Sam Lincoln
CEG 3900-01
4/17/17

P7 – Android APKs with MbaaS

Important Info

GitHub Link: https://github.com/Bluzix/CEG-3900-SP17

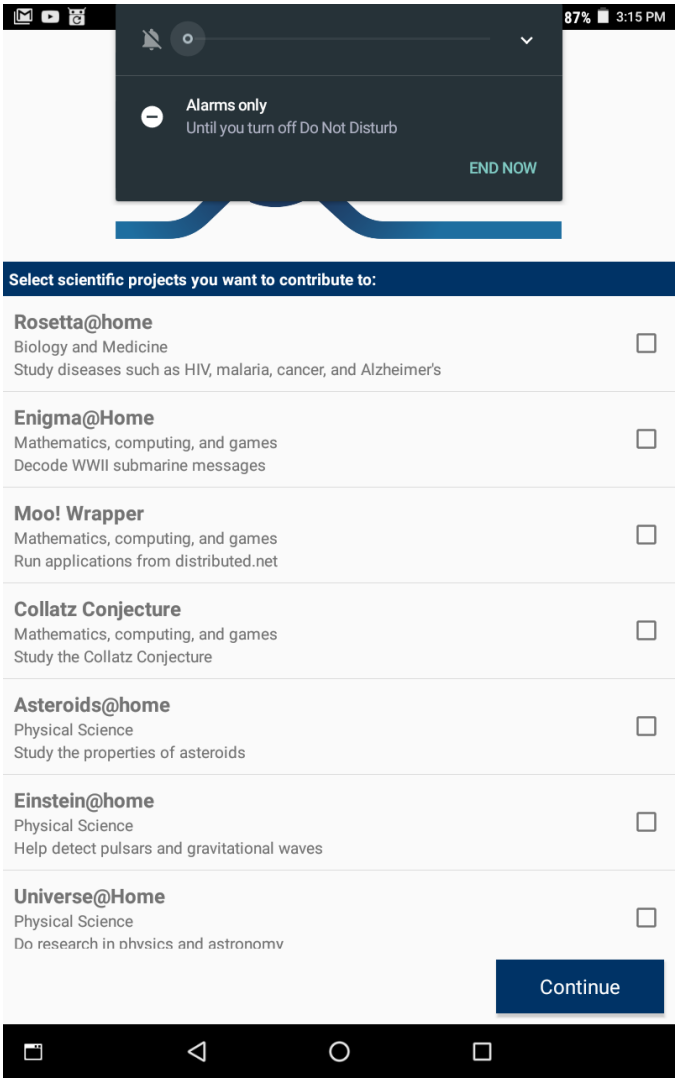
WSU UID: U00674054

Task 1 SETI@Home

Installing SETI@Home from the Google Play Store was fairly simple. I didn't know if I needed to open the app and then let my Lenovo Tab3 sleep or if it just worked automatically. When I first installed it, I think I let my device sleep for a while without opening the app. After a day, I decided to open the app to see what the User Interface looked like.

Experience

The first thing that happened was it started asking me which scientific projects I would like to contribute to, so it looks like I had to have opened the app once for it to work. It was a fairly simple list of projects with check marks on their right. I set it to contribute to SETI@home since I didn't know how much each project would drain the battery. I did see some other interesting ones like "theSkyNet POGS", "Quake Catcher Network", and Resetta@home.



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Then I got to another screen that was asking for an email, name, and password. I hope this is setting up an account and not requiring an account. The User Interface makes it sound like this is verifying an account, but I'm sure this is account creation.

