1. Explain how your application would be different if it were developed for a tablet rather than a phone, including a discussion of fragments and layouts.

If the application were developed for a tablet, the main difference would be the layouts. Tablets and mobile phones require different size elements and the layouts would need to be re-designed to fit the display size of a tablet.

If the application were designed for a tablet, the application would also more heavily utilize fragments. This is because fragments allow for more flexible organization of content. For example, the ListViews could be kept in separate fragments, and arranged side by side in CourseDetails when using tablet in landscape.

1. Identify the minimum and target operating system your application was developed under and is compatible with.

The minimum operating system the application was developer for is Android 8.0 (API level 26) as laid out by the task requirements. The target operating system is Android 11.0 (API level 30)

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

One central challenge for me was implementing a scrollview that didn’t break the layout, especially when implemented alongside a toolbar. When using a constraint layout or linear layout I could not display all of the content in the CourseDetails view.

Another challenge was getting new tables created during development after adding create statements to the onCreate method in the DatabaseHelper object.

1. Describe (suggested length of 1–2 paragraphs) how you overcame each challenge discussed in part F3.

The issue with the scrollview was fixed by nesting the toolbar and scrollview inside of a RelativeLayout. and using layout\_below to position the scrollview underneath the toolbar. This was not possible with the constraint layout.

The issue with creating new tables was fixed by simply uninstalling the application inside of the emulator and re-installing each time a new table was created. This allowed me to restart the test environment with the tables reset and created the new tables added during development.

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

I would spend more time familiarizing myself with the documentation, and finding more tools to use in development, such as the room persistence library. This would also take some time, but with the familiarity already gained from working through this project the first time, I would likely understand these tools much better the second time around.

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

Device emulators simulate a range of mobile devices used by end users. The main pro of using an emulator is the speed at which you can simulate an end user environment. Flaws in a layout, for example, can be found very quickly by testing a variety of display sizes. The major drawback of using a device emulator is not having a real network environment. The other drawback is that mobile emulators do not properly simulate mobile hardware.