Ultimate Fitness Tool - Mobile Applications Development Coursework Report

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1 Introduction

The aim of this coursework is to design, implement, and evaluate a prototype for a mobile application for the Android platform using the Android SDK. I had in mind what I wanted to build since the last year, when I knew that I was going to pick this module. My choice to build a Fitness tool mobile application, was initially made because I was always fascinated by fitness and I really enjoy inspiring people into fitness by any possible way. I am currently using a couple of mobile applications to keep fit and track my progress towards my goals, but I wanted to build something by myself that would include my personal preferences and choices about specific workouts, meals etc.

I have realized that there are many people struggling to realize that fitness is all about healthy eating along with the appropriate workouts. I made the decision to build an application to inspire people to start their way to fitness and be able to track their progress and at the same time getting tips on how to achieve their goals.

The first thing I did before I start designing and building the application was to make a survey to see whether people would like to use this kind of application to keep track of their fitness goals. The survey also helped me make the choices for the goals options that I should be including in my application.

"Ultimate Fitness Tool" is made up from several activities. Registering is required to use the application. When the application launches you are prompted to a log-in page, from there you can navigate to the registration page to create an account by filling up the form and then navigate back to log-in. After log-in, from the drawer navigation menu you can access the tools of the application. The first one is the BMI (Body Mass Index) calculator, to check whether you are in a healthy weight range. The second one is the goals, where you have 3 choices to pick and read information such as workout suggestion, meals suggestions for losing, gaining or maintain weight.

2 Software Design

Regarding the software design modelling i created a use case diagram to present the use cases of the application and the relationship of the use cases with the user(actor) and the database. It doesn't show the order in which steps are performed to achieve the goals of each use case. Use case is shown below on figure 1.

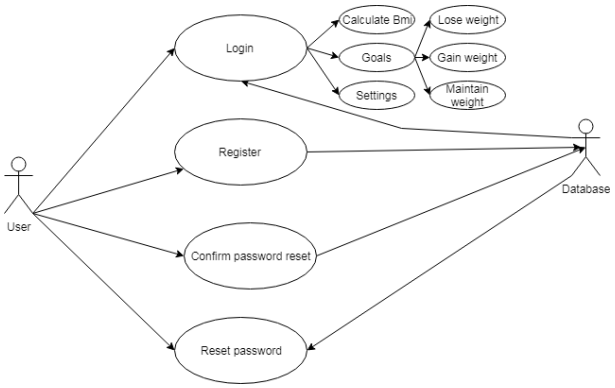

Figure 1: Use Case Diagram

3 Implementation

The application is made up from several activities that implement the code and many layout documents that are responsible for the application contents and design. The most important activities, to make the application usable are the Log-in, Register, Reset password, Confirm reset. These activities are necessary in order to use the application because the user must create an account to log-in into the application and use it.

When launching the application, you will be directed to the log-in page. From there you can navigate to the register page to create an account. Register page is responsible for checking the information the user inputs for validations such as password match and valid email. The main responsibility for the registration page is to store the user in the database with primary key their email. Using the email you can then change the password in case you forget it.

The database is made using SQLite because is build in and you are not required to download external libraries or api's. The implementation of the database is made in 3 different activities. One activity is made for the user getters and setters for the information that will be stored in the database. Another activity holds the implementation for the validations, checking whether the registration fields are filled, the email address the user provided is in a valid form and that the password and confirm password match. The last activity is responsible for creating the database, and it holds the code for the functions to add user to the database, update the database for every new user is registering, check user to check whether the user who is trying to log-in is stored in the database and update password to update the password of the user.

On figure 2 you can see an example of these pages.