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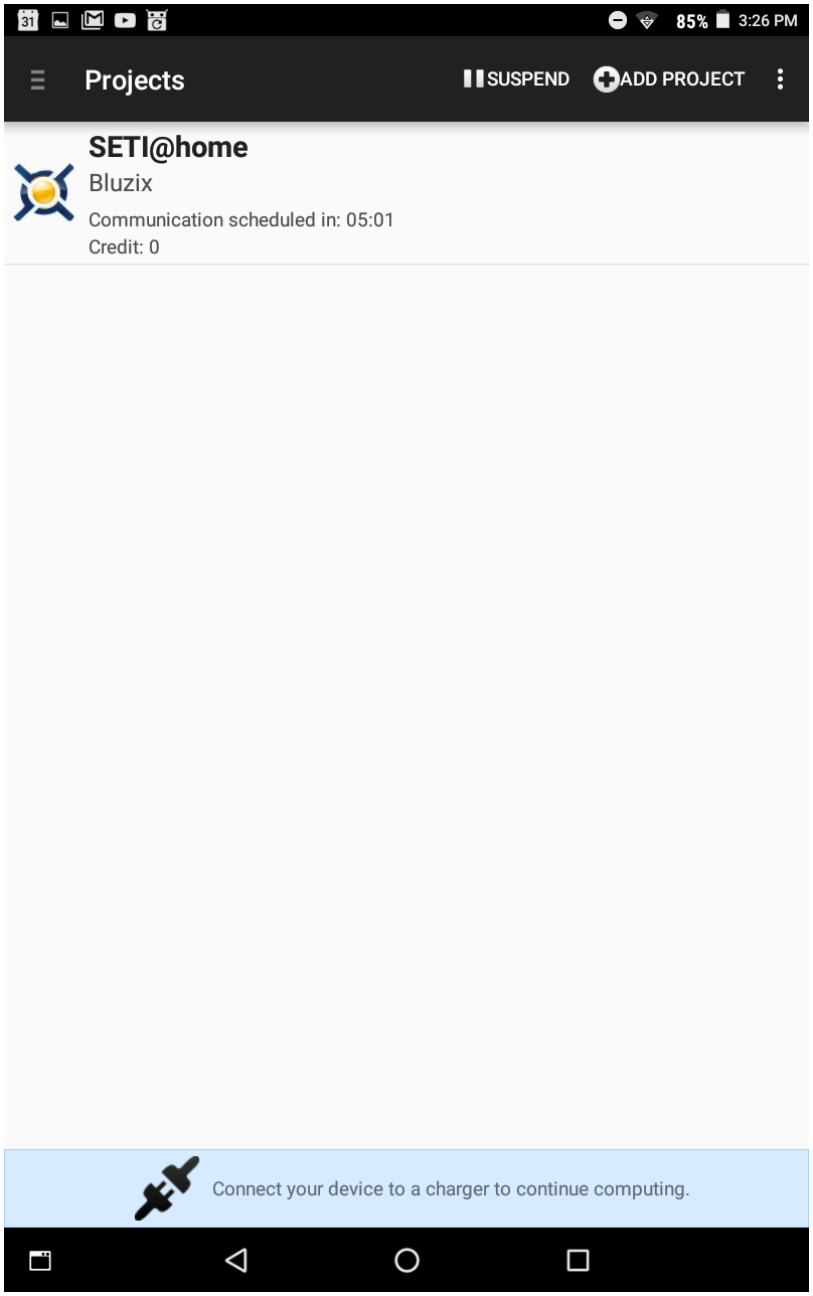
Once I finally set up my account, or accounts possibly, I was now ready to start computing for SETI. When it first started, it gave me a count down timer for about 5 minutes before it would start communicating with SETI. It also gave me 0 Credit, which I guess will increase as my device does computations. I'll just let it sleep while in class and I'll check back to see how it is doing.



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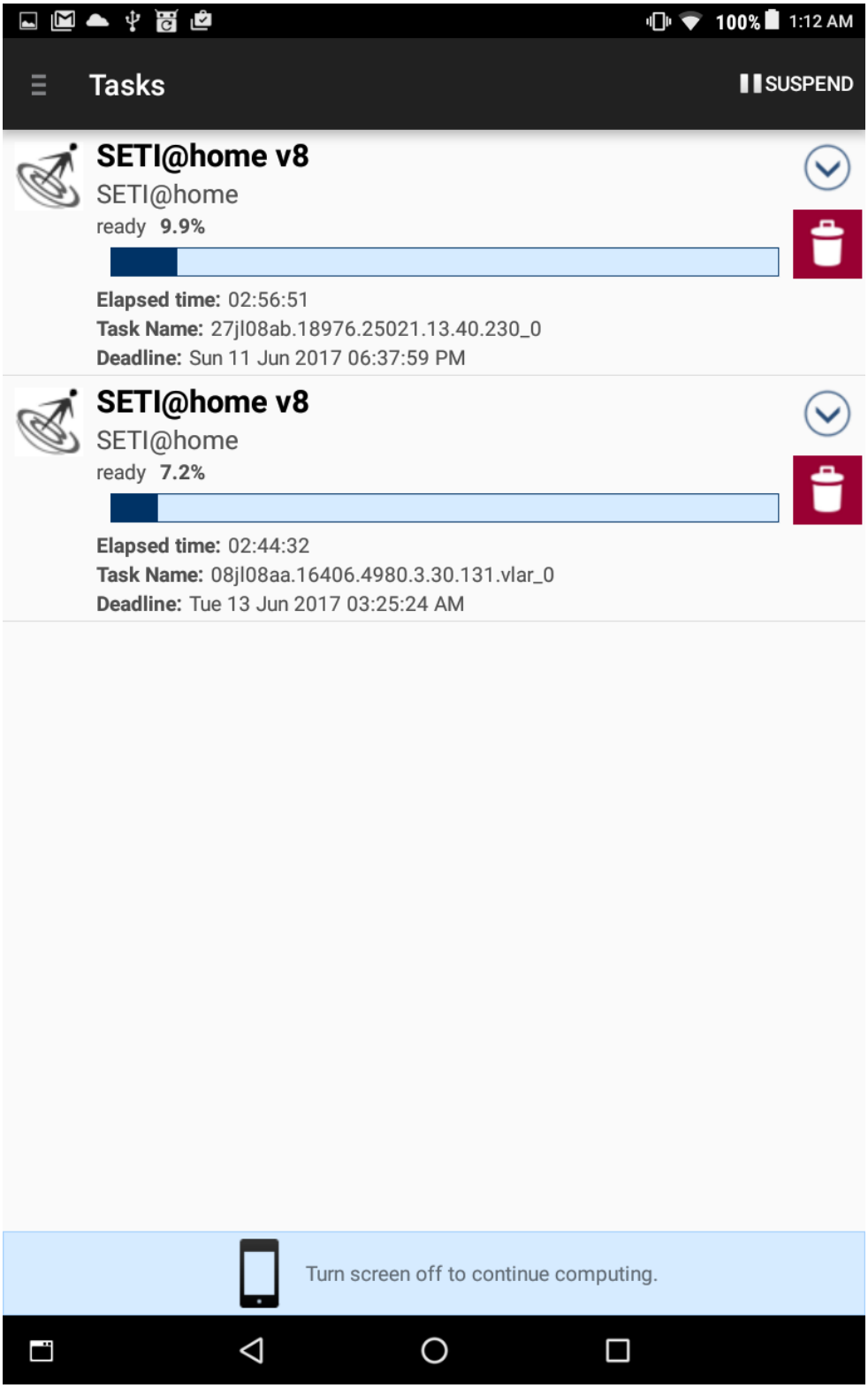
I turns out that you have to let it recharge to a certain percentage before it beings the computations. I then let it run in sleep while recharging. It managed to work on a few tasks for SETI. I can even expand the tasks to see more information about them. However, it doesn't tell me exactly what these tasks are about, or what they do for SETI.



