



Technik Mobiler Systeme

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ANDROID Programmierung:

Quick Start

&

Projekt Bestandteile

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Development Tools: ADT Bundle (Alt!)

1. Android-SDK: ca. 1,1 GB
2. Java-Development-Kit: ca. 200 MB
3. Eclipse: ca. 150 MB (und mehr, abhängig von der Ausbaustufe)

Download Java SE Development Kit 6u22 for Windows, Multi-language

Download Information and Files

There is more information on the available files for download on the [Supported System Configurations](#) page.

Instructions: Click the file name to start the download.

Available Files

File Description and Name

Java SE Development Kit 6u22
[jdk-6u22-windows-i586.exe](#)

Notes:

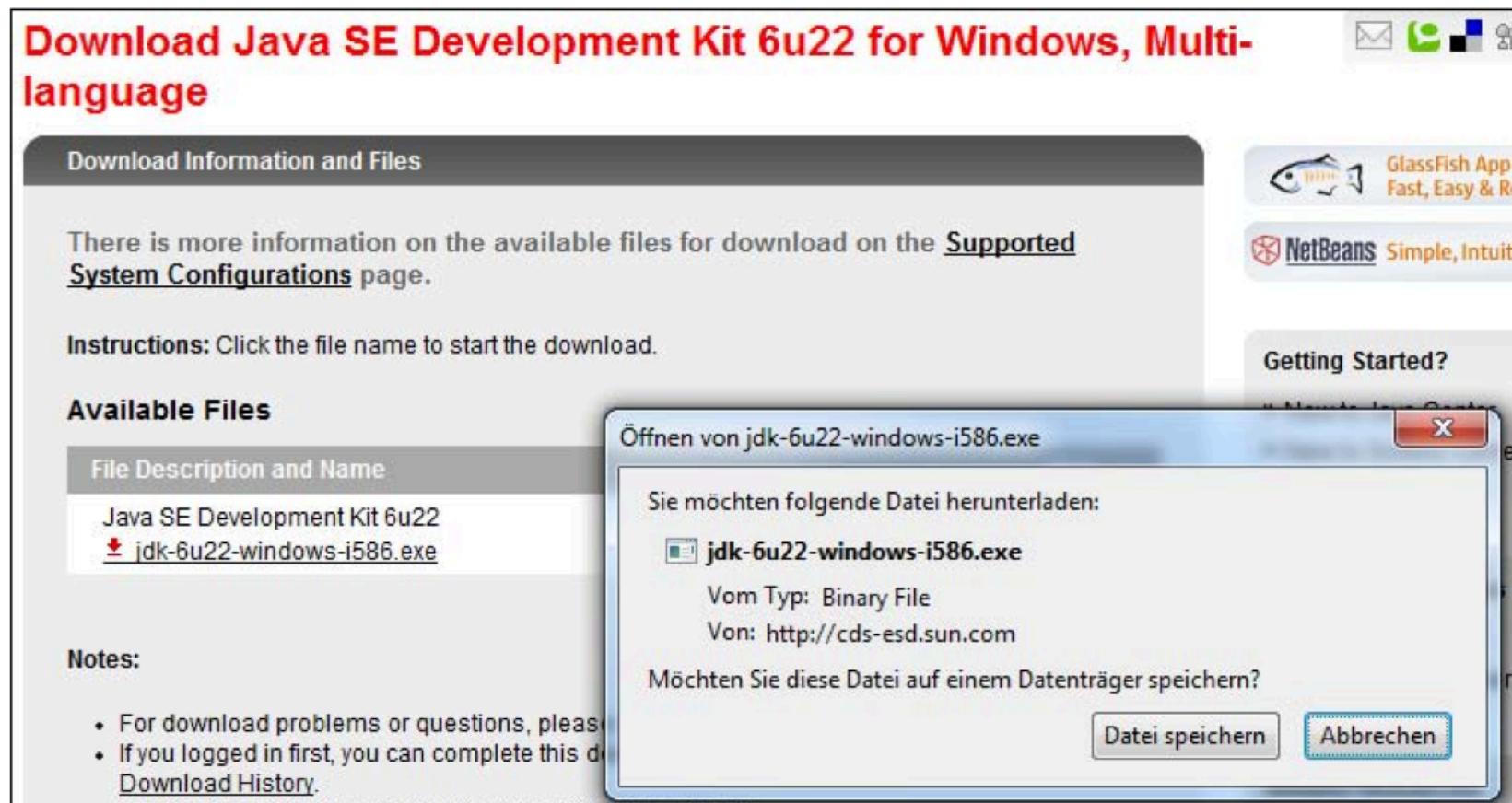
- For download problems or questions, please contact [Customer Support](#).
- If you logged in first, you can complete this download in your [Download History](#).

Öffnen von jdk-6u22-windows-i586.exe

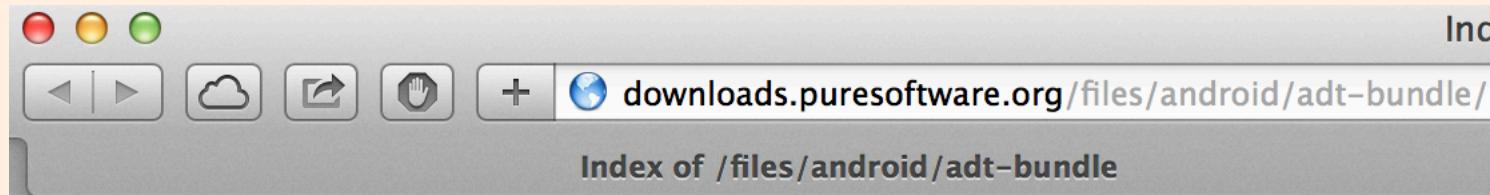
Sie möchten folgende Datei herunterladen:
 jdk-6u22-windows-i586.exe
Vom Typ: Binary File
Von: <http://cds-esd.sun.com>

Möchten Sie diese Datei auf einem Datenträger speichern?

