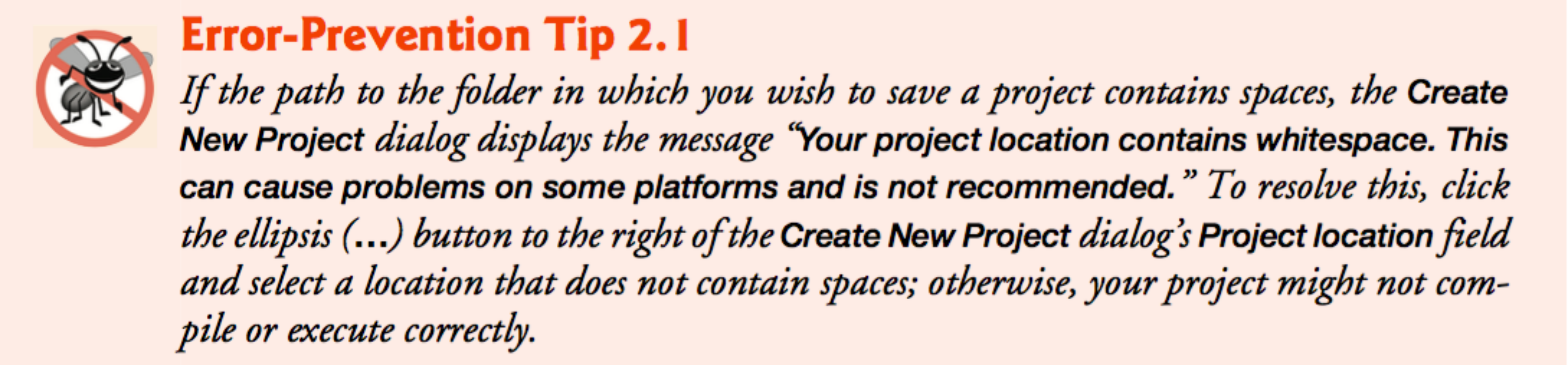
TipCalculator

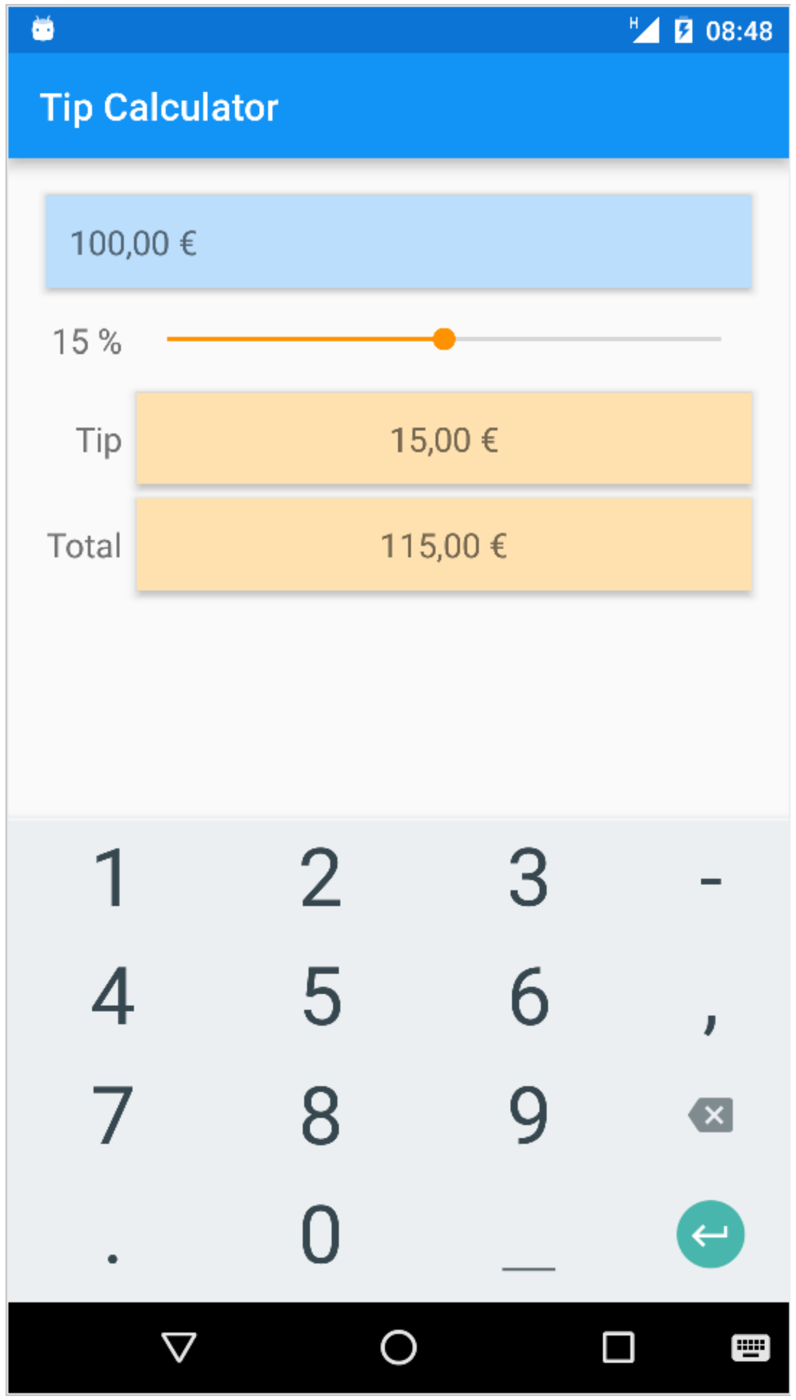
Berechne das Trinkgeld



Error-Prevention Tip 2.1

If the path to the folder in which you wish to save a project contains spaces, the **Create New Project** *dialog displays the message "***Your project location contains whitespace. This can cause problems on some platforms and is not recommended.***" To resolve this, click the ellipsis (***...***) button to the right of the* **Create New Project** *dialog's* **Project location** *field and select a location that does not contain spaces; otherwise, your project might not compile or execute correctly.*

Fertige Applikation



08:48

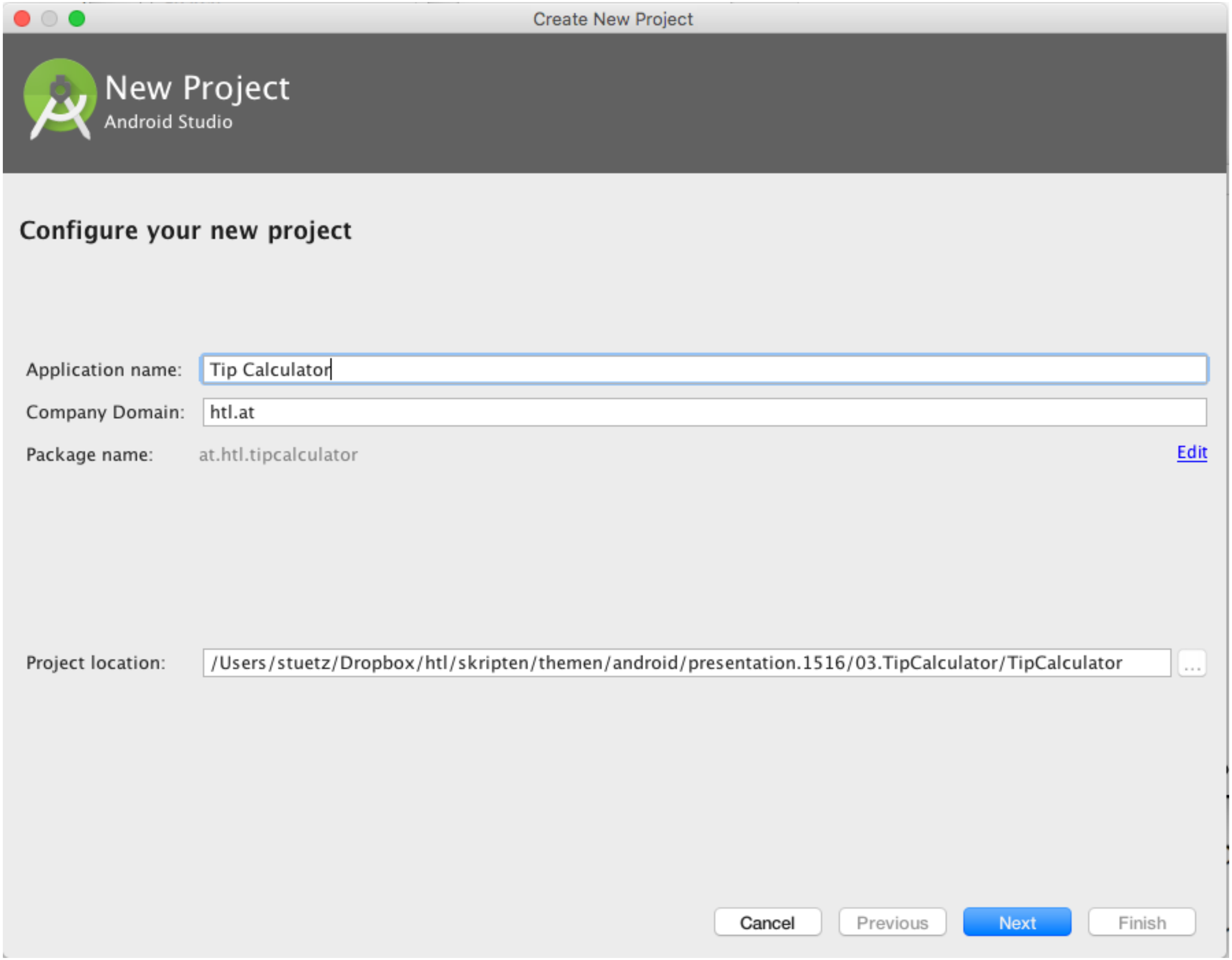
Tip Calculator

100,00 €

15 %

Tip 15,00 €

Total 115,00 €



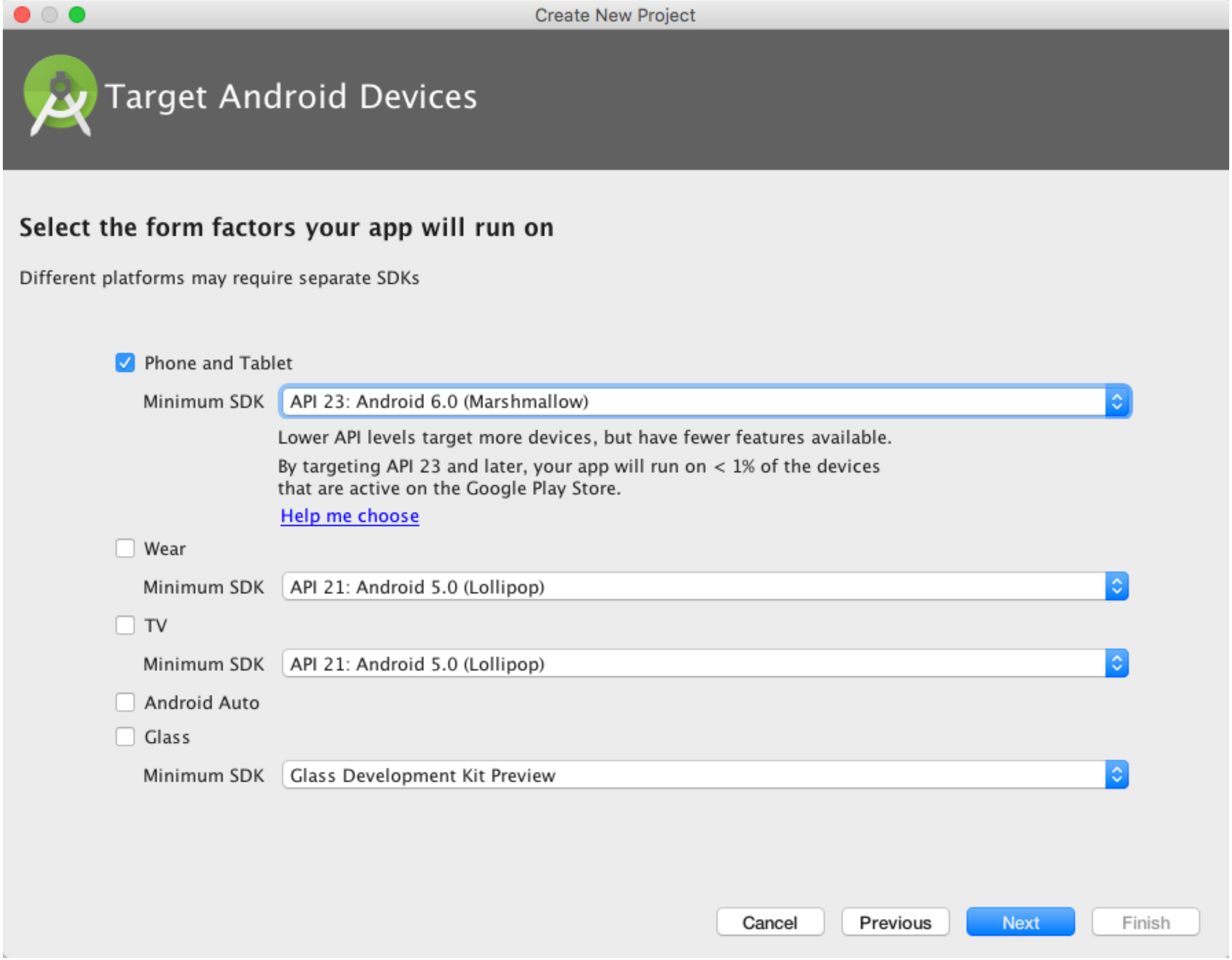
Configure your new project

Application name: Tip Calculator

Company Domain: htl.at

Package name: at.htl.tipcalculator

Project location: /Users/stuetz/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator



Target Android Devices

Select the form factors your app will run on

Different platforms may require separate SDKs

☑ Phone and Tablet

Minimum SDK: API 23: Android 6.0 (Marshmallow)

Lower API levels target more devices, but have fewer features available.

By targeting API 23 and later, your app will run on < 1% of the devices that are active on the Google Play Store.

Help me choose

□ Wear

Minimum SDK: API 21: Android 5.0 (Lollipop)

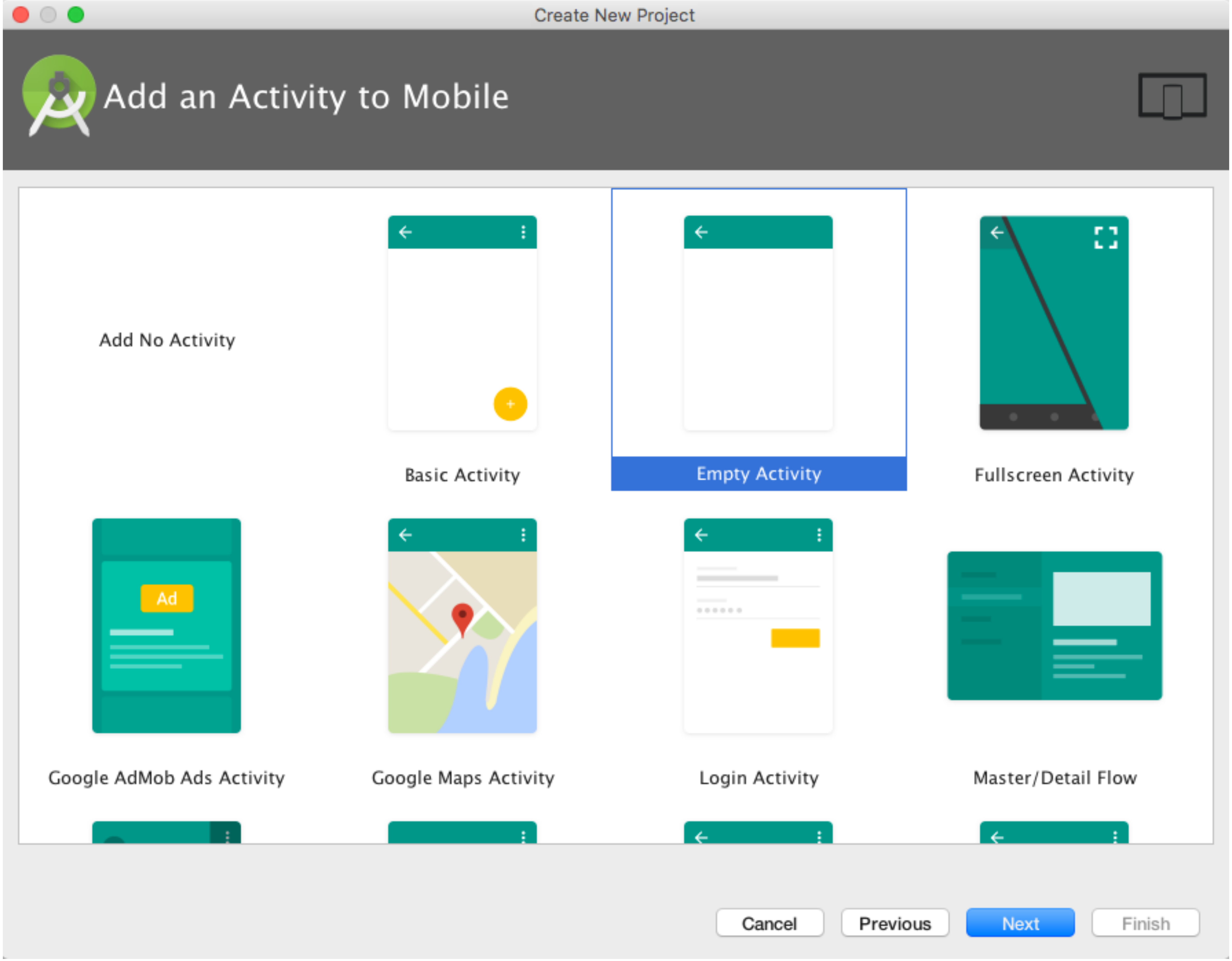
□ TV

Minimum SDK: API 21: Android 5.0 (Lollipop)

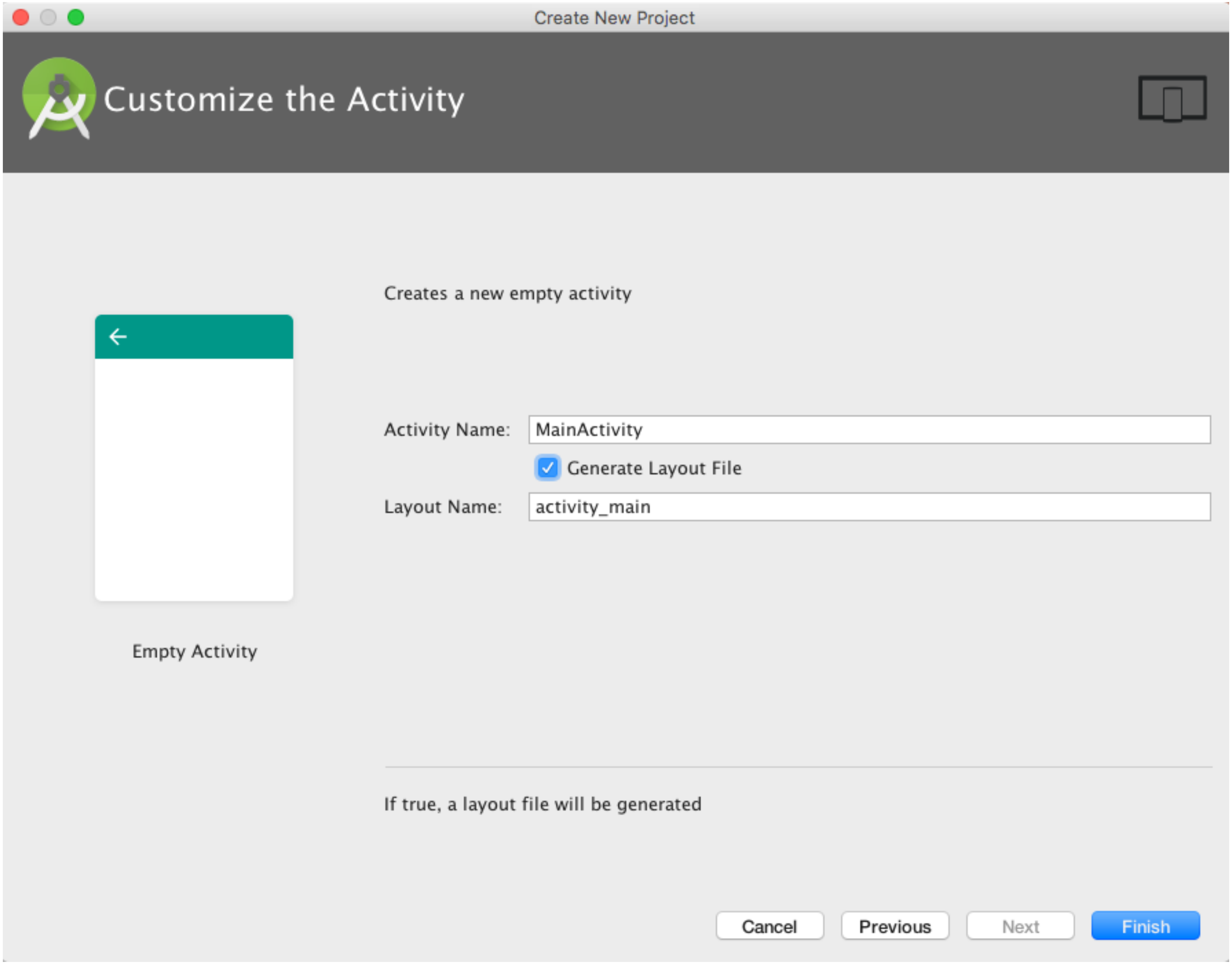
□ Android Auto

□ Glass

Minimum SDK: Glass Development Kit Preview



Create New Project
Add an Activity to Mobile
Add No Activity
Basic Activity
Empty Activity
Fullscreen Activity
Ad
Google AdMob Ads Activity
Google Maps Activity
Login Activity
Master/Detail Flow
Cancel
Previous
Next
Finish