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What I expected and Critique of the User Interface

Since this was an app that took advantage of the processing power of the device while it was sleeping, I was thinking it would tell me what it was doing while asleep. I was also hoping that there would be a way to see how many other devices are currently using this app as well. I was even hoping that it would show that a single task was being handled by more that just my Lenovo Tab3. I also expected a little big of information on what the scientists at SETI were currently working on that making use of all the devices running the app. Also, I hope that I can track all the tasks that my device has completed, as well as a log for how much of the task was covered while it was sleeping.

Critique of the User Interface

I got the bare minimum when it came to displaying tasks that it works on. As shown above, even when you expand a task, you only get a computer generated Task Name. This does not hint at what the current task is for other than SETI. What is my device computing? Where did the data come from? I know SETI is known for using radio dishes pointed to space that they scan for artificial radio signals, but I have no idea what sector of space or what radio dish the task came from.

I was also confused when I was first creating a BOINC account for this app. When I started this app, after choosing projects, it just asked me for account information for the projects. I didn't know if this was to register for an account, or that I needed an account first. Then I didn't know if I should have clicked on the "Attach projects individually" button or not. I think I did, and then it felt like I registered twice just for SETI@Home.

After registering, the User Interface is pretty bland. However, it's okay that it is bland because the purpose is just to run while my tablet is sleeping anyway. It could display a little more information though, like I would have loved to see how many other devices currently are running this app; even if it is just an estimate. I would have loved to see what each of the tasks were about: there's nothing but a computer generated Task Name for each task that doesn't give any specific information about the task. I would have loved to know the radio dish or what sector of space that the scientists are currently analyzing. Plus, I have no idea what computations that my Tab3 is running for each of the tasks.

Finished Task in 1 hour, 18 minutes, and 38 seconds

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Task 2 World Wide Inflation of Grades

The Plan

I'm going to use Amazon Web Services to store the data and then calculate the Average Grade for each country for all years, terms, courses, and students. It seems that each file contains a collection of data that I might have to turn into a object of some sort, and that object would have two fields: Student Id and the Grade they received as a float between 0 to 5. The file name holds the Country Code, Year, Term, and Course Number separated by hyphens. I'll have to stream the contents of these files into objects, collect them by the content of the file name, and then map+reduce the objects to get the Average Grades.

This will involve me having to write some sort of server side code to read the files, put the objects of those files into collections, and them map+reduce them as the user sees fit. Usually, at my old job, we would have had a restful service and the map+reduce would be ran whenever the data was requested through a GET. However, I'll have to get the Android Client to run the server side code through SSH; since, I don't know how to deploy a restful service using Java (only C# and ASP.NET). That also means that I won't have a nice little JSON object that I could parse for a nice looking display. I'll have to get the data line by line from the server side code, and I'll have to run the server side code whenever the user requests another "filter" of the Average Grade: years, terms, courses, or students. I should build a prototype of the server side code on my laptop first, and then deploy it on Amazon Web Services. I want to make sure it doesn't go crazy and Amazon charges me a bunch of cash because there was a bug somewhere in my code.

