Fitness App

Submitted in partial fulfillment of the requirements

of the syllabus of

Android Apps Development Lab

in

Information Technology

by

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SIES Graduate School of Technology

2021-22

CERTIFICATE

This is to certify that the project entitled **"Fitness App"** is a bonafide work of the following students, submitted to the University of Mumbai in partial fulfillment of the requirement of the syllabus of **Android Apps Development Lab** in **Information Technology.**

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Ms. Bushra Shaikh	Dr. Lakshmi Sudha	Dr. Atul N Kemkar
Internal Guide	Head of Department	Principal

PROJECT REPORT APPROVAL

This project report entitled ***Fitness App*** by following students is approved for the requirement of the syllabus of ***Android Apps Development Lab*** in ***Information Technology.***

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Name of External Examiner: ----------

Signature:----------

Name of Internal Examiner: ----------

Signature:----------

Date:

Place:

DECLARATION

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

ABHISHEKH IYER	219A3065	_____
PRAVEEN NADAR	219A3067	_____
ANKUSH TEVER	219A3070	_____

Signature

Date:

ACKNOWLEDGEMENT

It gives us immense pleasure to thank Dr. Atul N Kemkar, our Principal for extending his support to carry out and develop the project. We also thank our Head of Department Dr. Lakshmi Sudha for her support in completing the project. We wish to express our deep sense of gratitude and thank to our Internal Guide, Ms. Bushra Shaikh for her guidance, help and useful suggestions, which helped in completing our project work in time.

We would like to thank the entire faculty of Information Technology Department for their valuable ideas and timely assistance in this project, last but not least, we would like to thank our non-teaching staff members of our college for their support, in facilitating timely completion of this project.

Project Team

Abhishekh Iyer

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Ankush Tever

ABSTRACT

A healthy lifestyle will lead to a better life. Healthy body reduces the incidence of disease. Due to the stressing demands of the world, everyone is competing with each other to excel in the work they do. It was reported that the number of sudden deaths is increasing due to their stressful lifestyle. Many applications and systems have been developed to better manage critical health situations. However, as has always been said, prevention is better than cure. Exercise is a basic necessity to a good health. There are many options to the kind of exercise one can do. Basic aerobics or playing sports are some forms of exercise one can be involved with. When we exercise, “it reduces levels of the body's stress hormones, such as adrenaline and cortisol. It also stimulates the production of endorphins, the body's natural painkillers and mood elevator”. This research focuses on developing an Android-based mobile phone prototype to calculate and determine the duration of physical exercise, and to calculate the factors like BMI (Body Mass Index), BFP (Body Fat Percentage), WTHR(Weight to Height Ratio), BMR(Basal Metabolic Rate) of the user.

Contents

Chapter 1

Introduction

Since the emergence and popularization of smartphones, many mobile applications that track and record data about their users have been created. The classic example of this is the pedometer which utilizes the mobile device's built-in accelerometer to track the number of steps the user takes each day. Applications in this category, that track and record health or activity data about their users, are typically called Wellness or Fitness Apps. These Wellness Apps are designed to assist the user in pursuing a healthy lifestyle by encouraging them to perform positive activities, and improve lifestyle choices. Factors that are typically targeted by such applications include exercise, sleep, and diet. Understanding the nature of this relationship is crucial when designing a Wellness App. Applications like this have the potential to motivate its users into maintaining a cycle of positive lifestyle decisions and/or breaking a cycle of negative lifestyle decisions. Diet, exercise and sleep can influence several physiological pathways associated with depression and a bidirectional relationship likely exists between depression and these lifestyle factors, thereby creating a potentially increasing cycle of influence (Lopresti et al., 2013).

Survey on Existing Apps

1. Pedometer

Pedometer Track Walking Steps and Calorie Running and Walking Distance Tracker. Track your walking steps and calorie made easy. Pedometer uses the in-built sensors to count and track walked steps and calorie burn. Calorie is calculated based on an individual height, width, age and walked. Track your daily activities like cycling, Running, Travelling, Rest, Tilt(mobile usage) etc. using Activity Tracker. It can be turned on / off when needed.

Features

- 1. Tracks Walking Steps
- 2. Calorie Count

2. Fitness & Bodybuilding

This app will allow you to achieve great results, within a short period of time. This App allows you to create your own program that will fit your needs. In addition, Fitness & Bodybuilding is an extensive database of exercises for every muscle, with a detailed description and video for each exercise. Furthermore our app provides exercises for bodybuilding, powerlifting an fitness.

Features

- 1. Provides Exercises for every workout
- 2. Track data of your weight and number of repetitions for each exercise performed.

3. HealthifyMe

Weight Loss for Men & Women. Calorie, Diet plan, Home workouts. HealtifyMe is a health and fitness app that provides weight loss diet plans and personal trainers. With an easy Google Fit and Samsung Health integration, it keeps you fit on all devices!