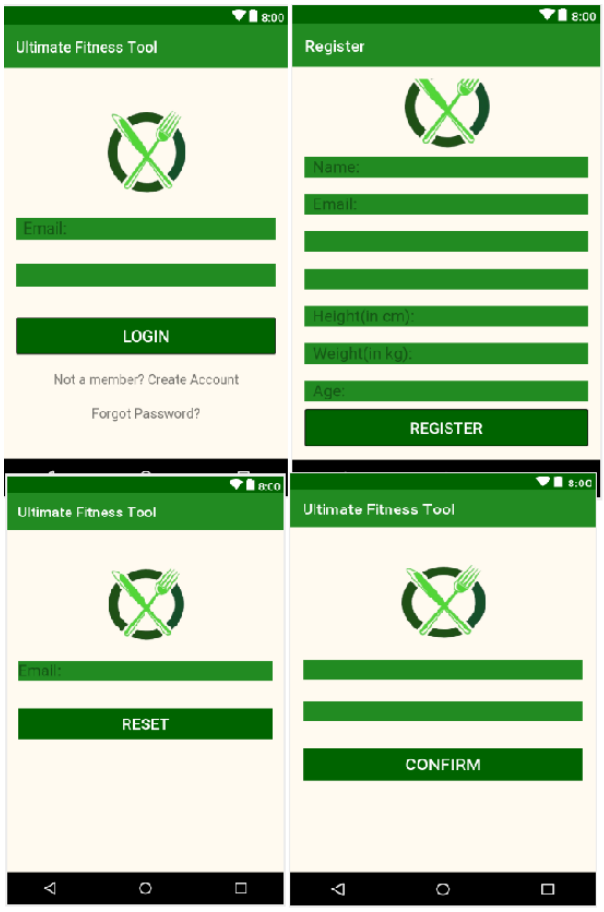

Figure 2: Login, Register, Reset and Confirm password

The navigation drawer menu is the only way to navigate through the application. When the user login successfully the application automatically navigates them to the home activity. By sliding your finger from the left edge of your smart phone to the right you will see a menu. From that menu you can navigate to the other activities of the application. The navigation menu is included on every page of the application, so you can navigate through the application at any time. The navigation drawer is included on the activitylayout.xml of every activity of the website. The activitylayout.xml is constructed from 3 different xml files. One file keeps the content of the page like the layout, buttons, text view one file holds the app bar layout like the bottom navigation bar and the top navigation bar and includes the contents , and the other layout holds the navigation menu drawer and includes the other app bar layout. On the figure 3 you can see how the pages are made up.

Figure 3: Layouts

A feature of the application is the ability to calculate your BMI. The feature is easy to use. User must input their height and weight and click the calculate button and they will be able to see the result on the text view below the button which is basically invisible and i created a red box just for the presentation. The function is validating that the texts are filled before it calculate the BMI and returns if you current weight is healthy by the BMI number calculated. Below on figure 4 there is an example of the page.