Datei speichern Abbrechen



Quick Start: Development Tools



Index of /files/android/adt-bundle

	<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
	Parent Directory		-	
	adt-bundle-linux-x86-20130219.zip	2013-05-10 09:43	399M	
	adt-bundle-linux-x86_64-20130219.zip	2013-05-28 16:41	400M	
	adt-bundle-mac-x86_64-20130219.zip	2013-04-19 12:02	373M	
	adt-bundle-mac-x86_64-20130522.zip	2013-06-14 15:06	390M	
	adt-bundle-windows-x86-20130219.zip	2013-04-24 16:06	406M	
	adt-bundle-windows-x86-20130522.zip	2013-07-14 01:11	426M	
	adt-bundle-windows-x86-20130717.zip	2013-07-26 18:00	426M	
	adt-bundle-windows-x86-20130729.zip	2013-08-13 04:56	442M	
	adt-bundle-windows-x86_64-20130219.zip	2013-04-21 15:23	406M	

Quick Start: Development Tools

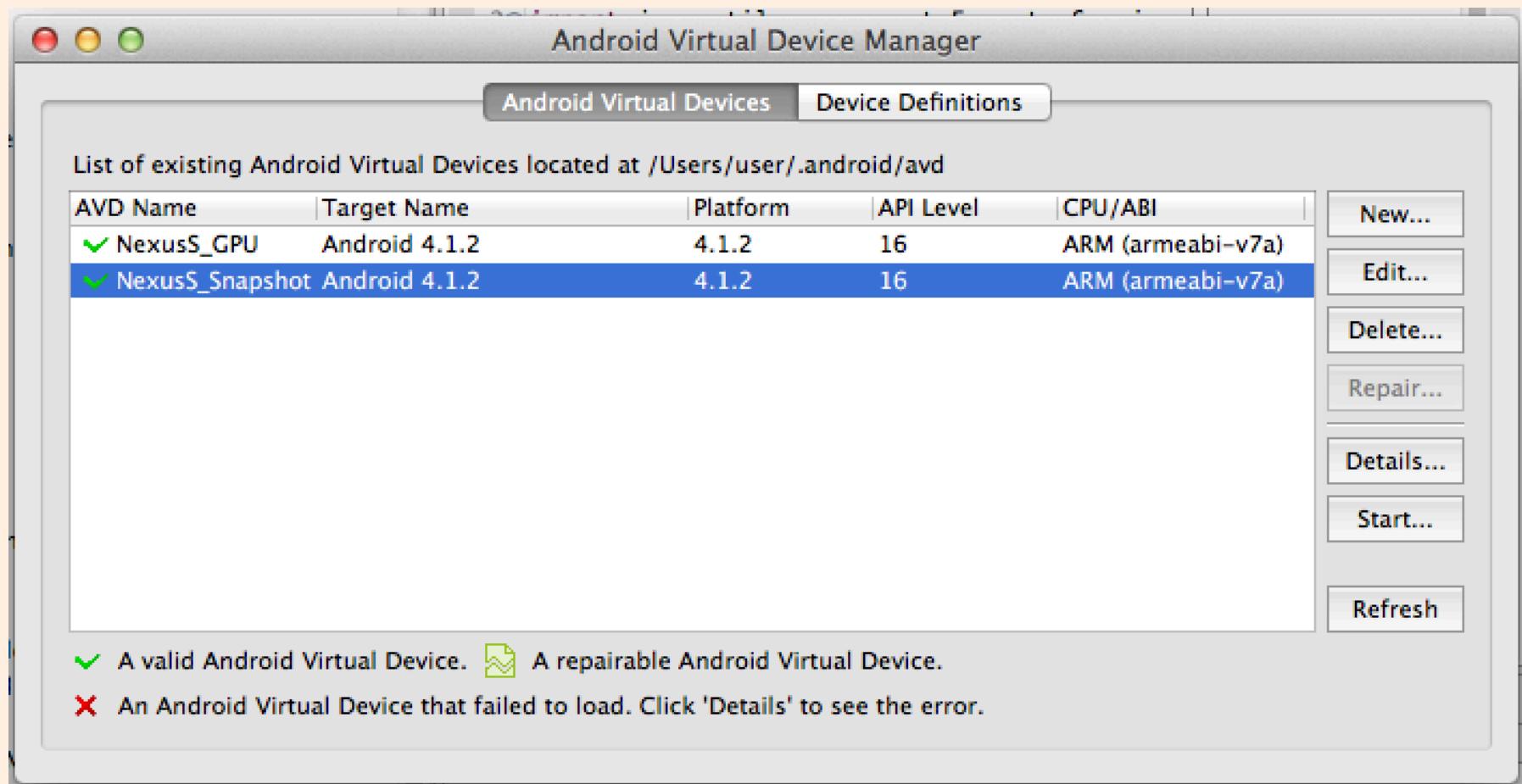
Android SDK Manager

SDK Path: /Users/user/adt-bundle-mac-x86_64/sdk

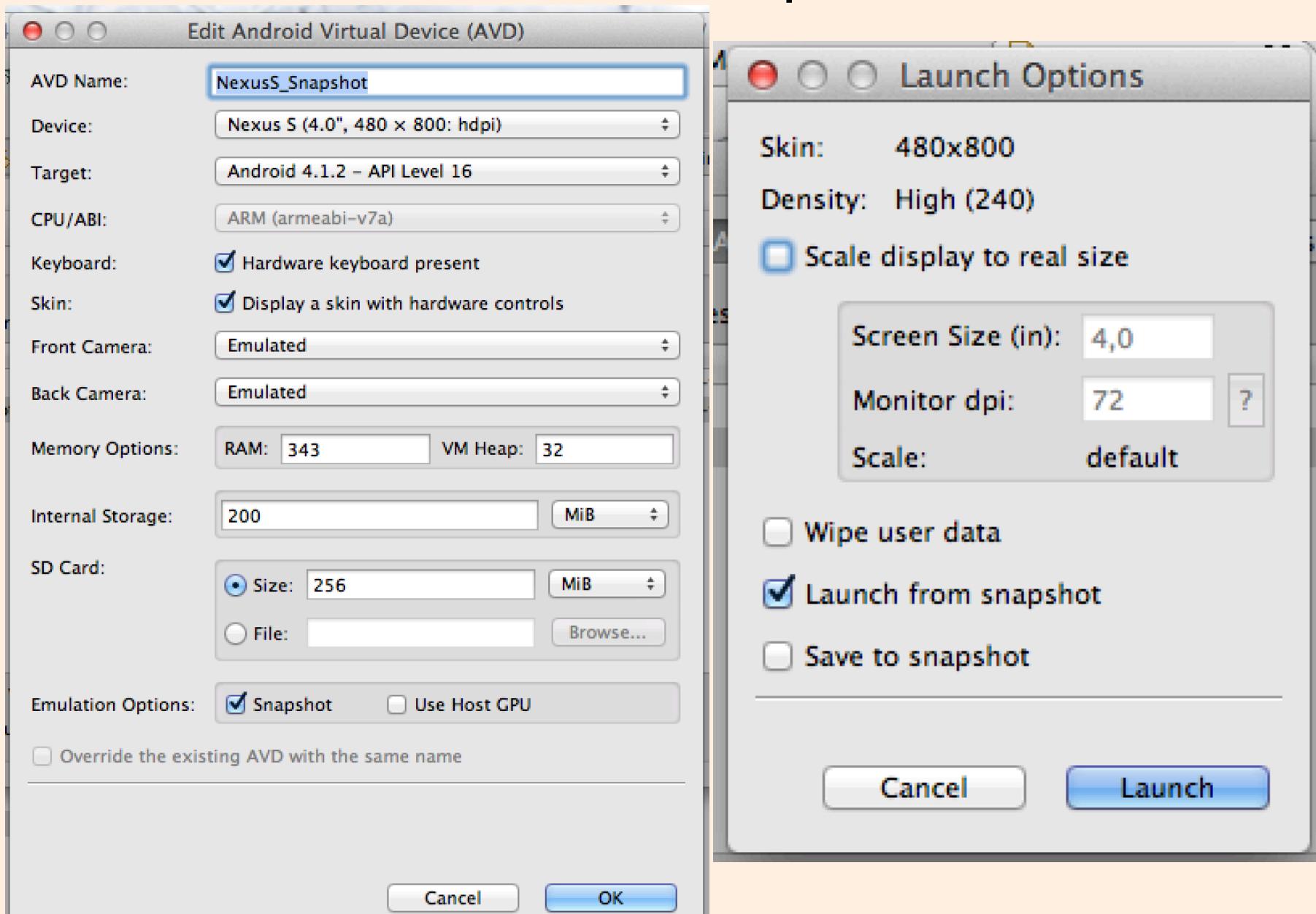
Packages

Name	API	Rev.	Status
Tools			
Android SDK Tools	21.1		Update available: rev. 22
Android SDK Platform-tools	16.0.2		Installed
API 19			
Intel x86 Atom System Image	19	2	Not installed
Google APIs (ARM System Image)	19	3	Not installed
API 18			
Android 4.2.2 (API 17)			
Documentation for Android SDK	17	2	Installed
SDK Platform	17	2	Installed
Samples for SDK	17	1	Installed
ARM EABI v7a System Image	17	2	Installed
Intel x86 Atom System Image	17	1	Not installed
MIPS System Image	17	1	Not installed
Google APIs	17	2	Update available: rev. 3
Sources for Android SDK	17	1	Installed
Android 4.1.2 (API 16)			
SDK Platform	16	4	Installed
Samples for SDK	16	1	Installed
ARM EABI v7a System Image	16	3	Installed
Intel x86 Atom System Image	16	1	Not installed
MIPS System Image	16	4	Not installed
Google APIs	16	3	Installed
Sources for Android SDK	16	2	Installed