Customize the Activity

Creates a new empty activity

Activity Name: MainActivity

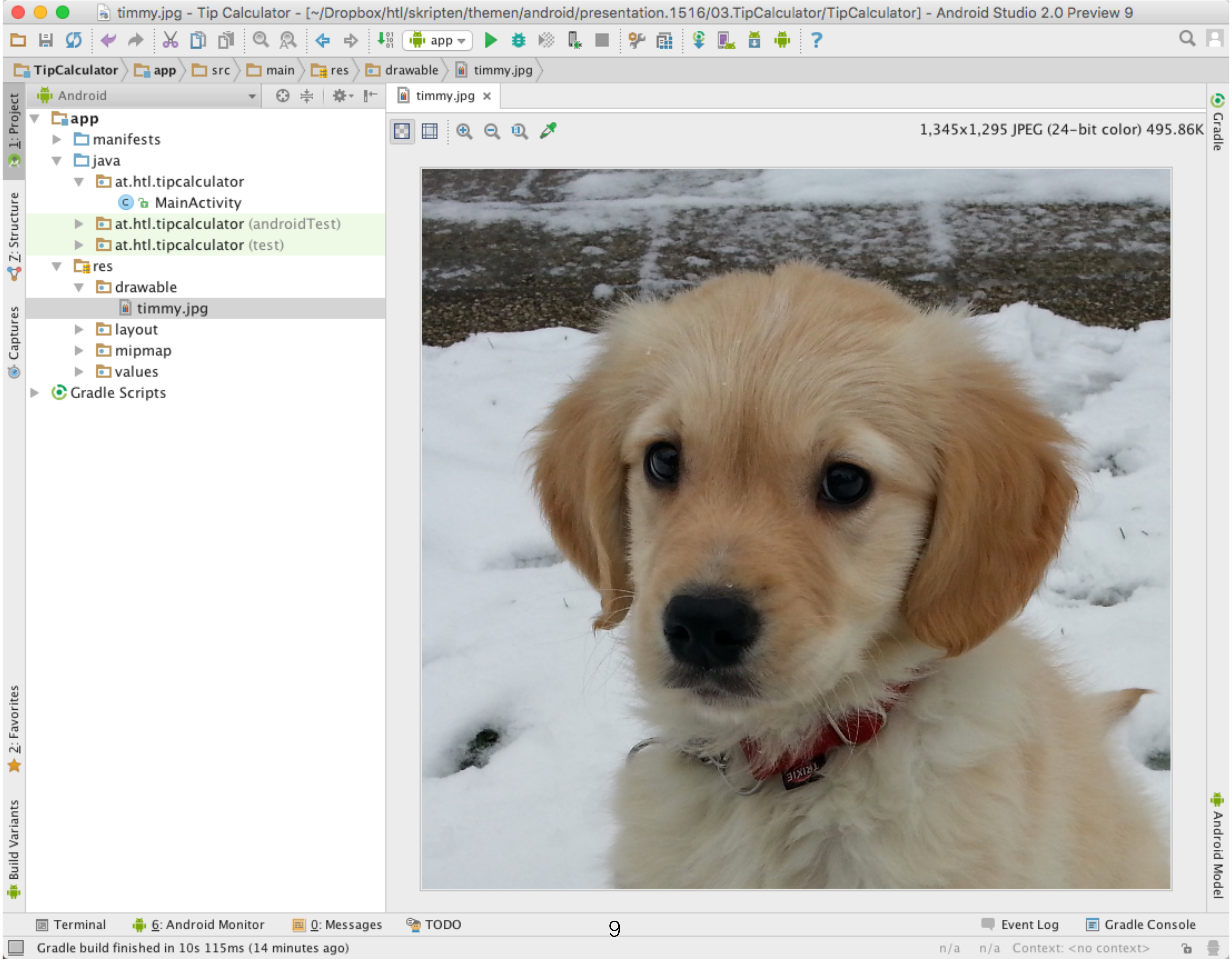
☑ Generate Layout File

Layout Name: activity_main

If true, a layout file will be generated

App Icon erstellen

- Bilddatei nach res/drawable kopieren
- Rechte Maustaste auf res
- New > Image Asset
- Nun kann mit dem **Asset Studio** eine mipmap erstellt werden https://en.wikipedia.org/wiki/Mipmap



timmy.jpg - Tip Calculator - [~/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator] - Android Studio 2.0 Preview 9

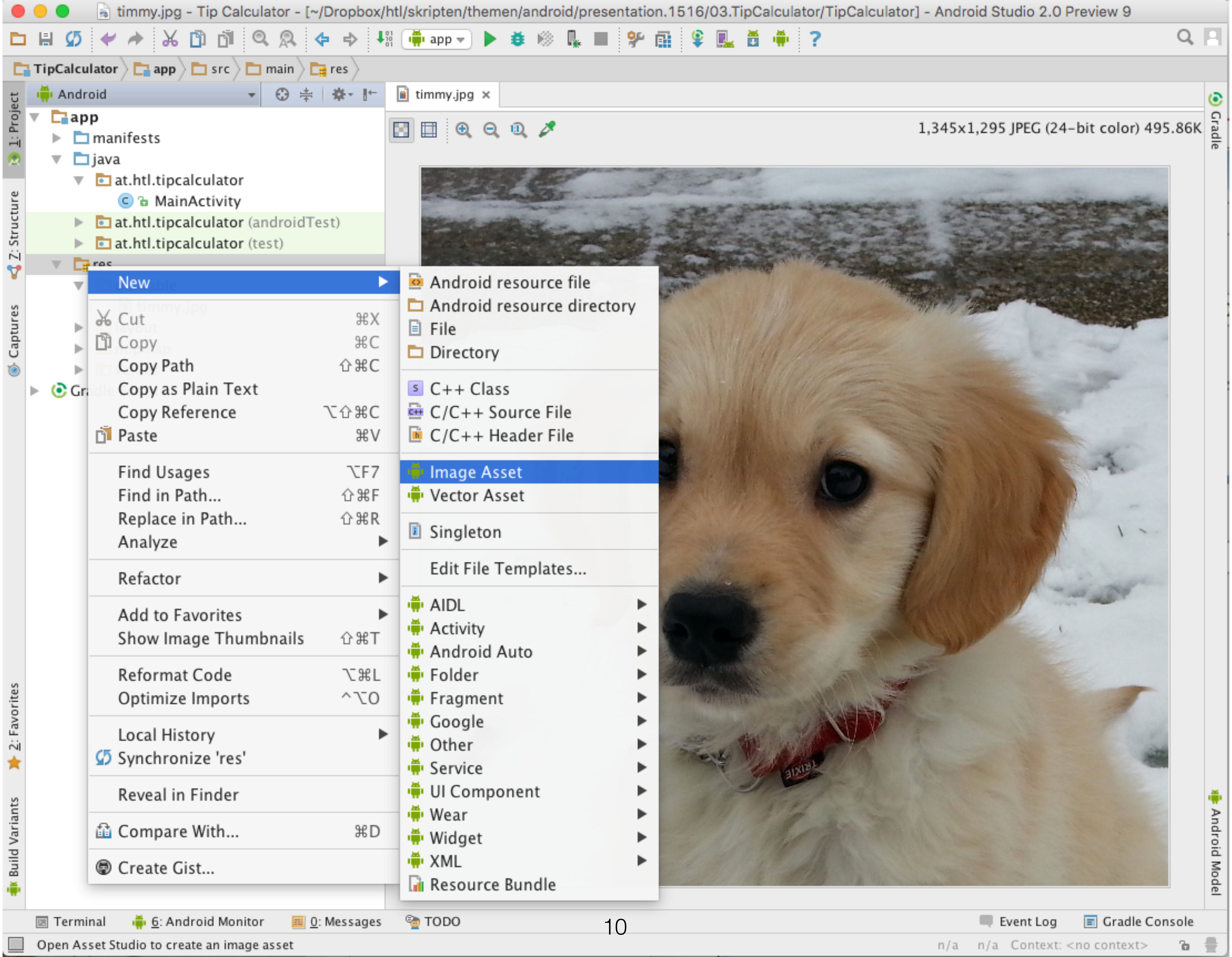
TipCalculator > app > src > main > res > drawable > timmy.jpg

```
Android
▼ app
  ▶ manifests
  ▼ java
    ▼ at.htl.tipcalculator
        MainActivity
    ▶ at.htl.tipcalculator (androidTest)
    ▶ at.htl.tipcalculator (test)
  ▼ res
    ▼ drawable
        timmy.jpg
    ▶ layout
    ▶ mipmap
    ▶ values
▶ Gradle Scripts
```

timmy.jpg

1,345x1,295 JPEG (24-bit color) 495.86K

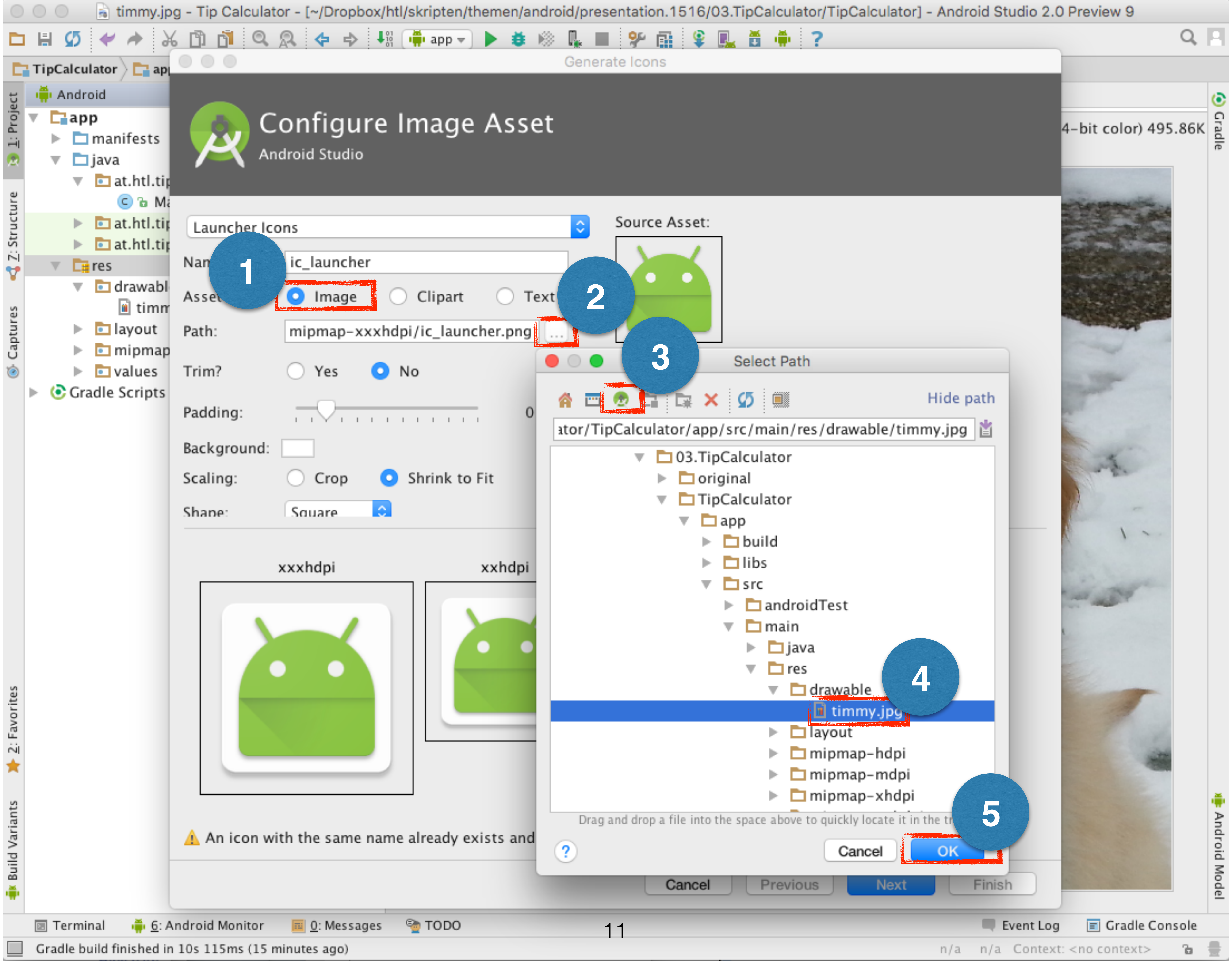
Gradle build finished in 10s 115ms (14 minutes ago)



timmy.jpg - Tip Calculator - [~/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator] - Android Studio 2.0 Preview 9

1,345x1,295 JPEG (24-bit color) 495.86K

Open Asset Studio to create an image asset



timmy.jpg - Tip Calculator - [~/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator] - Android Studio 2.0 Preview 9

Generate Icons

Configure Image Asset
Android Studio

Launcher Icons

Name: ic_launcher

Asset Type: ● Image ○ Clipart ○ Text

Path: mipmap-xxxhdpi/ic_launcher.png ...

Trim? ○ Yes ● No

Padding: 0

Background:

Scaling: ○ Crop ● Shrink to Fit

Shape: Square

Source Asset:

xxxhdpi xxhdpi

⚠ An icon with the same name already exists and

Select Path

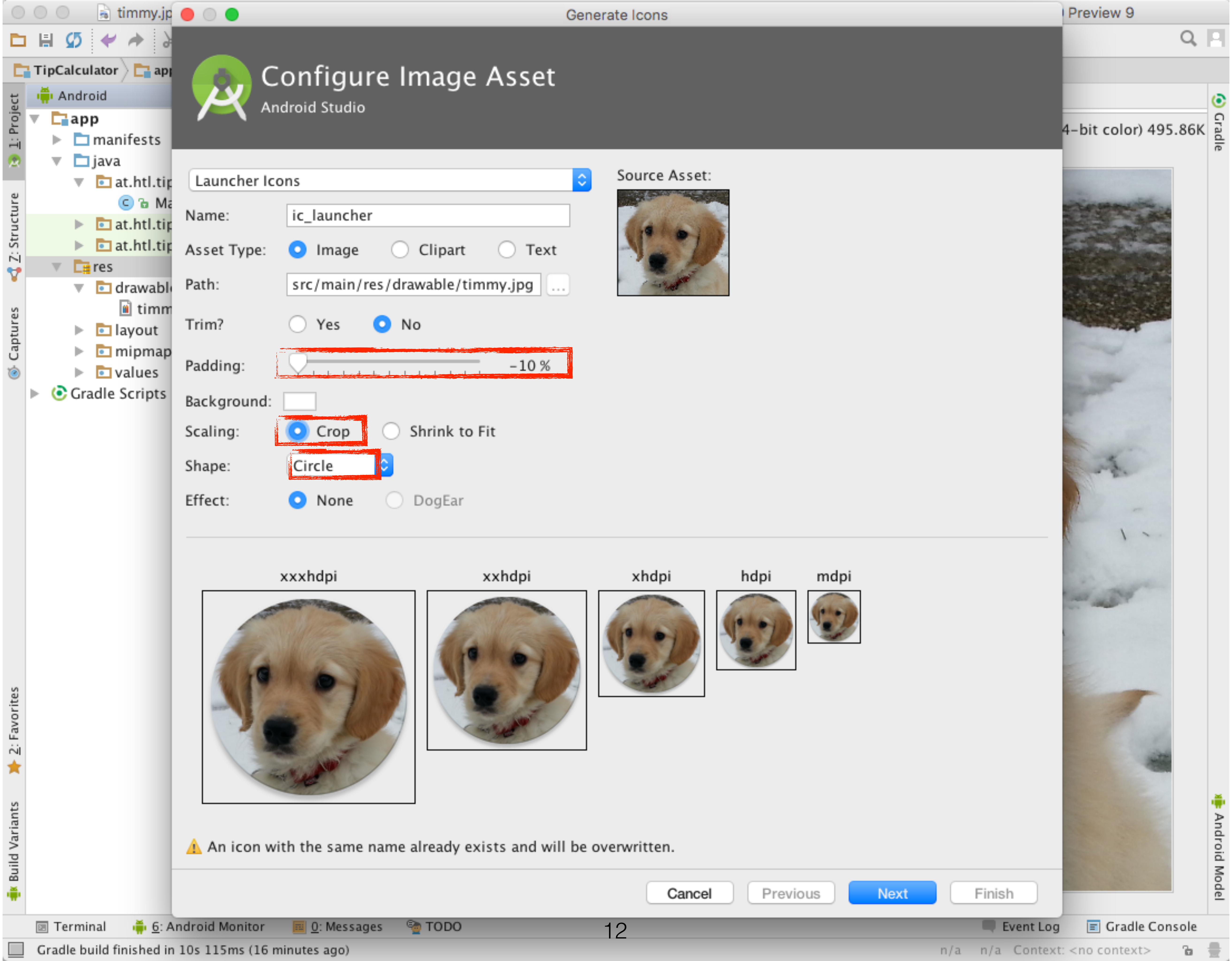
Hide path

ator/TipCalculator/app/src/main/res/drawable/timmy.jpg

```
03.TipCalculator
  original
  TipCalculator
    app
      build
      libs
      src
        androidTest
        main
          java
          res
            drawable
              timmy.jpg
            layout
            mipmap-hdpi
            mipmap-mdpi
            mipmap-xhdpi
```

Drag and drop a file into the space above to quickly locate it in the tr

Gradle build finished in 10s 115ms (15 minutes ago)



Generate Icons

Configure Image Asset

Android Studio

Launcher Icons

Name: ic_launcher

Asset Type: ● Image ○ Clipart ○ Text

Path: src/main/res/drawable/timmy.jpg ...

Trim? ○ Yes ● No

Padding: -10 %

Background:

Scaling: ● Crop ○ Shrink to Fit

Shape: Circle

Effect: ● None ○ DogEar

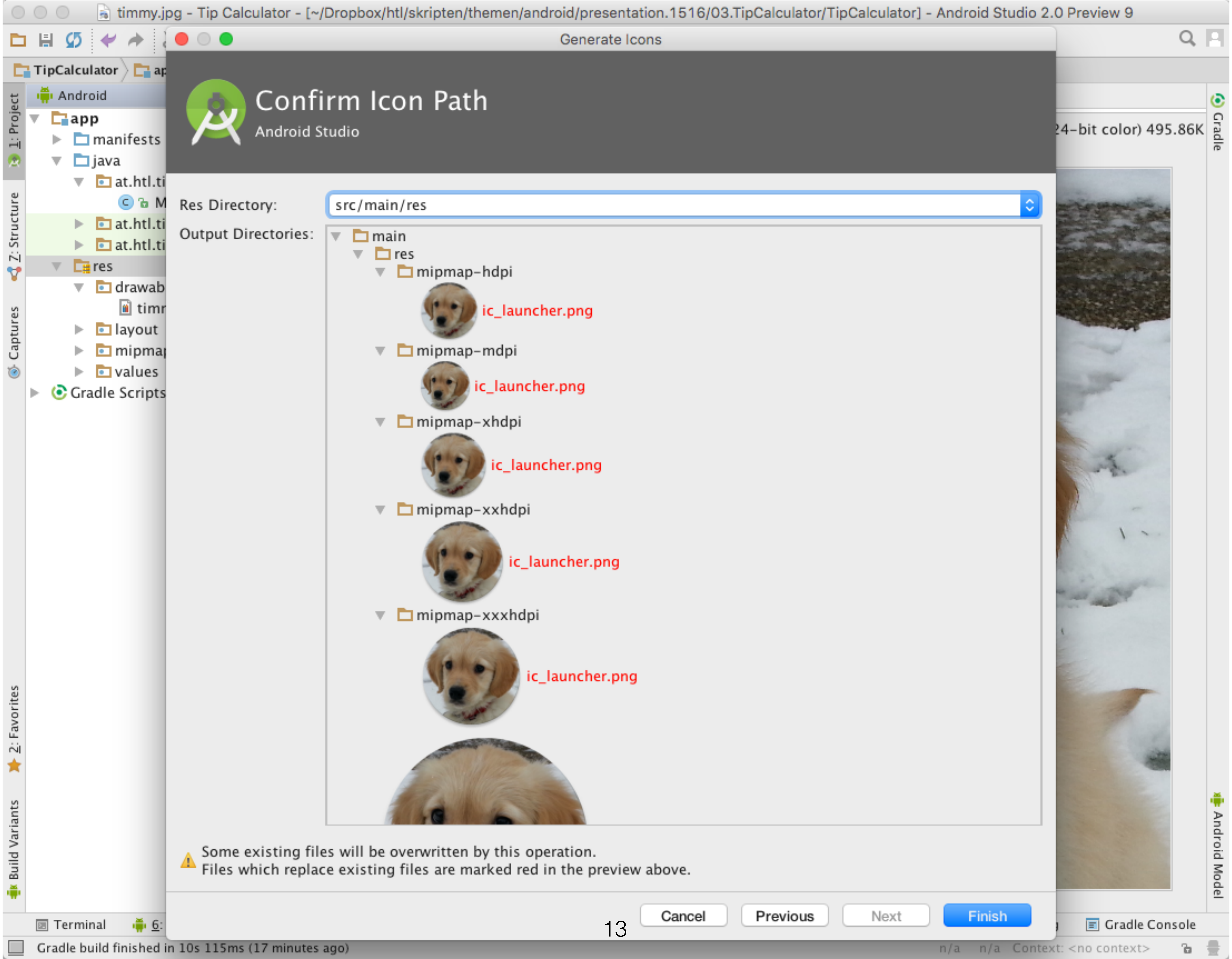
Source Asset:

xxxhdpi xxhdpi xhdpi hdpi mdpi

⚠ An icon with the same name already exists and will be overwritten.

Cancel Previous Next Finish

Gradle build finished in 10s 115ms (16 minutes ago)



timmy.jpg - Tip Calculator - [~/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator] - Android Studio 2.0 Preview 9

Generate Icons

Confirm Icon Path

Android Studio

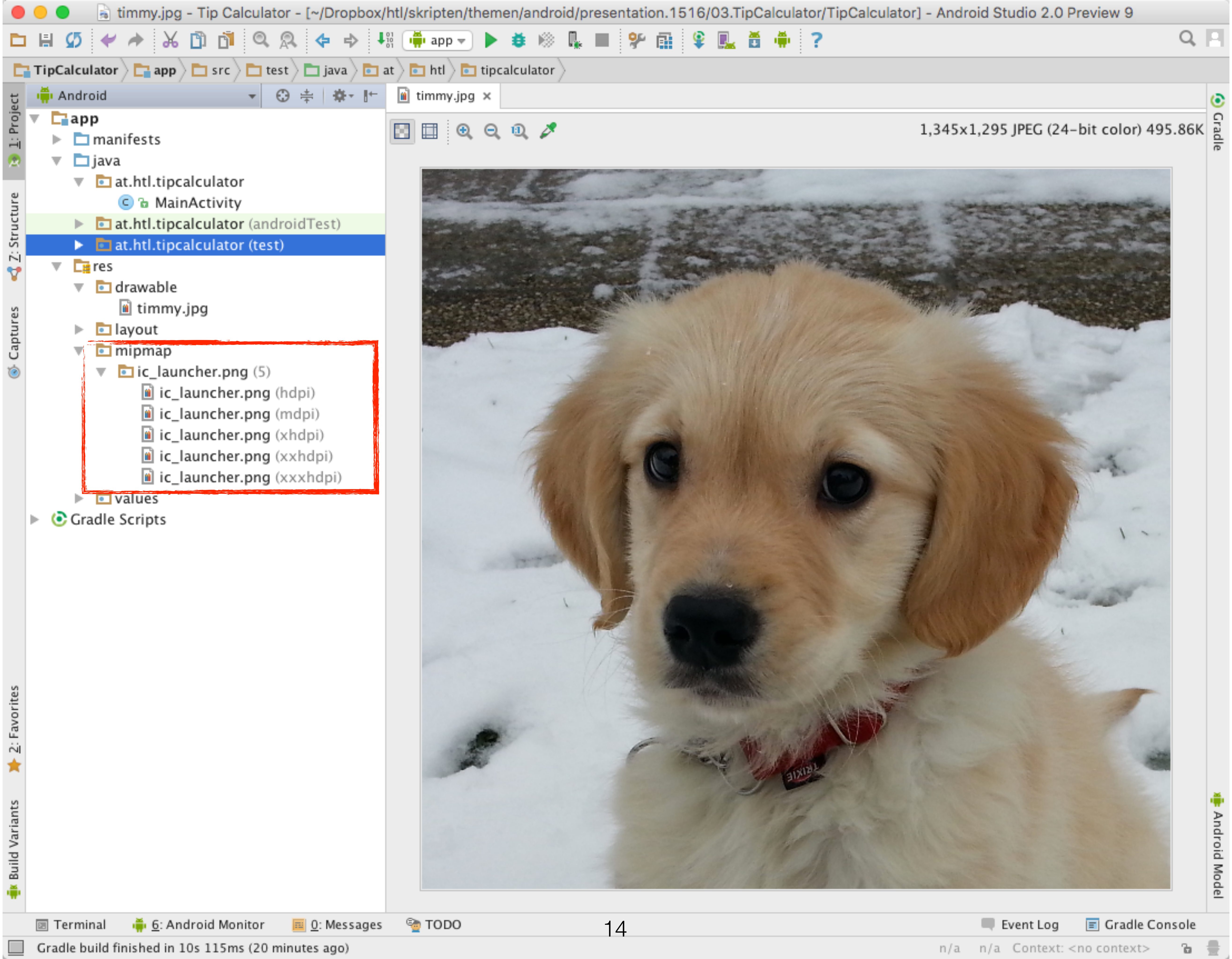
Res Directory: src/main/res

Output Directories:

- main
  - res
    - mipmap-hdpi
      - ic_launcher.png
    - mipmap-mdpi
      - ic_launcher.png
    - mipmap-xhdpi
      - ic_launcher.png
    - mipmap-xxhdpi
      - ic_launcher.png
    - mipmap-xxxhdpi
      - ic_launcher.png

Some existing files will be overwritten by this operation.
Files which replace existing files are marked red in the preview above.

