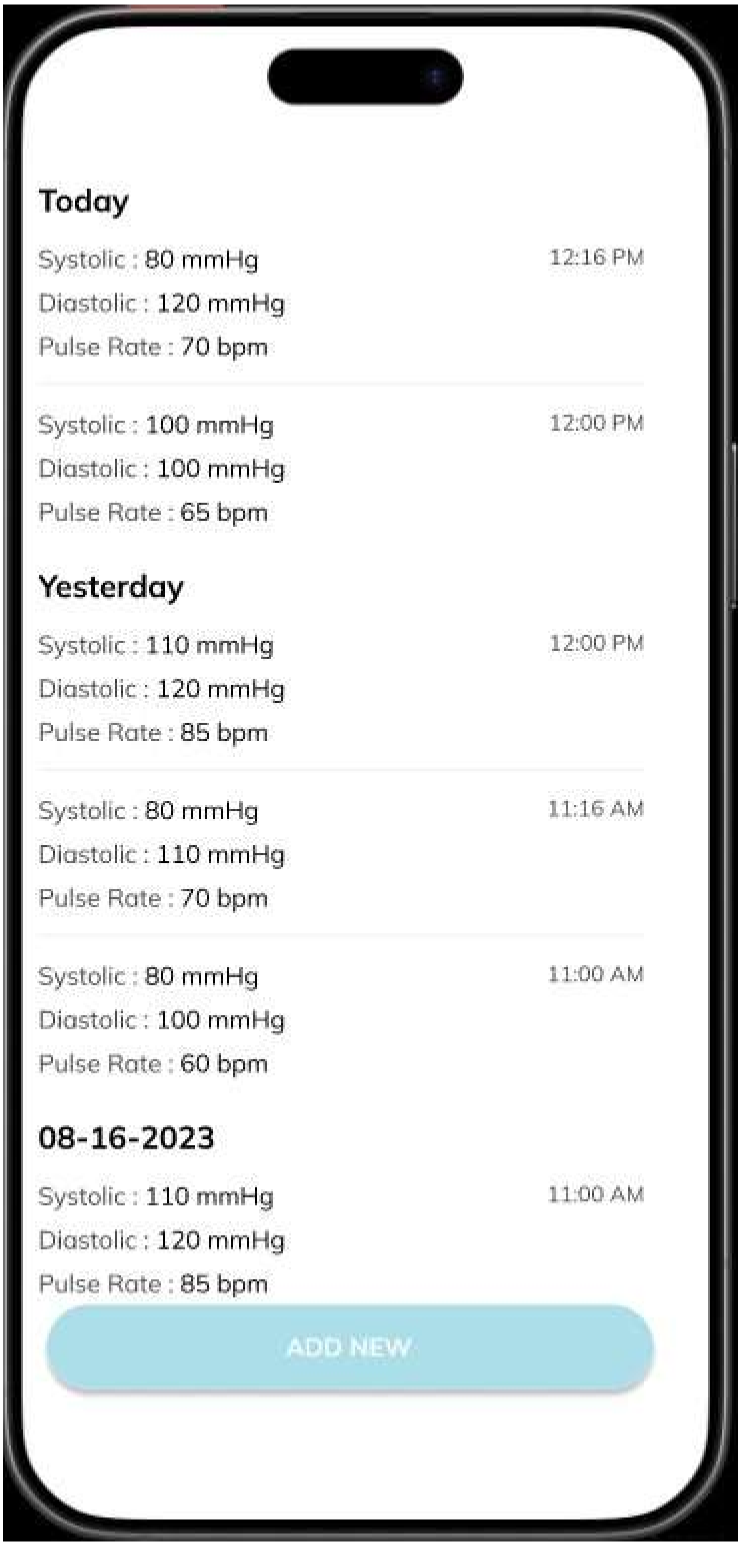
Today, Aug 11

Pulse Rate : 72 bpm 03:30 PM

Pulse Rate : 71 bpm 01:15 PM

Pulse Rate : 70 bpm 12:16 PM

[Figure : HERAT RATE ANALYSIS]



