

Android Dev Kotlin



CS 402: Mobile Development



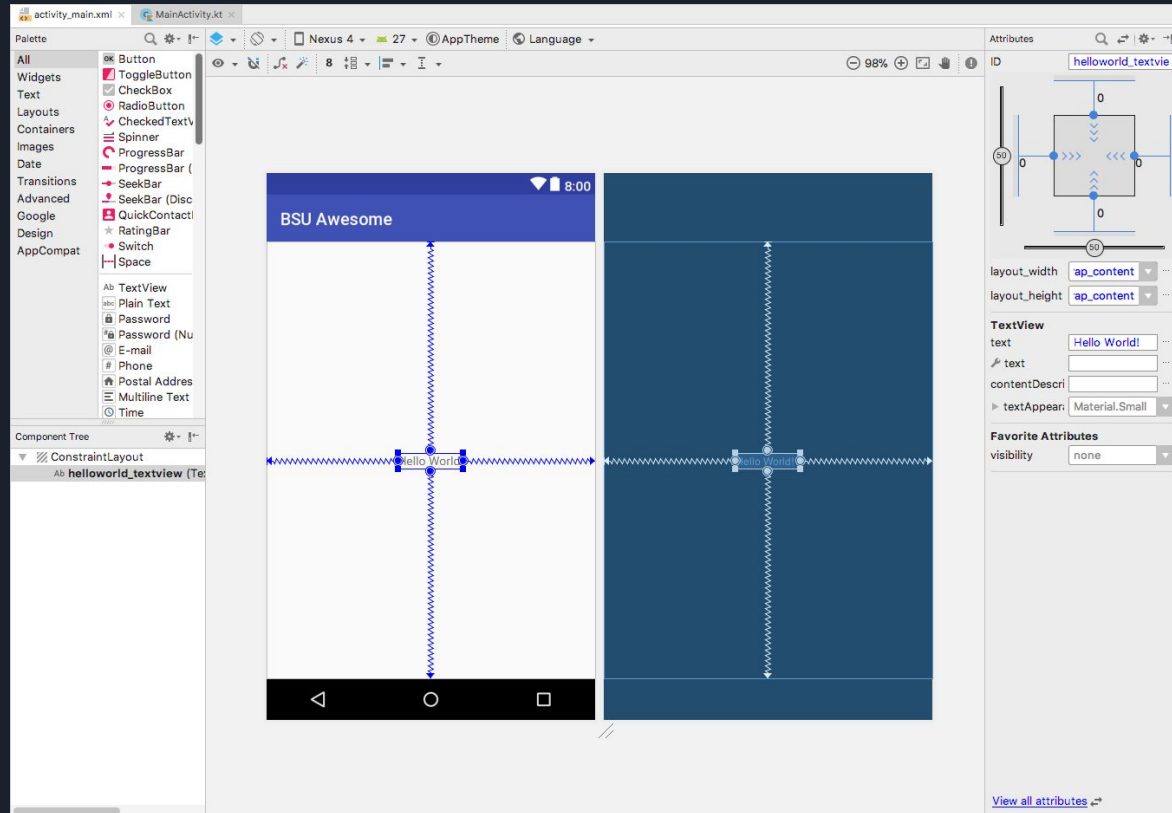
Android Overview

An operating system and application framework. Based on Linux

Primarily Java 6 with some Java 7 and 8

Interface is XML based. You can edit with a visual editor or edit the XML directly.

Android Studio Visual UI Editor





Kotlin val vs. var

```
val value:Type = Type()
```

val values can only be instantiated once

```
var variable:Type = Type()
```

```
variable.something()
```



Kotlin Types

```
var someInt: Int = 5
```

```
someInt = 4
```

```
someInt = Int.MAX_VALUE
```



Android Components

Activities - User interface screens

Fragments - User interface component groups

Widgets - Display and user interactivity

Services - Background jobs

Broadcast Receivers - Messaging system



Android Activities

Subclass of `android.app.Activity` or some version of it

Applications can have 0, 1 or many activities

Defines and manages the user interface

Basically, one activity will define each screen



Android Layouts

Defines interface objects (widgets)

Defines the positioning of those objects on the screen

Underlying implementation is in XML with

```
android: namespace
```

Can have multiple layouts per screen, device, orientation, resolutions



Android Widgets

Buttons

TextField

TextView

MapView

WebView

...



Widgets and Layouts

```
<TextView
    android:id="@+id/hello_textview"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_centerHorizontal="true"
    android:layout_centerVertical="true"
    android:text="@string/hello_world" />
```



Android Widgets

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello World!"
    android:id="@+id/helloworld_textview"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```



Android Reference to Widgets

```
val helloWorldTextView:TextView =  
    findViewById(R.id.helloworld_textview)  
  
helloWorldTextView.text = "This is the changed text"
```



Android Widgets

```
<Button  
    android:id="@+id/submit_button"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="Button" />
```




Android Reference to Widgets

```
val submitButton:Button = findViewById(R.id.submit_button)

submitButton.setOnClickListener {

    Log.d("BSU", "Submit button pressed")

}
```



Homework 1

Due 1/23/2019 EoD

Create and submit an Android Kotlin application that:

1. Has two TextViews
2. Has two Buttons
3. Has two EditTexts
4. First button concatenates the two EditTexts and outputs result to the TextView
5. Second button adds the two EditTexts and outputs result to the TextView
6. Grading...



Homework Grading

0 - No submission

1 - Not working and very little code

2 - Not working or very little code

3 - Requirements missing

4 - All requirements fully satisfied

5 - All requirements fully satisfied and added design and/or functionality



Homework Grading

Example:

Student satisfies all requirements and adds design elements: 4.2

Missing some features but adds design elements: 3.2

All requirements and added some features and design: 4.9