Edinburgh Napier UNIVERSITY

Coursework Report

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Edinburgh Napier University - Module Title (SET08114)

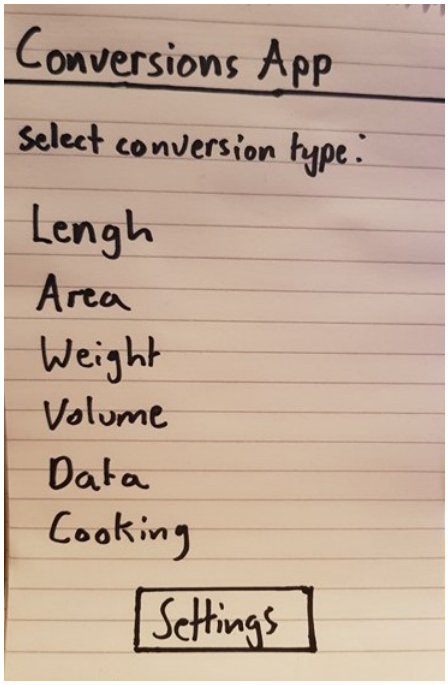
1 Introduction

The aim of this coursework was to design an android application. I, using Android Studio, to develop an app that would allow the user to simply convert measurements to different units (meters to inches, for example). I decided to make this my app as I find myself looking up conversions fairly frequently especially whilst cooking so this is an application that will be useful to myself as well as allowing myself to demonstrate my knowledge of Java and using Android Studio.

I designed my app to implement conversions for six categories: Length, Weight, Data, Area, Volume and Cooking. These are the most common areas a user might need to convert measurements for and should prove useful for everyday activities.

2 Software Design

When I started to think about how I would design my app I knew I wanted to have a home activity which would have all six categories allowing the user to select one and be taken to the category's own activity. My initial plan for the home page looked like this:



The conversion types would be displayed in a listview and a settings button would be at the bottom for the user to change preferences. I wanted my application to be easy to navigate but also be visually appealing. I later on decided to use buttons, instead of a listview, in a grid layout as this would be simpler and easier for the user.

I also wanted to add preferences to my app, although the only preference I could think of for this type of app is being able to select the number of decimal places shown on screen when a user converts a value. This would also demonstrate my ability to add persistence to my app as the app could remember the users selection so that it remains the same when the app is restarted.

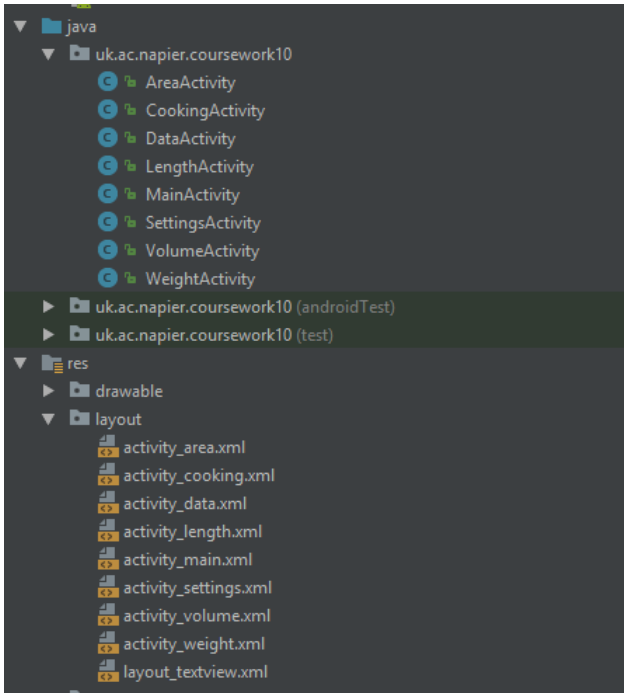
My plan to create my application was as follows:

1. Create the various activities and create a simple UI so that I could work on the back-end, making sure all the code was working and including all the features I wanted could be and were implemented.