Today

Systolic : 80 mmHg 12:16 PM
Diastolic : 120 mmHg
Pulse Rate : 70 bpm

Systolic : 100 mmHg 12:00 PM
Diastolic : 100 mmHg
Pulse Rate : 65 bpm

Yesterday

Systolic : 110 mmHg 12:00 PM
Diastolic : 120 mmHg
Pulse Rate : 85 bpm

Systolic : 80 mmHg 11:16 AM
Diastolic : 110 mmHg
Pulse Rate : 70 bpm

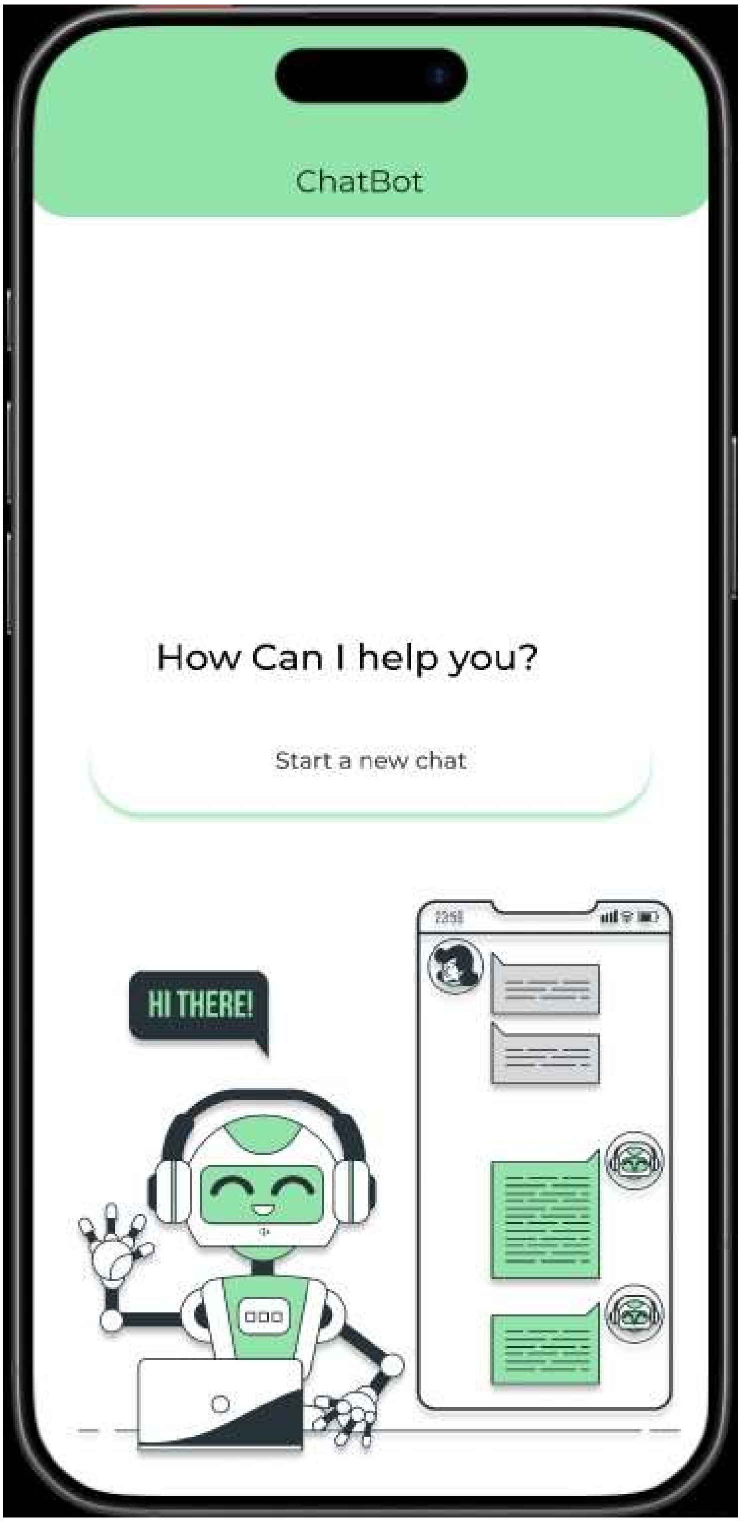
Systolic : 80 mmHg 11:00 AM
Diastolic : 100 mmHg
Pulse Rate : 60 bpm

08-16-2023

Systolic : 110 mmHg 11:00 AM
Diastolic : 120 mmHg
Pulse Rate : 85 bpm

[Figure : DATA SHOWING]

