ITIS/ITCS 4180/5180 Mobile Application Development
In Class Assignment 10

Basic Instructions:

1. In every file submitted you MUST place the following comments:
   a. Assignment #.
   b. File Name.
   c. Full name of all students in your group.
2. Each student should submit only one assignment. This is a special in class assignment that will be an individual effort and will count as one of the homework assignments.
3. Please download the support files provided with this assignment and use them when implementing your project.
4. Export your Android project as follows:
   a. From eclipse, choose *"Export…"* from the File menu.
   b. From the Export window, choose *General* then *File System*. Click *Next*.
   c. Make sure that your Android project for this assignment is selected. Make sure that all of its subfolders are also selected.
   d. Choose the location you want to save the exported project directory to. For example, your *Desktop* or *Documents* folder.
   e. When exporting make sure you select *Create directory structure for files*.
   f. Click Finish, and then go to the directory you exported the project to. Make sure the exported directory contains all necessary files, such as the .java and resource files.
5. Submission details:
   a. When you submit the assignment, compress your exported Android project into a single zip file. The format of compressed file name is InClassAssignment#.zip
   b. You should submit the assignment through Moodle: Submit the zip file.
6. **Failure to follow the above instructions will result in point deductions.**

In Class Assignment 10 (100 Points)

Notes:

1. The recommended Android Virtual Device (AVD) should have minimum SDK version set to 12 and target SDK at least 17. The app should display correctly on 3.2" QVGA (ADP2) (320x480: mdpi).

In this assignment you will implement a Scavenger Hunt Application for UNC Charlotte. Bar Codes have been placed on entrances of multiple buildings at UNC Charlotte. Each bar code encodes the description of the current building, its location and the description and location of the next building to visit. The scavenger hunt starts and ends at the main entrance to the Woodward Hall building. The data encoded in the bar code is described as follows:

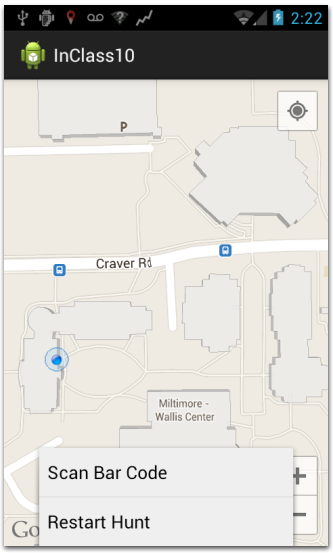
description,lat,lng;description,lat,lng

Current Location Next Location

Figure 1, Bar Code Encoding

You should use the Zebra Crossing library to read the bar codes. To use this library please perform the following steps:

1. On the Android device you will need to install the "Barcode Scanner" app using Google Play. https://play.google.com/store/apps/details?id=com.google.zxing.client.android
2. Download the library "ZXing-2.2.zip" from https://code.google.com/p/zxing/downloads/list
3. Unzip the library file, and copy the files in the "android-integration" folder to your android project.
4. To initiate the barcode scanning using intents follow the steps described in https://code.google.com/p/zxing/wiki/ScanningViaIntent



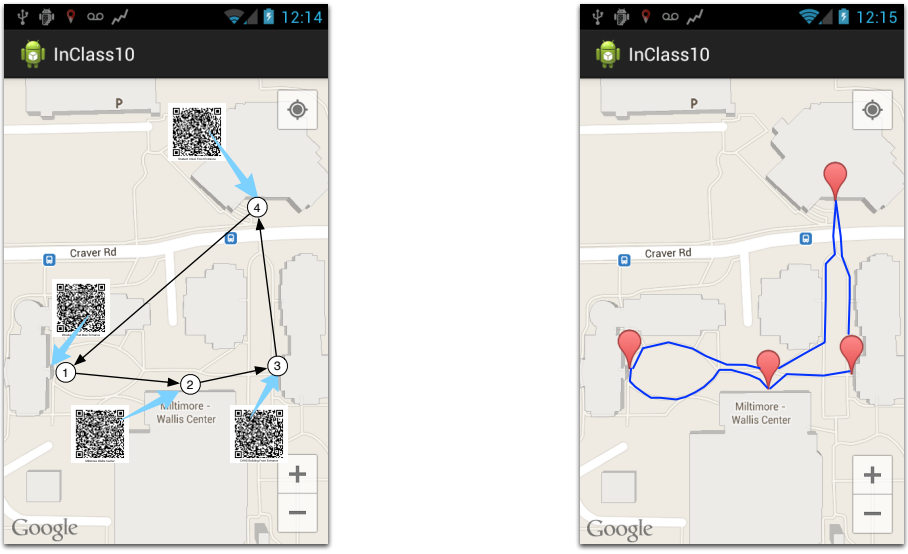
(a) Menu Options

(b) Bar Code Scanning

Figure 2, Main Activity

MainActivity: This app is composed of a single activity. This activity should only display a Google Map Fragment. The activity should provide two menu options, “Scan Bar Code” and “Restart Hunt”. The “Scan Bar Code” option should initiate the scanning of the bar code using the ZXing library. The “Restart Hunt” option should restart the scavenger hunt, and reset the map (clear all the displayed markers and poly-lines). The implementation requirements include:

1. A location manager should be used to retrieve your current location, through activating the location provider (GPS). Make sure to configure the location listener’s minimum distance and time appropriately.
2. Using PolyLine display on the map the path taken so far by the user. The path should be updated periodically when the user’s location changes. For more information about PolyLine: https://developers.google.com/maps/documentation/android/shapes
3. As indicated earlier the bar code indicates both the current location and the next location.
   a. When scanning the **first bar code** display markers for both the current and next locations on the map. The marker title should be the location description provided by the bar code.
   b. When scanning bar codes other than the first bar code you will need to verify that that current location matches the target location scanned earlier. If the current location is not the target location display a Toast message indicating that this is not the correct target location. If the current location is the target location, then display a marker indicating the new target location on the map. For example, if from Fig 3(a), scanning the bar code in location 3 indicates that the current location is 3 and the next location is 4.
4. The scavenger hunt is setup as a cycle where the start and end locations are the same. Upon reaching the end of the scavenger hunt, display a Toast message indicating the game has been successfully completed and disable scanning and location monitoring.



(a) Bar Code Locations (b) Markers and PolyLine

Figure 3, Main Activity