

EE461L – Software Engineering and Design Laboratory

Homework 4: A Simple Android App

Due: October 10, 11:59pm

Objective. In this homework assignment, you will build your own simple Android application that interacts with the Google geocoding API. Read up on the API here:

<https://developers.google.com/maps/documentation/geocoding/>

There are many such APIs that it is exceedingly useful to work with from within your mobile apps. This specific API has a simple function: it converts a string address into geographic coordinates.

Collaboration. This homework will ideally be performed in teams of two. You are also allowed to work independently.

The Assignment. This assignment results in a simple Android app. But don't let that make you think that the assignment itself is simple. The assignment is also staged to be increasingly complex for an increasingly higher grade. If you accomplish the basic functionality *and* demonstrate the result to one of the members of the teaching staff, you will get an 80%. If you accomplish the single piece of advanced functionality (and demonstrate it), you can get an additional 5%. The remaining 15% of the points for the assignment will be given *at our discretion*. At the end of this assignment, we will explain how you can go about getting those points.

The Base Assignment. For this assignment, you must create an Android app with some (simple; not required to be fancy) user interface. Through the interface, the user should be able to enter a location in a text box and then press a button to submit that location string as a query to the Google geocoding API. You should use that location to make a query to the Google geocoding API. Upon returning the location coordinates, your app should plot the location on a map. To display the map, you're going to want to use the Android MapView (yes, this is built in to Android) and connect into the Google Maps service.

The First Bonus. To receive an additional 5% points for this assignment, you must choose one additional piece of information returned to you from the Google geocoding call and choose a way to use or display that information in your app. If you use any external resources to complete this assignment, you must clearly cite them.

The Double Bonus. To fill out the remainder of the assignment grade (if you choose, and it's not required), you must choose one or more additional features to add to your app. When you've completed their addition, you should describe what you've done and suggest (and justify) a point value for each additional feature you have. (It could be that you do something so amazingly awesome that you think it's worth all 15%; it could be that you do three relatively reasonable things that are each 5%. Just be sure to make your case. And, no, repeating the first bonus three more times is not going to cut it.)

What to Submit. You should make your code available in a github repository and submit the link. As before, you'll have to submit this link as a comment in your submission since you're also going to have to submit a document associated with your assignment. You should not check into this repository after the due date of the assignment (or your assignment will be considered "late"). You will also need to demo your app. **If you worked with a partner, before submitting, create a "group" for the two of you under People → Android Groups.**

You should also submit a short (less than a page) justification of the bonus portion of your assignment. For any bonus work that you did, you should (briefly) describe the functionality, giving any details you think are pertinent to our assigning a grade. You should also suggest a point value for each bonus portion you complete. The total for this suggested bonus value should not exceed 15%. Obviously, there is no guarantee that we will agree with your allocation of points to features, but we will take your suggestions under advisement.