The app powers you with hand wash tracker, sleep tracker, workout tracker, weight loss tracker & calorie tracker. Known as India's best dietitian app, it can help you reach your fitness goals.

Features

- 1. Diet chart for users.
- 2. Calorie Calculator

Report on Present Investigation

3.1) Problem Statement:

Health and fitness has always been a key driver to increasing participation in the India encouraging people to improve their personal fitness levels through regular visits to health and fitness facilities including Workout Application, health clubs and fitness suites. With the current focus on healthy, active lifestyles and the governments increasing concern about inactivity levels and obesity, what are the innovative opportunities to be explored for the health and fitness industry? To drive up participation rates the industry will require professional well trained staff to provide high quality services. What skills are required and what training opportunities are available to inspire and motivate staff to be the best? Find out about the latest health and fitness initiatives and campaigns, partnerships and projects as well as hearing from national award winners who are leading the way in setting standards for the future of the fitness industry.

3.2) Source of Problem Statement:

The different papers we referred in context with the project are given below as follows:

"A Design of Mobile Health for Android Applications", Dr. Vuda Sreenivasa Rao , Dr. T. Murali Krishna

For healthiness and wellness, exercising is one of the key factors. In this paper, a mobile health application is developed to recommend healthcare support referring to exercises on the Android Smart Phone. This application has been designed to provide exercise advice depending on Body Mass Index (BMI), Basal Metabolic Rate (BMR) and the energy used in each activity or sport (e.g. aerobic dancing, cycling, jogging working and swimming). Also, this application has been designed to present special exercise advice for patients with health issues. Moreover, it has been designed to store information in a database and to have the ability to produce reports to users.

"Perspectives on App Use Among Nutrition and Dietetics Professionals", Jyotsna Sharma and Susanne Ashby

Despite the proliferation and use of handheld technology tools (such as Smartphones and Tablet PCs) along with software applications within the general US populace, little is known regarding their specific use by dietetics practitioners and instructors. As part of a dietetics informatics project to develop useful visualizations from nutrition datasets, the researchers sought first to explore how those in the field viewed the use of these handheld devices. The authors describe an exploratory survey study intended to investigate the current uses of new technology tools such as personal digital assistants like Smartphones and Tablet PCs by dietetic practitioners and instructors (from institutes of higher education and from Extension programs). Results revealed that a majority either do not own the latest technology or, if they do, use it primarily for personal use. However, results showed that the target audiences did have a strong interest in learning the use of these tools and applications within their field. Respondents offered many ideas for useful applications while indicating that they required more instruction in how to utilize nutrition visualizations and apps within their classroom or field. 12

“FOODS: A Food-Oriented Ontology-Driven System”, Chakkrit Snae, Michael Bruckner

In this paper the authors present the design and development of a counseling system for food or menu planning in a restaurant, clinic/hospital, or at home, the Food-Oriented Ontology-Driven System (FOODS). FOODS comprises (a) a food ontology, (b) an expert system using the ontology, and some knowledge about cooking methods and prices, and (c) a user interface suitable for novices in computers and diets as well as for experts. The ontology contains specifications of ingredients, substances, nutrition facts, recommended daily intakes for different regions, dishes, and menus. The expert system assists in finding the appropriate dish or menu for the consumer, client or customer, who use FOODS by entering their favorite ingredients, ingredients to avoid, favorite flavors, and so on. In the health section users can provide their gender, age, height and weight, which will be used to calculate such data as the body mass index. With FOODS enterprises can assist customers through an appropriate suggestion of dishes and meals with the help of individual nutritional profiles. SMEs that might be interested in using FOODS are institutions for training and instruction of cooking, restaurants, clinics, hospitals, together with clinical and therapeutical dietitians and nutritional therapists. In the long run such systems might become part of the emerging consumer health informatics portfolio.

“Mobile Phone Sensors in Health Applications”, Evgeny Stankevich, Ilya Paramonov, Ivan Timofeev

One of the most important device in our lives is a mobile phone. For now, it is a powerful computing platform equipped with various sensors. Embedded sensors can be used in multiple domains, such as environmental monitoring, social networks, safety and also healthcare. In this paper we survey the main use cases of mobile phone sensors in mobile healthcare. We classify the proposed mHealth sensing applications according to sensor types they use and discuss the main advantages provided by these applications.

