Android Design Patterns

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Android Design Patterns

- Layout Elements

- Resources

- Activities

- Hardware Buttons

- Android Manifest

Layout Elements

EditText

```xml
<EditText

android:text="EditText"

android:id="@+id/editText1"

android:layout_height="wrap_content"

android:layout_width="match_parent">

</EditText>
```
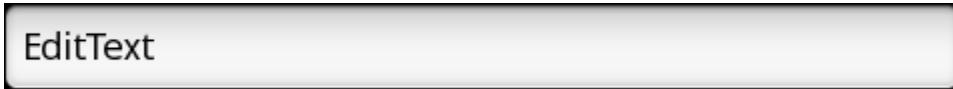
EditText

```
android:inputType="textCapWords"

android:inputType="textCapWords"

android:inputType="number"

android:inputType="textCapSentences"

android:inputType="textPassword"

...
```

Button

```
<Button

android:text="Click me"

android:id="@+id/button1"

android:onClick="button01click">

</Button>
```
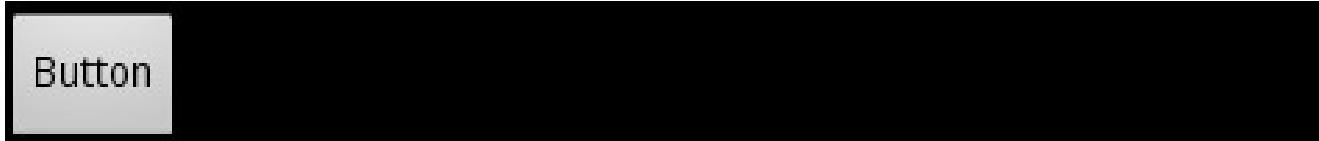
TextView

```
<TextView

android:text="TextView"

android:id="@+id/textView1"

android:layout_width="wrap_content"

android:layout_height="wrap_content">

</TextView>
```

TextView

ToggleButton

```
<ToggleButton

android:textOn="Switched on"

android:textOff="Switched off"

android:checked="true"

...>

</ToggleButton>
```
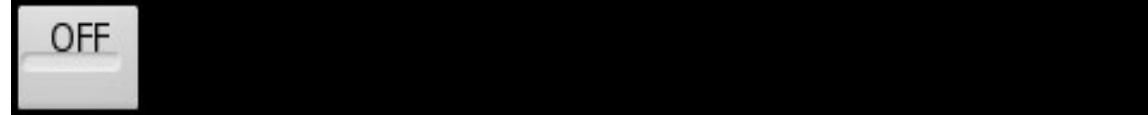
RadioButton

```
<RadioGroup ...>

<RadioButton ...

android:id="@+id/radio0"

android:text="RadioButton"

android:checked="true">

</RadioButton>

<RadioButton ...></RadioButton>

</RadioGroup>
```
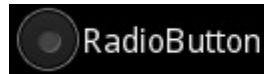
CheckBox

```
<CheckBox

android:text="CheckBox"

android:id="@+id/checkBox1"

android:checked="true"

...>

</CheckBox>
```


CheckBox

RatingBar

```xml
<RatingBar
android:id="@+id/ratingBar1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:rating="3">
</RatingBar>
```

SeekBar

```
<SeekBar

android:id="@+id/seekBar1"

android:layout_height="wrap_content"

android:layout_width="match_parent"

android:progress="50">

</SeekBar>
```

Spinner

```
<Spinner

android:id="@+id/spinner1"

android:layout_height="wrap_content"

android:layout_width="match_parent"

android:entries="@array/cities">

</Spinner>
```


Cologne
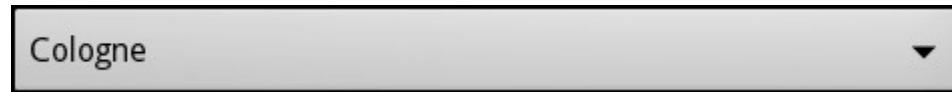
LinearLayout

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:orientation="vertical"
android:layout_width="fill_parent"
android:layout_height="fill_parent">

<TextView android:layout_width="fill_parent"
android:layout_height="wrap_content" android:text="Text 1" />

<TextView android:layout_width="fill_parent"
android:layout_height="wrap_content" android:text="Text 2" />
...
</LinearLayout>
```

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RelativeLayout

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="fill_parent" android:layout_height="fill_parent">
<TextView android:id="@+id/update_me" ... />
<TextView
android:id="@+id/left_wrap"
android:layout_width="wrap_content" android:layout_height="wrap_content"
android:layout_below="@id/update_me" android:text="wrap" />
<TextView
android:id="@+id/right_fill"
android:layout_width="fill_parent" android:layout_height="wrap_content"
android:layout_below="@id/update_me"
android:layout_toRightOf="@id/left_wrap"
android:text="fill" />
</RelativeLayout>
```