CHATBOT:-

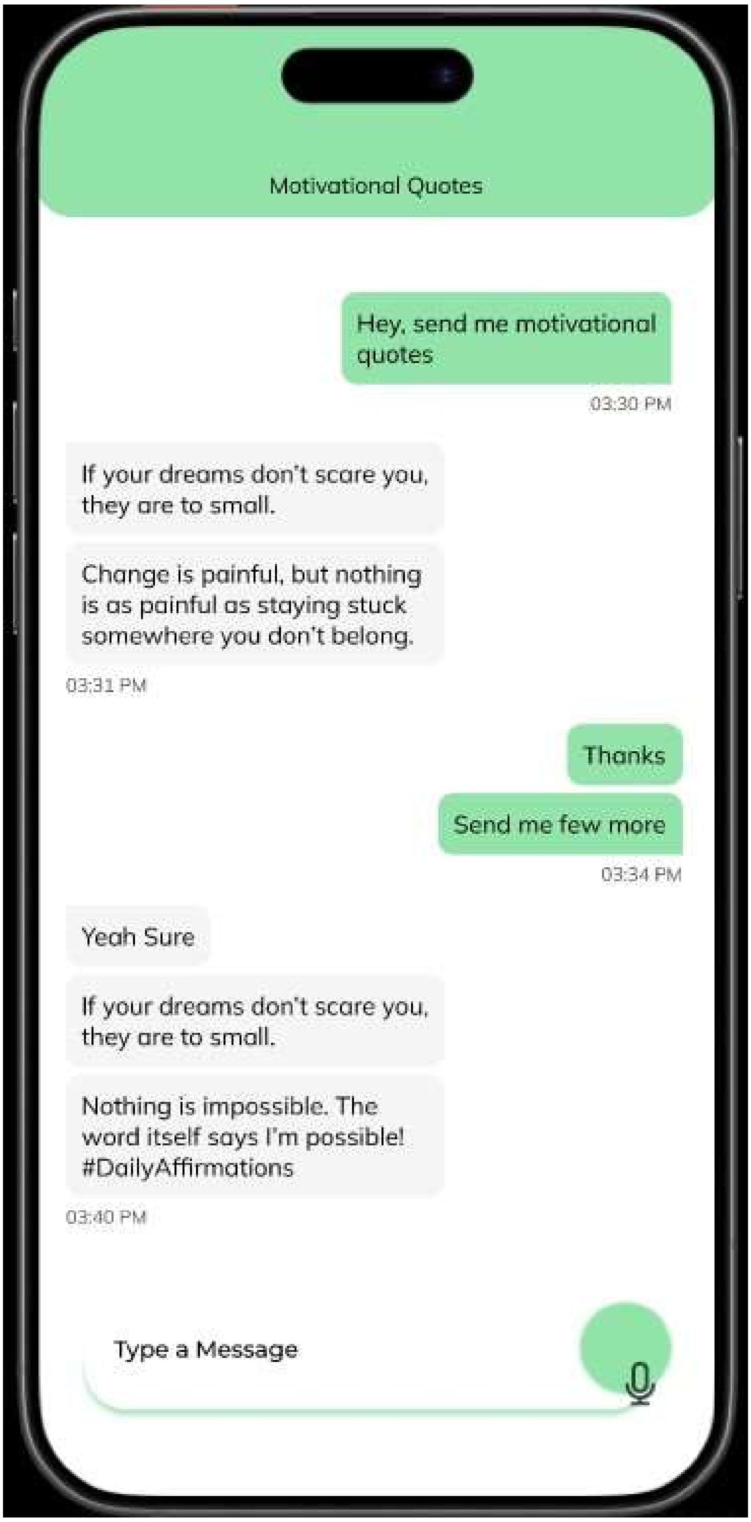


ChatBot

How Can I help you?

Start a new chat

[Figure : CHAT BOT]



Motivational Quotes

Hey, send me motivational quotes

03:30 PM

If your dreams don't scare you, they are to small.

Change is painful, but nothing is as painful as staying stuck somewhere you don't belong.

03:31 PM

Thanks

Send me few more

03:34 PM

Yeah Sure

If your dreams don't scare you, they are to small.

Nothing is impossible. The word itself says I'm possible! #DailyAffirmations

03:40 PM

[Figure : CHATING SCREEN]

CHAPTER – 6
TESTING

6.1 Testing Methods

There are different models of testing. On the basis of testing methods there are two types of testing:

1. **Black-box testing**
2. **White-box testing**

Black-box tests are used to demonstrate that software function are operationally, that input is properly accepted and output is correctly produced, and that integrity of external information is maintained.

White-box tests are used to examine the procedural details. It checks the logical paths by test case. It can also checks the conditions, loops used in the software coding. It checks that loops are working correctly on defined boundary value.

6.1.1. WHITE-BOX TESTING

White-box testing sometimes called glass-box testing, is a test case design method that users the control structure of the procedural design to drive the test case. Always we are thinking that there is no necessary to execute or checks the loops and conditions. And so large number of errors is uncovered. With using white-box testing methods, we have checked that,

- All independent paths within a function have been executed at least once.
- All logical decisions on their true and false side.
- All loops working correctly at their boundary values and within their specified conditions.