Android 4.0.3 (API 15)			
Android 4.0 (API 14)			

Quick Start: Development Tools



Quick Start: Development Tools



Development Tools: Android Studio

- System Requirements (Windows, Linux, Mac OS)
 - 2 GB RAM minimum, 4 GB RAM recommended
 - 400 MB hard disk space
 - At least 1 GB for Android SDK, emulator system images, and caches
 - 1280 x 800 minimum screen resolution
 - Java Development Kit (JDK) 7
 - Optional for accelerated emulator: Intel® processor with support for Intel® VT-x, Intel® EM64T (Intel® 64), and Execute Disable (XD) Bit functionality

Quick Start: the First Project (Eclipse)

New Android Application

Creates a new Android Application

Application Name: ⓘ **FirstApp**

Project Name: ⓘ **FirstApp**

Package Name: ⓘ **net.learn2develop.firstapp**

Minimum Required SDK: ⓘ **API 8: Android 2.2 (Froyo)**

Target SDK: ⓘ **API 17: Android 4.2 (Jelly Bean)**

Compile With: ⓘ **API 17: Android 4.2 (Jelly Bean)**

Theme: ⓘ **Holo Light with Dark Action Bar**

Quick Start: the First Project (Eclipse)

New Android Application

Configure Project

Create custom launcher icon

Create activity

Mark this project as a library

Create Project in Workspace

Location: /Users/user/Documents/workspace/FirstApp

Quick Start: the First Project (Eclipse)

Configure Launcher Icon

Configure the attributes of the icon set

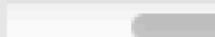
Foreground: Image Clipart Text

Text: firstApp

Font: Helvetica-Bold

Trim Surrounding Blank Space

Additional Padding:



Foreground Scaling: Crop Center

Shape None Square Circle

Background Color:

Foreground Color:

Quick Start: the First Project (Eclipse)

Create Activity

Select whether to create an activity, and if so, what kind of activity.



