## CS4301 Android Development

## Spring 2019 Assignment – Contact Manager Phase 4

This is the final part of your contact manager. Do the following:

1. Add the following fields to your existing screen and contact record. Thus your program will have to upgrade the database using the function you provide. For your existing contacts, these fields will be null, although modifying a contact should allow you to update them.
2. Address line 1 and 2
3. City
4. State
5. Zip code
6. Add a button to the contact detail action bar that says, “Map Address.” This will bring up a new Activity with a map showing that address on the map. Since this is your own Activity screen that uses a Google Maps fragment, you will also show the longitude and latitude of that address. How you do this is described below.
7. Use reverse geocoding to get the longitude and latitude of that address. You’ll have to go to the Web site given on the slides and submit the address, then wait for the callback with the JSON string. (JSON is JavaScript Object Notation, a format similar in spirit to XML, which has tags that describe what various components are.)
8. Parse the JSON string into an object so you can retrieve its members. You can use any of the various JSON parsers; you don’t have to do it yourself. There are various longitudes and latitudes in that object, especially for a place like UTD. There is no preference for which one you pick.
9. Retrieve your current location using Location Services
10. Using the formula for the distance between two points on the Earth’s surface, determine how far you are from that address. (Unlike maps, this will not give you a street route, but the linear distance.) The formula is given in the references at the end of the Maps API slide set. Feel free to use this or sample code rather than deriving it yourself. Here is a Wikipedia reference: https://en.wikipedia.org/wiki/Great-circle\_distance

**If you are working with a partner, stay with the same partner for this phase.** Only one person in a group should submit the assignment, but make sure you put the other person’s name in the upload information. Both people will get the same grade unless both agree one should get a different grade. In addition, if you are working with a partner, the names of both people must be in the header comments in each source file and the name of the person who wrote each function must be in the header comments for that function. You may be asked to demonstrate the program’s operation to the TA.

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| **Grading criteria** | |
| Program has the new fields. | 30 points |
| Program properly displays the map and shows the address on the map | 30 points |
| Program retrieves current location and shows distance to the address | 30 points |
| Program comments, including names of authors in functions | 10 points |