Design and Implementation of Android Apps Components

4.1) Layouts

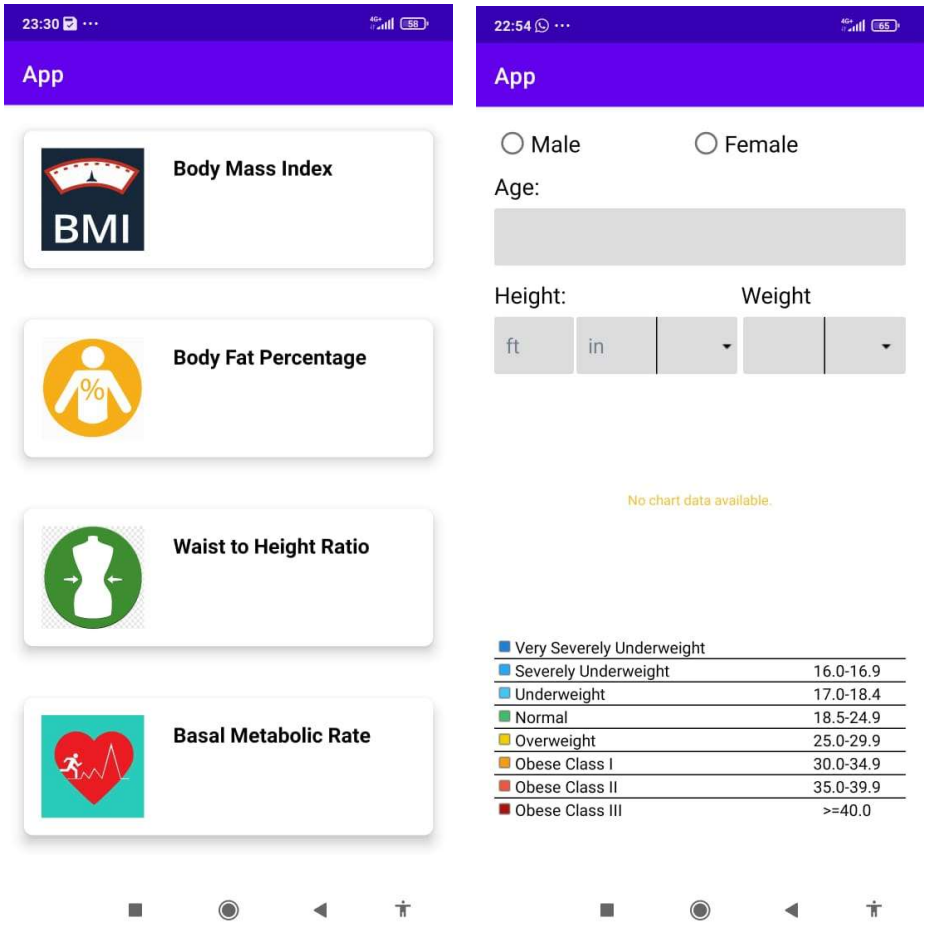
A layout defines the structure for a user interface in your app, such as in an activity. All elements in the layout are built using a hierarchy of View and View Group objects. A View usually draws something the user can see and interact with.

For our application we used a mixture of Constraint layout, linear layout and relative layout for customization of inner components wherever needed.

4.2) Intents

Android Intent is the message that is passed between components such as activities, content providers, broadcast receivers, services etc. It is generally used with the startActivity() method to invoke activity, broadcast receivers etc.

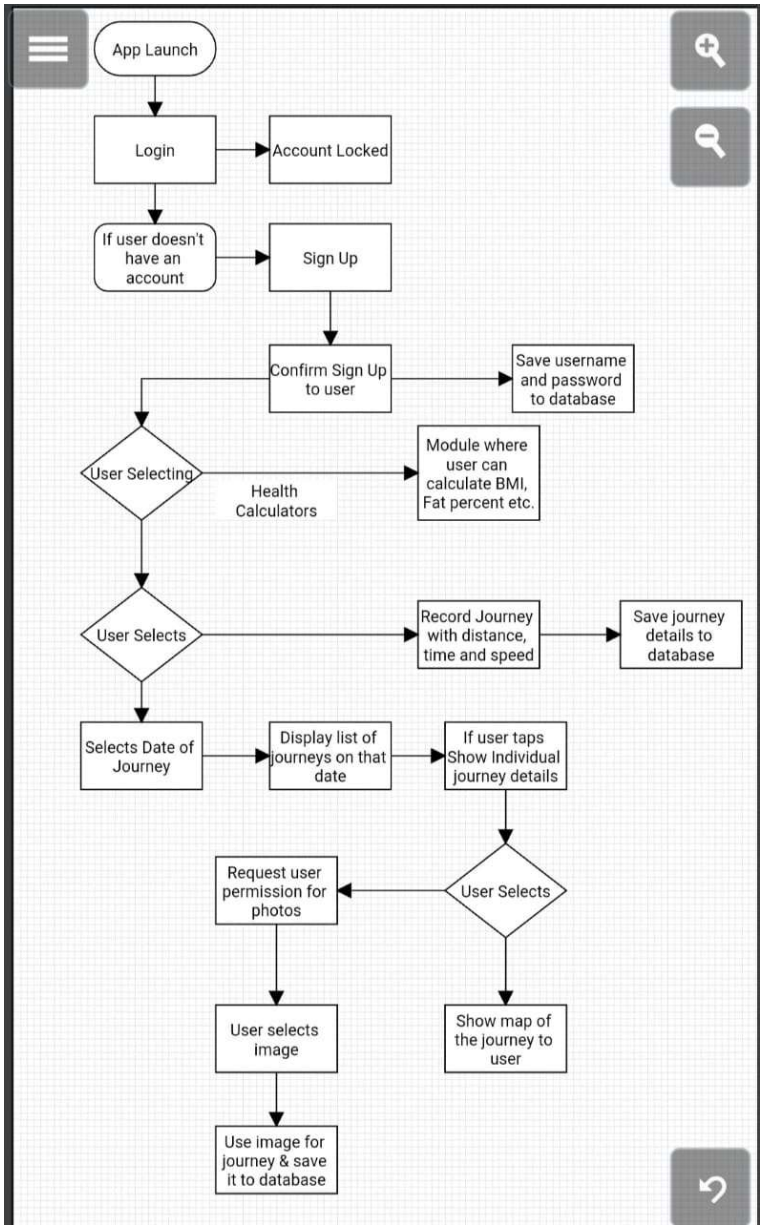
We have used Explicit intents to switch between activities internally.