Building the Prototype

I went and downloaded the tar.bizp2 file that contained the records to my laptop from https://drive.google.com/file/d/0BxhMyqQW9vzoaHBOdzFnc1IyM3M/view. I thought I would skip this Task for now, and come back later.

Worked 32 minutes and 34 seconds on this Task

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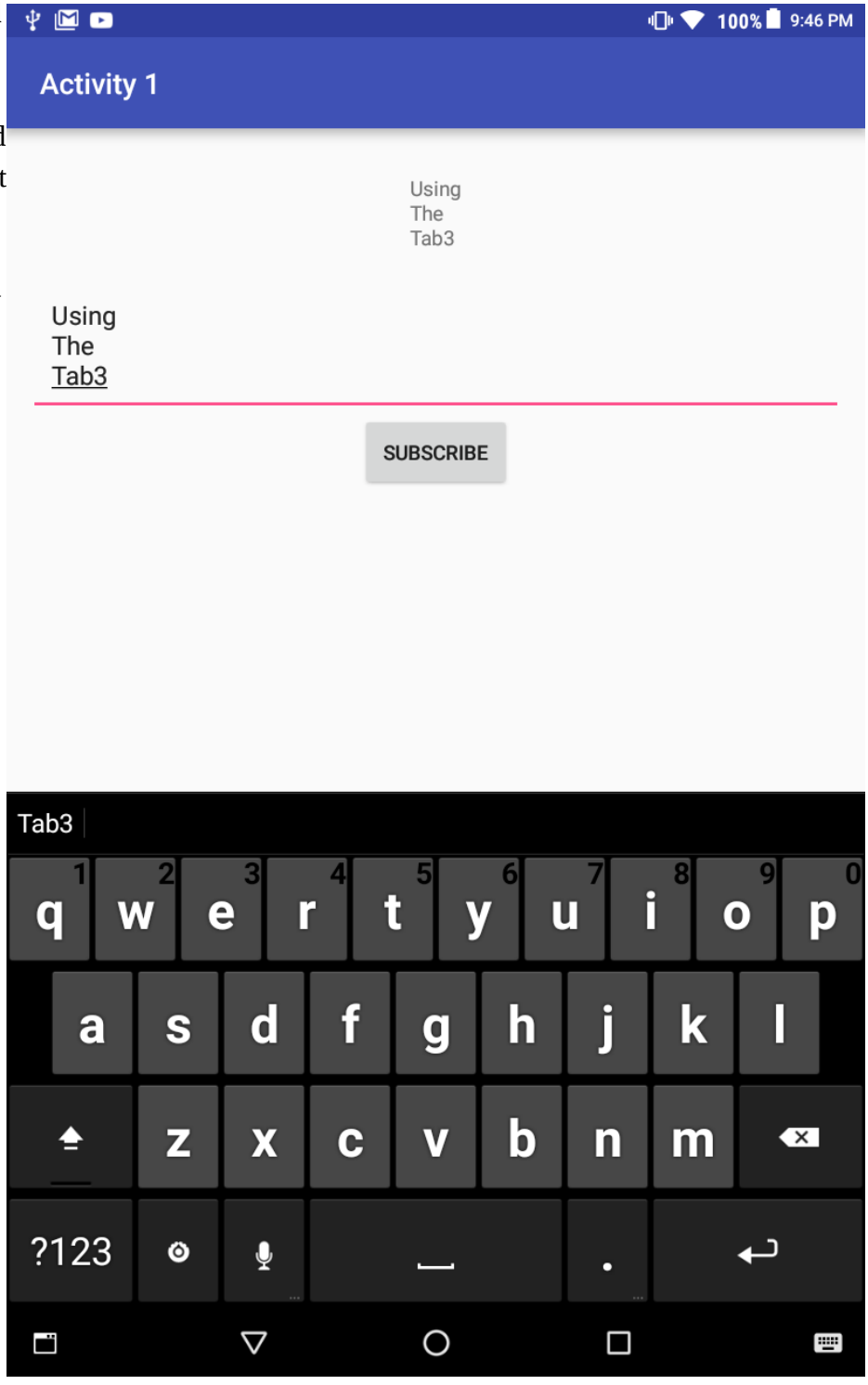
Task 3 Android Reactive Programming Coupled to Cloud

Building rxandroidsample

I opened Terminal in my P7 directory and called `git clone` https://github.com/obaro/RxAndroidSample.git to download the rxandroidsample to that directory. Then I opened Android Studio to see if it would just build without me modifying the code. I needed build tools 24, and it says that I can use an Android SDK of at least 15 (Ice Cream Sandwich). I tested it on my my Lenovo Tab3 just be be sure, and it looks like I can; which is good, because the Nougat emulator causes my laptop to lock up and act all crazy due to the resources it needs to run.



