



# **GRAPHICAL USER INTERFACES (GUIS)**

- Console app vs. Mobile app!

>> Enter employee name: Ryan
>> Enter employee title: Product
Manager

>> Enter hire date: 06-03-2018

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### **ANDROID STUDIO**

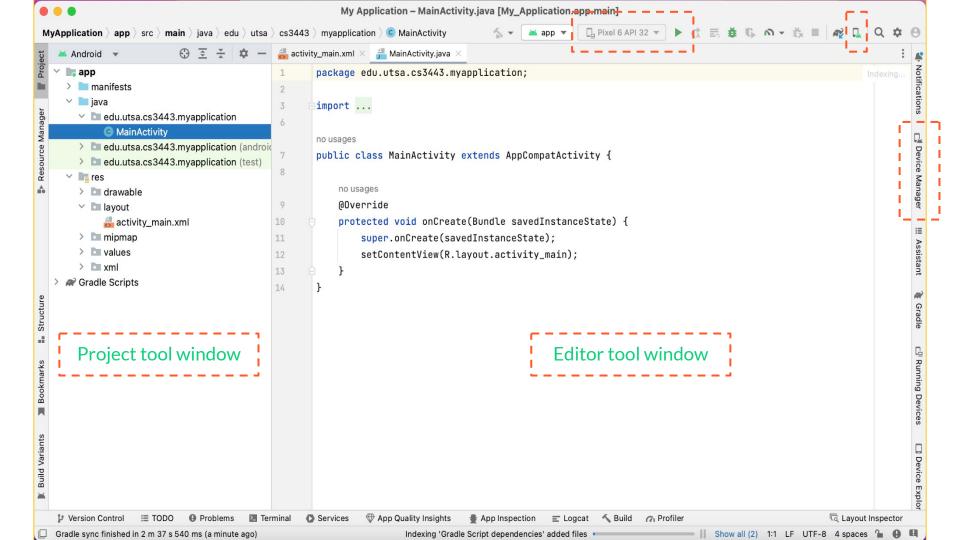
- Android Studio is an integrated development environment (IDE) for building Android apps
- Download and install Android Studio <u>here</u>
- Installing Android Studio includes
  - Android SDK (Software Development Kit)
  - Android SDK tools and platform tools (for debugging & testing)
  - A system image for the Android emulator
  - JDK

- In Android Studio, create a new project
  - Select "Phone and Tablet" template  $\rightarrow$  next
  - Select "Empty Views Activity" (different from "No Activity")  $_{\rightarrow}$  next
  - Package name: edu.utsa.cs3443.projectName  $\rightarrow$  next
  - Language: Java → next
  - Minimum SDK: Android 8 (Oreo)
  - Finish  $\rightarrow$  Finish
- Android Studio may need to install several things if this is your first project - be patient and do not close the IDE until it is finished!

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	Language Java 💌		10		Use Live Edit to update composables in real time
	Language		11	<pre>super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);</pre>	Live Edit is a feature in Android Studio Giraffe that lets you updat
	Minimum SDK API 24 ("Nougat"; Android 7.0)		12		composables in emulators and physical devices in real time. Edit composables and see the UI changes on the running device
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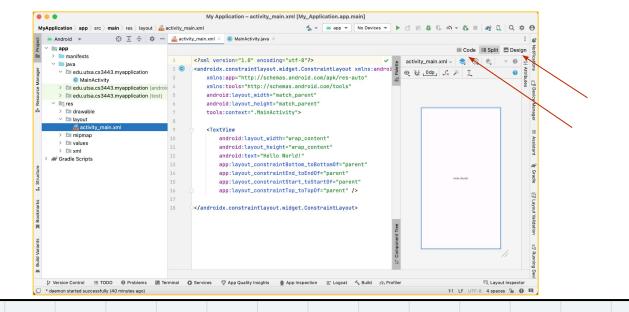
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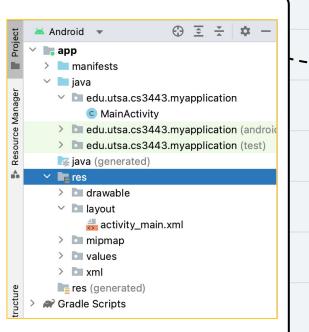


#### - Layout Editor

- drag and drop views in the **Design** mode
- view the xml code by clicking the Code button in the top left

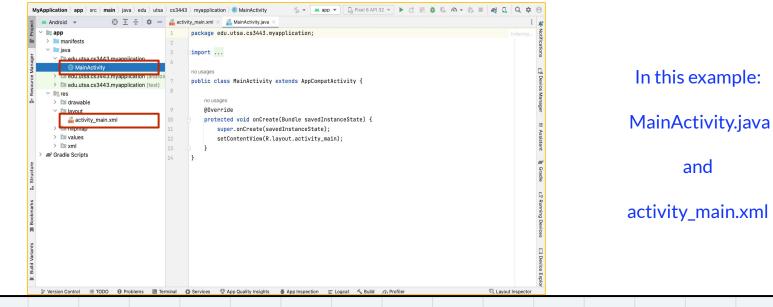


- Resource: a piece of your app that is not code (e.g. image files, audio, XML)
- Layout: Defines a set of UI objects and the objects' positions on the screen
- View: UI objects (View is a superclass of all UI components)
- Inflate: parse an XML layout resource and convert it to a hierarchy of View objects