In our coding we test that all the loops works truly in each module. The one technique of white-box testing is basis path testing. It contains two parts, one is flow graph notation and the second is cyclometer complexity. In flow graph notation we are checking logical control of flow. By using cyclometer complexity we find complexity of our project structure.

6.1.2. BLACK-BOX TESTING

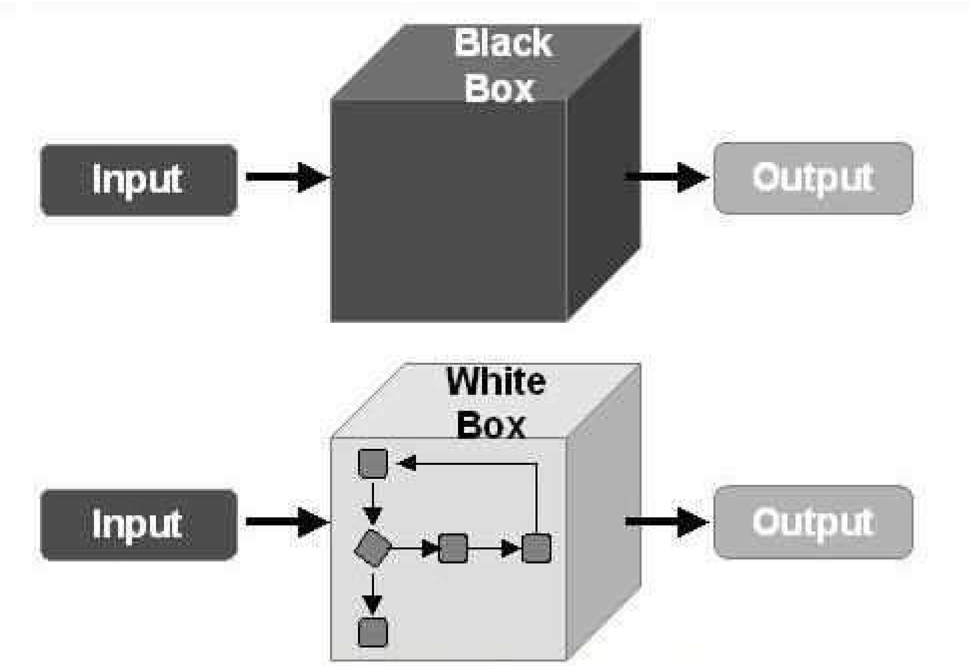
The technique of testing without having any knowledge of the interior workings of the application is Black Box testing. The tester is oblivious to the system architecture and does not have access to the source code. Typically, when performing a black box test, a tester will interact with the system's user interface by providing inputs and examining outputs without knowing how and where the inputs are worked upon.

We used following problems in our coding to find errors in the following categories:

- Incorrect or missing function.
- Interface errors.
- Error in database.
- Performance errors.
- Initialization and termination errors.

Unlike white-box testing, which is performed earlier in the testing process, black-box testing tends to be applied during later stages of testing.

By applying black-box techniques, we derive a set of test cases that satisfy following criteria. Test cases that reduce, by a count that is greater than one, the number of additional test cases must be designed to achieve reasonable testing.



[Figure 15–Testing Methods]

CONCLUSION

It was a great experience to design and implement the health Related app by using Flutter to work on its documentation. While working on this project we have learned many things especially how to apply the concept of Flutter in modelling of real world system. This project is developed using Dart, json, Firebase fully meets the objective of the system which it has been developed. This project is used for computerizing for Health related app for managing the healthy life. This software keeps all your basic vitals and plots graph according to the vitals and show how your health are evolves and give suggestion from your evolution.

BIBLIOGRAPHY

▪ BOOK REFERENCE

[1] Dart Apprentice: Beyond the Basics Authors: Jonathan Sande

[2] Data Structures & Algorithms in Dart Author: Jonathan Sande, Vincent Ngo and Kelvin Lau

[3] Flutter Apps Development: Build Cross-Platform Flutter Apps with Trust Author : Mouaz M. Al-Shahmeh

[4] Beginning App Development with Flutter Author : Rap Payne

▪ WEB REFFERENCE

[1] Pub.dev

Link: *https://pub.dev/*

[2] Dart programming language

Link: *https://dart.dev/*

[3] Flutter

Link: *https://flutter.dev/*

[4] Stack Overflow

Link: *https://stackoverflow.com/*