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Modifying Activity 1 for Video

The examples that http://cecs.wright.edu/~pmateti/Courses/3900/Lectures/AppDevelop/reactiveAndroid.html shows are all text based. In fact, all four activities are variations of the first one that just takes in the text that the user enters and displays it somewhere. I know I'm going to need to put in a different view type. I'm on the fence on removing the text view, I might want to keep it for captions or something. The edit text can go, but I want to keep that button.

What I did was I added a VideoView to activity #1 and deleted the TextEdit View. I downloaded a TED talk video about Passwords from https://www.ted.com/talks/lorrie_faith_cranor_what_s_wrong_with_your_pa_w0rd, since I didn't have time to record a demo of the Password Helper. Hopefully, it should still help with choosing a good password. I then found a good page on how to use a VideoView to view videos from a URL: http://stackoverflow.com/questions/2620049/how-to-play-video-from-url.

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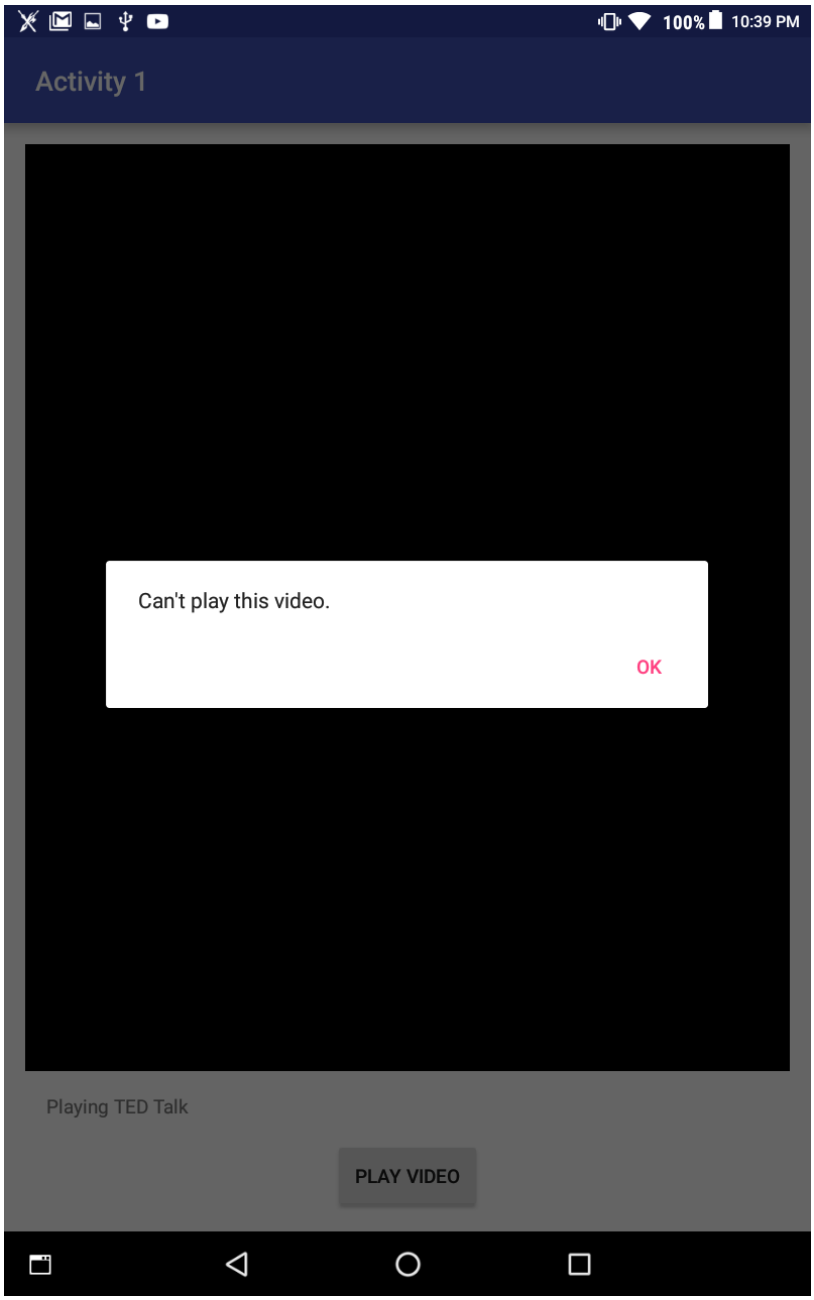
Well, shoot. I tried to get it to play the video straight from TED's website. The link that I gave in the strings resource is the link to download the file. I thought it could just play using that, but I guess not. I'll have to debug it some other time.

Worked 1 hour, 25 minutes, and 25 seconds on this Task



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Task 4 Discover Docker Containers

Finding the Container

I can't remember the where all those free containers were located. Are they at https://hub.docker.com/? I'll just skip this Task until I can remember if that's the location or not.