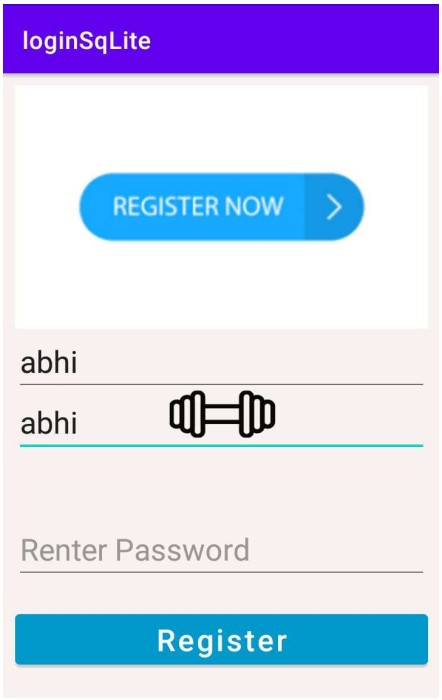


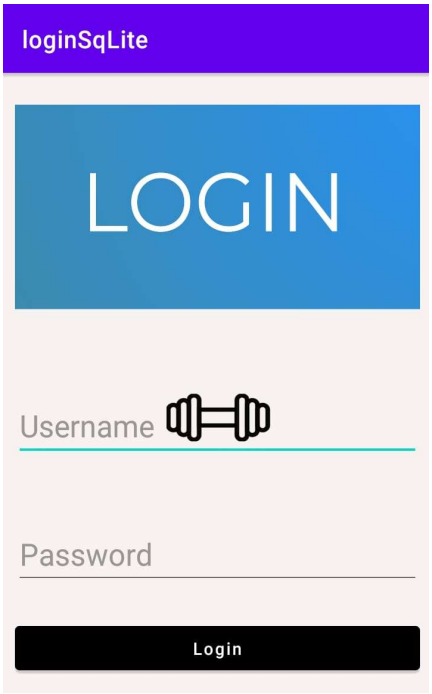
4.3) Activity

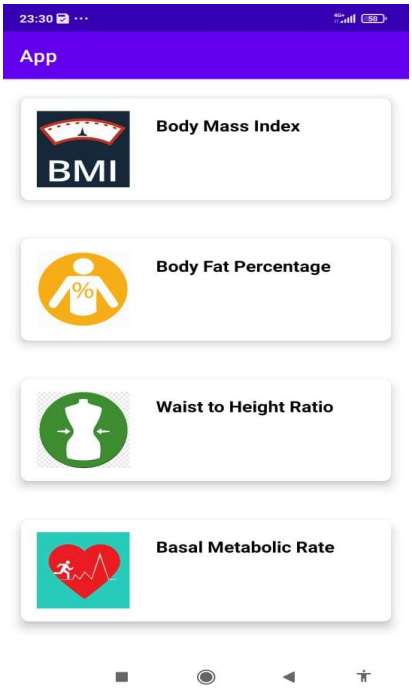
An activity is a single, focused thing that the user can do. Almost all activities interact with the user, so the Activity class takes care of creating a window for you in which you can place your UI with setContentView(View). While activities are often presented to the user as full-screen windows, they can also be used in other ways: as floating windows (via a theme with R.attr.windowIsFloating set), Multi-Window mode or embedded into other windows.