Gradle build finished in 10s 115ms (17 minutes ago)



1,345x1,295 JPEG (24-bit color) 495.86K

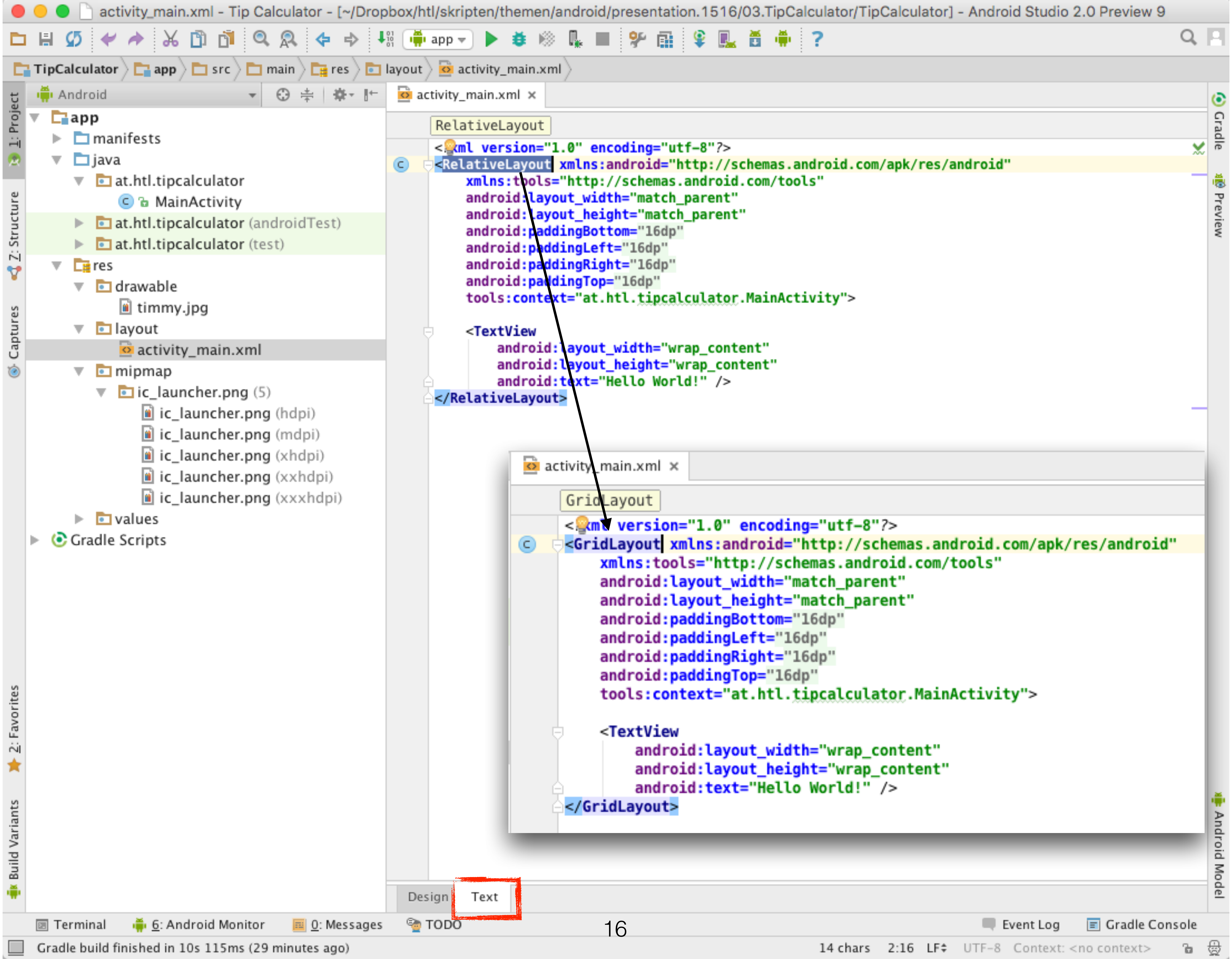
Gradle build finished in 10s 115ms (20 minutes ago)

Layout erstellen

- Wir verwenden ein GridLayout. Das bestehende RelativeLayout muss ersetzt werden

- Sehr einfach geht das, indem im Editor das RelativeLayout doppelgeklickt und durch ein GridLayout ersetzt wird

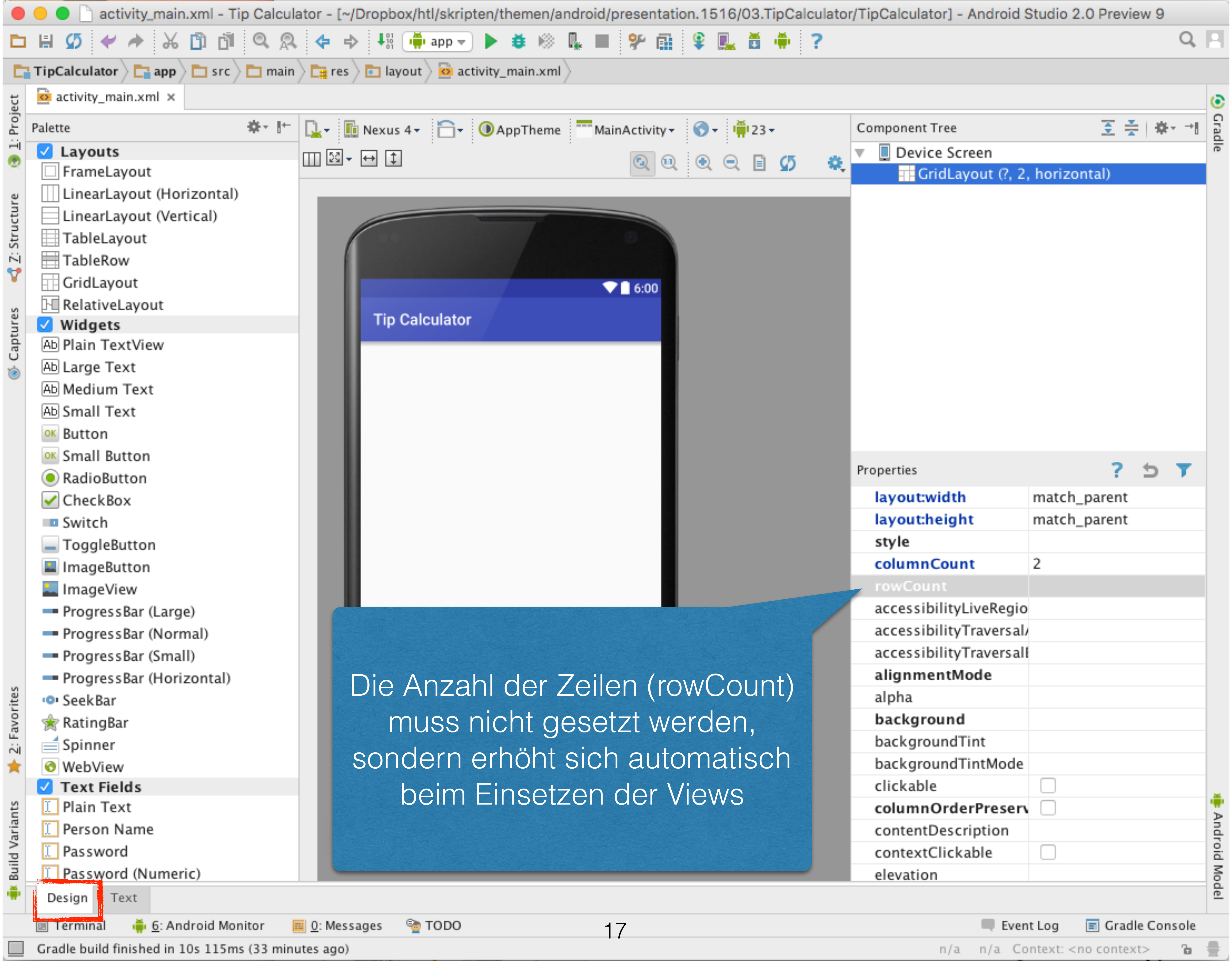
- Anschließend werden die fehlenden Properties im Design Mode eingetragen



```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="16dp"
    android:paddingLeft="16dp"
    android:paddingRight="16dp"
    android:paddingTop="16dp"
    tools:context="at.htl.tipcalculator.MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!" />
</RelativeLayout>
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<GridLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="16dp"
    android:paddingLeft="16dp"
    android:paddingRight="16dp"
    android:paddingTop="16dp"
    tools:context="at.htl.tipcalculator.MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!" />
</GridLayout>
```

Gradle build finished in 10s 115ms (29 minutes ago)



Component Tree:

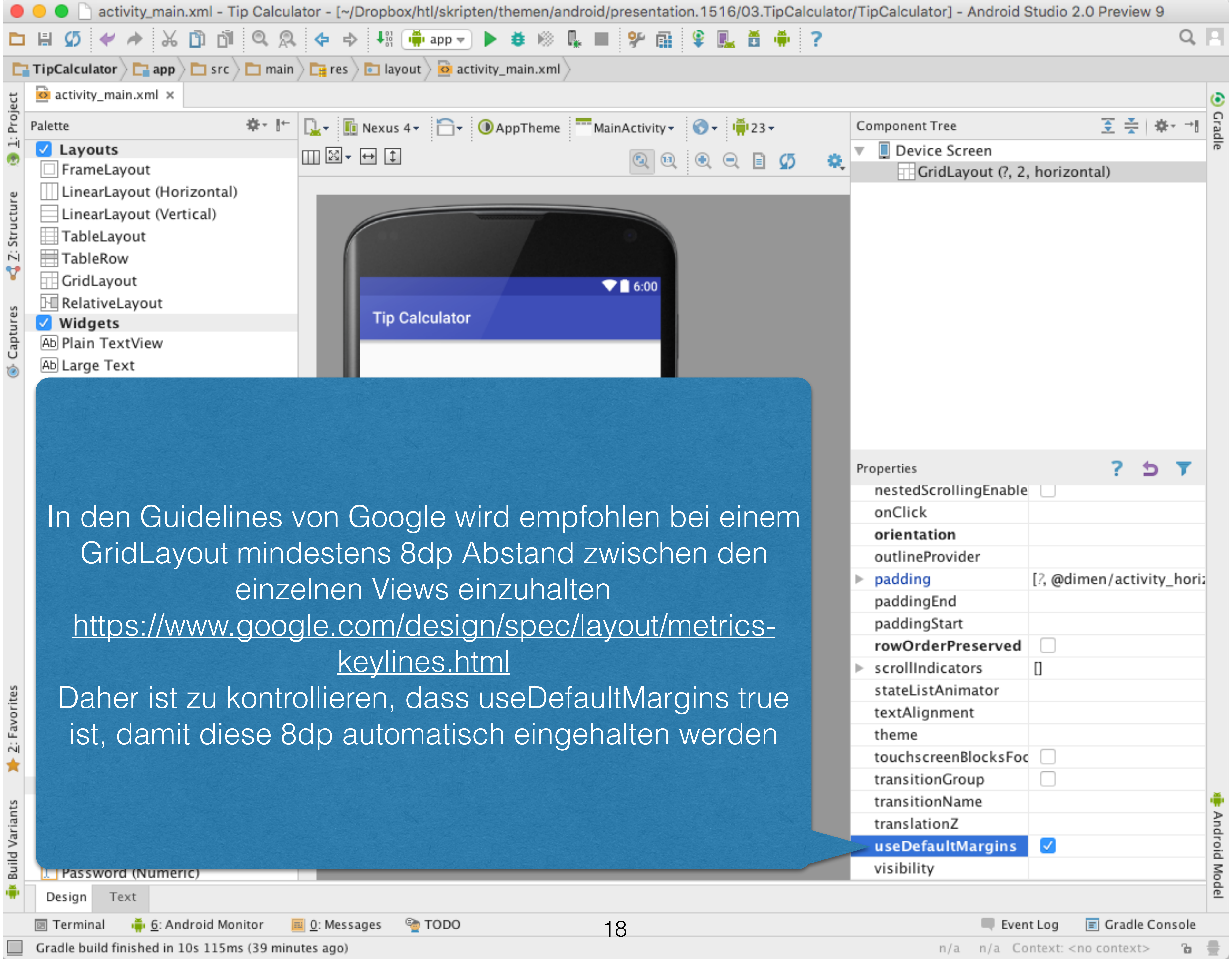
- Device Screen
  - GridLayout (?, 2, horizontal)

Properties:

layout:width	match_parent
layout:height	match_parent
style	
columnCount	2
rowCount	
accessibilityLiveRegio	
accessibilityTraversalA	
accessibilityTraversalB	
alignmentMode	
alpha	
background	
backgroundTint	
backgroundTintMode	
clickable	☐
columnOrderPreserv	☐
contentDescription	
contextClickable	☐
elevation	

Gradle build finished in 10s 115ms (33 minutes ago)

Die Anzahl der Zeilen (rowCount) muss nicht gesetzt werden, sondern erhöht sich automatisch beim Einsetzen der Views



activity_main.xml - Tip Calculator - [~/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator] - Android Studio 2.0 Preview 9

TipCalculator > app > src > main > res > layout > activity_main.xml

Component Tree

- Device Screen
  - GridLayout (?, 2, horizontal)

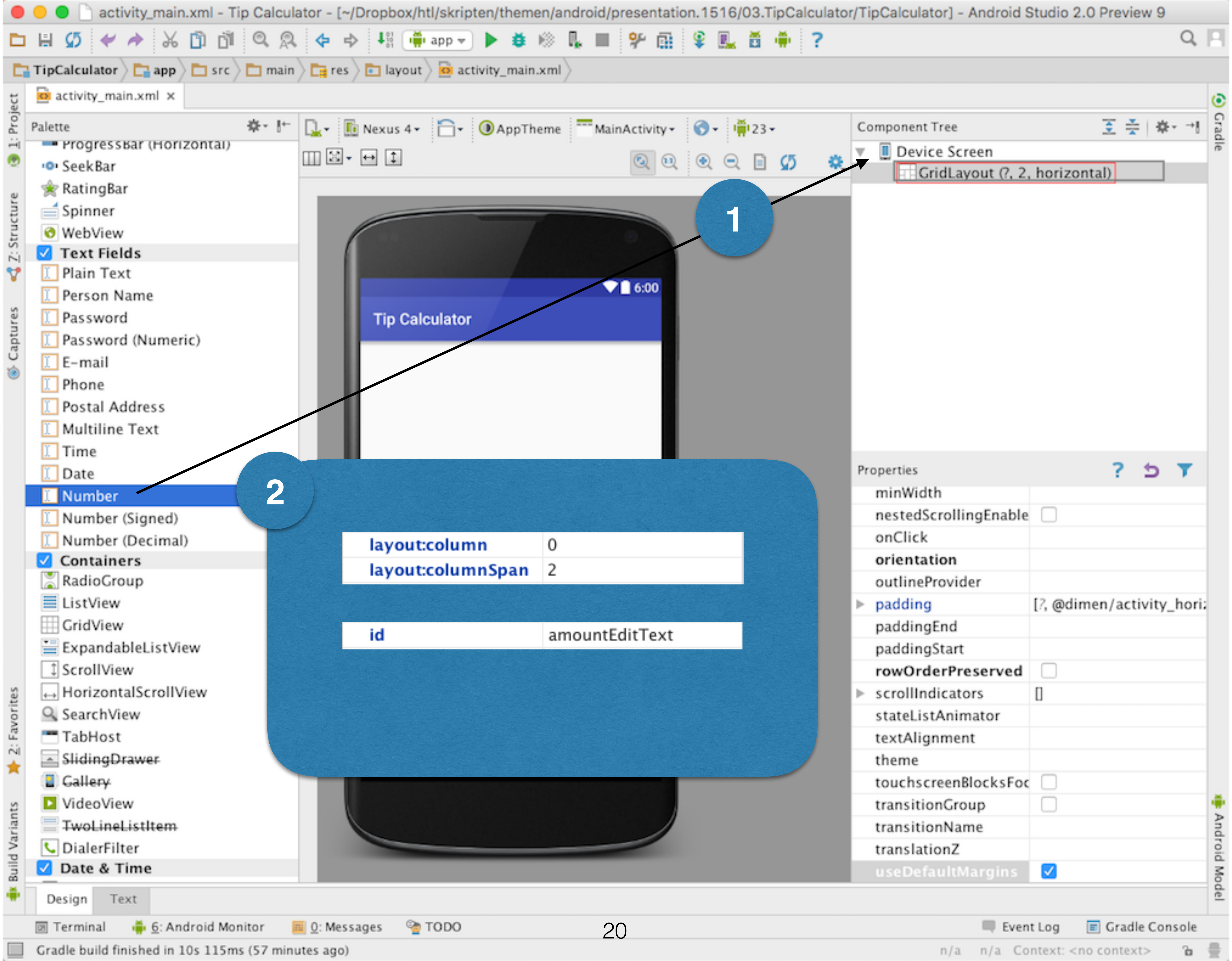
Properties

```
nestedScrollingEnable  □
onClick
orientation
outlineProvider
padding                [?, @dimen/activity_hori
paddingEnd
paddingStart
rowOrderPreserved      □
scrollIndicators       []
stateListAnimator
textAlignment
theme
touchscreenBlocksFoc   □
transitionGroup        □
transitionName
translationZ
useDefaultMargins      ☑
visibility
```

Gradle build finished in 10s 115ms (39 minutes ago)

In den Guidelines von Google wird empfohlen bei einem GridLayout mindestens 8dp Abstand zwischen den einzelnen Views einzuhalten
https://www.google.com/design/spec/layout/metrics-keylines.html
Daher ist zu kontrollieren, dass useDefaultMargins true ist, damit diese 8dp automatisch eingehalten werden

Einfügen der Views (GUI - Elemente)

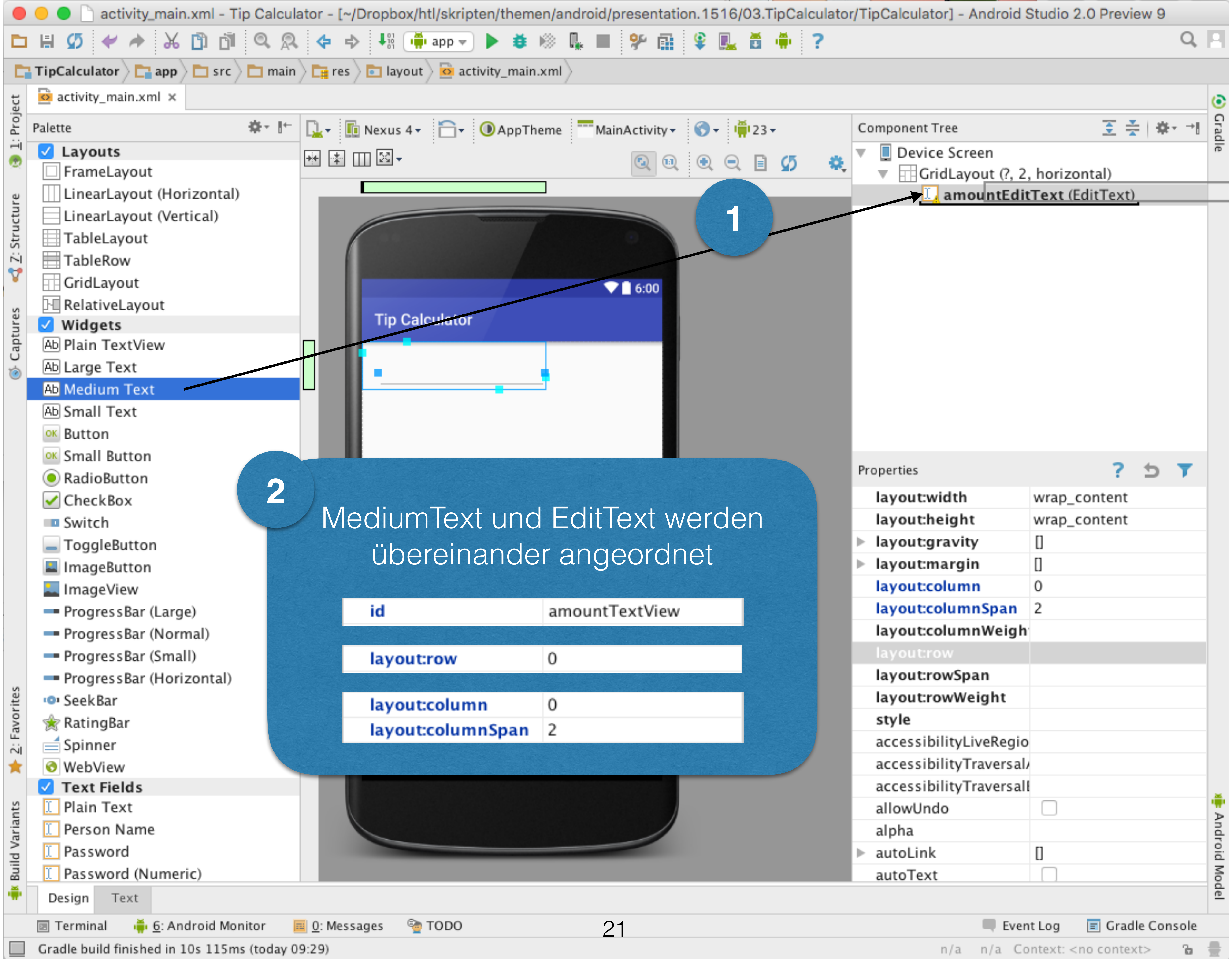


Properties

minWidth	
nestedScrollingEnable	□
onClick	
orientation	
outlineProvider	
padding	[?, @dimen/activity_hori:
paddingEnd	
paddingStart	
rowOrderPreserved	□
scrollIndicators	[]
stateListAnimator	
textAlignment	
theme	
touchscreenBlocksFoc	□
transitionGroup	□
transitionName	
translationZ	
useDefaultMargins	☑

layout:column	0
layout:columnSpan	2

id	amountEditText



activity_main.xml - Tip Calculator - [~/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator] - Android Studio 2.0 Preview 9