Reusing Layouts

```xml
<LinearLayout ...>
<include android:id="@+id/cell1" layout="@layout/menu" />
<LinearLayout ...>
<ListView
android:layout_height="wrap_content"
android:layout_width="fill_parent"
android:id="@+id/items">
</ListView>
...
</LinearLayout>
</LinearLayout>
```

DroidDraw

http://droiddraw.org/
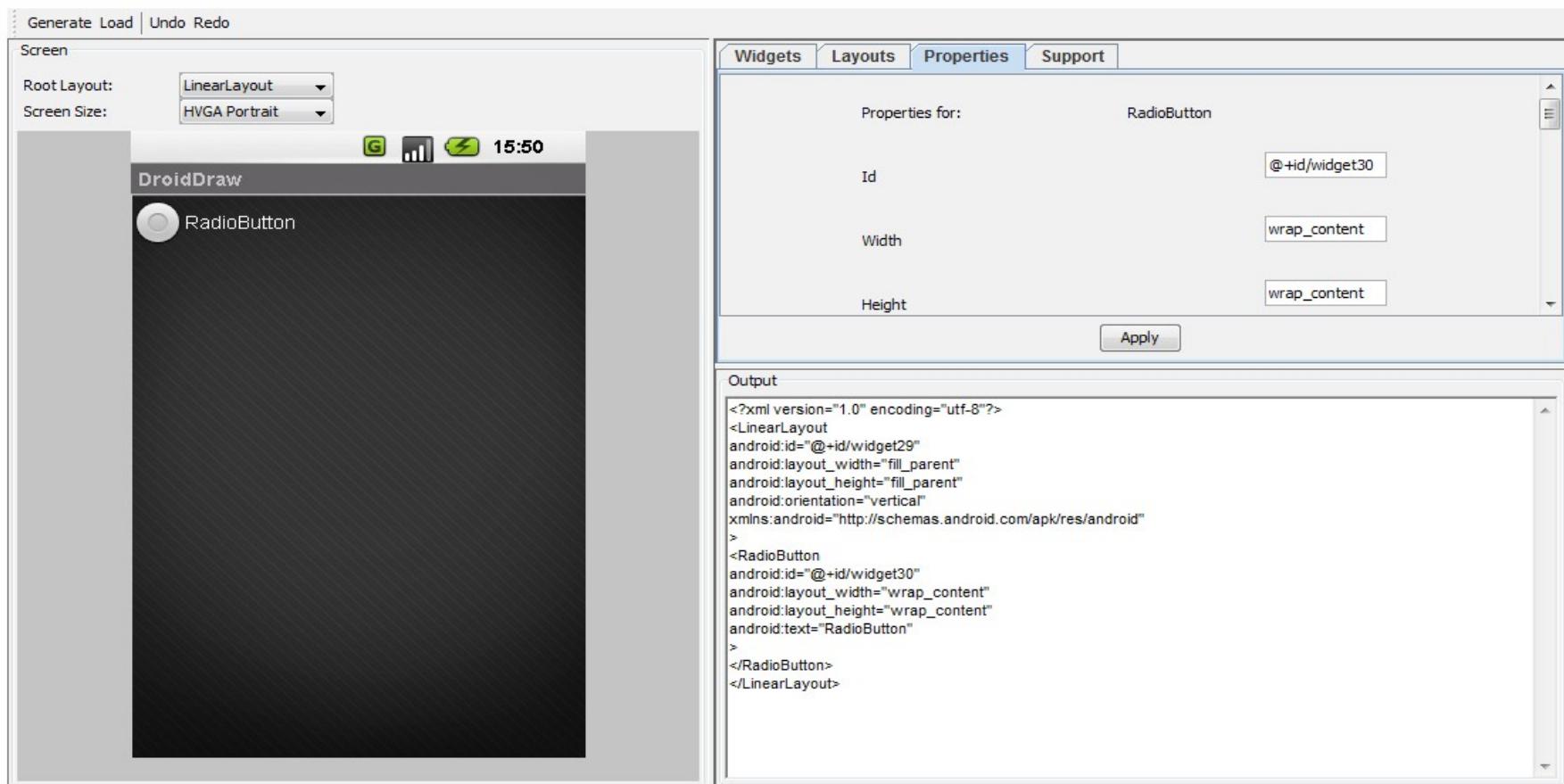
Layout Orientation

- Layout designed according to orientation
- Layout-files for different orientations

- *res/layout-port* for Portrait-orientation
- *res/layout-land* for Landscape-orientation

Other Resources

Strings

res/values/strings.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>

<resources>

<string name="app_name">test</string>

<string name="name">Vorname</string>

</resources>
```

```java
TextView name = (TextView) v.findViewById(R.id.itemName);
name.setText(getString(R.string.name) + ": ");
```

Arrays

res/values/arrays.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
<string-array name="cities">
<item>Cologne</item>
<item>Aachen</item>
<item>Berlin</item>
</string-array>
</resources>
```

