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## Android Smartphone Programming

<http://proglang.informatik.uni-freiburg.de/teaching/androidpracticum/2017/>

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### 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 dice 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. For further information read the article from the Android developer page: [https://developer.android.com/guide/topics/sensors/sensors\\_overview.html](https://developer.android.com/guide/topics/sensors/sensors_overview.html).

## Submission

**Deadline** The submission deadline is **16.02.2017, 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 zipped project and the report.

Please make use of Android Studio 3.0 function of exporting your project to a Zip File. You are strongly encouraged to test your solution. Provide your source code with comments to understand the intention. Clear and understandable style is required.