Searched 17 minutes, and 10 seconds for this Task

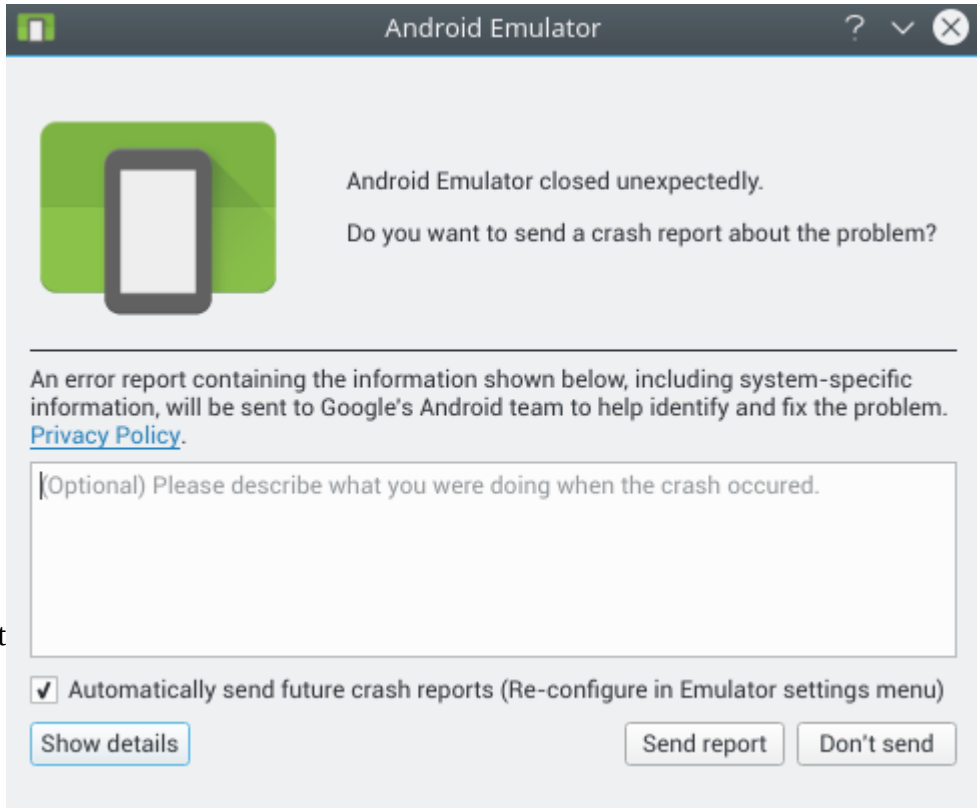
Task 5 Enhance Password-Help from P5 and P6

Fixing Technical Issues

I tried to test my stuff from P6, but my Nougat QEMU caused my laptop to lock up and then the emulator crashed.

Now I have to call it quits and upload my report.

What I'm going to do is create an AVD of a Nexus 5X phone, instead of the Nexus 9 tablet, running Nougat. Which seems to be working decently. My laptop is not locking up, but then again, I also updated the Android Emulator.



