

# Android Dev Kotlin



CS 402: Mobile Development



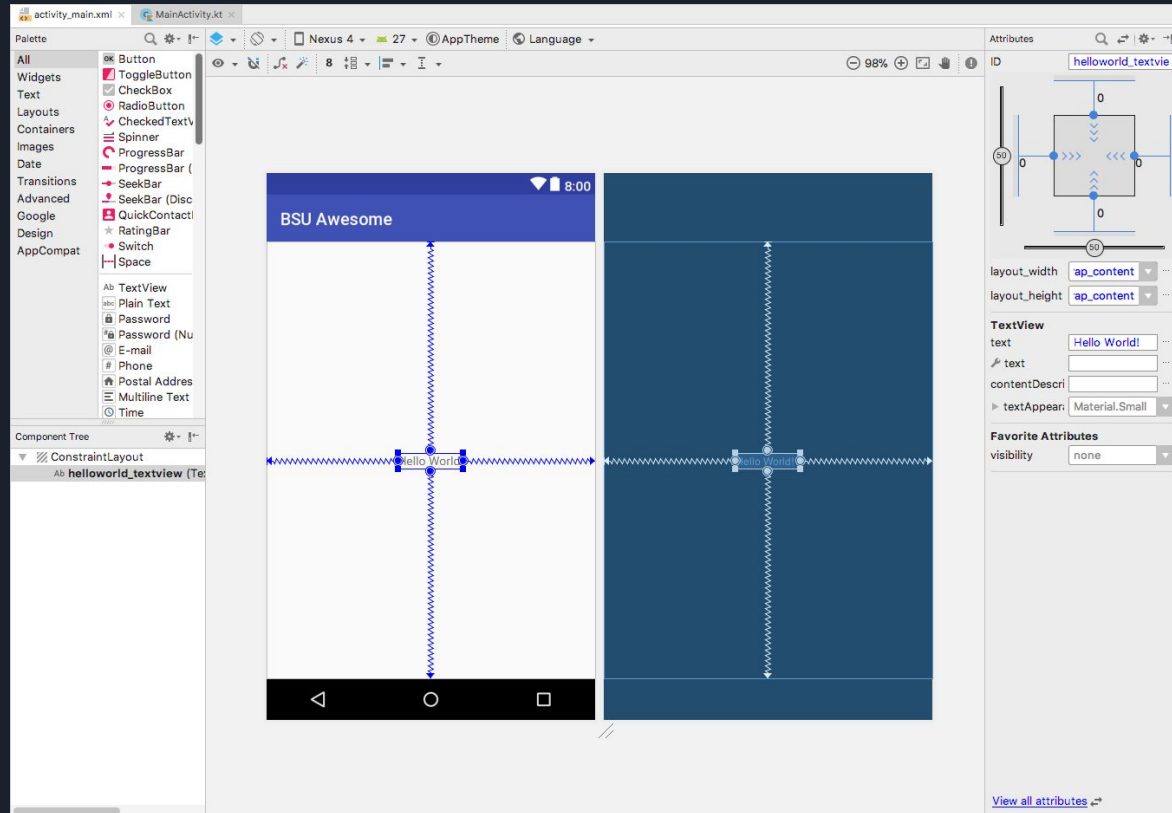
# Android Overview

An operating system and application framework. Based on Linux

Primarily Java 8, Kotlin

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 Reference to Widgets Kotlin Extensions

```
val helloworldTextView:TextView =  
findViewById(R.id.helloworld_textview)
```

```
helloworld_textview.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")

}
```