Activity Lifecycle :




loginSqLite
REGISTER NOW
abhi
abhi
Renter Password
Register


loginSqLite
LOGIN
Username
Password
Login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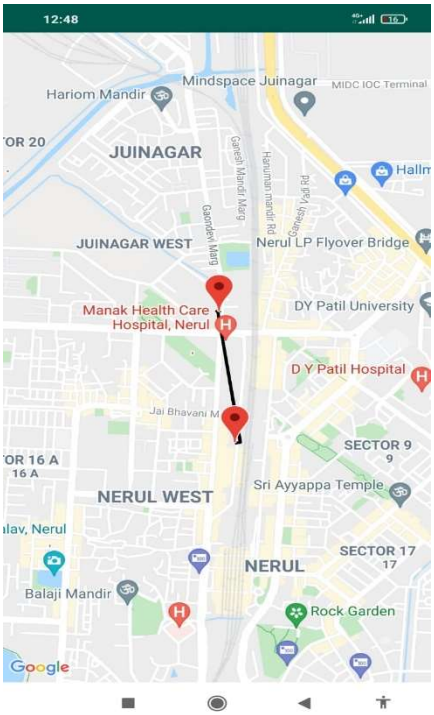
App
BMI
Body Mass Index
Body Fat Percentage
Waist to Height Ratio
Basal Metabolic Rate


12:48
Hariom Mandir
Mindspace Juinagar
MIDC IOC Terminal
JUINAGAR
JUINAGAR WEST
Nerul LP Flyover Bridge
Manak Health Care Hospital, Nerul
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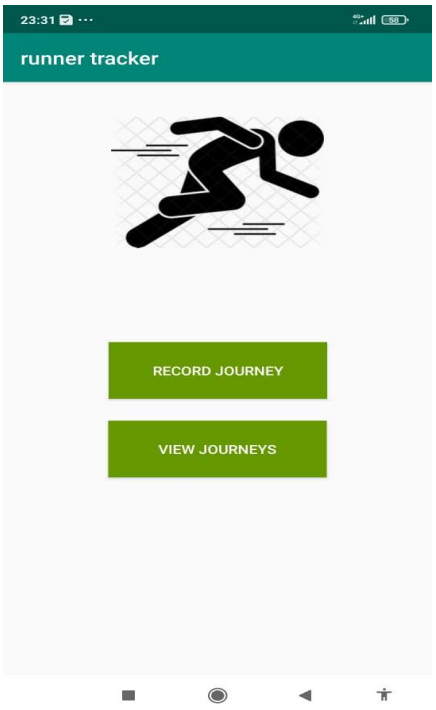
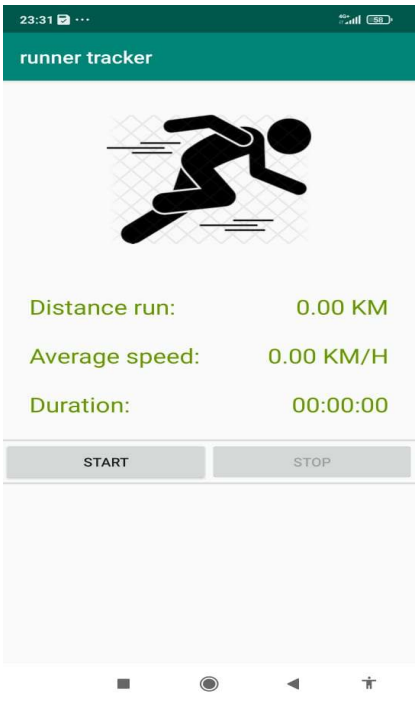
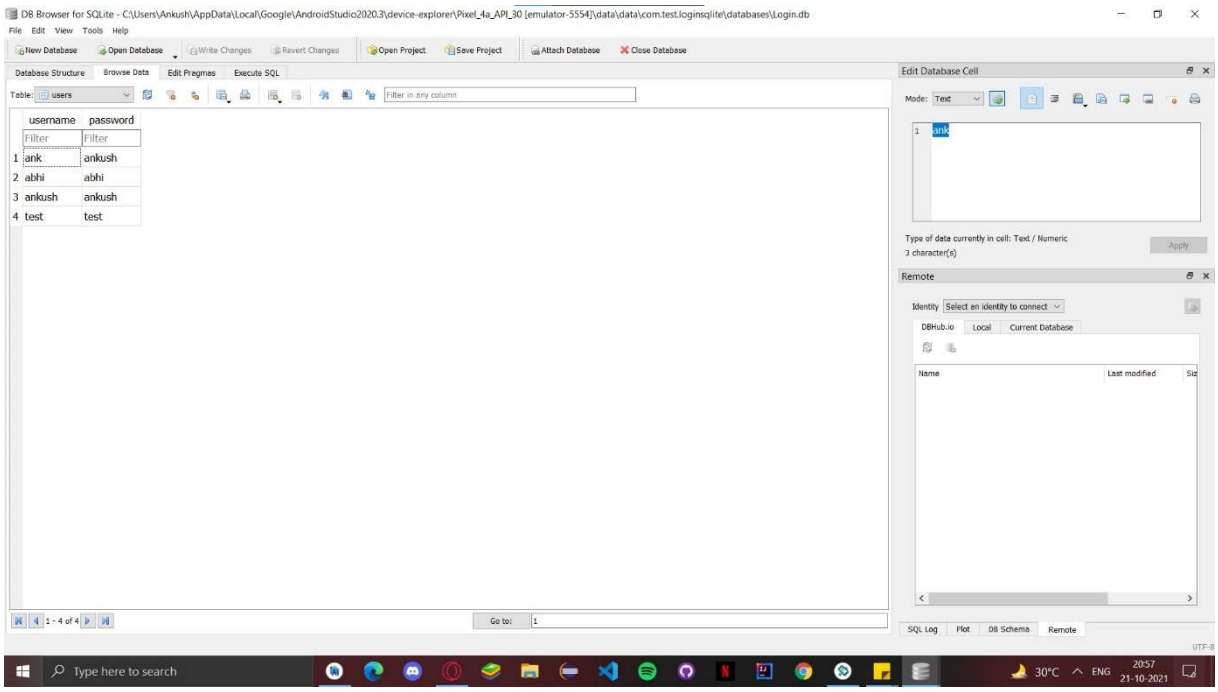
SECTOR 9
Sri Ayyappa Temple
NERUL WEST
NERUL
SECTOR 17
Balaji Mandir
Rock Garden
Google