TipCalculator > app > src > main > res > layout > activity_main.xml

Component Tree
- Device Screen
  - GridLayout (?, 2, horizontal)
    - amountEditText (EditText)

1

2

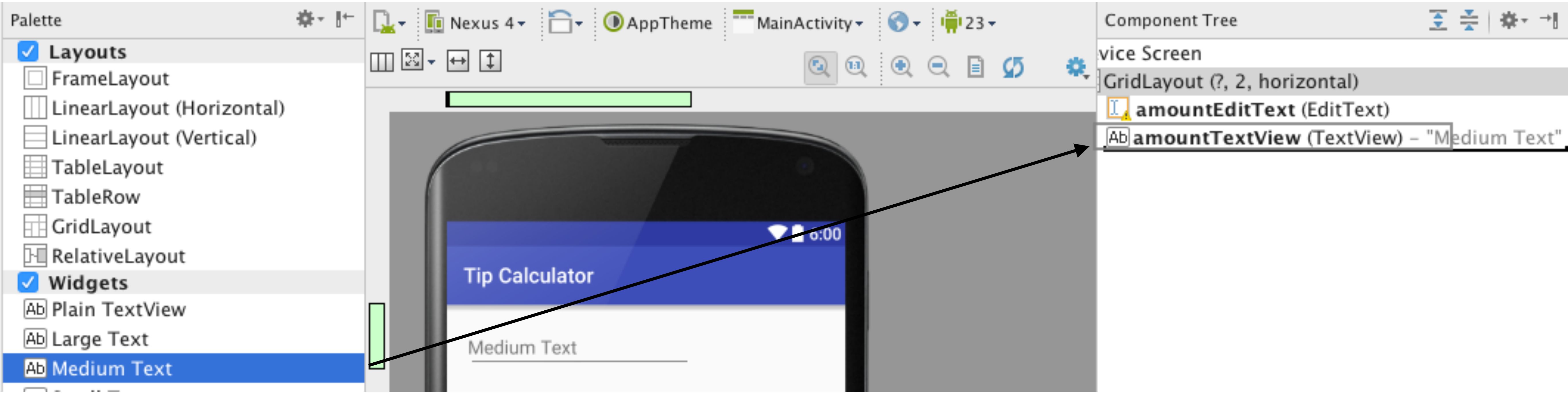
MediumText und EditText werden übereinander angeordnet

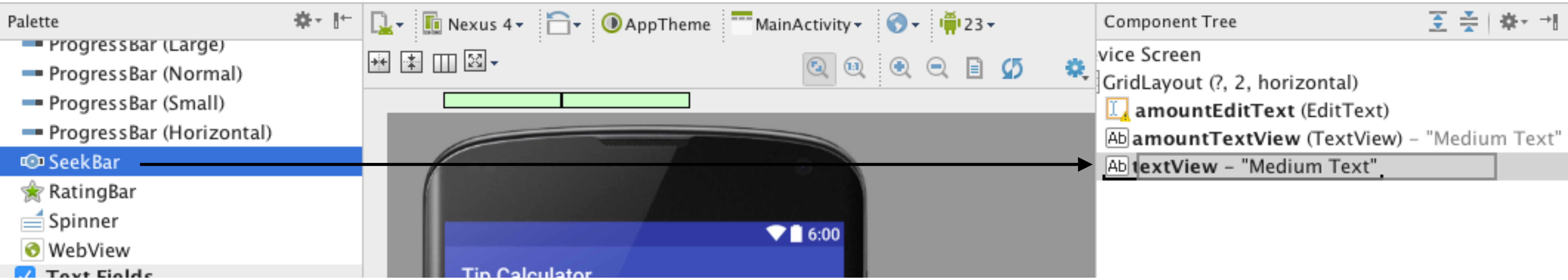
id	amountTextView
layout:row	0
layout:column	0
layout:columnSpan	2

Properties

layout:width	wrap_content
layout:height	wrap_content
layout:gravity	[]
layout:margin	[]
layout:column	0
layout:columnSpan	2
layout:columnWeigh	
layout:row	
layout:rowSpan	
layout:rowWeight	
style	
accessibilityLiveRegio	
accessibilityTraversalA	
accessibilityTraversalI	
allowUndo	□
alpha	
autoLink	[]
autoText	□

Gradle build finished in 10s 115ms (today 09:29)

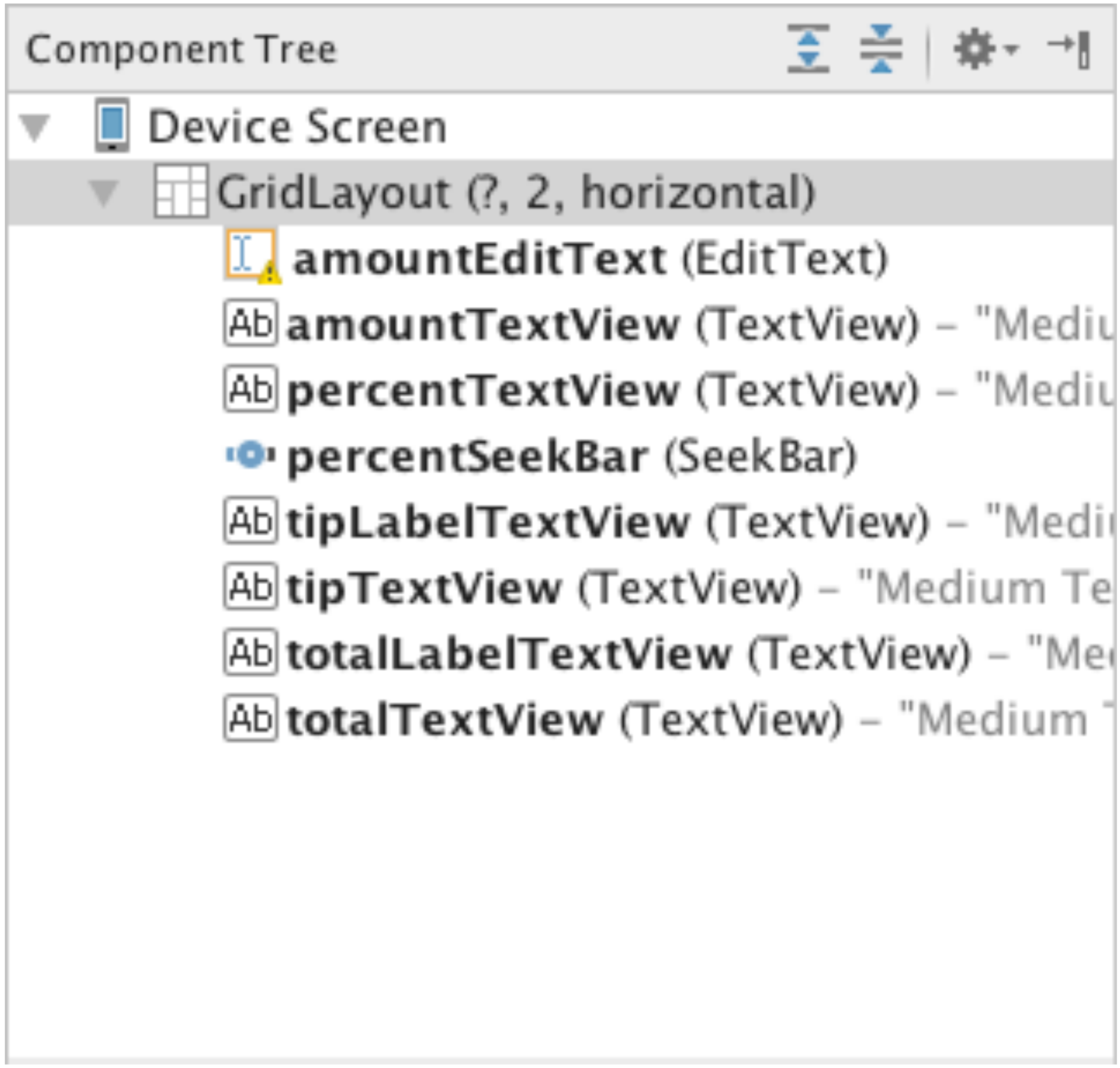




id	percentTextView

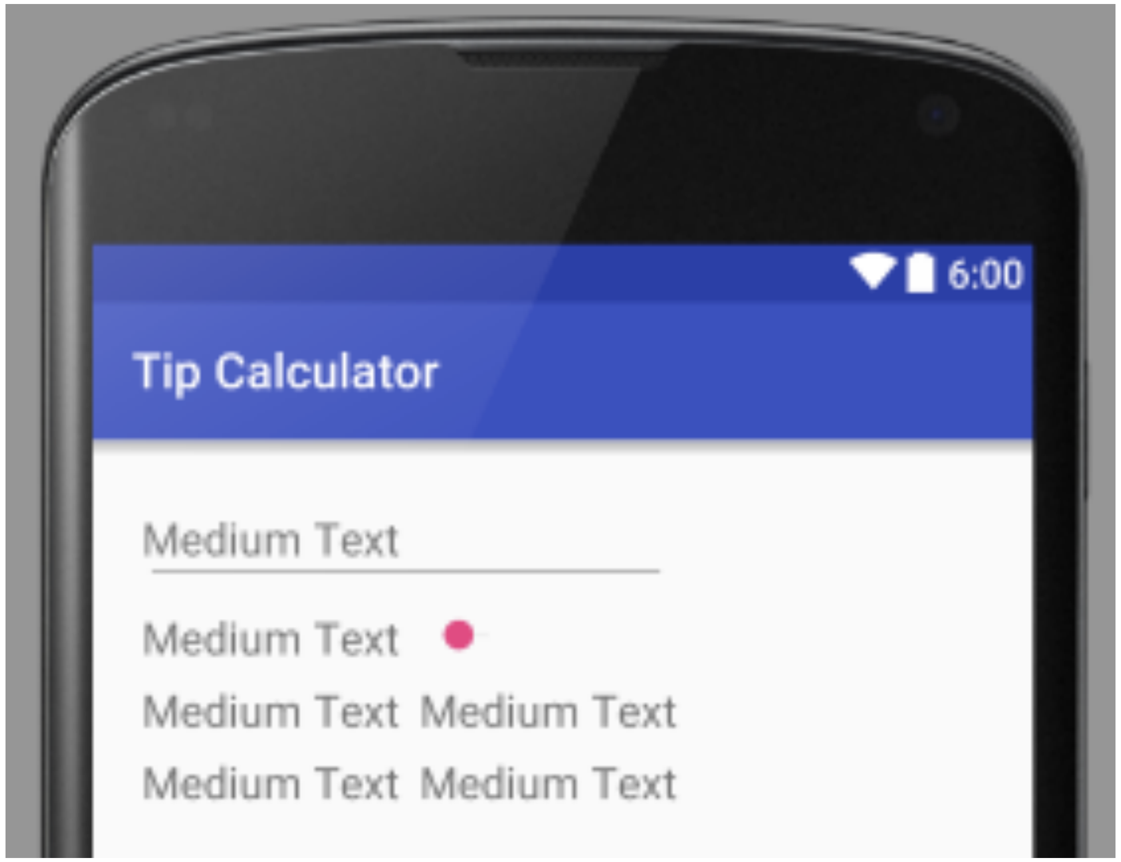
id	percentSeekBar

Component Tree

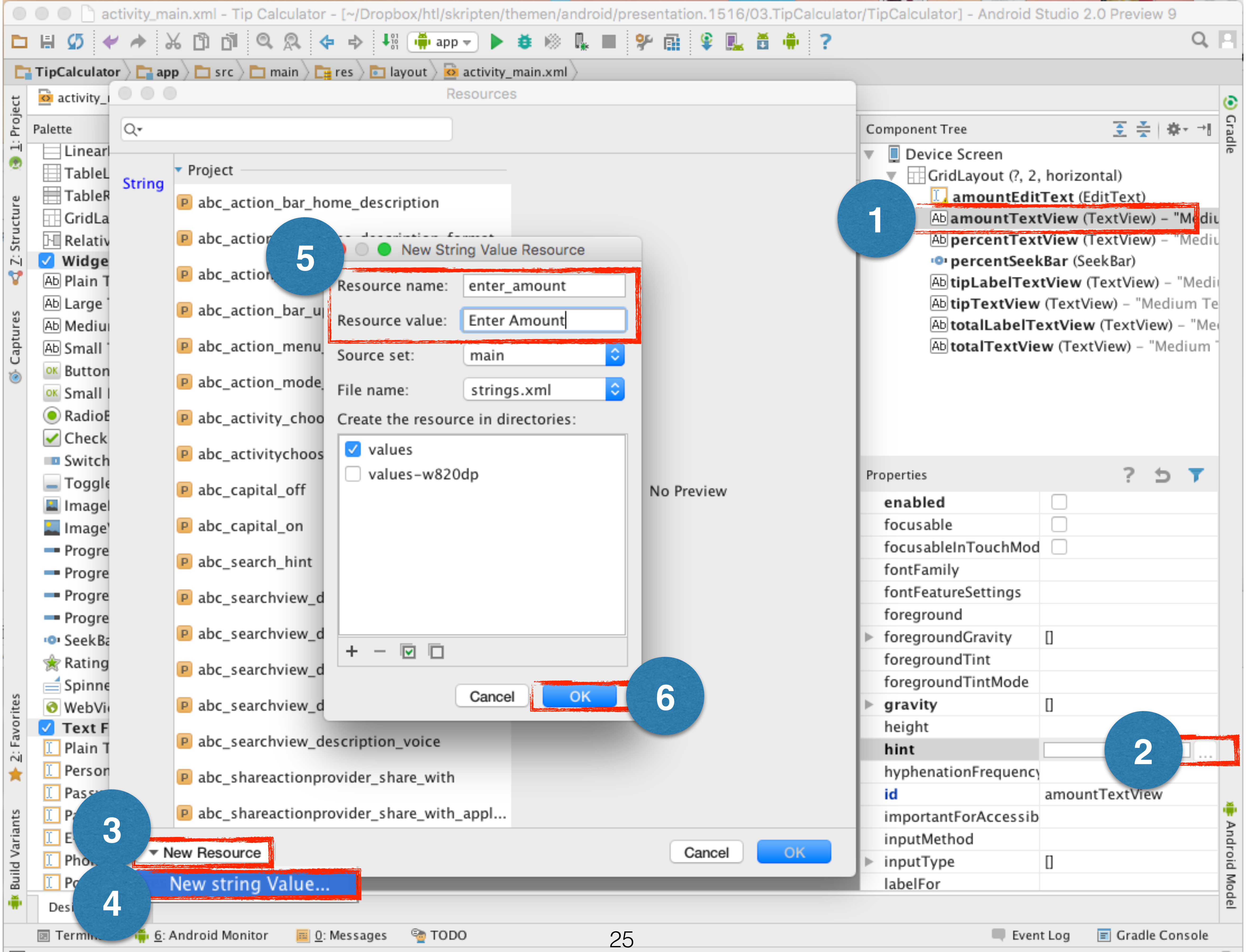


Component Tree

- Device Screen
  - GridLayout (?, 2, horizontal)
    - **amountEditText** (EditText)
    - **amountTextView** (TextView) – "Mediu
    - **percentTextView** (TextView) – "Mediu
    - **percentSeekBar** (SeekBar)
    - **tipLabelTextView** (TextView) – "Medi
    - **tipTextView** (TextView) – "Medium Te
    - **totalLabelTextView** (TextView) – "Me
    - **totalTextView** (TextView) – "Medium



Erstellen von Textressourcen



activity_main.xml - Tip Calculator - [~/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator] - Android Studio 2.0 Preview 9
TipCalculator > app > src > main > res > layout > activity_main.xml
Resources
String
Project
abc_action_bar_home_description
abc_action description_format
abc_action
abc_action_bar_u
abc_action_menu_
abc_action_mode_
abc_activity_choo
abc_activitychoos
abc_capital_off
abc_capital_on
abc_search_hint
abc_searchview_d
abc_searchview_d
abc_searchview_d
abc_searchview_d
abc_searchview_description_voice
abc_shareactionprovider_share_with
abc_shareactionprovider_share_with_appl...
No Preview
New Resource
New string Value...
Cancel
OK
Component Tree
Device Screen
GridLayout (?, 2, horizontal)
amountEditText (EditText)
amountTextView (TextView) - "Mediu
percentTextView (TextView) - "Mediu
percentSeekBar (SeekBar)
tipLabelTextView (TextView) - "Medi
tipTextView (TextView) - "Medium Te
totalLabelTextView (TextView) - "Me
totalTextView (TextView) - "Medium
Properties
enabled
focusable
focusableInTouchMod
fontFamily
fontFeatureSettings
foreground
foregroundGravity []
foregroundTint
foregroundTintMode
gravity []
height
hint
hyphenationFrequency
id amountTextView
importantForAccessib
inputMethod
inputType []
labelFor
1
2
3
4
5
6
Palette
Terminal
6: Android Monitor
0: Messages
TODO
Event Log
Gradle Console
Gradle build finished in 10s 115ms (today 09:29)
Context: <no context>

New String Value Resource

Resource name: enter_amount

Resource value: Enter Amount

Source set: main

File name: strings.xml

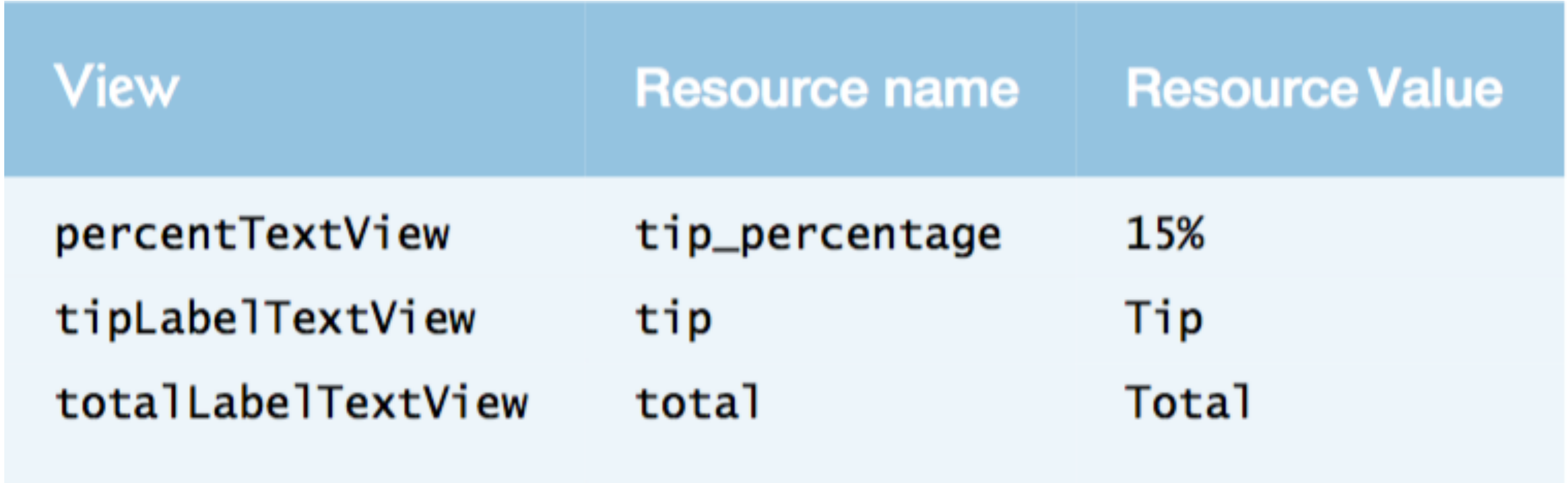
Create the resource in directories:

☑ values

□ values-w820dp

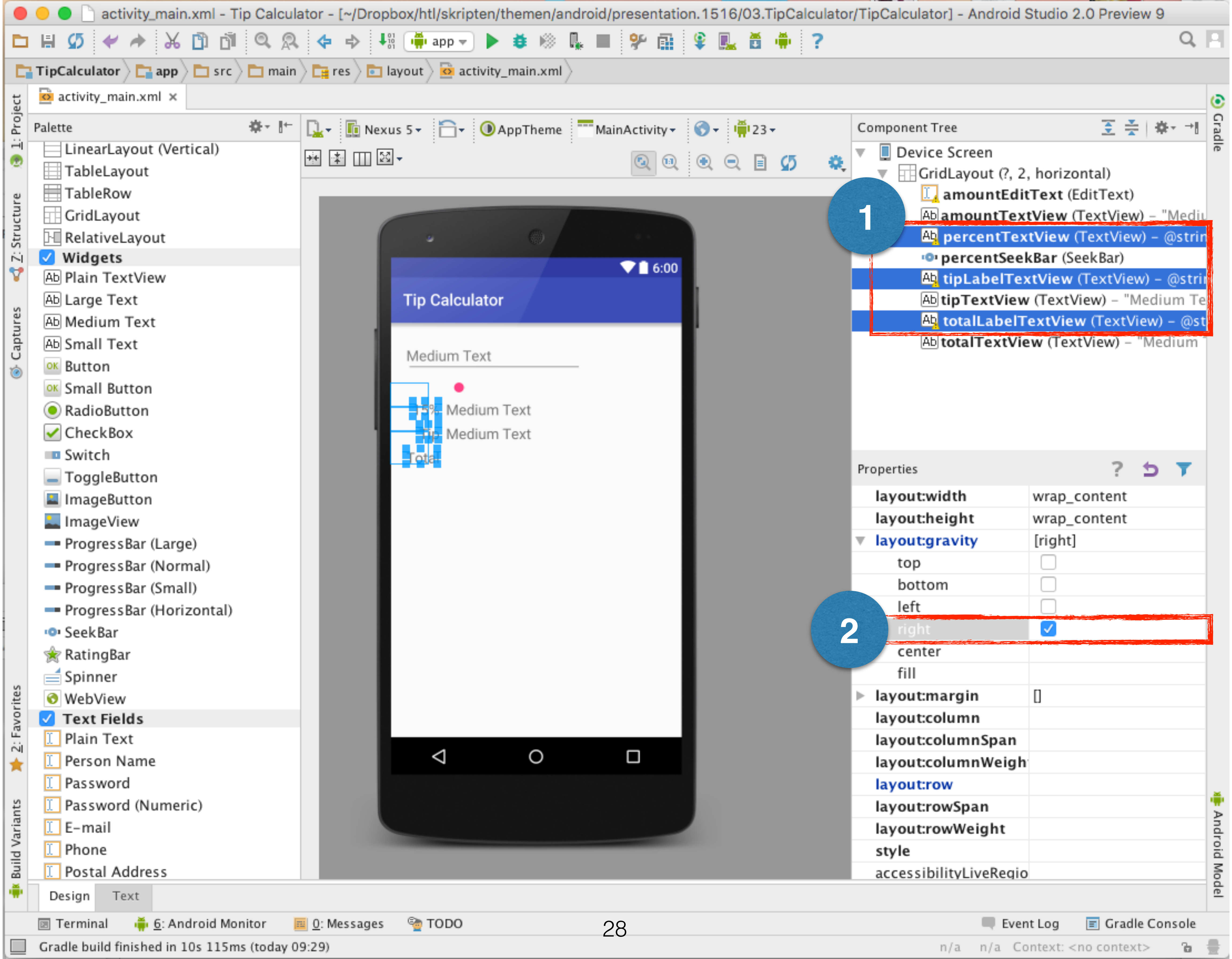
Cancel OK

Text Properties ergänzen



View	Resource name	Resource Value
percentTextView	tip_percentage	15%
tipLabelTextView	tip	Tip
totalLabelTextView	total	Total