Create Activity

Blank Activity

Fullscreen Activity

Master/Detail Flow

Blank Activity

Creates a new blank activity, with an action bar and optional navigational elements such as a back button and horizontal swipe.

Activity Name ⓘ MainActivity

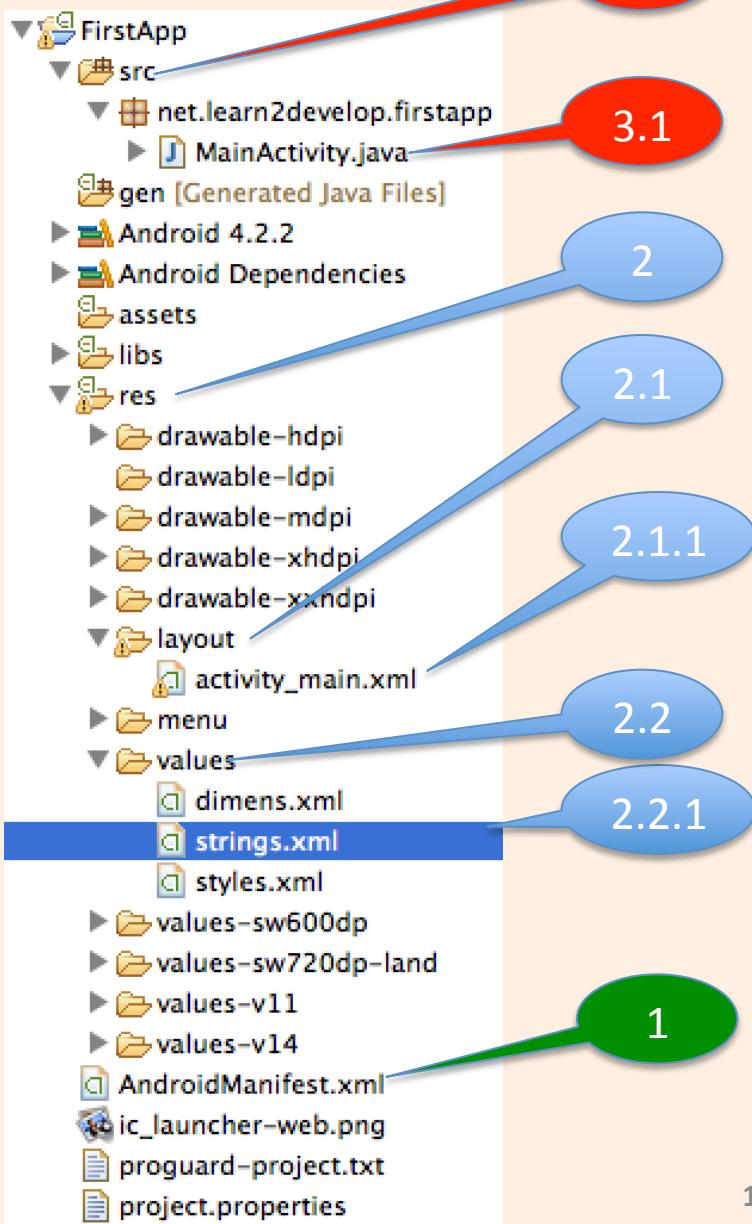
Layout Name ⓘ activity_main

Navigation Type ⓘ None