23:31
runner tracker
RECORD JOURNEY
VIEW JOURNEYS


23:31
runner tracker
Distance run:
0.00 KM
Average speed:
0.00 KM/H
Duration:
00:00:00
START
STOP

4.4) Database

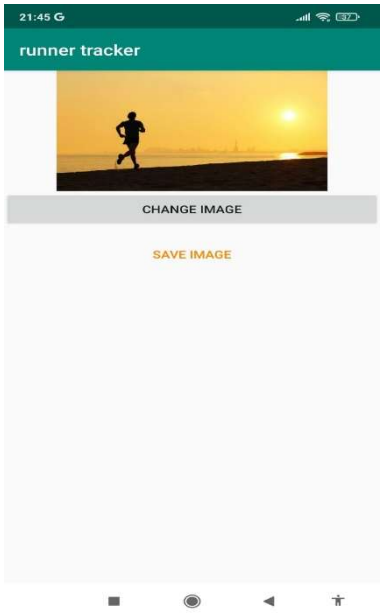
We have used SQLite Database for storing user's data.



4.5) Camera

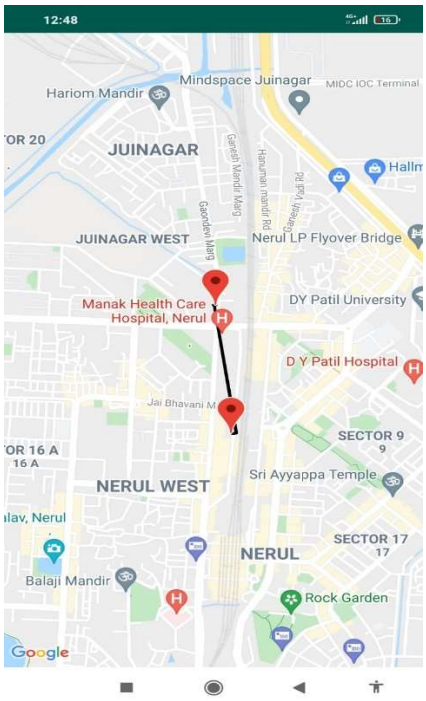
The Camera class is used to set image capture settings, start/stop preview, snap pictures, and retrieve frames for encoding for video. This class is a client for the Camera service, which manages the actual camera hardware.

The use of camera in our App is that it helps the user to click picture and upload while he is running.