Ausrichten der Labels



activity_main.xml - Tip Calculator - [~/Dropbox/htl/skripten/themen/android/presentation.1516/03.TipCalculator/TipCalculator] - Android Studio 2.0 Preview 9

TipCalculator › app › src › main › res › layout › activity_main.xml

Component Tree

- Device Screen
  - GridLayout (?, 2, horizontal)
    - amountEditText (EditText)
    - amountTextView (TextView) - "Mediu
    - percentTextView (TextView) - @strin
    - percentSeekBar (SeekBar)
    - tipLabelTextView (TextView) - @stri
    - tipTextView (TextView) - "Medium Te
    - totalLabelTextView (TextView) - @st
    - totalTextView (TextView) - "Medium

1

Properties

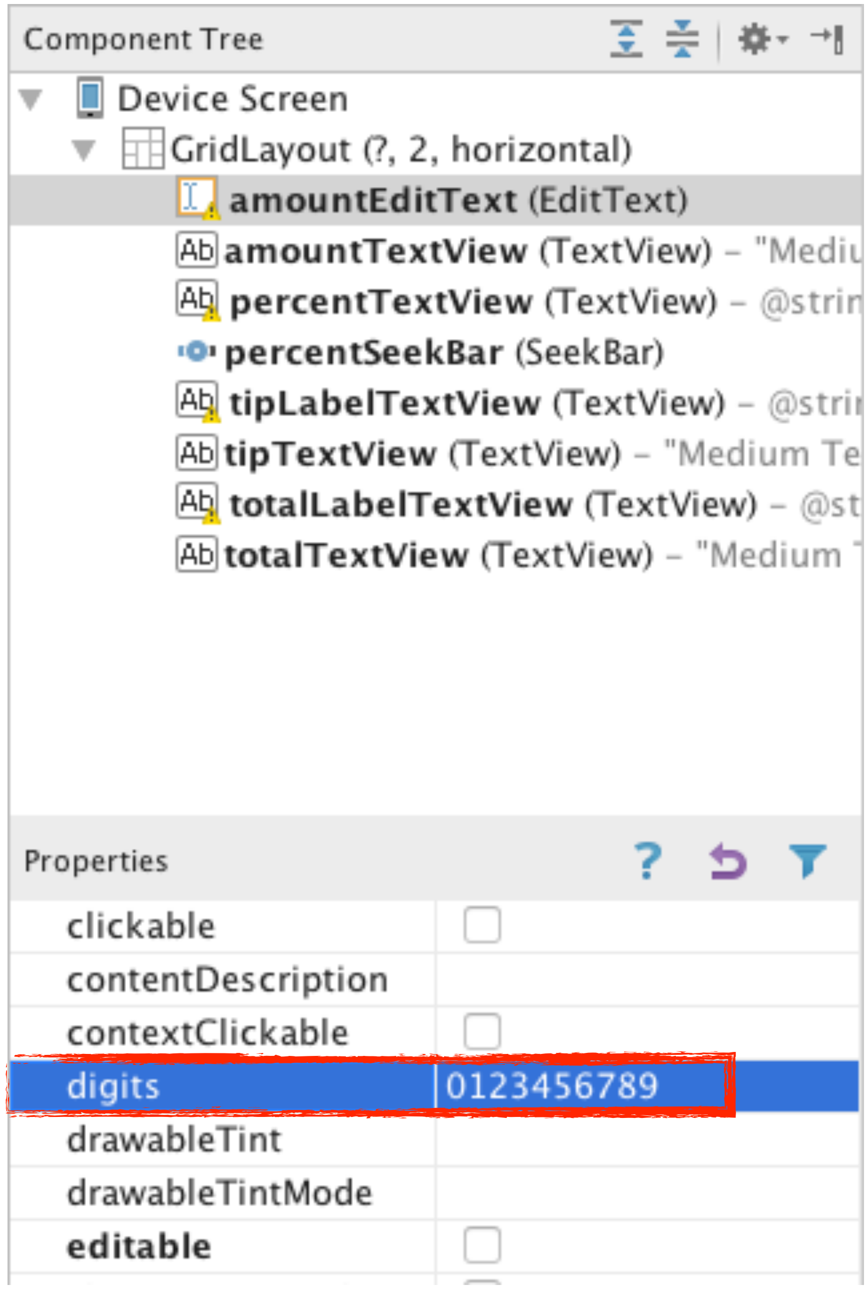
layout:width	wrap_content
layout:height	wrap_content
layout:gravity	[right]
top	☐
bottom	☐
left	☐
right	☑
center	
fill	
layout:margin	[]
layout:column	
layout:columnSpan	
layout:columnWeigh	
layout:row	
layout:rowSpan	
layout:rowWeight	
style	
accessibilityLiveRegio	

2

Konfigurieren des Number-Feldes

- In der App wird amountEditText hinter amountTextView versteckt sein

- Weiters dürfen nur Ziffern durch den Benutzer eingegeben werden

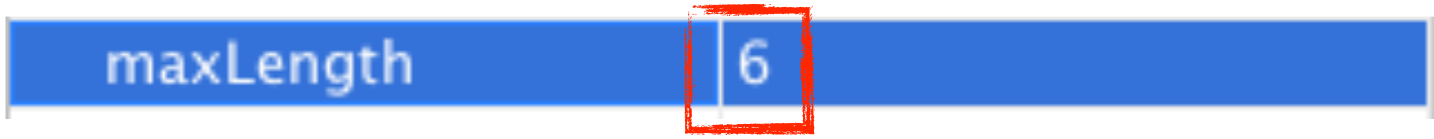


Component Tree

- Device Screen
  - GridLayout (?, 2, horizontal)
    - **amountEditText** (EditText)
    - **amountTextView** (TextView) – "Mediu
    - **percentTextView** (TextView) – @strin
    - **percentSeekBar** (SeekBar)
    - **tipLabelTextView** (TextView) – @stri
    - **tipTextView** (TextView) – "Medium Te
    - **totalLabelTextView** (TextView) – @st
    - **totalTextView** (TextView) – "Medium

Properties

clickable	☐
contentDescription	
contextClickable	☐
digits	0123456789
drawableTint	
drawableTintMode	
editable	☐

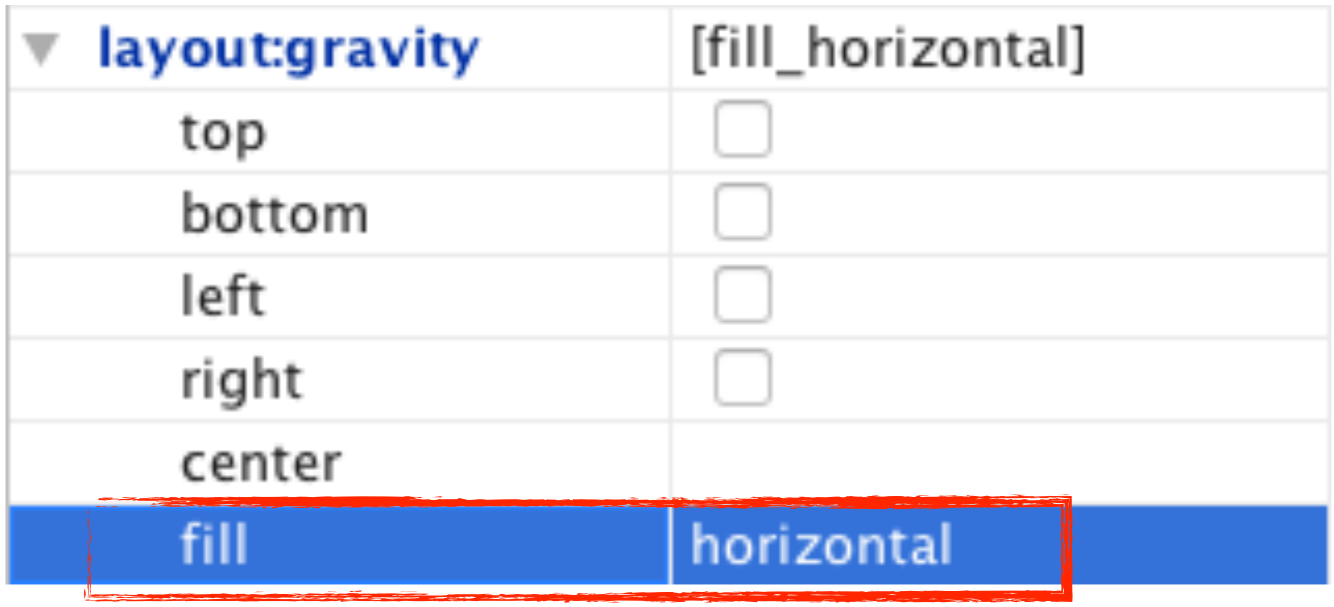


maxLength 6

Der Betrag kann nun maximal 9999,99 sein

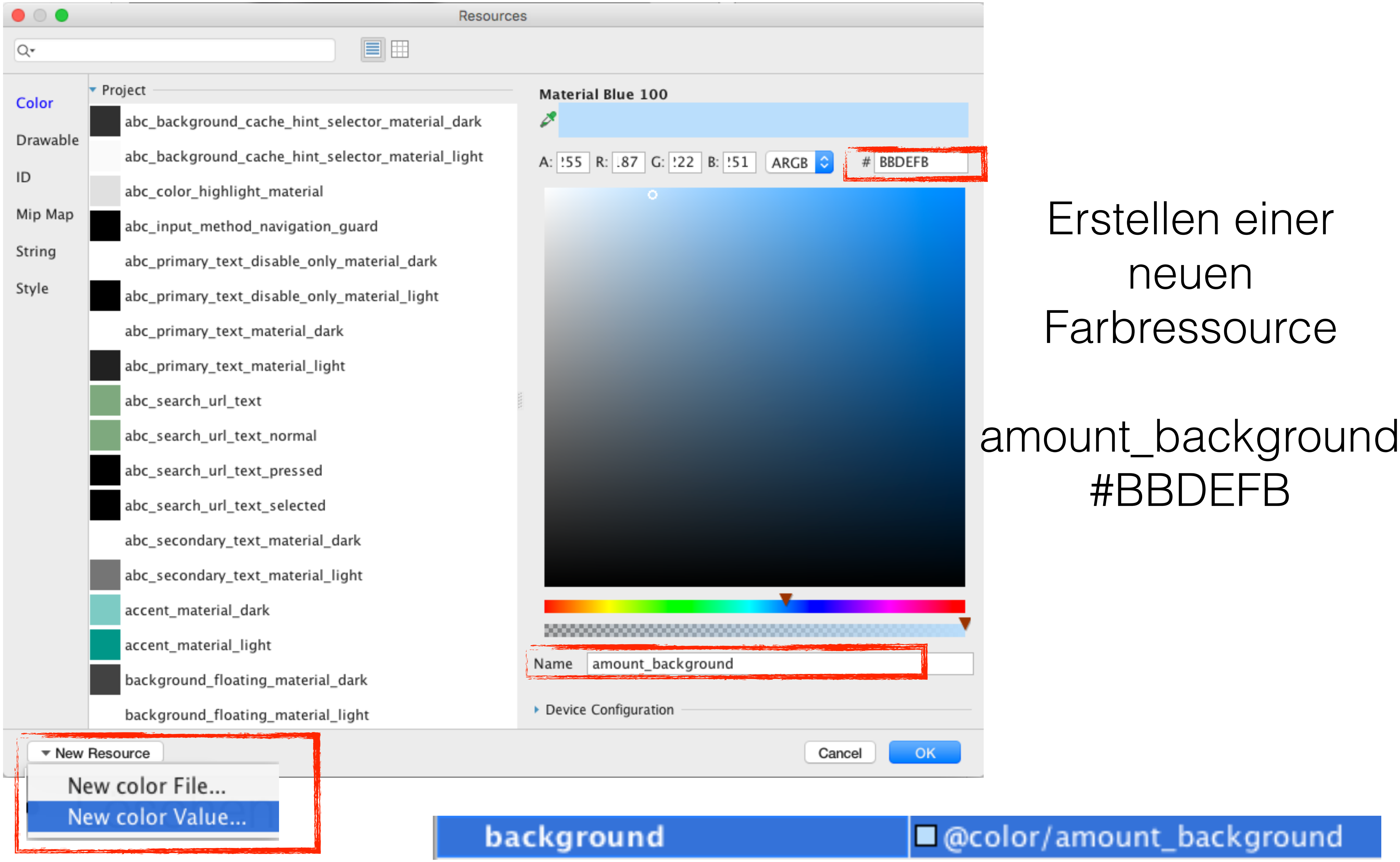
Konfigurieren von amountTextView

amountTextView

- Löschen des Inhalts der Text-Property. Der Textinhalt wird später durch das Programm eingetragen
- 

▼ layout:gravity	[fill_horizontal]
top	□
bottom	□
left	□
right	□
center	
fill	horizontal

amountTextView - background



abc_background_cache_hint_selector_material_dark
abc_background_cache_hint_selector_material_light
abc_color_highlight_material
abc_input_method_navigation_guard
abc_primary_text_disable_only_material_dark
abc_primary_text_disable_only_material_light
abc_primary_text_material_dark
abc_primary_text_material_light
abc_search_url_text
abc_search_url_text_normal
abc_search_url_text_pressed
abc_search_url_text_selected
abc_secondary_text_material_dark
abc_secondary_text_material_light
accent_material_dark
accent_material_light
background_floating_material_dark
background_floating_material_light

A: 255 R: 187 G: 222 B: 251 # BBDEFB

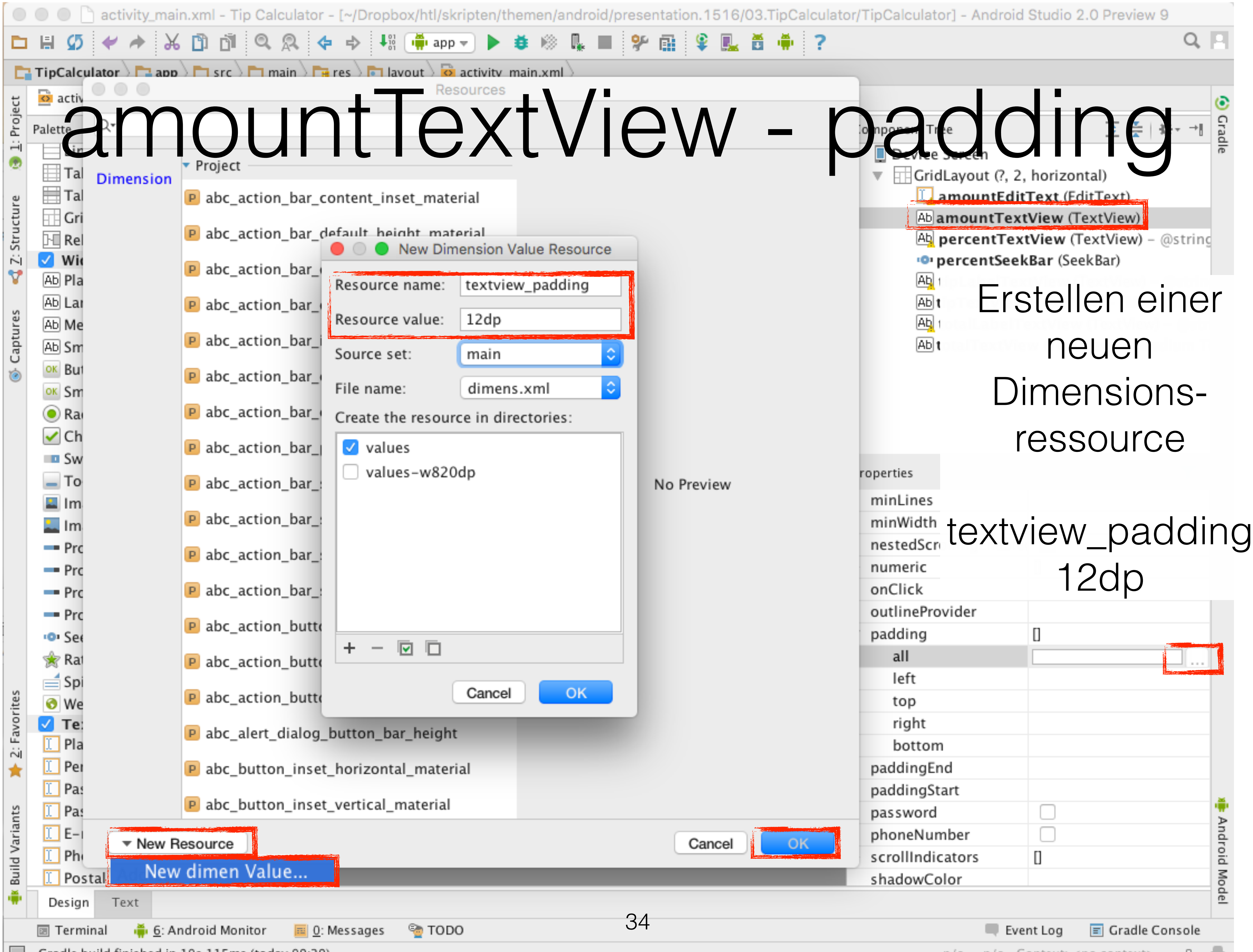
Name amount_background

background | □ @color/amount_background

Erstellen einer neuen Farbressource

amount_background
#BBDEFB

amountTextView - padding



New Dimension Value Resource

Resource name: textview_padding

Resource value: 12dp

Source set: main

File name: dimens.xml

Create the resource in directories:

☑ values

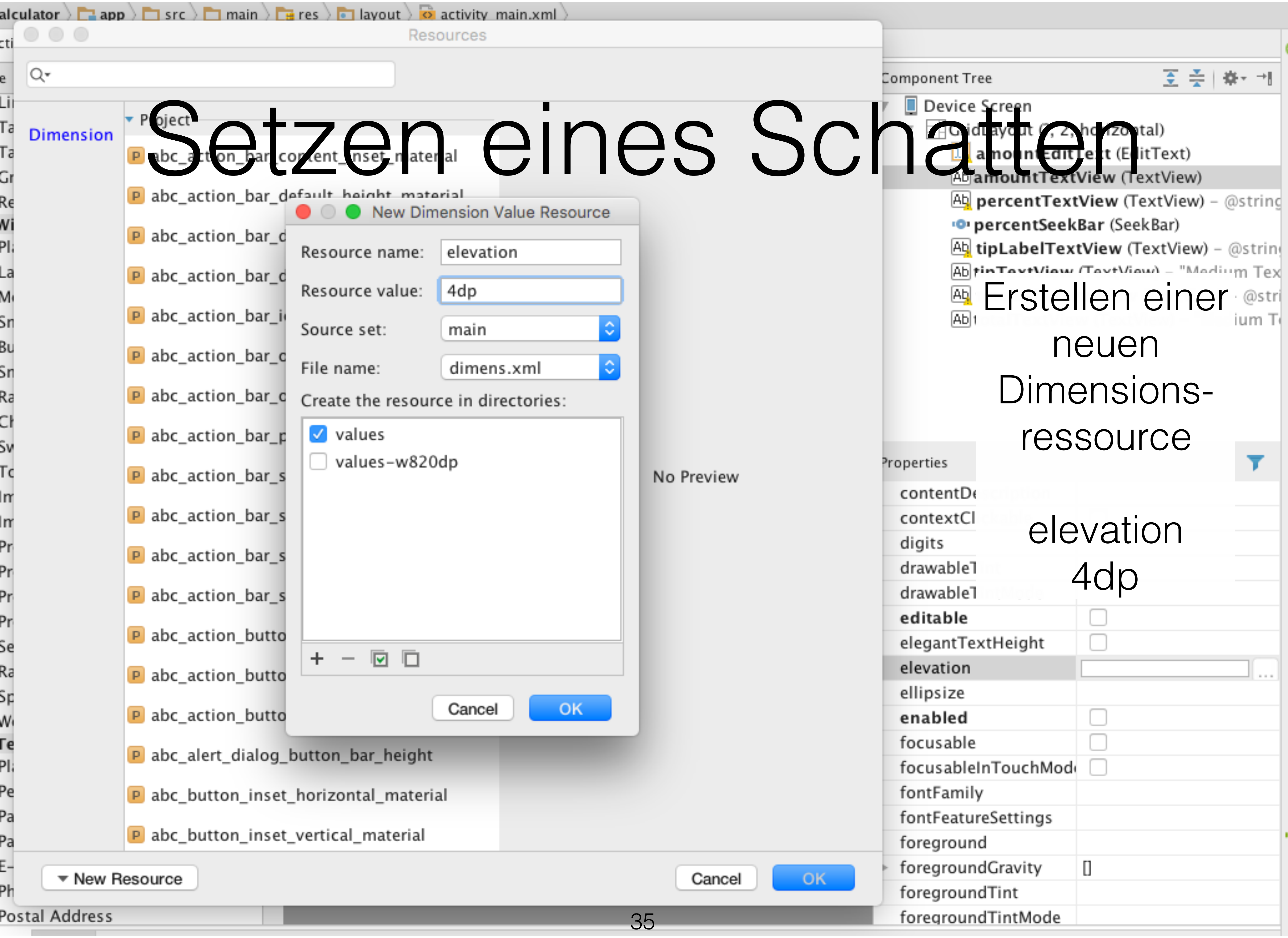
□ values-w820dp

Cancel OK

Erstellen einer neuen Dimensionsressource

textview_padding
12dp

Setzen eines Schatten



alculator › app › src › main › res › layout › activity_main.xml
Resources
Dimension
Project
abc_action_bar_content_inset_material
abc_action_bar_default_height_material
abc_alert_dialog_button_bar_height
abc_button_inset_horizontal_material
abc_button_inset_vertical_material
No Preview
New Resource
Cancel
OK
Component Tree
Device Screen
GridLayout (, 2, horizontal)
amountEditText (EditText)
amountTextView (TextView)
percentTextView (TextView) – @string
percentSeekBar (SeekBar)
tipLabelTextView (TextView) – @string
Properties
contentDescription
contextClickable
digits
drawableTint
drawableTintMode
editable
elegantTextHeight
elevation
ellipsize
enabled
focusable
focusableInTouchMode
fontFamily
fontFeatureSettings
foreground
foregroundGravity
foregroundTint
foregroundTintMode
Postal Address