2. Improve the UI and work on the general aesthetics of the app.

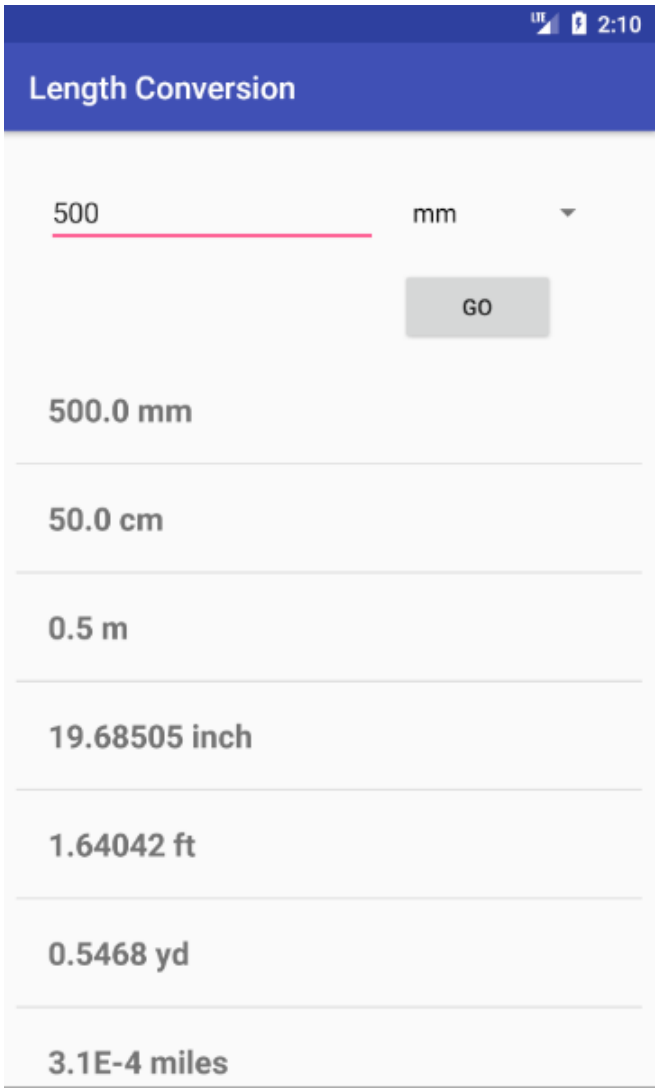
3 Implementation

Before I started work on the Java I created a the activities I would need and made a simple menu using a listview to link all the activities together:



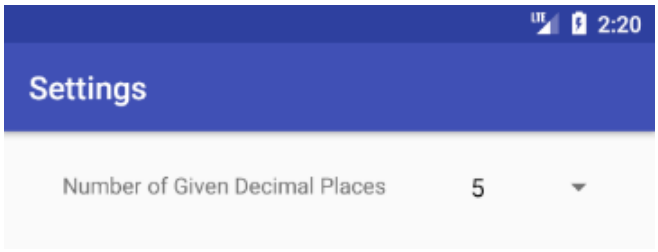
I knew that once I had one of the conversions categories work-

ing I could reuse code for each category so I implemented the Length conversions so that it was fully functional, allowing the user to input their measurement and selected the unit it was measured in and to display all the conversions to the user in a listview:



Once this was working I could easily set up the remaining categories. Next I wanted to implement my improved menu design, I did this using buttons of different colours: I also included the settings button at the bottom which looks different to the others to stand out to the user:

Next to implement was my settings, I wanted the user to be able to select the number of decimal places that would be displayed. I did this using file reading/writing and a simple drop down in the settings page:



When the user hits Save and Exit their selection is saved and any values displayed will have a max decimal places of their selection.

