

Android based Fitness App

Jamdhade Ketaki¹, Kande Dipali², Pawar Priyanka³, Bharaskar Ruchika⁴, Prof. Priti B. Kudal⁵,
1,2,3,4 student, Department of Computer Engineering, Guru Gobind Singh Polytechnic, Indira Nagar, Nashik, 5 Lecturer,
Department of Computer Engineering, Guru Gobind Singh Polytechnic, Indira Nagar, Nashik

ABSTRACT

Over recent years the world has seen a spike in the download and usage of fitness and health apps. In 2014 fitness app usage grew at a substantial rate, being up there as the most used category of application for that year. Since then it has maintained its user base and continues to grow, with the inclusion of wearables like google fit, Fitbit and Health kit. This is the dawn of a new era, an era where people look more to their mobiles or their fitness watches to check on their health, rather than the traditional method of going and seeing a doctor. These apps provide a great avenue for those who are interested on tracking their fitness levels runners, cyclists, and gym goers alike. Everything can be tracked nowadays, even the standard iPhone comes with a health app built in, with a range of features.

INTRODUCTION

In today's digital world we have mobile application for everything. The advent of smartphone has completely changed the way we live. However, when it comes to health problems like obesity in children, and many other the mobile phones are often blamed. But not every app on your phone is there to cause health issues. Recently, the trend of health and fitness apps have gained a strong momentum. These apps are a useful tool for all the

fitness freaks and to those who don't go to gym and exercise often because of its easy functionality updates and assists them to exercise regularly. In this article we will have a look at some of the top fitness apps and see what it takes to develop them. Health and fitness app development has actually taken a step ahead in bridging the aforementioned gap by providing interactive and creative solution to human problems.

OBJECTIVES

The purpose of my application is to develop an application that is valuable to gym goers and people who exercise in general who would like to track their workouts and accomplish their fitness goals. The graphical user interface of the app should look appealing to the user so as to entice them. The app should provide a pleasant experience and a provide a feeling of accomplishment after being used to encourage recurrent usage. It should be highly accessible regardless of the user's familiarity with applications. Whether the user is a novice or is experienced, the app will be good for both. The key to this app is simplicity and this app will provide a few features popular in this market, through a simple and straight to the point

application. The app should also provide the user with a fun experience.

TECHNOLOGIES

In order to complete this project, I have utilised android studio as it is an application that I have become familiar with during my coursework. During my coursework, I have used android studio in the creation of numerous projects, and thus, have used this knowledge to create the classes and GUI elements of this one. I also used two different android devices with different operating systems, one being a Samsung Galaxy s4 on Android 4.2.2 Jelly Bean and the other being an Acer iconia one 8 on Android 5.0 Lollipop. These would prove useful during the testing of the application. Google Firebase was used for user authentication in the app. This was used to implement the login and registration sections. Choosing Firebase was an easy decision as it is easy to implement and provides a variety of authentication options through the Firebase console. The console makes it easy to manage users and includes an option for users to have a password reset sent to their email address. SQLite database was used for the storage of workout plans. Through the class DB Helper which extends SQLiteOpenHelper, I was able to store the user's workouts in a table called 'Task'. This class also contains a method for

the user to delete workouts. Google maps API was used in the app for user geolocation and tracking. By creating a google map called mMap and through the use of Location Manager, 'ACCESS_FINE_LOCATION', and the onLocationChanged method, I was able to track the user's phone. After implementing the hardware sensor step counter and hardware sensor step detector features in the Android Manifest file, I was able to code a step counting activity into the app. This was done using a sensor event listener.

REQUIREMENT

The requirements specification part of any project is a very important one. It allows us to gather information on what an audience actually wants from the app itself. This can give us an insight into the perspective of what would be required from the app in order for it to be successful. In order to gather my requirements for this project, I asked three friends, one of whom is a personal trainer, whilst the other two frequent the gym what they would like to get from a fitness app. Between these three individuals they use a variety of different apps for fitness so they are familiar with what they like and don't like. Also between them, they use a mixture of both iPhones and android devices. This gave me a solid mixture of requirements that users might come to expect.

DATA REQUIREMENT

In this section, I will give a detailed account of the data requirements essential in implementing the above features.

- SQLite: The app will make use of SQLiteOpenHelper feature in order to store user's workout plans. These plans will be saved to a db named "workout". The workout plan class is done in the form similar to notes where users will also be able to delete from the database.
- Google Firebase: The app will also make use of google firebase to host user credentials. The firebase authentication functionality is used for the login and registration methods.

USER REQUIREMENT

This section will describe the user requirements needed so that they will be able to use the application efficiently.

- Android phone/tablet: The user must possess an android phone or tablet as the app is not compatible with other devices.
- API level: The minimum sdk level for the app is level 15 and the target sdk is 25.
- Hardware: For the step counter function to work the step counter hardware sensor must be available on the target device.

- Internet access: The user will also need internet access to sign in/register and to use the google maps tracking feature.
- Android phone/tablet: Required to run the application during development and to test.
- Internet: Used to access various resources for the project
- Computer/laptop: Required to work with android studio to develop the app.
- Firebase Console: used to monitor activity of user login and crash reporting.
- Google maps API: API key used in project to develop geolocation and tracking.

HARDWARE REQUIREMENT

Processor : Intel CORE i3
RAM : 4 GB
Hard Disk : 64 GB

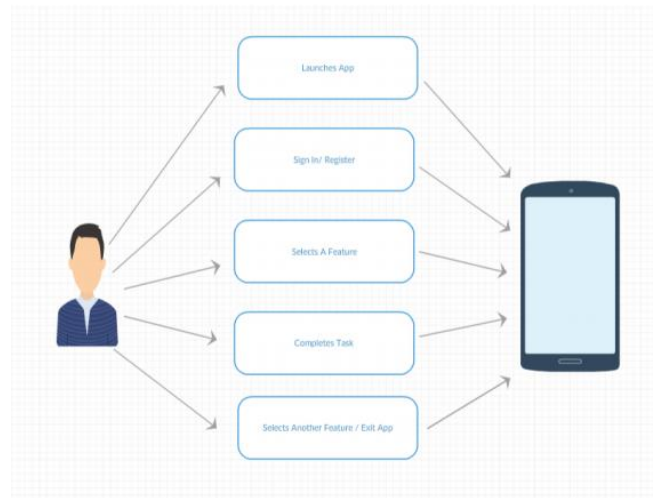
SOFTWARE REQUIREMENT

Operating System: Microsoft Windows-7.
Software Package: SDK and Android Studio
XML, MySQL, PHP

DESIGN AND ARTITECTURE

The app was developed to be based solely around the user's health and fitness, so all of the features in it are based around this. The app was built in android studio and each page of it was designed following the same theme. Each feature has an individual class which can be

accessed from the homepage. Through customizing my colors.xml file I was able to create a colour scheme which is present throughout every page of the app. Using different layouts and layout components I was able to design each page as I saw fit. I developed an ad hoc model to study interactions and different concepts during the design process. I looked at all of the different components and the relationships between them which ultimately laid the foundation for the overall design of my application. The apps design allows the user to traverse through the various pages easily.



FUTURE SCOPE

In the future, this application could be greatly improved and expanded to include new features. The tracker and step counter can be improved. A calorie counter could be added to allow users keep track of their daily intake and pursue their weight loss goals. This would

mean populating a database with vast amounts of food and nutritional data and allowing the user to enter food eaten after every meal. Once entered the app takes the number of calories from their daily allowance. An exercise instruction manual which advises users of exercises and how to do them.

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