New Dimension Value Resource

Resource name: elevation

Resource value: 4dp

Source set: main

File name: dimens.xml

Create the resource in directories:

☑ values

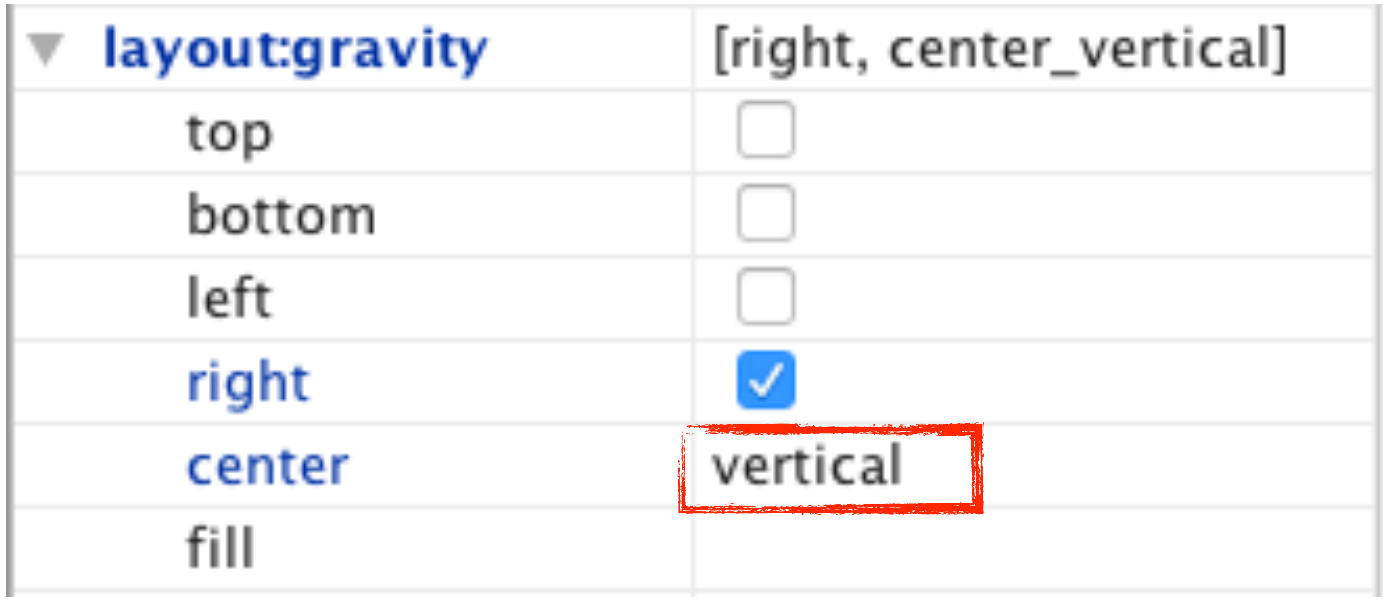
□ values-w820dp

Cancel OK

Erstellen einer neuen Dimensions-ressource

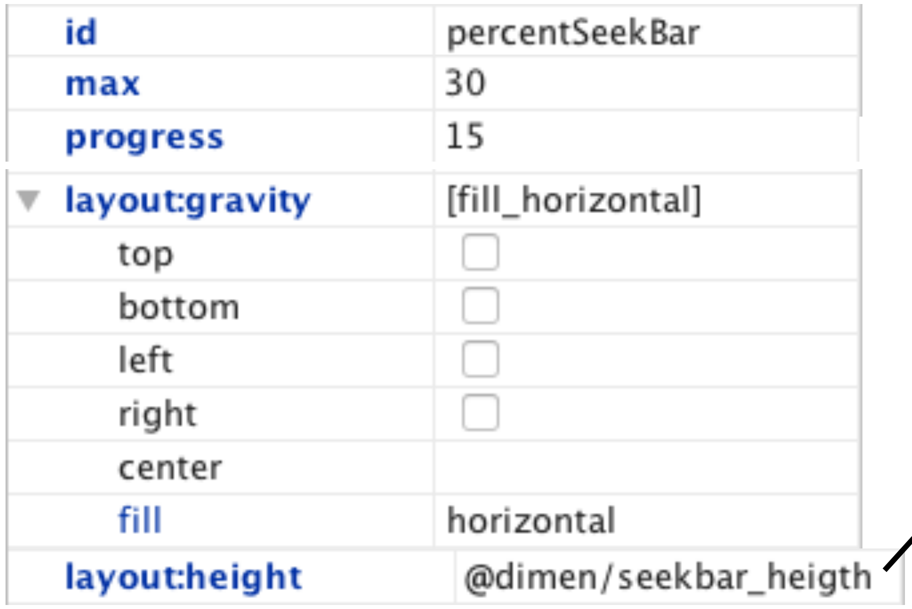
elevation
4dp

percentTextView

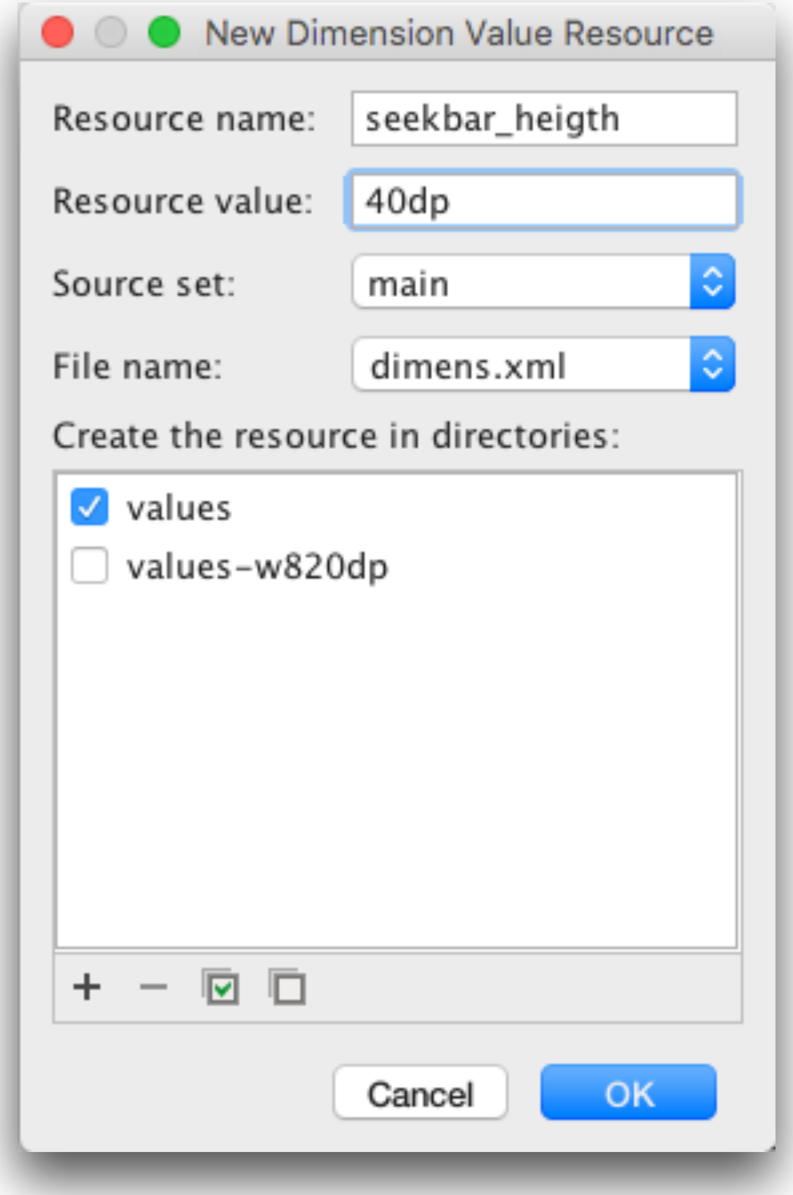


▼ layout:gravity	[right, center_vertical]
top	☐
bottom	☐
left	☐
right	☑
center	vertical
fill	

percentSeekBar



id	percentSeekBar
max	30
progress	15
▼ layout:gravity	[fill_horizontal]
top	□
bottom	□
left	□
right	□
center	
fill	horizontal
layout:height	@dimen/seekbar_heigth



Resource name: seekbar_heigth

Resource value: 40dp

Source set: main

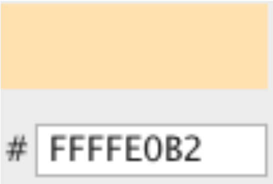
File name: dimens.xml

Create the resource in directories:

- ☑ values
- □ values-w820dp

tipTextView, totalTextView

- Löschen der Text-Properties
- layout:gravity —> fill —> horizontal
- background —> new color resource: result_background / #FFE0B2

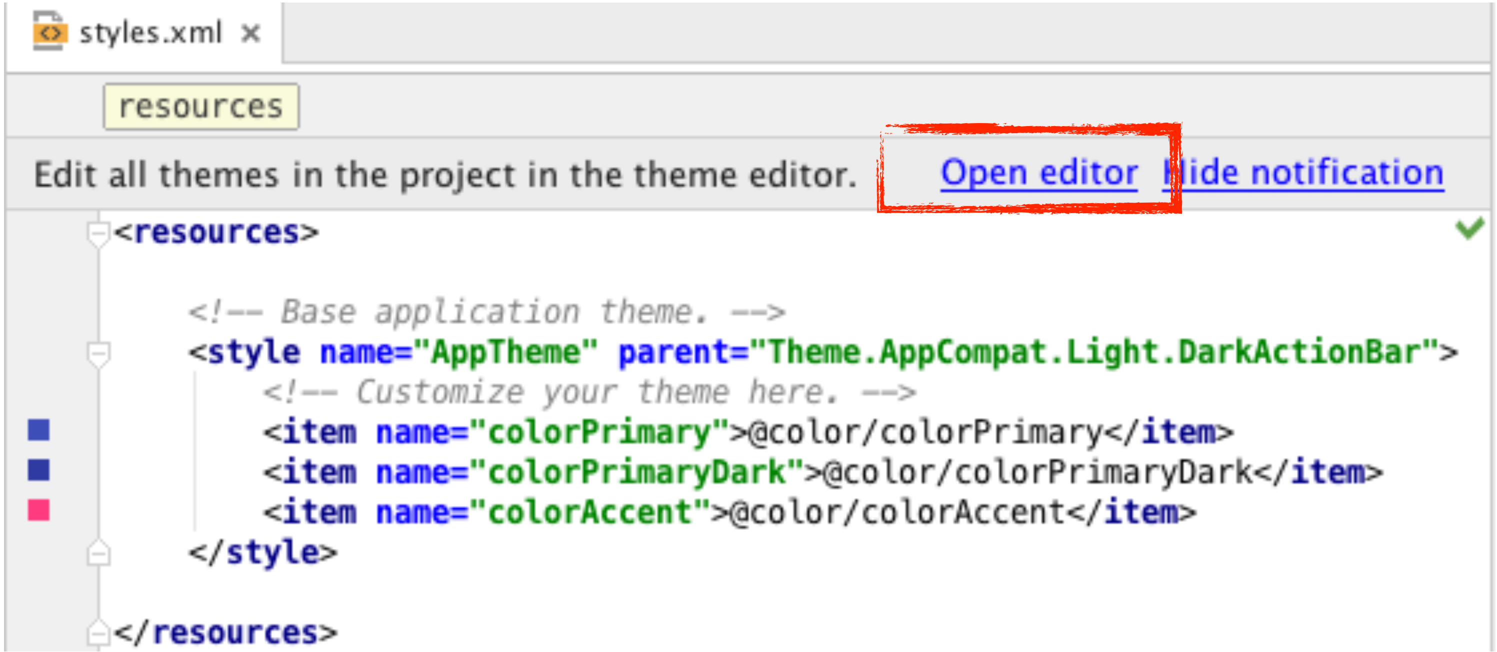


FFFFE0B2

- gravity —> center
- padding - all —> dimension resource: textview_padding
- elevation —> dimension resource: elevation

Themes

parent Themes



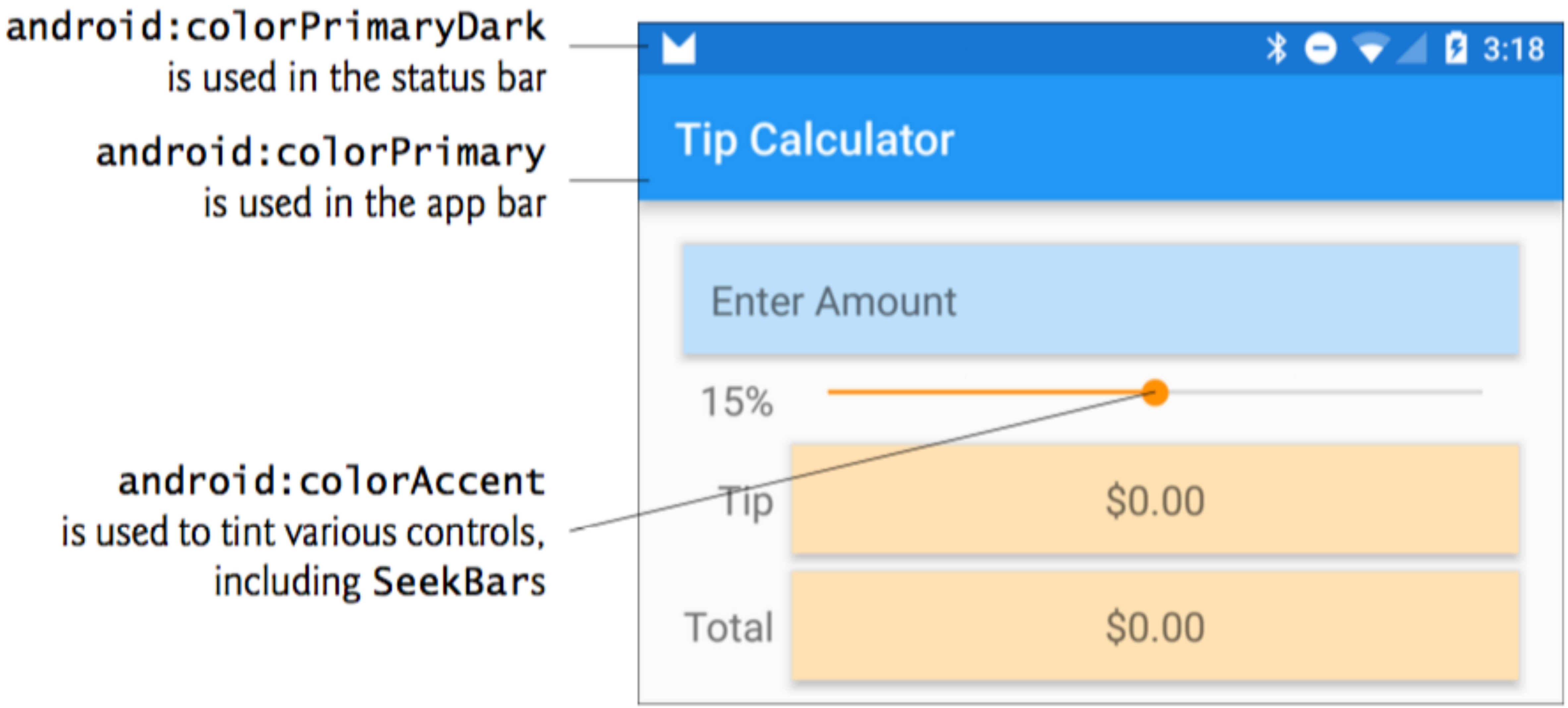
```
<resources>

    <!-- Base application theme. -->
    <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Customize your theme here. -->
        <item name="colorPrimary">@color/colorPrimary</item>
        <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
        <item name="colorAccent">@color/colorAccent</item>
    </style>

</resources>
```

- In der style.xml - Ressourcendatei befindet sich ein Style, der vom Manifest (manifest.xml) referenziert wird.

- Hier können Attribute des Parent-Themes für die aktuelle Applikation überschrieben werden.

- AppCompat stellt sicher, dass diese Themes auch für ältere Android-SDKs verwendet werden können

Themes

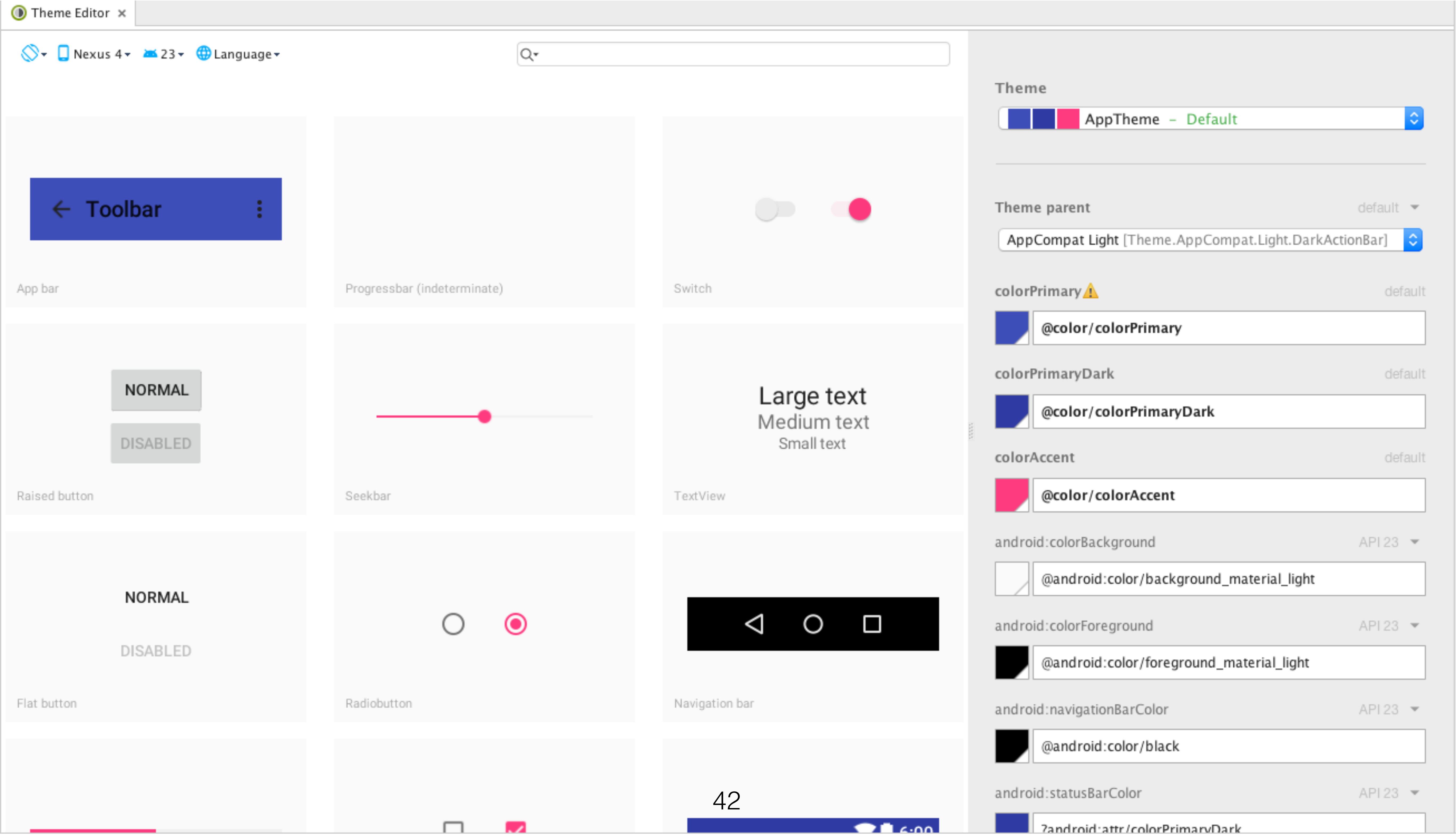


android:colorPrimaryDark is used in the status bar

android:colorPrimary is used in the app bar

android:colorAccent is used to tint various controls, including **SeekBars**

Theme Editor



Theme

AppTheme – Default

Theme parent default

AppCompat Light [Theme.AppCompat.Light.DarkActionBar]

colorPrimary ⚠ default

@color/colorPrimary

colorPrimaryDark default

@color/colorPrimaryDark

colorAccent default

@color/colorAccent

android:colorBackground API 23

@android:color/background_material_light

android:colorForeground API 23

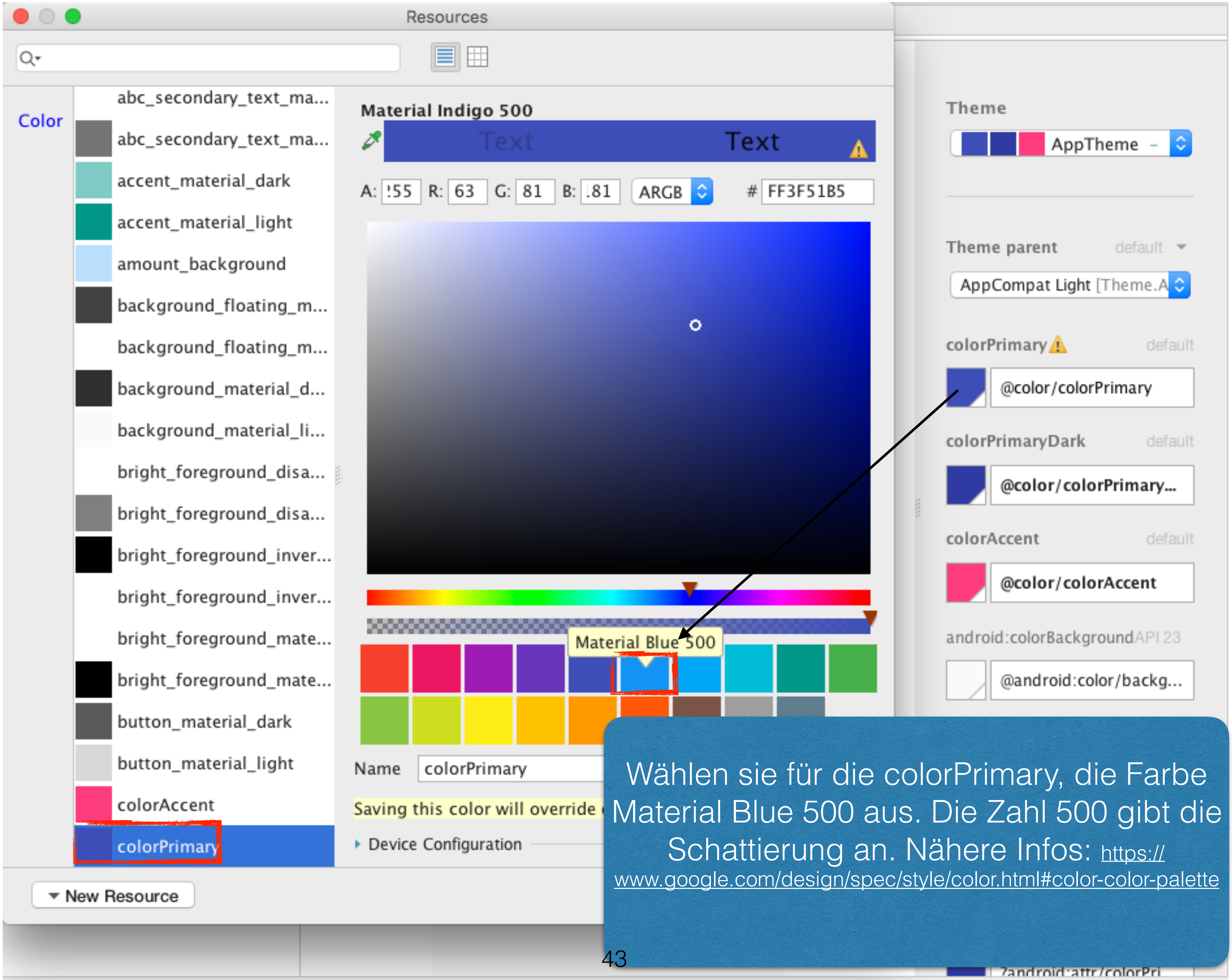
@android:color/foreground_material_light

android:navigationBarColor API 23

@android:color/black

android:statusBarColor API 23

?android:attr/colorPrimaryDark



Resources

Color

abc_secondary_text_ma...
abc_secondary_text_ma...
accent_material_dark
accent_material_light
amount_background
background_floating_m...
background_floating_m...
background_material_d...
background_material_li...
bright_foreground_disa...
bright_foreground_disa...
bright_foreground_inver...
bright_foreground_inver...
bright_foreground_mate...
bright_foreground_mate...
button_material_dark
button_material_light
colorAccent
colorPrimary

