BSc in Software Development

Year 3

COMP07030 Software Design Project

*Operation Transformation Android App*

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# Introduction

The idea for my project is based off the well-known television programme Operation Transformation. The program takes on six leaders that want to make a change in their diet and bad habits in order to live a longer and healthier lifestyle and is run through a seven-week period. In my local community centre they were running the operation transformation program too where you could pick one of the leaders from the show and follow their plan. I realised that you could only follow and record your progress through their website, so I solely create my app around this idea.

In the app I wanted to allow the user log in, enter their weight each week into a weight tracker and check there:

* Starting Weight
* Current Weight
* Total Weight Loss
* Progress

As well as:

* Follow the fitness plan for a leader of their choice.
* Follow the food plan that is on YouTube using the YouTube API.
* A link to the Operation Transformation Facebook page.

I decided to do an Android application as it is more popular than the windows applications we would do in college and in my opinion I think android apps can be more visually appealing. I had to teach myself about the workings of an android apps as I have never worked with android before. Android studio was recommended to me which was the software I used. I would learn how to use API’S and setting up a database as well as broaden my developing skills.

In the project, I used Androids studio sqlite database to hold my users details as they signed up to the app. Then I made a big error for my weight tracker by writing the weight entered to a file which meant other users logged in on the device could see and add their weight to the same file. It also made the point of having a database quite pointless then. By the time I realised what I had done I had no time to change or correct it. I used the YouTube API to get the diet and fitness plan videos in my app, however I could only get one video to show and not a list to choose from. I made a link to the Facebook page using the web browser.

# Architecture of the solution

For the login I used Android studio SQLite database. I chose SQLite based on a number of reasons:

* Local storage on the device.
* There is only one user writing to the database, so low writer concurrency.
* I don’t need a big database.
* It’s easy to maintain and customize.

I named the database “contacts. DB” containing a table called “contacts” which would contain five columns – id, name, email, username and password. So when the user signs up, there details are stored in under the appropriate column, each row(user) gets an id which acts as the primary key. All the user’s details are remembered for when they log in again using their username and password.

Once the user has logged in from the login activity, they are taken to the display activity which displays all of the other activities available for the user to go to. These activities include:

* Weight tracker Activity – user enters their weight in kg which is then written to a file and is read back in for the user to see whenever they open the app.
* Fitness Activity – Used YouTube API to play YouTube video within the app.
* Diet Plan Activity - Used YouTube API to play YouTube video within the app.
* Facebook Activity ­– Exits app and opens up the Operation Transformation app in the browser.

To get the YouTube API, I went to console.developers.google.com website, created a project and credentials to get access to the enabled API key. I made a string reference to my developer key, which allowed me to play the YouTube videos in my app.

# Technologies used

To develop this project, I used Android studio with xml and java language. I never used android studio before so I set the challenge for myself to learn it. When I first installed android studio on my app I kept getting rendering errors without even doing anything. I finally solved this after a period of time, by simply changing the android version that was being used.

For the database I used SQLite database.

To run my app, I wanted to use my own android device that would just be connected by usb, with the developer mode enabled on the device. But my laptop was not recognising my phone when it was being connected, only charging it. So I decided to use the emulator, however my laptop wouldn’t let me install the intel haxm VT, I spent a lot of time trying to fix this, I made sure intel virtualization was enabled in the BIOS and my hyper -V, but I got nowhere. This slowed me down a lot as I couldn’t test what I had done on any device. I went back to using my own device but it still wasn’t getting recognised. I tried a different phone and had the same problem. Eventually I thought it was something to do with the usb itself, so I bought another usb and my device started to get recognised. But in android studio it was appearing as offline. I finally solved this error by changing the usb connection from a camera(PTP) to a media Device(MTP). This problem was a big set back in the project.

# Problems Encountered/Solved

I wanted to use a navigation drawer in my display activity and set each page as a fragment, I spent a lot of time looking at tutorials and reading blogs however I was having problems and it was taking up too much time so I decided to just have buttons to direct you to each page.

I also had problems with the YouTube API. I wanted a list view with all the videos with their title to the side. I could just get one video appearing or to skip the video onto the next in the playlist without being able to see what’s up next.

For Facebook, I tried checking first to see if the Facebook app was installed on the device and if so to open up the Operation Transformation page there, but I was just getting to my own newsfeed rather than there page, so I just uncommented that out and used the browser instead, but it only directs you to the Operation Transformation Facebook page if there is no other tab open in the browser.

# Conclusions

*I learned the basics of using android studio and SQLite database. This is the first time I have built an app and a database together which I gained a lot from.*

# Recommendations

*When doing this again I would manage my time properly  and not spending so much time on something to then go off and try something new again and then resorting back to what I started in the first place.*

*I would change majority of my features for example use the navigation drawer and fragments and a list view for the youtube videos.*