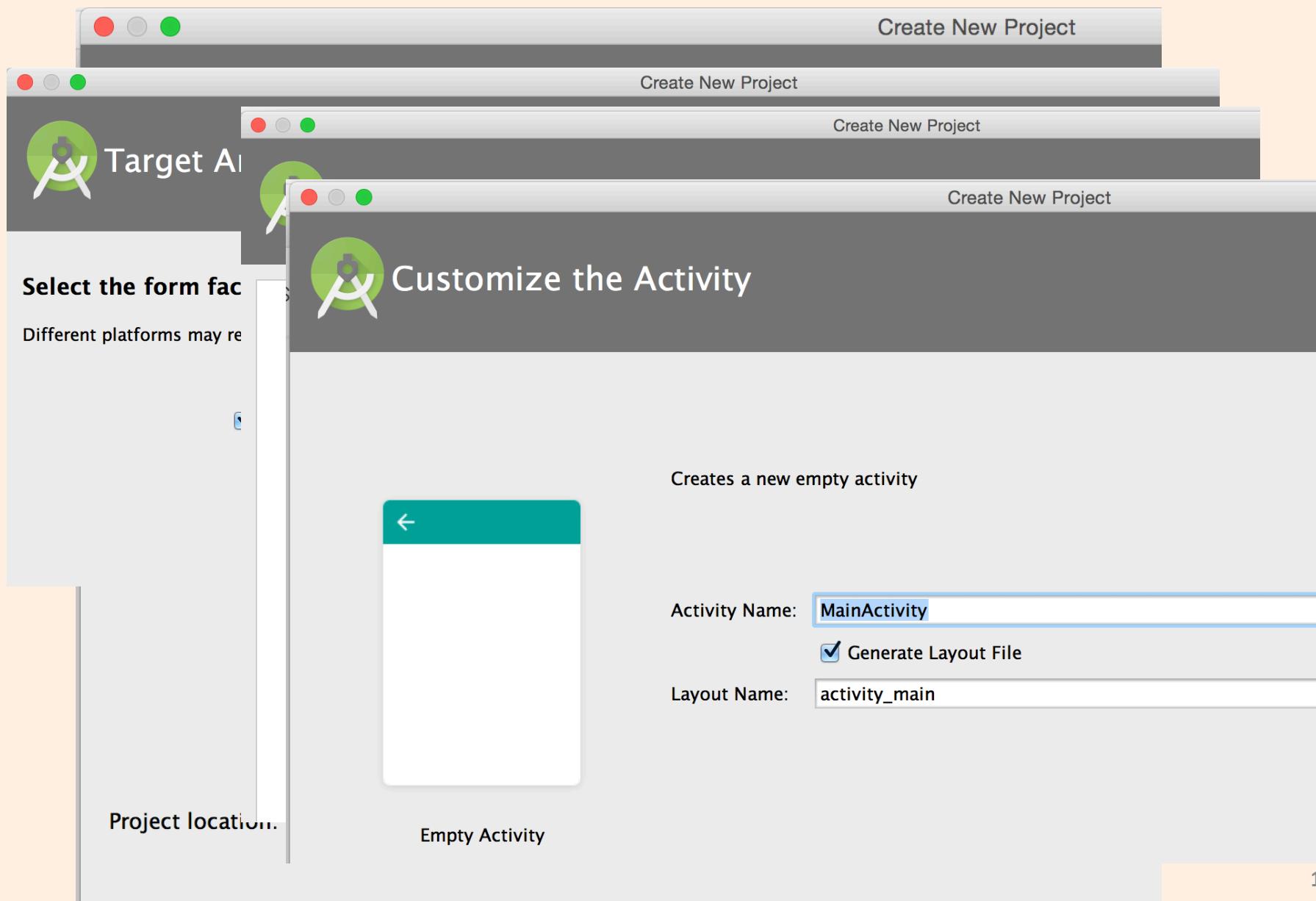
Android App Project Structure (Eclipse)

Die wesentliche Project Bestandteile sind:

- AndroidManifest (1)
- Ressourcen (res 2)
 - layout (2.1)
 - values (2.2)
- Source code (src 3)



Quick Start: the First Project (Android Studio)

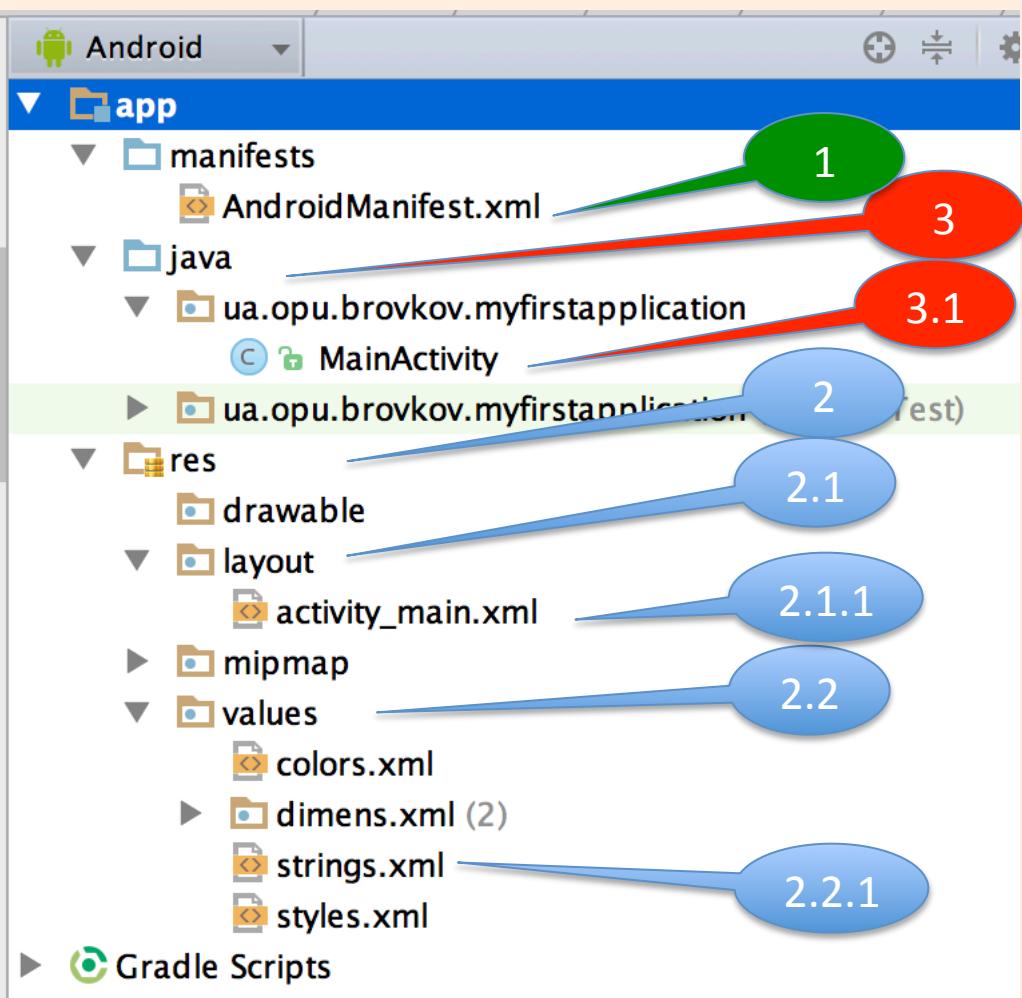


Android App Project Structure (Android Studio)