Material Indigo 500

A: 255 R: 63 G: 81 B: 181 ARGB # FF3F51B5

Material Blue 500

Name colorPrimary

Saving this color will override

Device Configuration

New Resource

Theme: AppTheme

Theme parent: AppCompat Light [Theme.A — default

colorPrimary — default: @color/colorPrimary

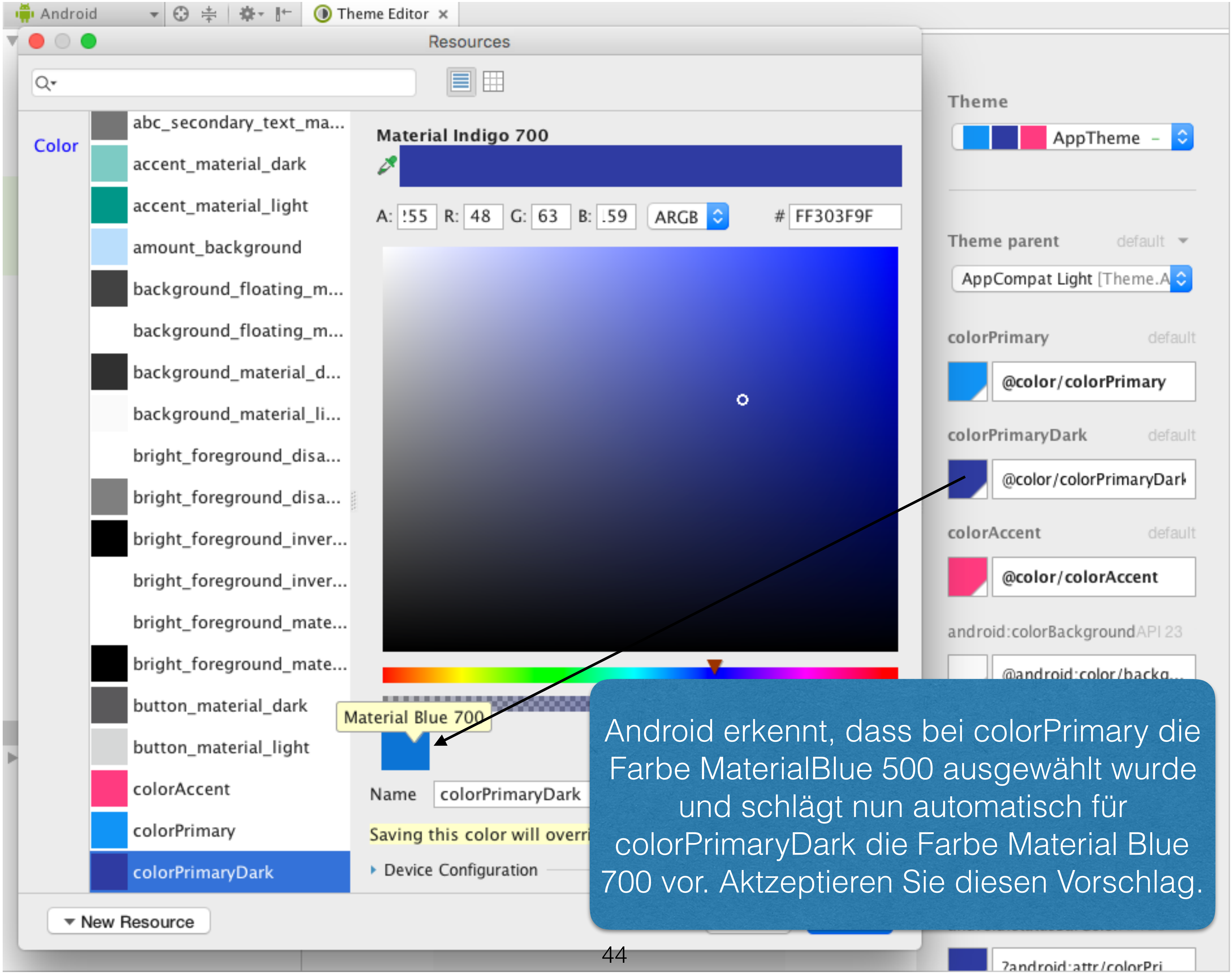
colorPrimaryDark — default: @color/colorPrimary...

colorAccent — default: @color/colorAccent

android:colorBackground API 23: @android:color/backg...

?android:attr/colorPri

Wählen sie für die colorPrimary, die Farbe Material Blue 500 aus. Die Zahl 500 gibt die Schattierung an. Nähere Infos: https://www.google.com/design/spec/style/color.html#color-color-palette



abc_secondary_text_ma...
accent_material_dark
accent_material_light
amount_background
background_floating_m...
background_floating_m...
background_material_d...
background_material_li...
bright_foreground_disa...
bright_foreground_disa...
bright_foreground_inver...
bright_foreground_inver...
bright_foreground_mate...
bright_foreground_mate...
button_material_dark
button_material_light
colorAccent
colorPrimary
colorPrimaryDark

Material Indigo 700

A: :55 R: 48 G: 63 B: .59 ARGB # FF303F9F

Material Blue 700

Name colorPrimaryDark

Saving this color will overri

Theme
AppTheme

Theme parent default
AppCompat Light [Theme.A

colorPrimary default
@color/colorPrimary

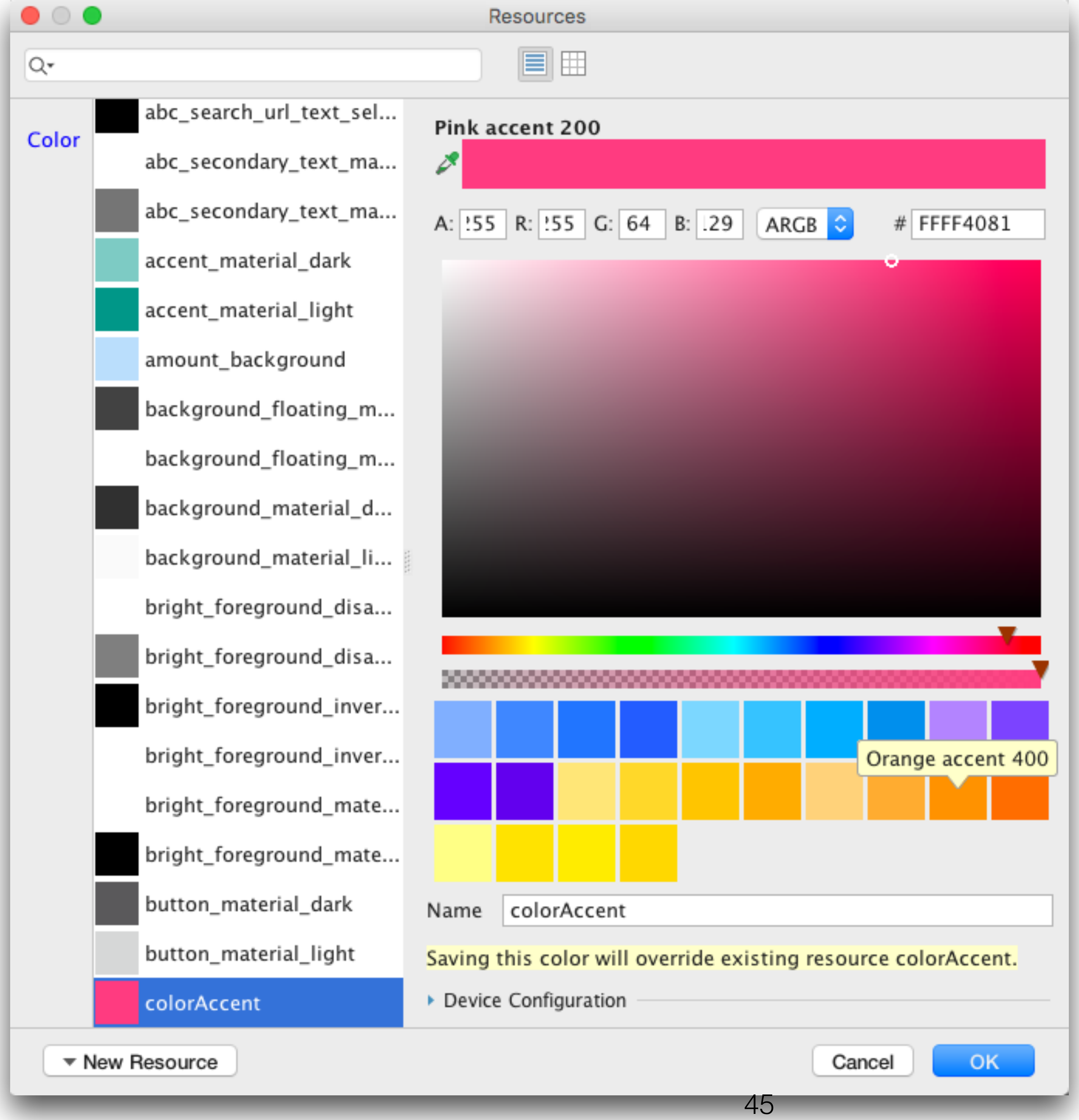
colorPrimaryDark default
@color/colorPrimaryDark

colorAccent default
@color/colorAccent

android:colorBackground API 23
@android:color/backg...

?android:attr/colorPri

Android erkennt, dass bei colorPrimary die Farbe MaterialBlue 500 ausgewählt wurde und schlägt nun automatisch für colorPrimaryDark die Farbe Material Blue 700 vor. Aktzeptieren Sie diesen Vorschlag.



abc_search_url_text_sel...
abc_secondary_text_ma...
abc_secondary_text_ma...
accent_material_dark
accent_material_light
amount_background
background_floating_m...
background_floating_m...
background_material_d...
background_material_li...
bright_foreground_disa...
bright_foreground_disa...
bright_foreground_inver...
bright_foreground_inver...
bright_foreground_mate...
bright_foreground_mate...
button_material_dark
button_material_light
colorAccent

Pink accent 200

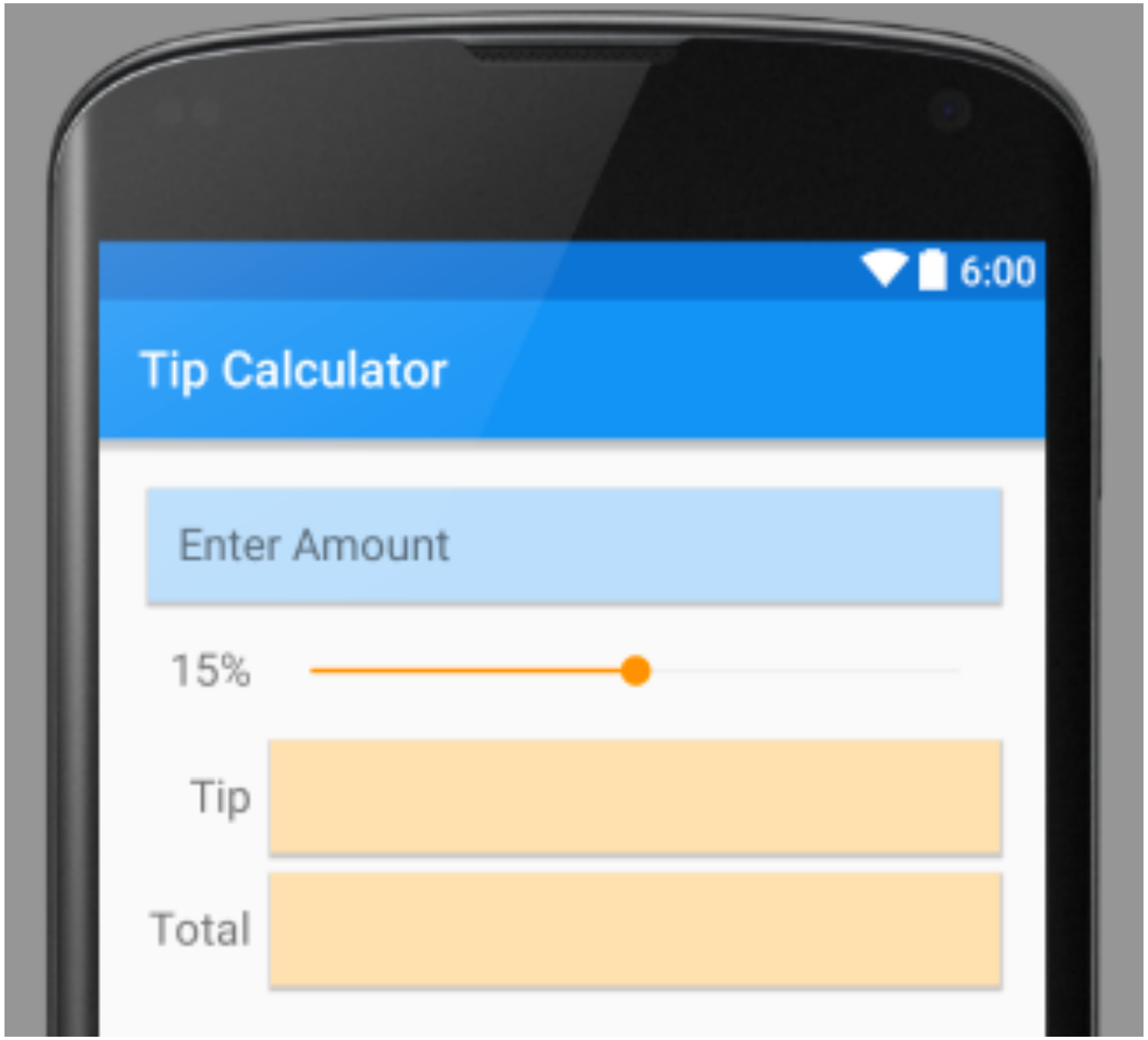
A: !55 R: !55 G: 64 B: .29 ARGB # FFFF4081

Name colorAccent

Saving this color will override existing resource colorAccent.

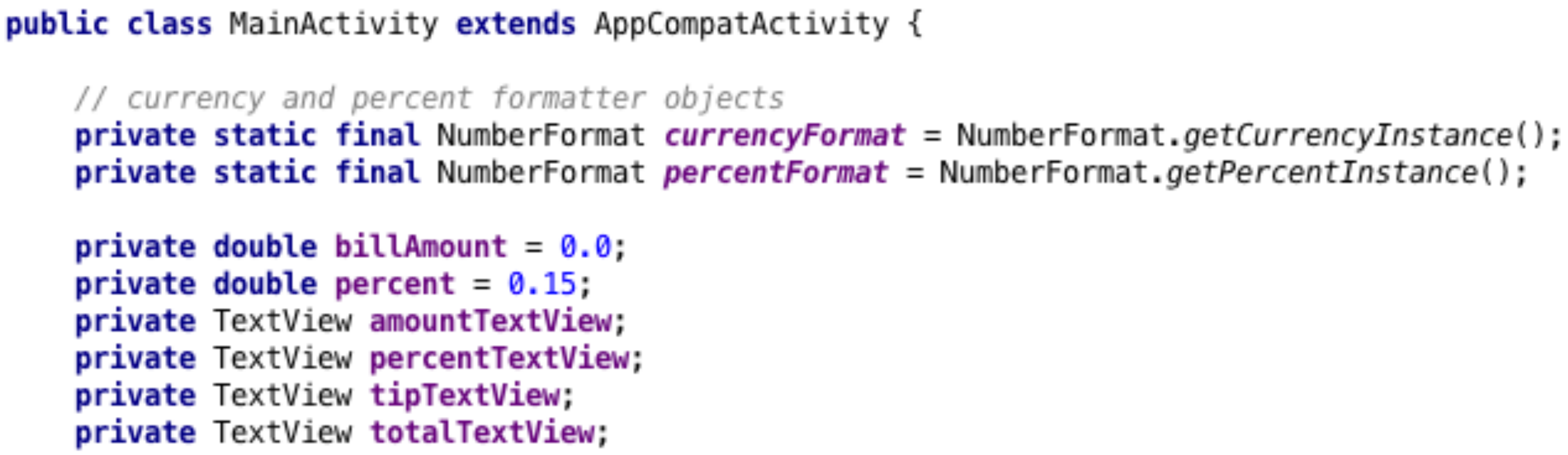
Im Theme Editor klickt man nun auf colorAccent. Im Resources-Dialog werden nun die entsprechenden Komplementär-farben angezeigt. Wir wählen Orange Accent 400

