COMP3074 Fall 2016 Assignment 2

Objective: Practice activities and fragments on Android

Evaluation: This assignment is worth 15% of your final grade

Marking: This assignment will be marked out of 15 points as follows:

- Functionality: the app works on a basic emulator on Android Studio - 5 marks
- Features: as described below - 5 marks
- Quality of the code - 5 marks

Due Date: Nov 5, 2016 by midnight, on Blackboard.

Late submissions: Will be penalized 10% per day until your mark reduces to 0. Even a few minutes after midnight it is considered one day.

Submission format: A zipped copy of the app folder.

Academic Honesty: Your Java code will be checked by software (https://theory.stanford.edu/~aiken/moss/) for authenticity.

App Description: You will create an application that makes use of the acceleration sensor of the phone, and you will learn how to start another activity programmatically. When started, the app (its main activity) should show a text field that shows the current absolute value of the accelerometer (and update it whenever the value changes significantly). When the user shakes the phone, another activity (screen) should open. This activity should contain the information that a shake was detected.

Below are the necessary steps for implementing such an app.

a. Create a new Android Project named Assignment2.

b. Create another Blank Activity with a Fragment by using the respective Android wizard: On the project, select New -> Other... - > Android Activity (in category Android); in the dialog, select the "Blank Activity with Fragment" and continue (select some new names for the activity and its fragment, so that they do not collide with the names for the main activity).

c. For the `PlaceholderFragement` of the main activity, implement and install a `SensorEventListener` when the view opens. You can do that by overriding the `onViewCreated()` method. If your sensor event listener is called `AccelerometerEventListener` you can install it by a code as follows:

```
 sensorManager = (SensorManager)
this.getActivity().getSystemService(Context.SENSOR_SERVICE);
  accelerometerListener = new AccelerometerEventListener();
  sensorManager.registerListener(accelerometerListener,
     sensorManager.getDefaultSensor(Sensor.TYPE_ACCELEROMETER),
     SensorManager.SENSOR_DELAY_NORMAL);
```

The implementation of this listener should track changes of the accelerometer, and when the changes are big enough, update the text view showing the current absolute value of the acceleration — in order to access the textview, the listener could be initialized the textfield that it should update.

d. In addition, the accelerometer listener should also start the new activity with a message saying that a shake was detected. Make sure that the accelerometer starts only one of these dialogs; and resumes updating the sensor and starting the alert activity only after the previous shake alert activity was closed.

   If the class of your alert dialog is called `ShakeAlertActivity`, you can initiate this activity from another activity by the following code snippet using the concept of intents:

```
Intent intent = new Intent(activity, ShakeAlertActivity.class);
 activity.startActivity(intent);
```

Useful resources:

https://developer.android.com/training/basics/fragments/index.html

https://developer.android.com/guide/topics/sensors/sensors_motion.html