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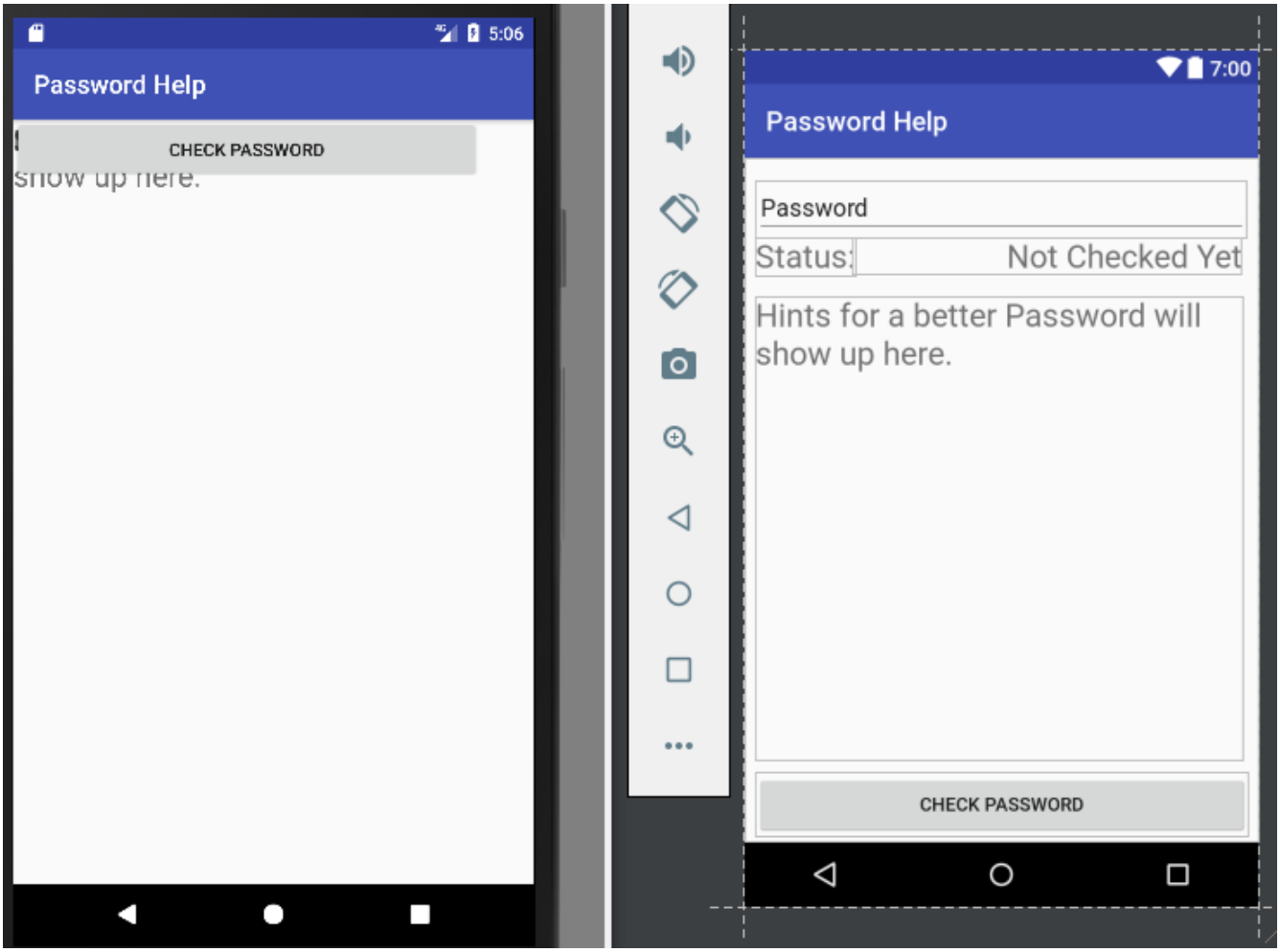

It seems that the Constraint Layout looks very different inside the emulator than it does in the layout designer. I guess I'll have to convert this to a Linear Layout.