Das Layout ist nun fertig



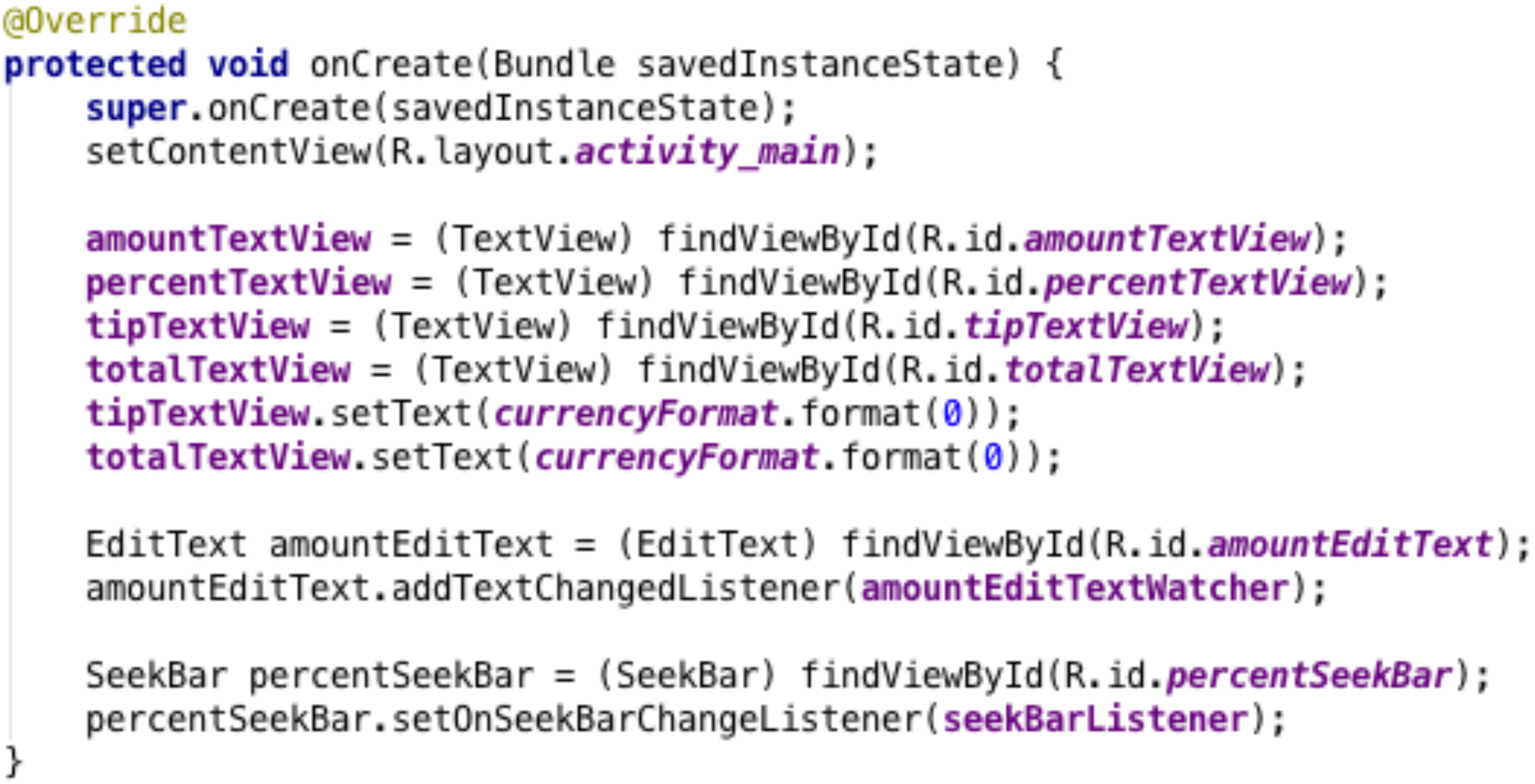
Applikationslogik

MainActivity.java



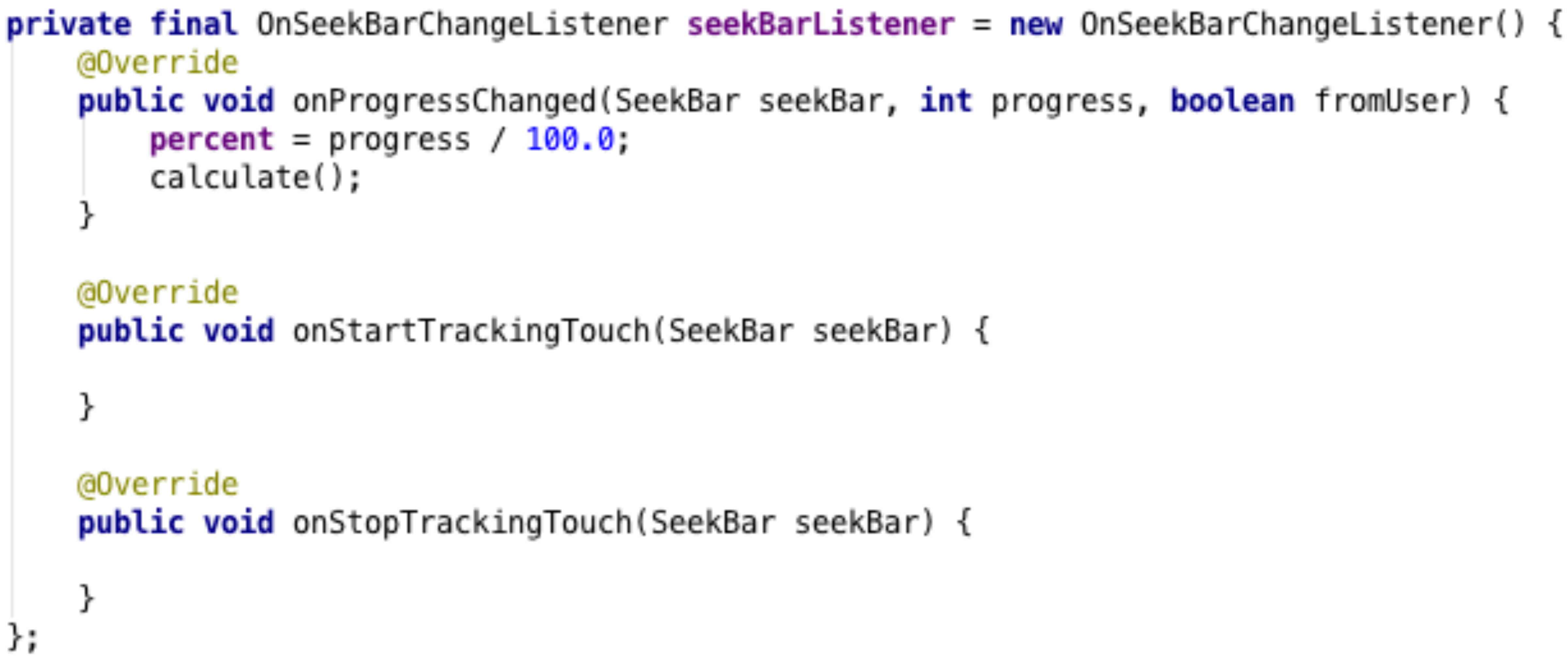
```
public class MainActivity extends AppCompatActivity {

    // currency and percent formatter objects
    private static final NumberFormat currencyFormat = NumberFormat.getCurrencyInstance();
    private static final NumberFormat percentFormat = NumberFormat.getPercentInstance();

    private double billAmount = 0.0;
    private double percent = 0.15;
    private TextView amountTextView;
    private TextView percentTextView;
    private TextView tipTextView;
    private TextView totalTextView;
```

onCreate()



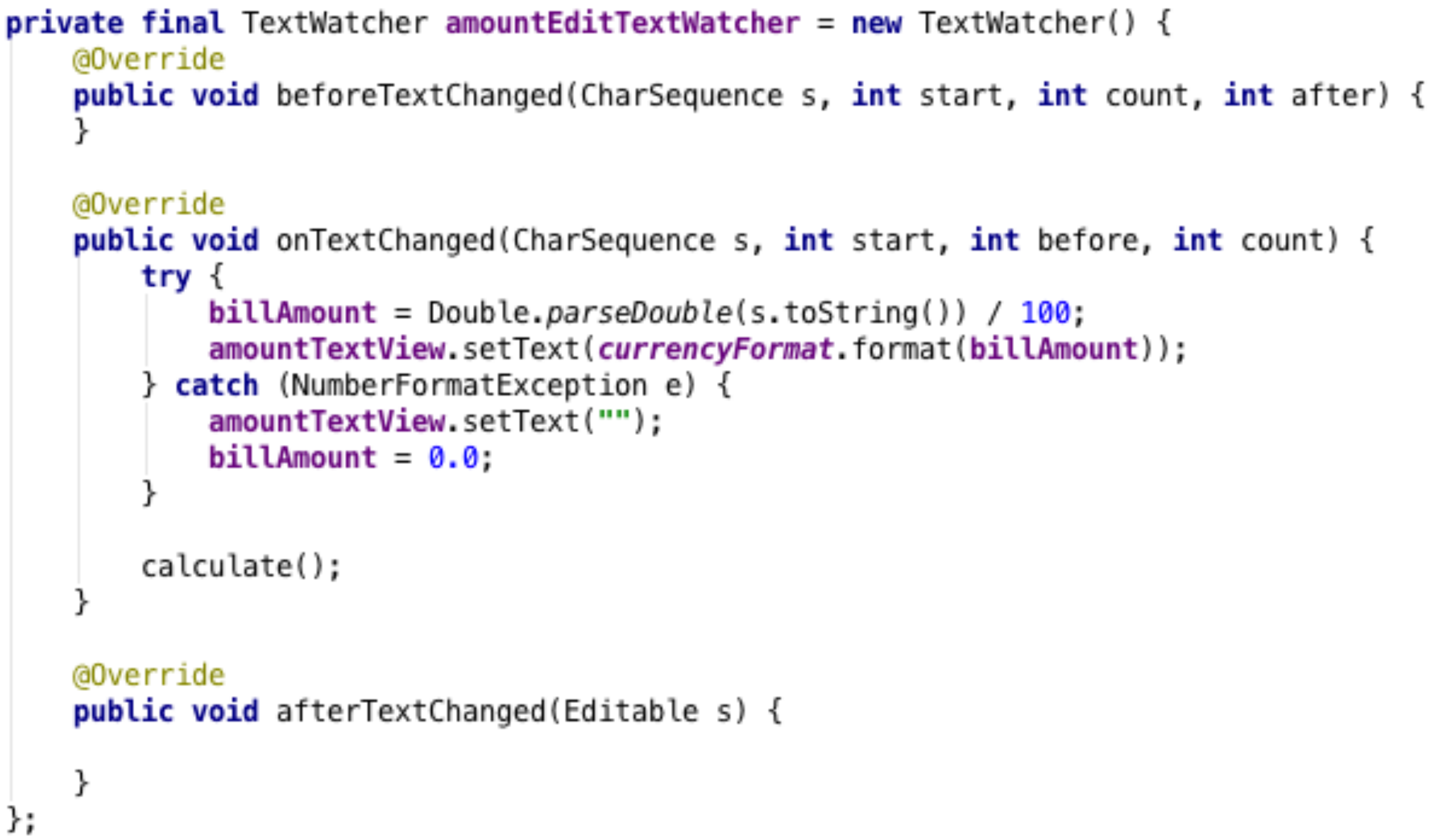
```java
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    amountTextView = (TextView) findViewById(R.id.amountTextView);
    percentTextView = (TextView) findViewById(R.id.percentTextView);
    tipTextView = (TextView) findViewById(R.id.tipTextView);
    totalTextView = (TextView) findViewById(R.id.totalTextView);
    tipTextView.setText(currencyFormat.format(0));
    totalTextView.setText(currencyFormat.format(0));

    EditText amountEditText = (EditText) findViewById(R.id.amountEditText);
    amountEditText.addTextChangedListener(amountEditTextWatcher);

    SeekBar percentSeekBar = (SeekBar) findViewById(R.id.percentSeekBar);
    percentSeekBar.setOnSeekBarChangeListener(seekBarListener);
}
```

seekBarListener()



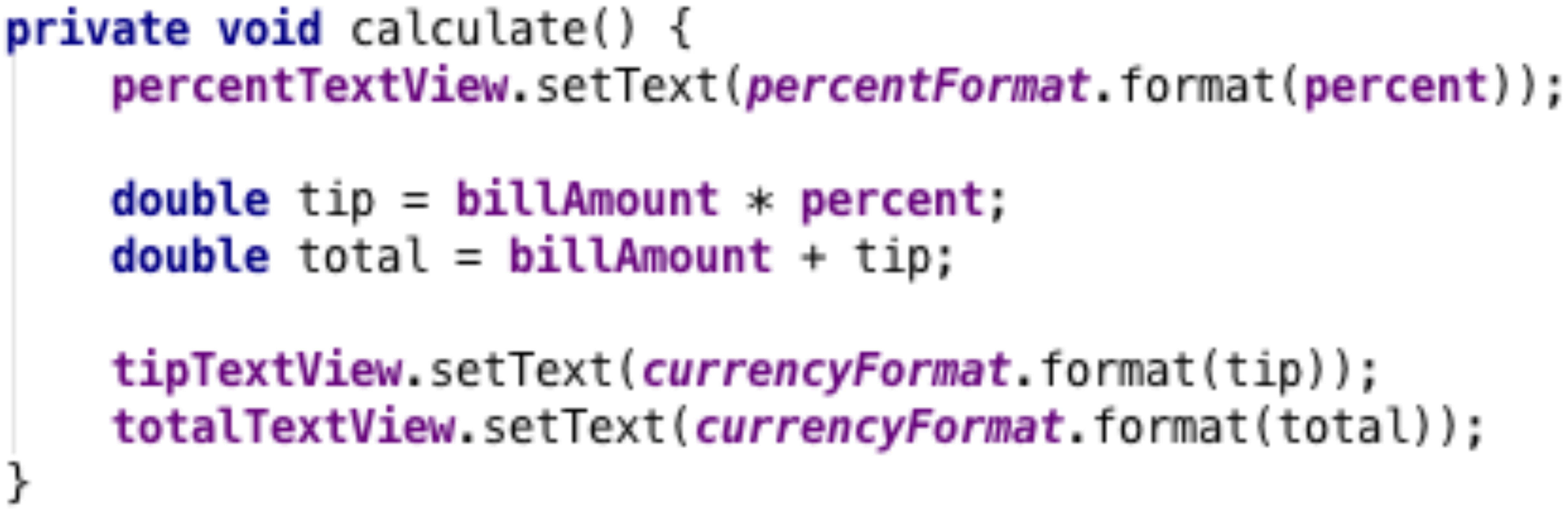
```java
private final OnSeekBarChangeListener seekBarListener = new OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar, int progress, boolean fromUser) {
        percent = progress / 100.0;
        calculate();
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {

    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {

    }
};
```

amountEditTextWatcher()



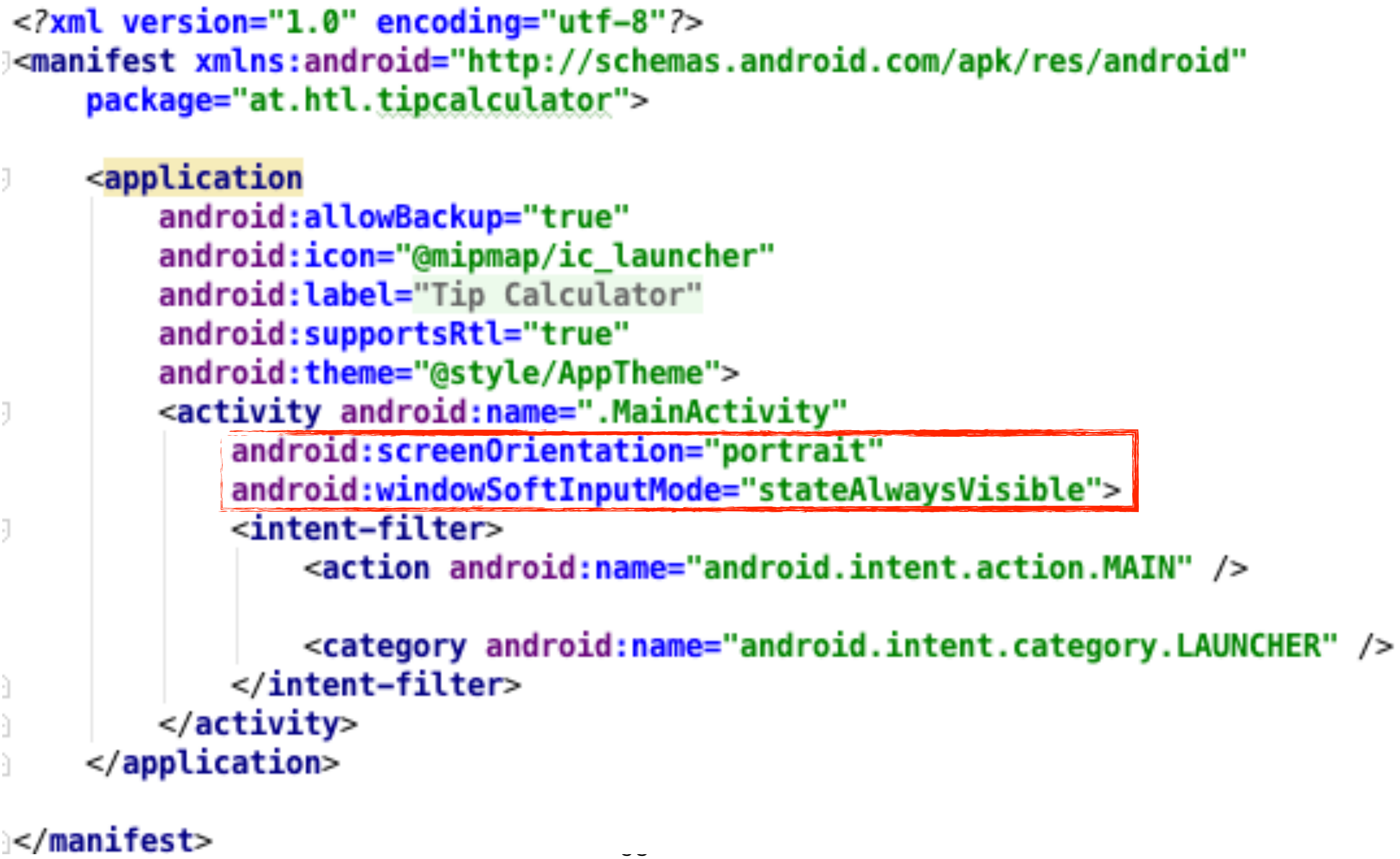
```
private final TextWatcher amountEditTextWatcher = new TextWatcher() {
    @Override
    public void beforeTextChanged(CharSequence s, int start, int count, int after) {
    }

    @Override
    public void onTextChanged(CharSequence s, int start, int before, int count) {
        try {
            billAmount = Double.parseDouble(s.toString()) / 100;
            amountTextView.setText(currencyFormat.format(billAmount));
        } catch (NumberFormatException e) {
            amountTextView.setText("");
            billAmount = 0.0;
        }

        calculate();
    }

    @Override
    public void afterTextChanged(Editable s) {

    }
};
```

calculate()



```
private void calculate() {
    percentTextView.setText(percentFormat.format(percent));

    double tip = billAmount * percent;
    double total = billAmount + tip;

    tipTextView.setText(currencyFormat.format(tip));
    totalTextView.setText(currencyFormat.format(total));
}
```

Manifest.xml



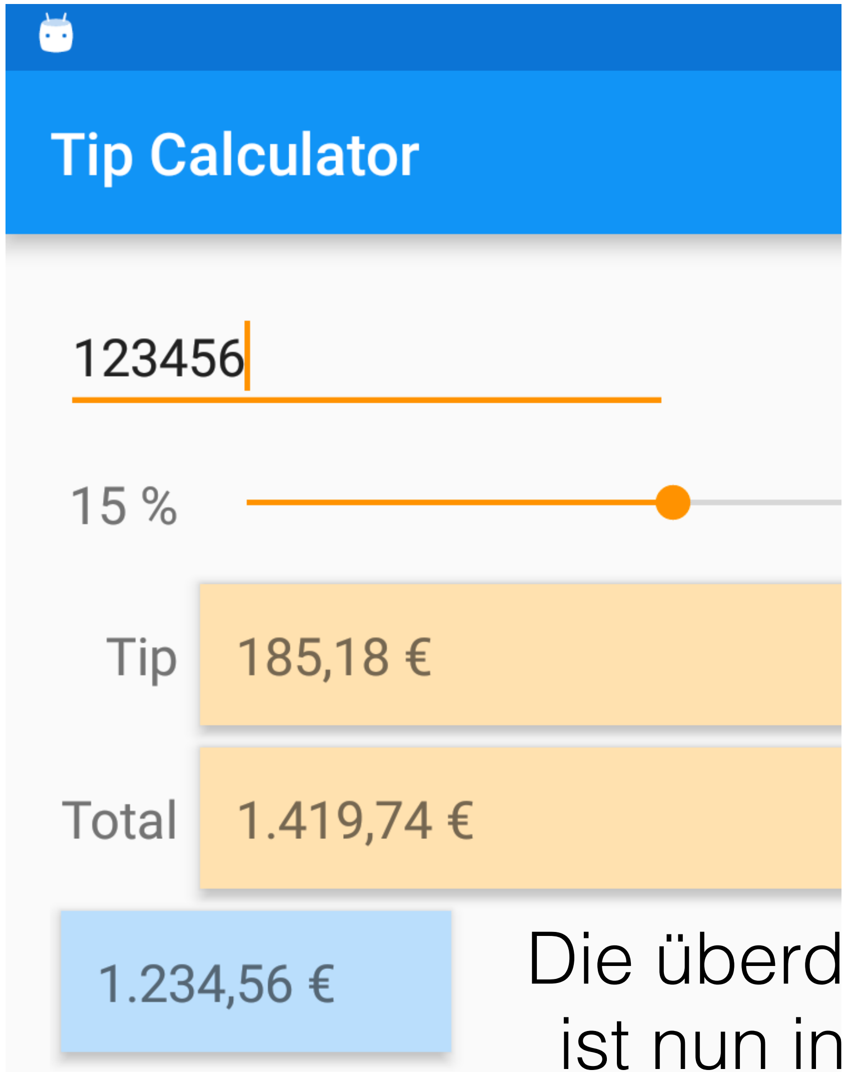
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="at.htl.tipcalculator">

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

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

</manifest>
```

Frage

- Warum verdeckt in diesem Beispiel eine Textview den EditText?

Antwort

- Da nicht der eingegebene Betrag angezeigt wird, sondern der durch 100 dividierte Betrag, wird dieser Betrag in einer eigenen TextView angezeigt



Tip Calculator

123456

15 %

Tip 185,18 €

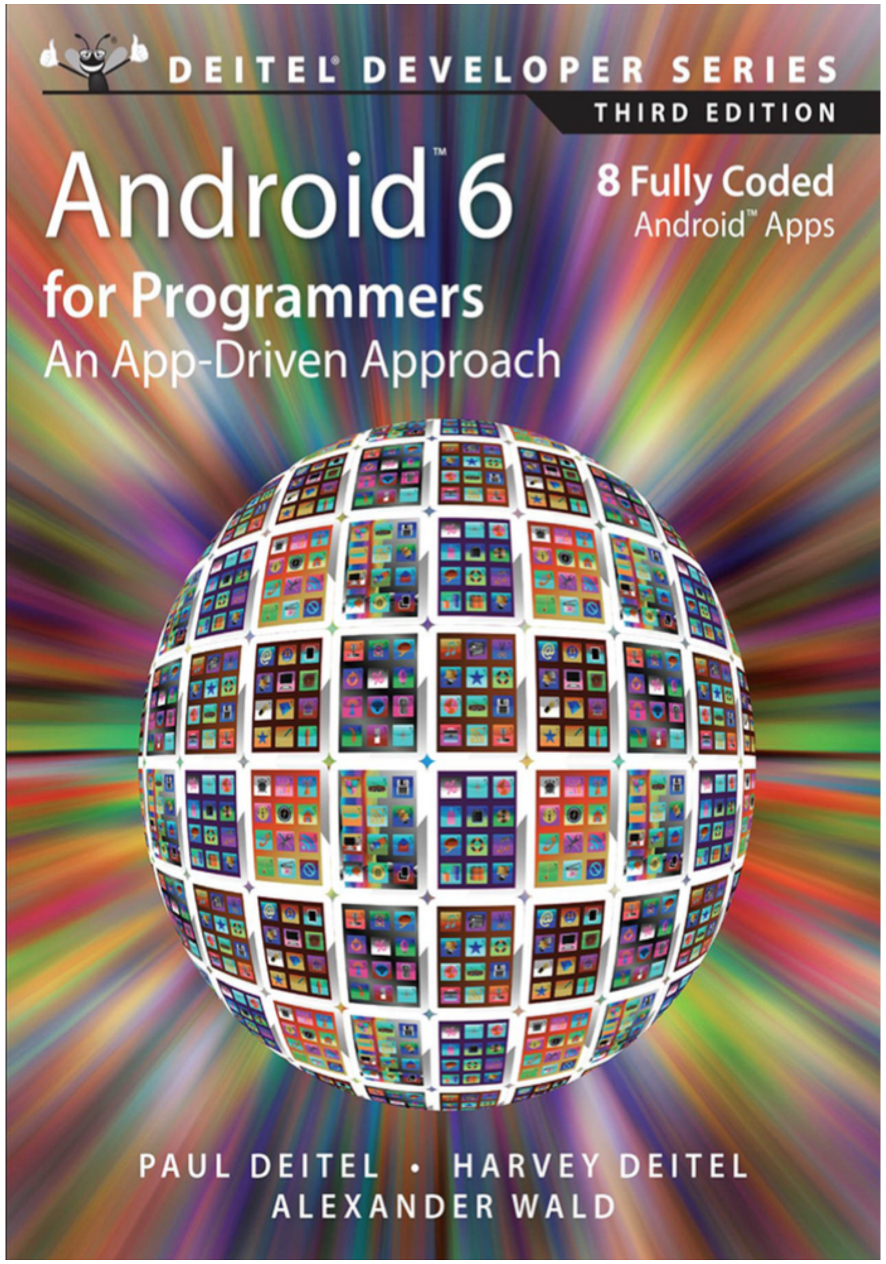
Total 1.419,74 €

1.234,56 €

Die überdeckende TextView
ist nun in der vierten Zeile

Noch
Fragen?

Quelle



http://www.deitel.com/Books/Android/AndroidforProgrammersAnAppDrivenApproach3/tabid/3671/Default.aspx