Android Dev Kotlin

CS 402: Mobile Development

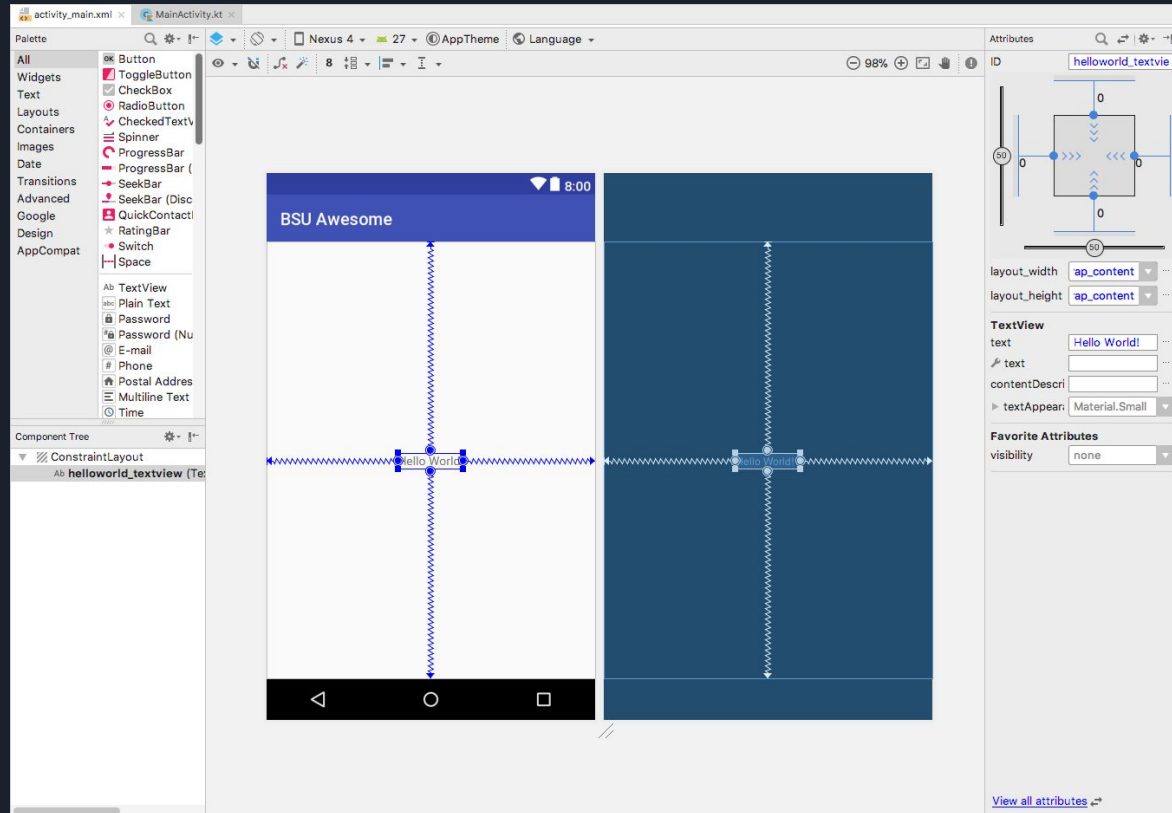Michael Ziray - michaelziray@boisestate.edu

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

Android val vs. var

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

val values can only be instantiated once

```
var variable:Type = Type()

variable.something()
```

Android Components

```
var someInt:Int = 5

someInt = 4

someInt = Int.MAX_VALUE
```

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`

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

```xml
<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

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

Android Reference to Widgets

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

submitButton.setOnClickListener {

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

}
```

Homework 1
Due 1/23/2018 EoD

Create and submit an Android Kotlin application that:

1. Has two TextViews
2. Has two Buttons
3. Has two EditTexts
4. First button <u>concatenates</u> the two EditTexts and outputs result to the TextView
5. Second button <u>adds</u> the two EditTexts and outputs result to the TextView