Die wesentliche Project

Bestandteile sind:

- AndroidManifest (1)
- Ressourcen (res 2)
 - layout (2.1)
 - values (2.2)
 - strings (2.2.1)
- Source code (src 3)



AndroidManifest File (Eclipse)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="net.learn2develop.firstapp"
4     android:versionCode="1"
5     android:versionName="1.0" >
6
7     <uses-sdk
8         android:minSdkVersion="8"
9         android:targetSdkVersion="17" />
10
11 <application
12     android:allowBackup="true"
13     android:icon="@drawable/ic_launcher"
14     android:label="@string/app_name"
15     android:theme="@style/AppTheme" >
16     <activity
17         android:name="net.learn2develop.firstapp.MainActivity"
18         android:label="@string/app_name" >
19         <intent-filter>
20             <action android:name="android.intent.action.MAIN" />
21
22             <category android:name="android.intent.category.LAUNCHER" />
23         </intent-filter>
24     </activity>
25 </application>
26
27 </manifest>
```

AndroidManifest File (Android Studio)

The screenshot shows the Android Studio interface with the AndroidManifest.xml file open in the center. The tab bar at the top has three tabs: activity_main.xml, MainActivity.java, and AndroidManifest.xml. The AndroidManifest.xml tab is active. On the left, there's a tree view showing the structure of the manifest file. The main content area displays the XML code for the manifest.

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="ua.opu.brovkov.myfirstapplication" >

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="MyFirstApplication"
        android:supportsRtl="true"
        android:theme="@style/AppTheme" >
        <activity android:name=".MainActivity" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

AndroidManifest File: Application & Activity

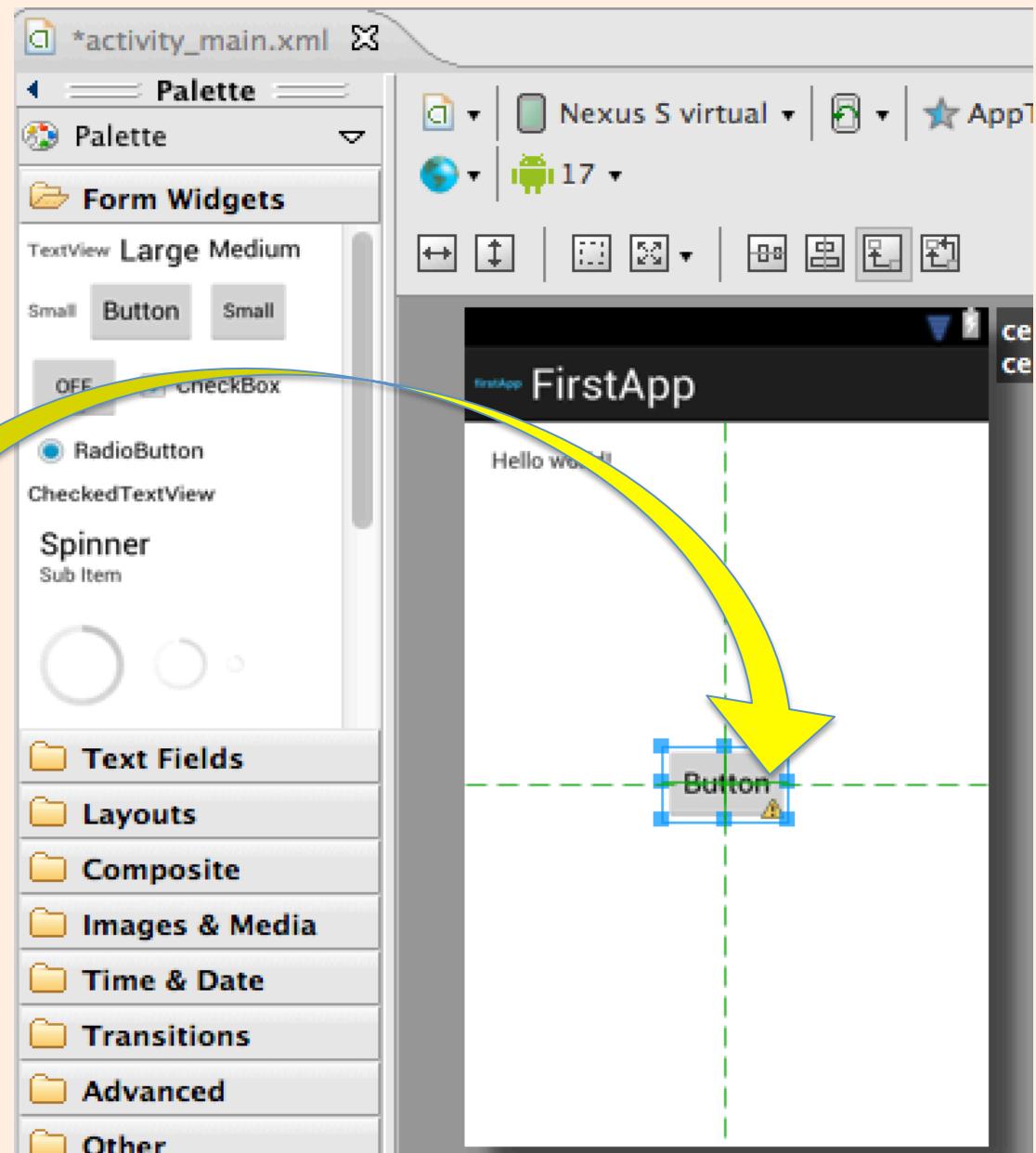
```
<application
    android:allowBackup="true"
    android:icon="@mipmap/ic_launcher"
    android:label="MyFirstApplication"
    android:supportsRtl="true"
    android:theme="@style/AppTheme" >
    <activity android:name=".MainActivity" >
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
</application>
```

Layout

Unsere App

- Nur eine einzige Activity
 - Ein Textfeld
 - Ein Knopf (muss die App beenden)
 - Das Knopf hat eine Fehler Markierung!
 - Text ändern
 - Ressourcen benutzen



res => values => strings



Attributes for btn1 (String)

(S) [Strings](#), with optional simple formatting, can be stored and retrieved as resources. You can add formatting to your string by using three standard HTML tags: b, i, and u. If you use an apostrophe or a quote in your string, you must either escape it or enclose the whole string in the other kind of enclosing quotes.

Name:

Value*:

Button Text