Colors

res/values/colors.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
<color name="blue">#0000ff</color>
<color name="red">#ff0000</color>
</resources>
```

```java
TextView name = (TextView) v.findViewById(R.id.itemName);
name.setTextColor(getResources().getColor(R.color.red));
```

L10N

- Create different resource-files
- Save resources for every language in one folder

- *res/values* for default language
- *res/values-{de|en|ja|...}*

Activities

Activity

```java
public class Activity extends ApplicationContext {

protected void onCreate(Bundle savedInstanceState);

protected void onStart();

protected void onRestart();

protected void onResume();

protected void onPause();

protected void onStop();

protected void onDestroy();

}
```

Activities have to be declared in the AndroidManifest.xml

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Activity

```
package de.test;

import android.app.Activity;

import android.os.Bundle;

public class main extends Activity {

    /** Called when the activity is first created. */
    @Override

    public void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.main);

    }

}
```

Intents

Activity 1:

```java
public void onClick(View view) {
    Intent myIntent = new
        Intent(view.getContext(),
        Activity2.class);
    myIntent.putExtra("user","John Doe");
    startActivityForResult(myIntent, 0);
}
```

Intents

Activity 2:

```java
public class Activity2 extends Activity {

@Override

public void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

Intent getIntent = getIntent();

Log.d("test", getIntent.getStringExtra("user").toString());

}

public void close (View view){

finish();

}

}
```

Hardware Buttons

Search Button

```java
@Override
public boolean onKeyDown(int keyCode,
KeyEvent event) {
if (keyCode == KeyEvent.KEYCODE_SEARCH)
{
[do some fancy stuff]
return true;
}
return false;
}
```

Menu Button

- Create menu structure

- *res/menu/menu.xml*

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu
xmlns:android="http://schemas.android.com/apk/res/android">
<group android:id="@+id/group1">
<item android:title="Save" android:id="@+id/item1"
android:icon="@android:drawable/ic_menu_save"></item>
<item android:id="@+id/item2"
android:icon="@android:drawable/ic_menu_preferences"
android:title="Preferences"></item>
</group>
</menu>
```

see http://androiddrawableexplorer.appspot.com/
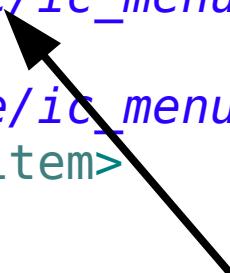
Menu Button

- Override *onCreateOptionsMenu* and *onOptionsItemSelected*

```java
@Override
public boolean onCreateOptionsMenu(Menu menu) {
MenuInflater inflater = getMenuInflater();
inflater.inflate(R.menu.menu, menu);
return true;
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
Toast.makeText(this, "You selected item no " +
item.getItemId(),
Toast.LENGTH_SHORT).show();
return true;
}
```

Save   Preferences
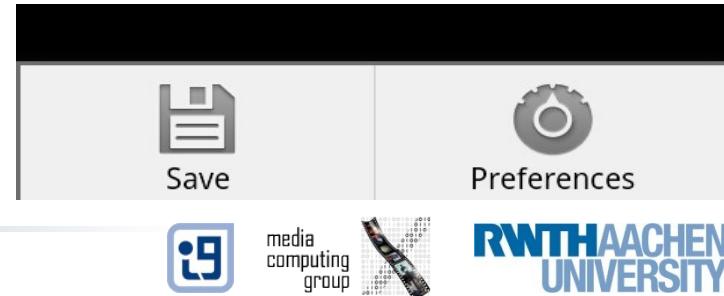
Android Manifest

Auto Generated?

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest
xmlns:android="http://schemas.android.com/apk/res/android"
package="de.test" android:versionCode="1"
android:versionName="1.0">
<uses-sdk android:minSdkVersion="7" />

<application android:icon="@drawable/icon"
android:label="@string/app_name">
<activity android:name=".main"
android:label="@string/app_name">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>

</application>
</manifest>
```

Activities

```
<activity android:label="@string/app_name"
android:name="main">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category
android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
<activity
android:label="@string/user"
android:name=".user">
</activity>
```

Permissions

```
<uses-permission
android:name="android.permission.INTERNET">
</uses-permission>
<uses-permission
android:name="android.permission.ACCESS_FINE_LOCATION">
</uses-permission>
<uses-permission
android:name="android.permission.ACCESS_NETWORK_STATE">
</uses-permission>
...
```

Eclipse Shortcuts

Ctrl+Shift+O: Organize Imports

Ctrl+Shift+F: Reformat Sourcecode

Ctrl+F11:   Run Application

Problems building application?
Try *Project > Clean...*