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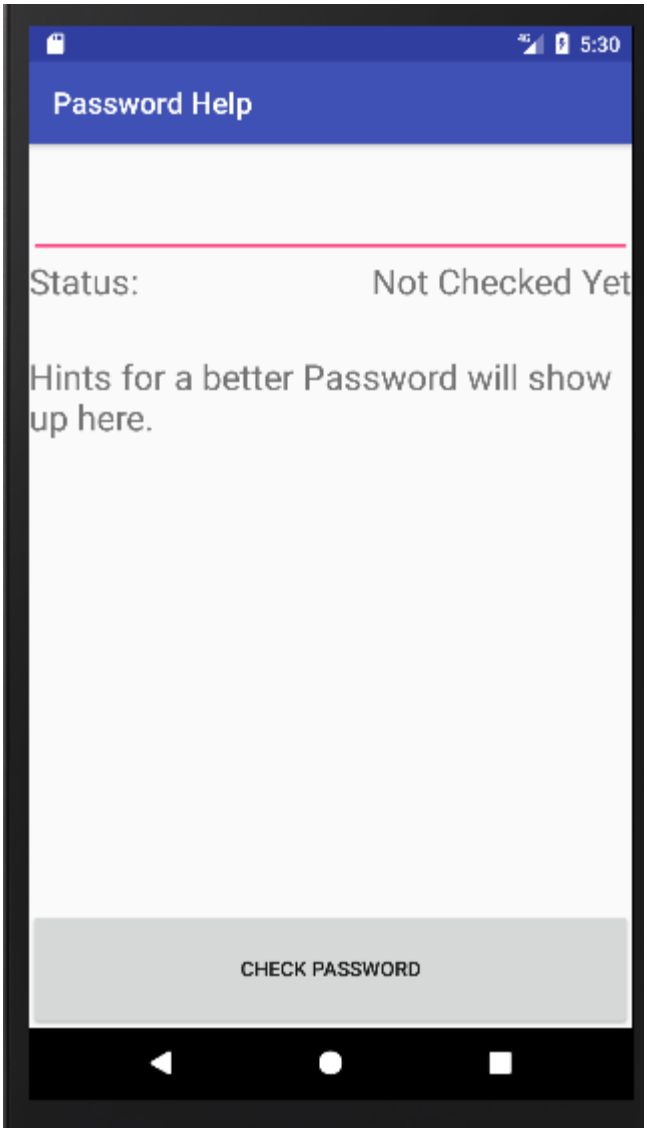
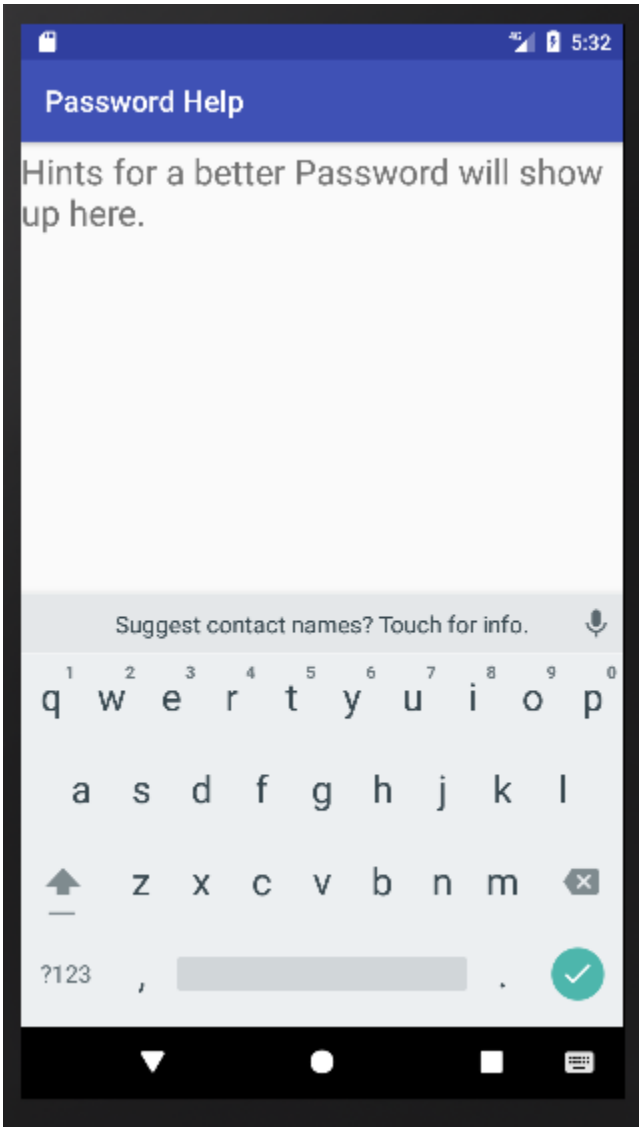
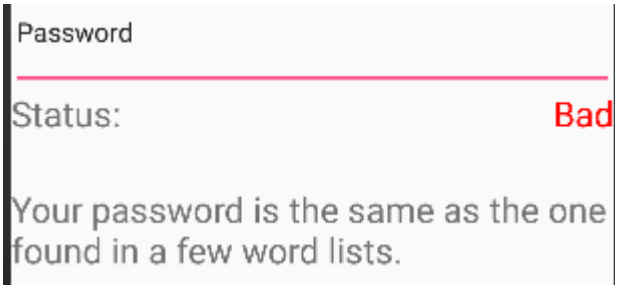
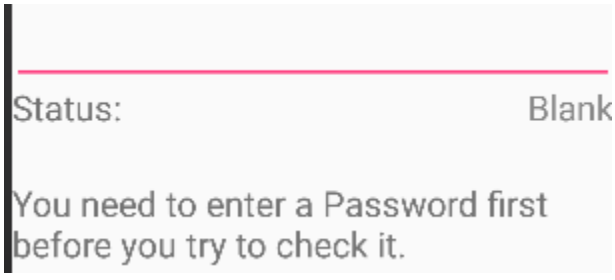




I managed to fix the layout a bit. It does this weird thing where the Password Edit Text View disappears when the keyboard opens up. Oh well, it will have to do the job.





It does seem that the work that I've done for P5 is in order.

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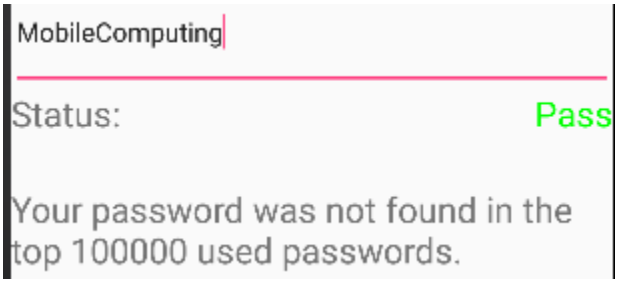
I even found a password that is not on the list of top 100000 most used passwords. You can also see that the hints change for each of the three cases for P5. I even put in some basic metrics for telling how strong a password it, but it is more Pass/Fail than a Weak/Medium/Strong sort of deal that was needed in P6.



Continuing P6's Work

I'll need to add better metrics to the app by using the password strength indicator from cloning https://github.com/GoSimpleLLC/nbvcxz. The library seems simple enough, and I can possibly remove my work done for P5 and just replace it with portions of this library.

I decided to stop here and study for my finals instead. I'm sorry I couldn't finish P7, but I want to pass the class and 30% > 10%.

Worked on the task for 1 hour, 59 minutes and 45 seconds; 5 hours, 33 minutes and 25 seconds total