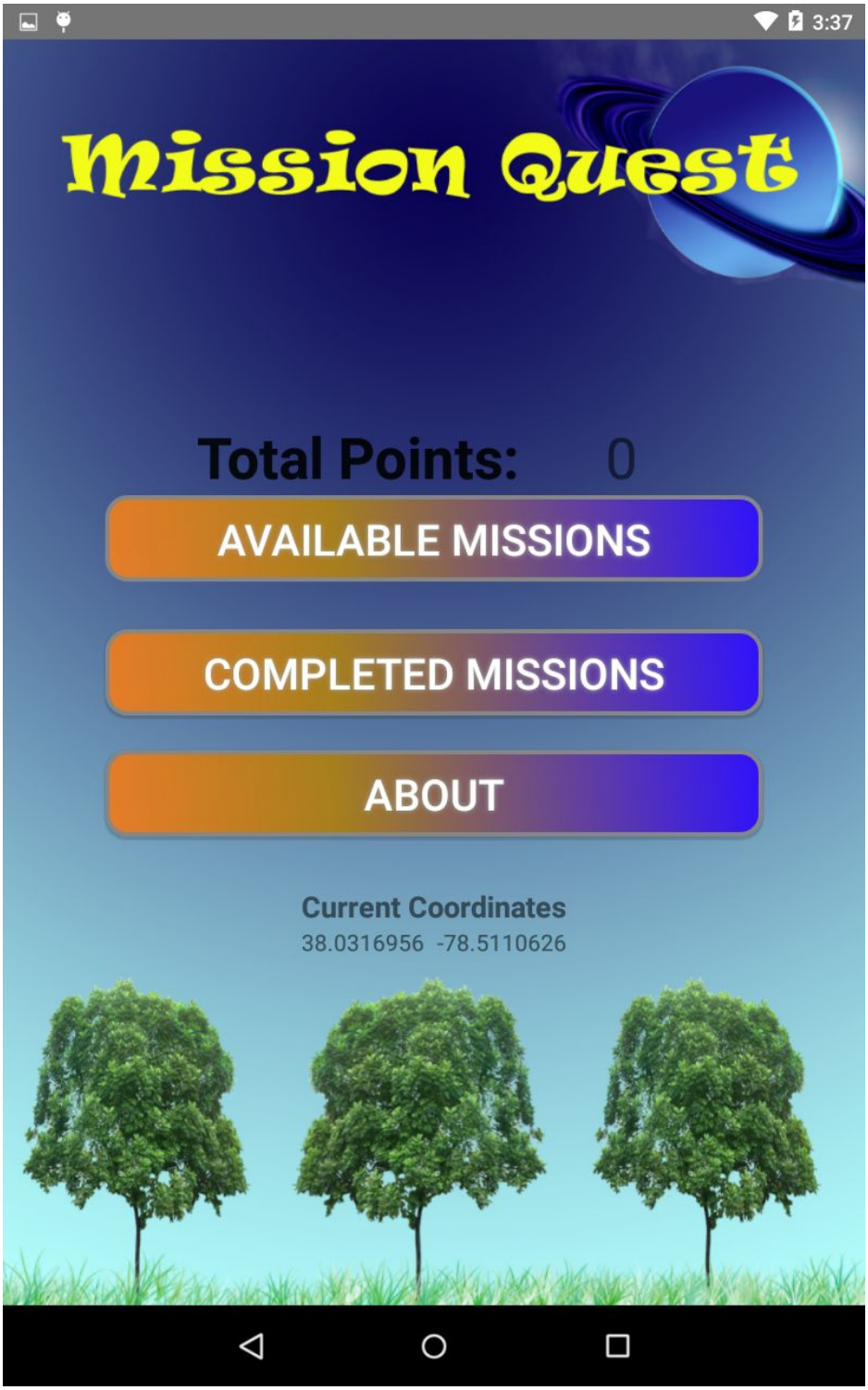
**Team Members:** Alishan Hassan, Hawk Haines, Zach Showalter
**Device Name:** Blastoise

**Mission Quest**

Ever wanted to tell the world you're better at getting meaningless quests done than anyone else? Well, now you can bring a scoreboard to the real world and level up with it. Mission Quest, in a nutshell, consists of a list of missions that the user can complete. The user levels up by earning experience points for completing each mission, which amass to a glorious total score that the user can boast to the world. Missions mostly consist of reaching certain, exciting locations. When the user reaches the location, he/she has the option to turn it in and accumulate points. Never has life been so fulfilling.


Mission Quest Splash Screen




Mission Quest Home Screen

**List of Key Features:**

- Incorporates functionality with the Android GPS.
- Incorporates the accelerometer.
- Uses internal storage to track score for the app.

**Basic Instructions:**

On startup, the user is shown a splash screen which prompts them to “Rock On to Continue.” This is a prompt for an accelerometer input, and shaking the device will progress the app to the home page. The home page presents the user with three options: “Available Missions,” which leads to the list of available missions to complete, “Completed Missions,” which leads to a list of missions that have been accomplished, and a small “About” page that provides a simple description of the app. The home page also displays the current number of points the user has accumulated, as well as the device’s current latitude and longitude. The user is able to click on missions in the “Available Missions,” and if the device is within a specific distance of the designated coordinates for the mission then the mission is added to the “Completed Missions” list and the point value associated with the mission is added to the user’s score.

**Key/Highlight Features:**

The core feature used in the application is its incorporation of the GPS. The Android GPS uses Google Play services to pinpoint the device’s exact global location within a precision of a few feet, and can return the values of the calculated Longitude and Latitude coordinates. Our app works by taking these returned coordinates and comparing them to a set of coordinates set for the mission that is selected by the user. If the device’s coordinates are within .005 of a degree for both latitude and longitude, then the mission is considered complete.

**Lessons Learned:**

Throughout the development process our group ran into more issues with Android Studio than we did with the application itself. One member’s build stopped pushing updated versions of the application to the emulator despite cleaning and rebuilding the application, and another member had an issue with their computer not having enough HAXM RAM allocated to be able to run the emulator even when the RAM allocation for the device was adjusted. These experiences stress the importance of working out compatibility issues early so as to not have them inhibit the design process further down the line.

In regards to layout design, it became clear over the course of the project that certain layouts are superior to others:specifically relative layouts, which help to keep the

layout hierarchy flat. This helps to make the design neater and improves the overall performance. Overall, the Android layout design provides a robust and intuitive system for creating activity layouts without having to write XML files. It may not provide as much functionality as XML, but it is “safer” in the sense that it makes it more difficult to make coding errors as one might when writing XML.

Finally, the project showed our group the usefulness of Intents in passing data between Activities. There are two ways to pass data between an activity: the first involves creating a file, writing the data to it, and having the target activity read in the data. This is not a very optimal solution as it is complicated and cumbersome, and if the data is cleared on the tablet then the values to be passed will be lost. The other option is to use an Intent between the two Activities with an extra containing the data. This allows for a much simpler solution that doesn’t require an external file from the program. However, in the case of our application we used the file method because we wanted the data to persist on the machine.

**Special Info:**

For the sake of testing the app and accomplishing the mission, you should select the “Meet Sherriff” mission as it is the only one with coordinates that are actually inside of Rice Hall.

**Wireframe:**

This is the original wireframe created for the app. For the final build, the “Settings” activity was replaced with the “About” activity, and the activities for each individual mission were abandoned in favor of just using the “Available Missions” activity.


Original Wireframe