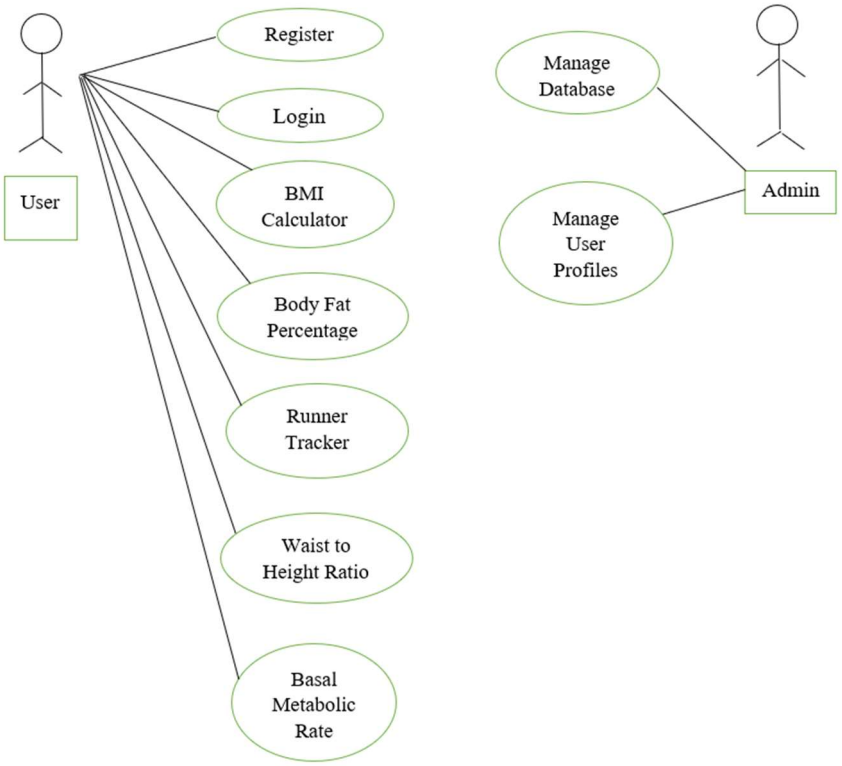
4.6) Location API

The location APIs available in Google Play services facilitate adding location awareness to your app with automated location tracking, wrong-side-of-the-street detection, geofencing, and activity recognition.

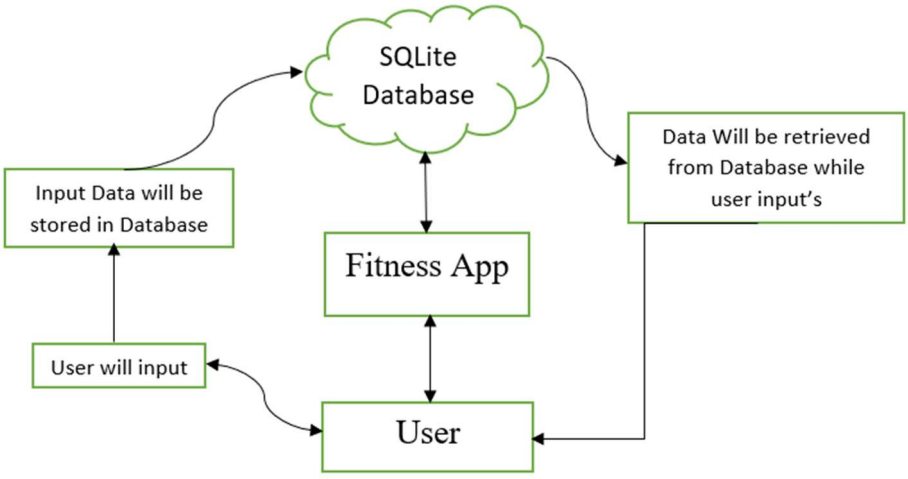


Report on Proposed System and its Implementation

5.1) Use Case Diagram:



5.2) Block Diagram:



5.3) Hardware Requirements:

Processor : Intel® 2.10 GHz

Installed Memory (RAM) : 4 GB

Hard Disk : 16 GB

Operating System : Windows (7)

Software Requirements:

Front-End : Android, Java

Database : SQLite

Tool : Android Studio

GPS Location : Google maps and Play services

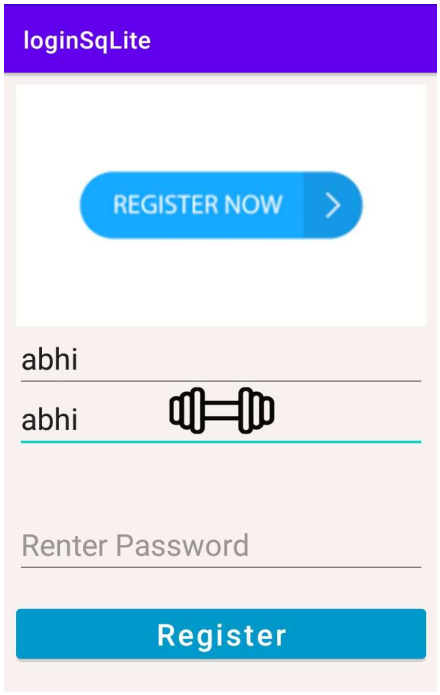
Camera : For taking Pictures

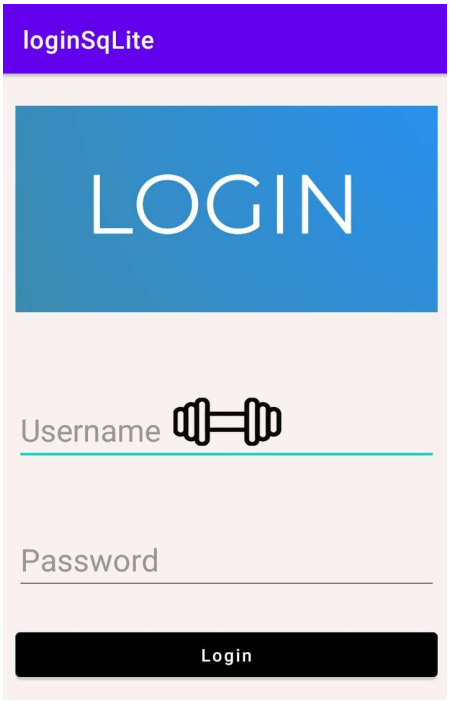
Results and Discussions :

1. Module A:

Login/Sign up:

Here user will login and register themselves to start using the app.

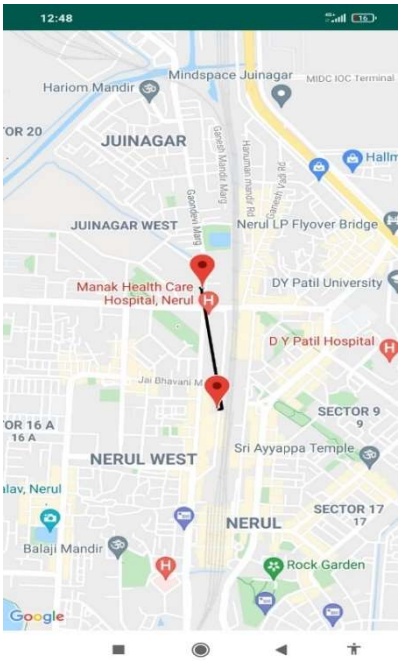




2. Module B:

Maps:

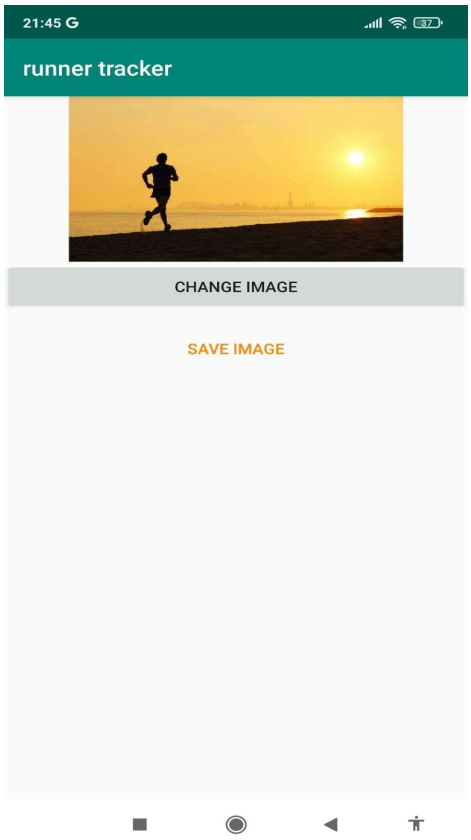
Where user would be able to identify how much distance is covered.



3. Module C:

Camera:

The use of camera in our App is that it helps the user to click picture and upload while he is running.



Conclusion

Module Description:

1. **Registration :**

Where new users can register themselves into the application

2. **Login/Signup :**

Previously registered users can login by using their credentials.

3. **BMI Calculator :**

Helps user's to calculate their BMI**.** Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. A high BMI can indicate high body fatness.

4. **Body Fat Percentage :**

Helps user's to calculate their body fat percentage. The body fat percentage (BFP) of a human or other living being is the total mass of fat divided by total body mass, multiplied by 100

5. **Waist to Height Ratio :**

Help's user calculate Height Ratio. A person's waist-to-height ratio (WHTR), also called waist-to-stature ratio (WSR), is defined as their waist circumference divided by their height, both measured in the same units. The WHTR is a measure of the distribution of body fat.

6. **Basal Metabolic Rate :**

The basal metabolic rate (BMR) is the amount of energy that is expended at rest in a neutral environment after the digestive system has been inactive for about 12 hours. This helps the user to calculate Basal Metabolic Rate.

7. **Runner Tracker :**

This help's user to track the distance covered.

Future Scope:

Health and fitness has always been a key driver to increasing participation in the India encouraging people to improve their personal fitness levels through regular visits to health and fitness facilities including Workout Application, health clubs and fitness suites.

Find out about the latest health and fitness initiatives and campaigns, partnerships and projects as well as hearing from national award winners who are leading the way in setting standards for the future of the fitness industry.

In future scope we would love to add live sessions conducted by trainers and live monitoring where trainers would be able to monitor their client 24*7 and concentrate on their diet, exercises etc.

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