- **Activity**: a class in the Android SDK which represents an entry point to into your app and is responsible for managing user interactions with a screen of information
  - Name your Activity class: SomeNameActivity.java
  - Name your layout file:

activity\_some\_name.xml

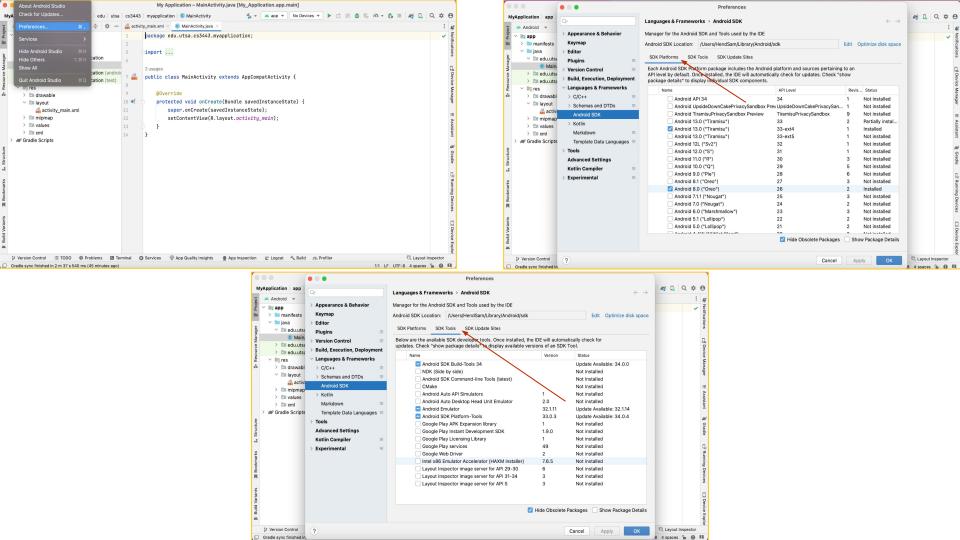


- MainActivity.java (default template)
  - onCreate() is called when an instance of the activity subclass is created
  - setContentView() assigns this activity the UI it manages; it inflates the layout & puts it on the screen, instantiating all views in the layout file as defined by their attributes

```
package edu.utsa.cs3443.hello_world;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
```

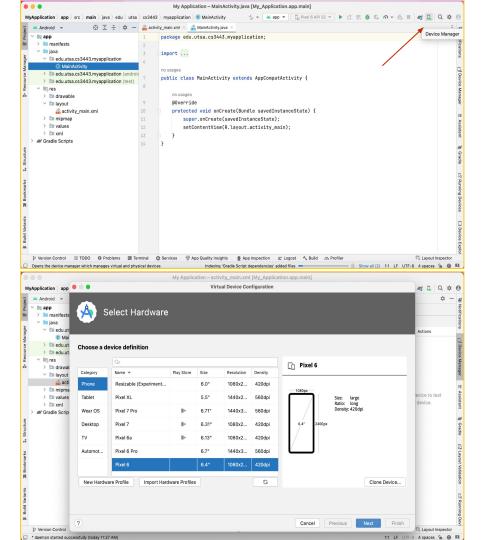
#### **ANDROID SDK**

- Immediately after installing Android Studio for the first time it is likely that only the latest released version of the Android SDK has been installed.
- To install older versions of the Android SDK simply select the checkboxes corresponding to the versions and click on the Apply button.
- This task can be performed by clicking on the **More Actions link** within the welcome dialog or by clicking the **Preferences menu option**, then selecting the SDK Manager option from the drop-down menu,
  - select Android Oreo (8.0)



#### **CREATING A VIRTUAL DEVICE**

- An Android application may be tested by installing and running it either on a physical device or in an Android Virtual Device (AVD) emulator environment.
- As part of the standard Android Studio installation, several emulator templates are installed allowing AVDs to be configured for a range of different devices.
- New AVDs are created and managed using the Android Virtual Device Manager.
  - Tools > Device Manager (or the 🖳 icon)



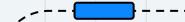
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# **ANDROID DEVELOPMENT RESOURCES**

- Our Textbook Forum
  - o <u>https://forums.bignerdranch.com/</u>
- Documentation
  - o <u>https://developer.android.com/</u>
- Newsgroups And Forums
  - <u>https://stackoverflow.com/questions/tagged/android</u>
  - o <u>https://androidforums.com/</u>
- Development Tips
  - o <u>https://android-developers.googleblog.com/</u>
- Videos And Tutorials
  - o <u>https://www.youtube.com/user/androiddevelopers</u>



#### **CODE DEMO**

 Create a HelloWorld Android Application using Android Studio and walk through the project content!

