UniTracker Comes to Life

F. Reflect on the creation of your mobile application by doing the following:

# The Mobile Studio

1. Explain mobile application development through the context of the architecture involved, including hardware and software capabilities and limitations.

Why Mobile?

In a world where so many people are constantly moving around from place to place and are consistently engaged in activity, having an actual desktop or laptop computer nearby when you would need to use one, is more inconvenient than ever before. Therefore, the need for mobile devices with apps to manage busy lives is more important now than ever before. Which means that mobile *development* is more important than ever before. If a developer has the tools needed to create mobile apps, he or she can provide necessary tools to people all over the world who can benefit from these mobile apps. Android Studio, for example, provides a rich environment for developers to program apps and feed everyday peoples’ needs.

Limitations:

Developing a mobile app comes with obvious limitations. For example, the programmer must keep in mind that his or her program is for a small screen. Unlike the convenience of having a desktop or laptop computer with the ability to layout files across screens, or even split a larger screen to view several pages or apps at once, mobile apps are mainly viewed one small screen at a time. This means that the user needs to navigate to the place in the app where he or she needs to be. Also, the user needs to be able to quickly and easily see items like buttons, checkboxes, and other features which need to be large enough for a finger to touch easily, and since the screens are so small, this means limited information in one view.

Pros

However, these inconveniences can be quickly overpowered by the convenience of a mobile app. For example, an executive can keep track of what’s going on back at his office while catching a plane to a business meeting, because it’s so easy to pull the phone from the pocket, use the app, and then return it to the pocket, in time to pick up his luggage and board the plane.

When using an environment like Android Studio to build an app, the developer has all the tools needed plus many already built-in features that make developing so much easier. For example, the available templates for activities when creating a new activity, the ease of creating a new menu item from a pre-made menu template, many widgets and items that can be added through a drag and drop environment within the studio. There are a variety of storage techniques utilized by mobile developers, for example an SQLite Server allows the developer to create an app with “persistent” storage.

a. Identify the version of the operating system your application was developed under and is compatible with.

I Developed this mobile app using a **Windows 10 Pro OS.**

* minSdkVersion 15, targetSDKVersion 2

Challenges:

2. Describe (suggested length of 1–2 paragraphs) the challenges you faced during the development of the mobile application.

3. Describe (suggested length of 1–2 paragraphs) how you overcame each challenge discussed in part F2.

When creating OnTrack, I ran into so many challenges as a new mobile developer that I can write a book about them. However, I will mention only a few here to save my wonderful evaluator any unnecessary stress.

Initial Problem:

The initial problem I had was trying to figure out how Android Studio worked. There were so many tools available to me and I didn’t know how use them. Also, the file structure really threw me off and I was very overwhelmed. Because of this I ended up getting stuck many times without knowing how to fix the program crashes or read the log messages correctly.

Initial Problem Solved:

I overcame this problem by reaching out to the course instructor and scheduling several consistent phone call conversations where we shared the code and talked about it. She walked me through the error messages and showed me how to use the debugger. Over time, I started to feel comfortable reading the Log Cat messages and I knew How to solve the problems. I also went directly to the Android documentation to read about the structure of Android Studio and followed the directions closely to help me build the app. All the extra reading and coaching paid off and now Android Studio is my best friend and I feel very comfortable using it.

Here are a few other problems I ran into:

Problem 1:

When I added an assessment date it returned the edit text object itself to the course instead of the date. I tried to figure out what was wrong here, but I never could. Instead I used some code from the backup that I had taken the day before and ran a sync. This solved the problem. Here I realized the importance of backing up the project consistently and I was glad I had done so.

Problem 2:

When I clicked on a blank checkbox that was supposed to set an alarm for the date, if the date was not entered and the value was blank, the program crashed. It took me a while to figure this out, but after doing some reading in the Android documentation about checkboxes, I realized that I had to include a conditional statement for what to do in this case. I solved this by adding this code**: if(!checked) toastMsg( "No reminder Set" );**

What would I do differently?

4. Describe (suggested length of 1–2 paragraphs) what you would do differently if you did the project again.

Its turns out that even though I scheduled calls consistently with the course instructor throughout the development of the app, I was not as honest as I could have been about how lost I really was in the beginning. If I was to do it again, I would initially set up a few phone calls just to have the course instructor explain to me how the program structure worked, before discussing the actual project. Also, Since the readings and lessons provided by the course were outdated, I would have jumped straight to the Android documentation from the beginning to get my instructions instead. Once I did this, though, everything became so much easier. Besides this, I really feel like my programming skills grew immensely by a whole lot of trial and error, and by restarting the entire project several times.

Emulators

5. Describe how emulators are used and the pros and cons of using an emulator vs. using a development device.

One amazing benefit of programming for mobile devices is that I have the option to use an emulator instead of an actual mobile device. Emulators show on the computer screen and look just like the actual phone or tablet and allow me to use them like a real phone or tablet etc.…I can choose older to newer versions of phones that I don’t even own, and because of this I can see how my app looks in several devices. However, they also use the memory on my computer, so if I have several programs running at once they can stall and cause frustration and performance problems. Also, If I did not have a touch screen computer, I would have to always use my mouse to test my application which is not a real-world test for a touchscreen mobile device.

I also used my Android tablet for testing. I found that using an eternal device certainly gave me the touch and feel of the app and allowed me experience what the user would experience as far as how features responded to the touch of my finger, using the voice typing feature for text, etc.… I also found the application to run a lot more quickly on my tablet than on the emulators.

Conclusion:

Building this application has been one of the most growing experiences in my entire life. I certainly feel proud of my first mobile and I couldn’t have done it without the plethora of resources available to and the coaching of my course instructor.