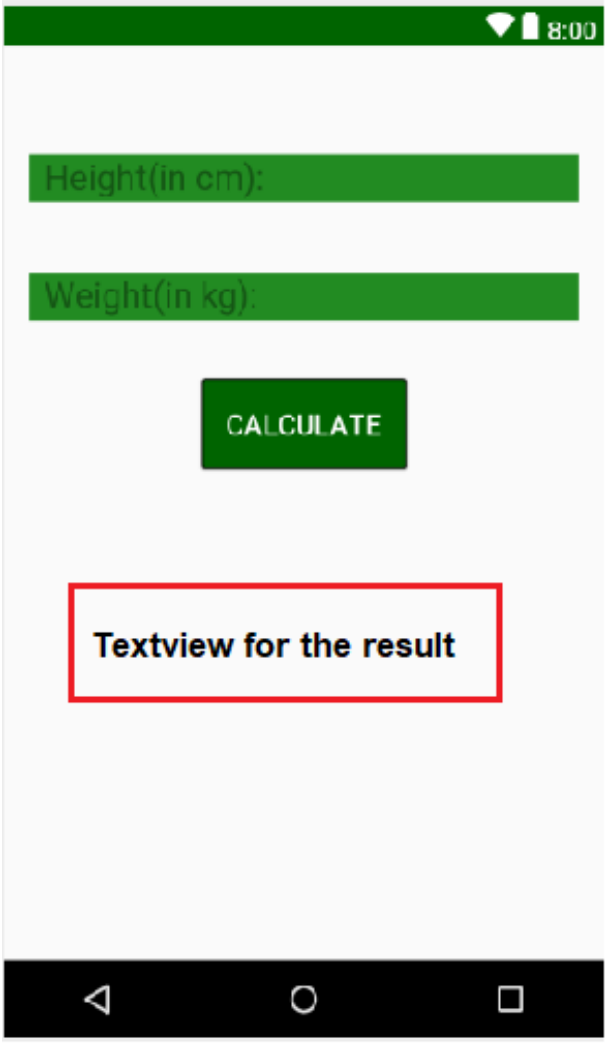

Figure 4: BMI Calculator

Another feature of the application is that gives the user the opportunity to read information on how to reach their fitness goals. By choosing whether you want to gain, lose or maintain weight you can click on the button to redirect to the next page and choose the articles you want to read about such as workout suggestions or meals suggestions.

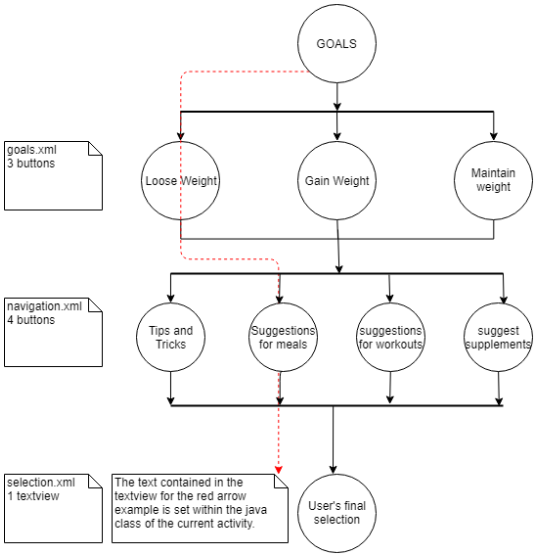

Figure 5: Goals

4 Critical Evaluation

Talking about critical evaluation, the initial concept i had in mind it wasn't reachable before the deadline. The design of the application went pretty well but there are still many functions missing. The two major functions were build one for calculating the BMI and one reading articles for how to achieve your goal weight.

The applications that inspired my choice in the first place are obviously numerous steps ahead not only in functionality but in design as well. Take in mind that those application were build by a team of professionals and after years of maintenance and updates. The result i got from a couple of weeks work was more than enough when I realized how difficult was to create an application of this level. Of course the applications i had for example have dozens of functions but it was never supposed to have the same amount of functions.

Possible improvements of my application in the future would be to include additional libraries and api's to make the design more user friendly and smooth. Implement the bottom navigation bar menu to make it easier for the user to navigate through their favourite application functions. The settings design is appearing on the application but the preferences are not stored anywhere and as a result they are not functional. In the future i was thinking of including notifications to remind the user to drink water by choosing when they want to be notified. Another functions for future improvements will be the addition of a gym diary to store every workout an the weight of every exercise done in the gym.

5 Personal Evaluation

I found this assignment very challenging in terms of debugging and implementation because Android Studio doesn't provide you with the exact error description but with the line of the error. I had to search on Google for the most errors i was getting, not the obvious ones.

Another challenge that i faced was the database building. In the beginning i wanted to create a Room Database but after of further reading i have done i realized that it was recently released and i couldn't find the same amount of examples with SQLite, so I took the simple solution to work with SQLite where there were hundreds of examples and errors found by now and it would be easier for me.

Flagging the activities was another problem i have faced during the implementation. After i studied the android developer forums i learned that activities are stacked on top of each other and you have to set flags to choose which one will remain on the top or before another activity was opened up.

6 References

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