Prof. Dr. Peter Thiemann
Matthias Keil   Winter Term 2015

Android Smartphone Programming

Exercise Sheet 7

1 Cast the Dice (20 points)

In this exercise you will create an app that simulates a dice.

This dice should be a 3D-graphic created by using OpenGL ES. It should be possible to cast the dice via touch screen interaction. Whenever the dice is cast, it will rotate, stop, and display a random number between 1 and 6. A sound should be played when the dive rolls (at least once at the beginning or at the end).

Further, extend your application with the possibility that the dice can be cast by using a sensor (gyroscope, acceleration, orientation, or something else). You can choose one of the given sensors.

The following features should be supported in your application.

- Use *OpenGL ES* to draw a 3D-graphic of a dice.

- The dice has to rotate when it is cast. This should include the animation of a rotating dice in at least two (x, y, or z) directions.

- Your dice should react to a touch event and to one sensor event.

- Use the class *MediaPlayer* to play a sound when the dice rolls.

Hint: The implementation of a dice is given on the course page.

Simulation of Sensor Events   To test your application it could be important to simulate gyroscope sensors, which is not possible by using the standard Android Emulator you used before. However, there is an application called *Sensor Simulator*[1] that enables you to simulate various sensors in real time.

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[1] http://code.google.com/p/openintents/wiki/SensorSimulator

Test your Application The Android Emulator now supports native OpenGL ES features[2]. To get support add the GPU emulation hardware property when creating the AVD[3]. A faster alternative to the Android Emulator is the VirtualBox Android Emulator[4], which can easily be used in combination with Eclipse[5].

Submission

Deadline The submission deadline is **15.02.2016, 12:00 (noon)**. Late submissions will not be accepted.

Project Create an *Android Studio Project* (e.g. **exercise7**) for each exercise. Use **androidlab.⟨user⟩.exercise7** as package name. Make sure that your project include all source files.

Report Your solution will consist of a *pdf file* ⟨**user**⟩**_report7.pdf** with a description. The description must be limited to one page per exercise. Submitting more than one page will lead to reduction in points. The description may be either in German or in English. Clear and understandable style is required.

Submission Submit your solution to the subversion repository. Your solution will consist of one *folder* (e.g. **exercise7**) for each exercise which include the project and the report.

You are strongly encouraged to test your solution. Provide your source code with comments to understand the intention. Clear and understandable style is required.

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[2]http://android-developers.blogspot.com/2012/04/faster-emulator-with-better-hardware.html
[3]http://developer.android.com/tools/devices/emulator.html
[4]http://www.howtogeek.com/164570/how-to-install-android-in-virtualbox/
[5]http://marketplace.eclipse.org/content/adbconnect