
Android Smartphone Programming

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

Exercise Sheet 1

1 Installing Prerequisites

In this exercise you have to set up your development environment for writing and testing Android applications. Google's developer website provides a helpful and detailed step by step installation walk through¹, which you are recommended to look at whenever you don't know how to accomplish a task.

1.1 Android Software Development Kit (SDK)

The IDE used in this course is Android Studio². Whenever you are asked what platform or Android version you should install, choose Android 5.1.

2 Hello Android (5 points)

If you finished the first exercise you should have an working development environment that is needed to accomplish this task. Here you will create a simple "Hello Android"-Application with a GUI and see that there are two different ways to create it.

2.1 Create an Android Virtual Device (AVD)

Before you can run any Android application you need to have a AVD, which describes the target platform an application can run on. To do so open the AVD Manager and create a new Virtual Device. Choose an Android device with 5.1 Lollipop as target and create the AVD.

2.2 Change the GUI

First, insert the following code snippet:

```
1 TextView tv = new TextView(this);
2 tv.setText("Hello Android!");
3 setContentView(tv);
```

Also add `import android.widget.TextView;` to your other package imports.

Run the application to test it. Please note that this step can take pretty long because the whole Android emulator has to be booted.

¹<https://developer.android.com/studio/intro/index.html>

²<https://developer.android.com/studio/index.html>

3 XML-based GUI Design

To use the XML layout you have to change the code again and bring it to the state it was before the changes you did in exercise 2.2. Don't delete anything but make it a comment. The design is now located in a different file called *main.xml*.

Delete the content of the file and enter the following text instead. If you see a graphical layout instead of text, click on the tab called *main.xml*.

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <TextView xmlns:android="http://schemas.android.com/apk/res/android"
3     android:id="@+id/textview"
4     android:layout_width="fill_parent"
5     android:layout_height="fill_parent"
6     android:text="@string/hello"/>
```

This will create the exact same layout as before. The only thing missing is changing the string that will be displayed. The last line indicates what text will be displayed in the TextView, which is a string with the name *hello*. It can be found in the file *strings.xml*. To see that you really did change something, modify the string with name *hello* to something else and run the application again.

Submission

Deadline The submission deadline is **07.11.2017, 12:00 (noon)**. Late submissions will not be accepted.

Project Create an *Android Studio Project* (e.g. **exercise1**) for each exercise. Use **androidlab.<user>.exercise1** as package name. Make sure that your project include all source files.

Report Your solution will consist of a *pdf file* **<user>_report1.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. **exercise1**) 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.