EC 601 Homework 2 Unit Testing Report:

This is a report for unit testing the android application developed for homework 2 of class EC 601. The app, called friendly-chat, is supposed to authenticate the user using google sign in and is able to send text and images. The testing is done using Amazon's device farm and Google's Monkey Runner tool.

Amazon Device Farm:

The Amazon Device Farm lets users upload their app, choose which devices they want to test it on and the service will automatically iterate through all the screens and buttons. Once that's done, the service generates a report and the user can go ahead start debugging the app. Although there are about 400 devices on the device farm, the user can test on only upto 5 devices simultaneously. Also there is a 4GB limit on the application size to be tested. Even though Amazon Device Farm is great, there are other competitors, such as Xamarin Test Cloud, which offer upto 1000 devices to test on. Amazon's service was chosen for this application testing as it was simpler to use and offered 1000 minutes of free testing and also allowed users to test on upto 5 devices simultaneously, where as Xamarin only offered 3 hours of test time and let users test on upto 3 devices at once.

The application was run on 5 different devices, namely:

1) Amazon Kindle Fire HDX 7 (2013) running android 4.4.3
2) LG G Pad 7.0" (AT&T) running android 4.4.2
3) Samsung Galaxy S5 (T-Mobile) running android 4.4.2
4) Samsung Galaxy Tab 4 10.1" (WiFi) running android 4.4.2
5) Samsung Galaxy S6 running android 6.0.1

The reason most devices were chosen running android 4.4 was because while developing the application, there was a compatibility problem with google play services API for devices running Android 4.0. However, a small change in the code made it possible to run it on Android 4.0 and above.

As you can see from the screenshots posted on the Github repository, the application passed all the tests in the Setup Suite, the Built-in Explorer suite and the Teardown Suite for all the devices that were tested on. The memory usage on most devices was around 20 MB, although it was a little higher for the Amazon Kindle, at around 55 MB. The CPU usage for all the devices was limited to around 5%.

Hence, using the Amazon Device farm, a lot of performance metrics was received, in addition to testing the stability of the application.

Google's The Monkey Runner tool:

The Monkey is a program that runs on the emulator or device and generates pseudo-random streams of user events such as clicks, touches, or gestures, as well as a number of system-level events. It can be used to stress-test applications in a random yet repeatable manner.

The Friendly-Chat application was subjected to The Monkey tool, and as we can see from the video found in the GitHub repository, it performs a number of random clicks or presses with the primary focus on the Friendly-Chat application. This tool was made to run for 1000 events and the application did not behave unexpectedly for any of the 1000 random events.