

USC CSci546: Intelligent Embedded Systems (Spring 2010)

Assignment 1: USC Building Database Application

This assignment has the following components:

1. Introduction to Android SDK framework and Eclipse IDE
2. Understanding basic interface and database development using a notepad application tutorial
3. Design and development of an application to store/query buildings on USC campus

(Note: only part 3 will be graded)

1 Introduction to Android SDK and Eclipse IDE

Follow the *Quick Start* instructions on the Android website (<http://developer.android.com/sdk/index.html>) to install Android SDK and the Eclipse plugin. Please ensure

- you download **version 1.6** of Android SDK
- use the AVD manager create a new virtual device to run Android 1.6 with a 1024 MiB SD card and “default” skin to emulate the HTC G1 phones that we will use in the course.

To familiarize yourself with the Eclipse plugin, try out the “Hello World” tutorial at <http://developer.android.com/resources/tutorials/hello-world.html>.

2 Building a Notepad application

Follow the instructions on <http://developer.android.com/resources/tutorials/notepad/index.html> to implement a Notepad application. Exercises 1 and 2 are important for this assignment. They will familiarize you with the SQLite database and using multiple activities.

3 Using SQLite to store/query USC building database

The objective of this assignment is to build a database of the buildings on campus with associated information about each building.

3.1 Parsing the building data file

The building information is provided in the form of a javascript file <http://robotics.usc.edu/~sameera/CS546/assignments/building.data.js>. You can place the building data file into the emulated SD card using the adb tool as follows.

```
adb push <source path> /sdcard/building.data.js
```

Now you can read the file in the emulator and parse it using standard Java methods such as `readLine`, `startsWith`, `indexOf`, and `Split`. Having parsed the data, you can create a database with a single table containing the name, 3 letter code, latitude, longitude and a short description for each building. The SQLite functions to push and pull are similar to the Notepad tutorial.

3.2 Add/Delete/Query the building database

Now build an application that displays the database and allows the user to query and modify it as follows.

- Displays a list of the buildings in the database.
- Has a menu option to add building information.
- Allows the user to search for buildings either by the 3-letter code or (partial) building names.
- When the user selects a building, the associated information is displayed.
- The user should be able to select and delete a building from the database.

4 Submission instructions

- Assignment is due on Jan 25 11:59am.
- You can discuss the assignment but your code should be your own.
- Email a .zip file of your project directory from Eclipse workspace to nimkar@usc.edu
- Code will be evaluated on Android SDK version 1.6

5 Resources

- **Android Discussion Groups:** <http://code.google.com/android/groups.html>
- **CS 546 Mailing List:** cs546usc-s10@googlegroups.com