```
*activity_main.xml *strings.xml X
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <string name="app_name">FirstApp</string>
    <string name="action_settings">Settings</string>
    <string name="hello_world">Hello world!</string>
    <string name="btn1">Close</string>
</resources>
```

Button Text

Layout 2

The screenshot shows the Android Studio Graphical Layout editor for the file `activity_main.xml`. The layout consists of a `RelativeLayout` containing a `TextView` with the text "Hello world!" and a `Button` with the text "Close". The button has an `Id` of `@+id/button1`, a style of `android:buttonStyle`, and a text value of `@string/btn1 (Close)`.

Properties Panel Annotations:

- A blue callout points to the `Text` field under `Properties` with the label **Button Text**.
- A red callout points to the `Id` field under `Properties` with the label **Button Id**.

Properties	
Id	<code>@+id/button1</code>
Layout Parameters	
Style	<code>android:buttonStyle</code>
Text	<code>@string/btn1 (Close)</code>
Hint	
Content Description	
TextView	
Text	<code>@string/btn1 (Close)</code>
Hint	
Text Color	<code>@android:color/primary_text_color</code>
Text Color H...	<code>@android:color/hint_foreground_color</code>
Typeface	<code>@font/app_name</code>

*activity_main.xml

```
1 <RelativeLayout xmlns:android="http://schemas.android.com/apk/r
2     xmlns:tools="http://schemas.android.com/tools"
3     android:layout_width="match_parent"
4     android:layout_height="match_parent"
5     android:paddingBottom="@dimen/activity_vertical_margin"
6     android:paddingLeft="@dimen/activity_horizontal_margin"
7     android:paddingRight="@dimen/activity_horizontal_margin"
8     android:paddingTop="@dimen/activity_vertical_margin"
9     tools:context=".MainActivity" >
10
11     <TextView
12         android:layout_width="wrap_content"
13         android:layout_height="wrap_content"
14         android:text="@string/hello_world" />
15
16     <Button
17         android:id="@+id/button1"
18         android:layout_width="wrap_content"