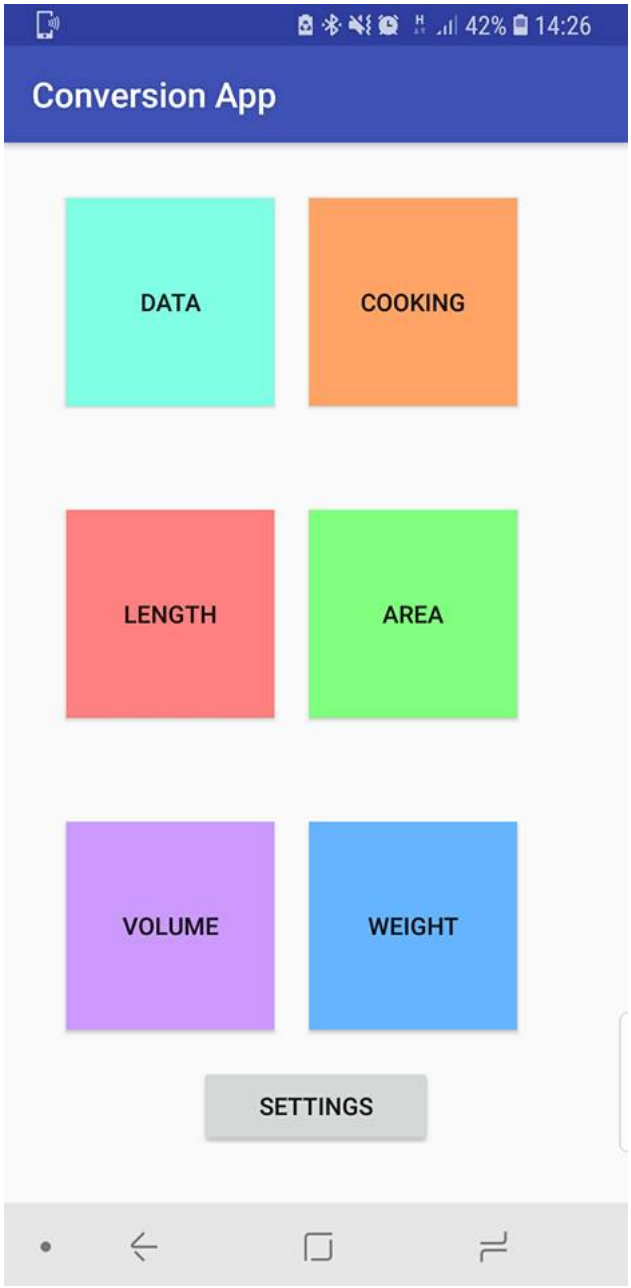
4 Critical Evaluation

I am pleased with how my application turned out, it has a simple design and it is very clear to the user how it is meant to be used. Navigation is kept simple as the user is only ever one back button press away from being back at the menu.

My application included six categories of conversions all of which I think have real world use (I have installed my app

on my phone and the cooking conversions will be especially useful to me).

There are no major issues with my app, that I am aware of but the layout of some of the design elements can be moved about a little or overlap slightly when used on a mobile with a different screen size/resolution as the Nexus 4 I used as my virtual device. This can be seen on my Galaxy S8 where the menu items are shifted to the left slightly:



This does not affect the functionality of the application but does affect the aesthetics. This is something I would work on and improve if I was to do this project again.

I'm glad I changed the design of my menu from the original plan, I think the buttons look much nicer and make it far easier for the user to navigate the app. Overall I think I met the requirements set out in the coursework descriptor as I have a fully functional mobile app prototype which uses multiple activities and has persistence.

5 Personal Evaluation

Having never designed software in Android before this module I think that I have learned lots and I am pleased with my progress. I previous did not enjoy working with Java but using Java in android studio and proved to be fairly straight forward with lots of resources available online to help.

Most problems I encountered where solved using the internet or by using trial and error (especially when working with the object constraints in the XML for each activity).

If I was to do this project again I would perhaps try a more challenging app idea which uses more inputs available to a mobile (such as camera and gyroscope).