19         android:layout_height="wrap_content"
20         android:layout_centerHorizontal="true"
21         android:layout_centerVertical="true"
22         android:text="@string/btn1" />
23
24 </RelativeLayout>
```

Button Text

Graphical Layout

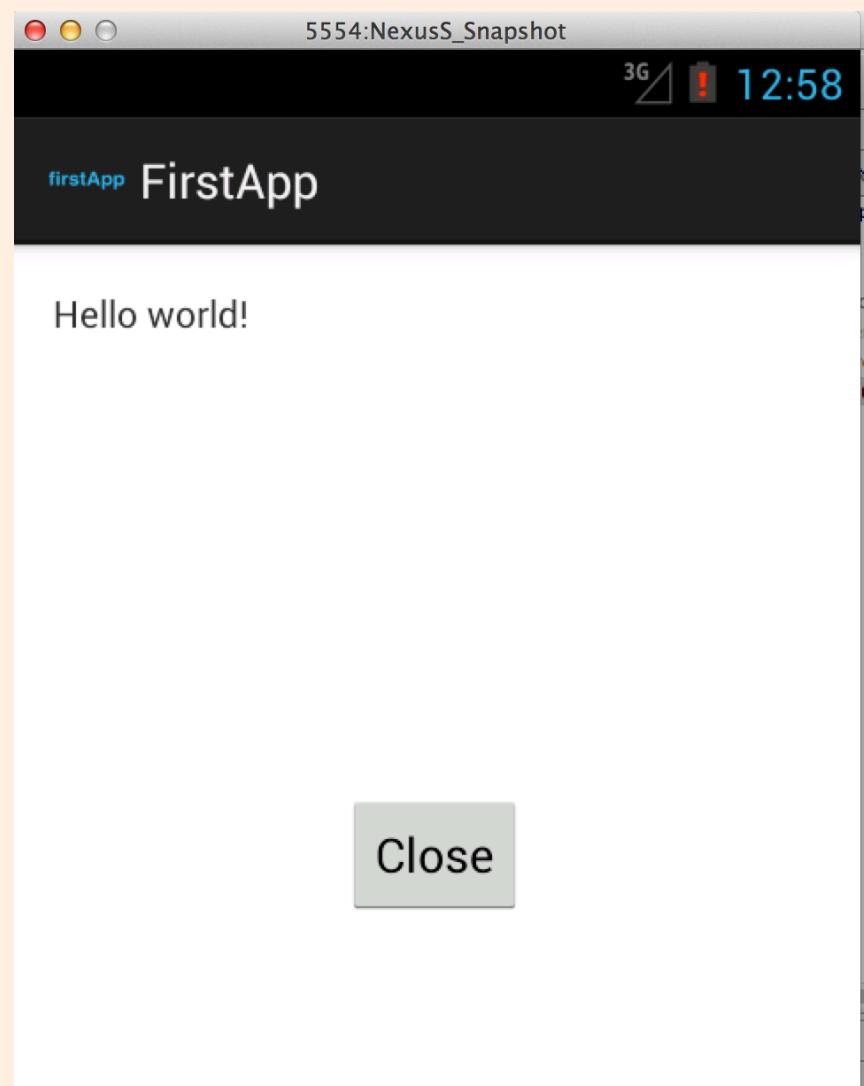
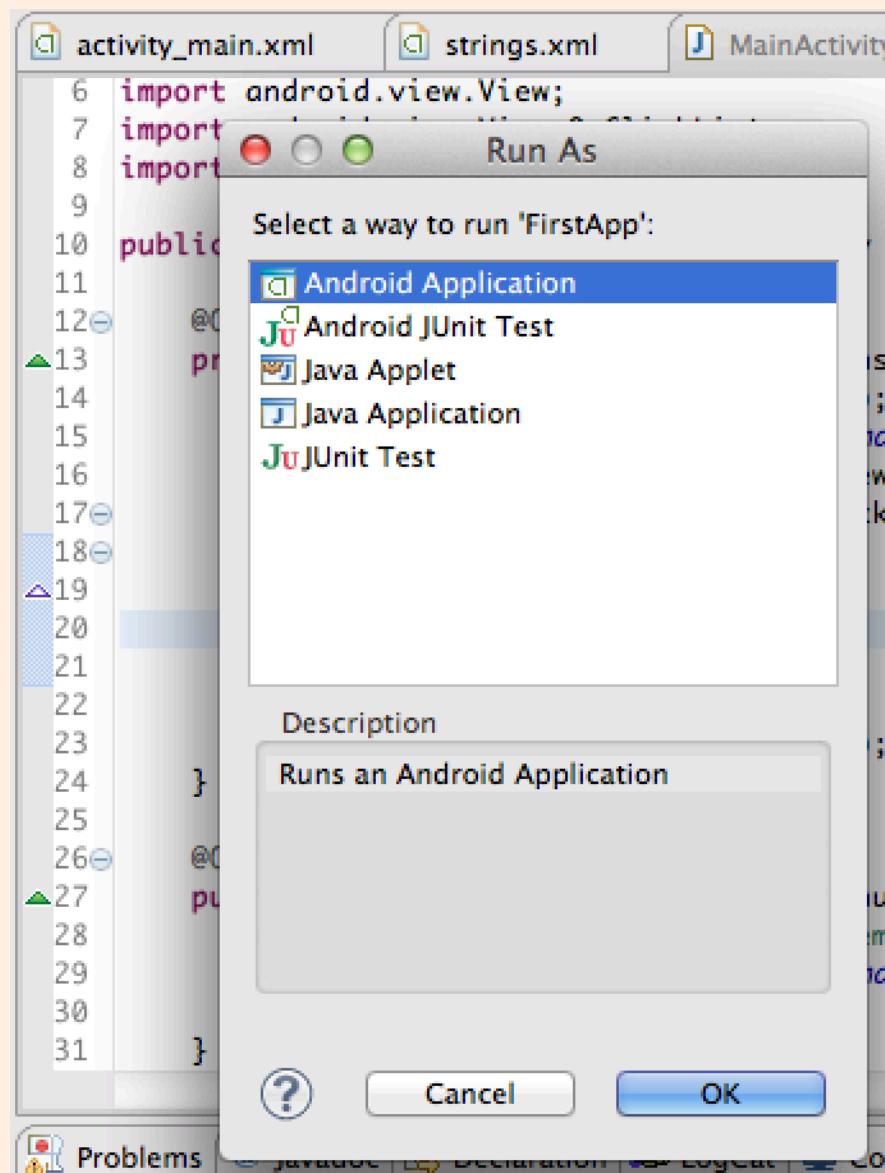
activity_main.xml

MainActivity.java

```
activity_main.xml strings.xml MainActivity.java X
1 package net.learn2develop.firstapp;
2 import android.app.Activity;
3 import android.os.Bundle;
4 import android.view.Menu;
5 import android.view.View;
6 import android.view.View.OnClickListener;
7 import android.widget.Button;
8
9 public class MainActivity extends Activity {
10
11     @Override
12     protected void onCreate(Bundle savedInstanceState) {
13         super.onCreate(savedInstanceState);
14         setContentView(R.layout.activity_main);
15         Button btnClose = (Button) findViewById(R.id.button1);
16         OnClickListener close = new OnClickListener() {
17             @Override
18             public void onClick(View v) {
19                 finish();
20             }
21         };
22         btnClose.setOnClickListener(close);
23     }
24
25     @Override
26     public boolean onCreateOptionsMenu(Menu menu) {
27         // Inflate the menu; this adds items to the action bar if it is present.
28         getMenuInflater().inflate(R.menu.main, menu);
29         return true;
30     }
31 }
```

```
9 public class MainActivity extends Activity {  
10  
11     @Override  
▲12     protected void onCreate(Bundle savedInstanceState) {  
13         super.onCreate(savedInstanceState);  
14         setContentView(R.layout.activity_main);  
15         Button btnClose = (Button) findViewById(R.id.button1);  
16     OnClickListener close = new OnClickListener() {  
17         @Override  
△18         public void onClick(View v) {  
19             finish();  
20         }  
21     };  
22     btnClose.setOnClickListener(close);  
23 }
```

App starten:



Fragen?