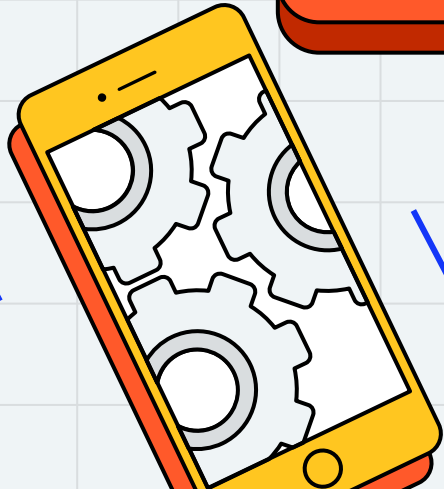


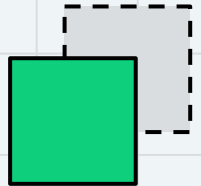
A green gear with a blue inner ring is in the top left. A dashed line with a yellow dot at the end curves from the top right towards the blue box. Another dashed line curves from the top right towards the orange box.

# Application

# Programming



Hend Alkittawi





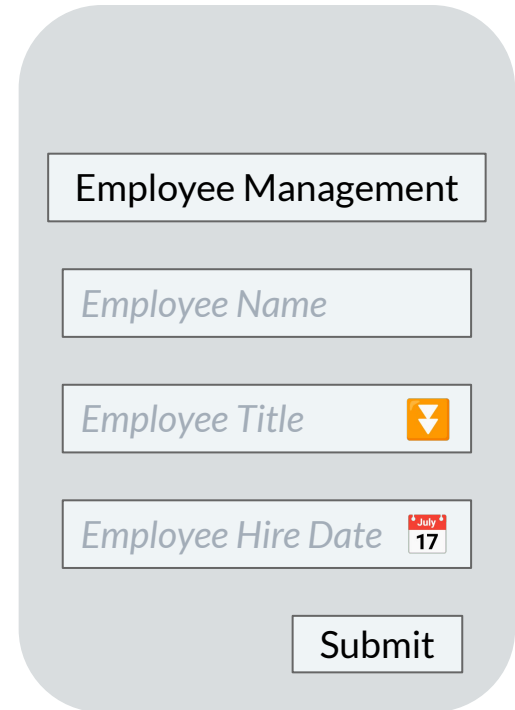
# Android Development

Introduction to Android Studio and  
Android Apps Anatomy

# GRAPHICAL USER INTERFACES (GUIs)


- Console app vs. Mobile app!


```
>> Enter employee name: Ryan
>> Enter employee title: Product
Manager
>> Enter hire date: 06-03-2018
```



Employee Management

Employee Name

Employee Title 

Employee Hire Date  July 17

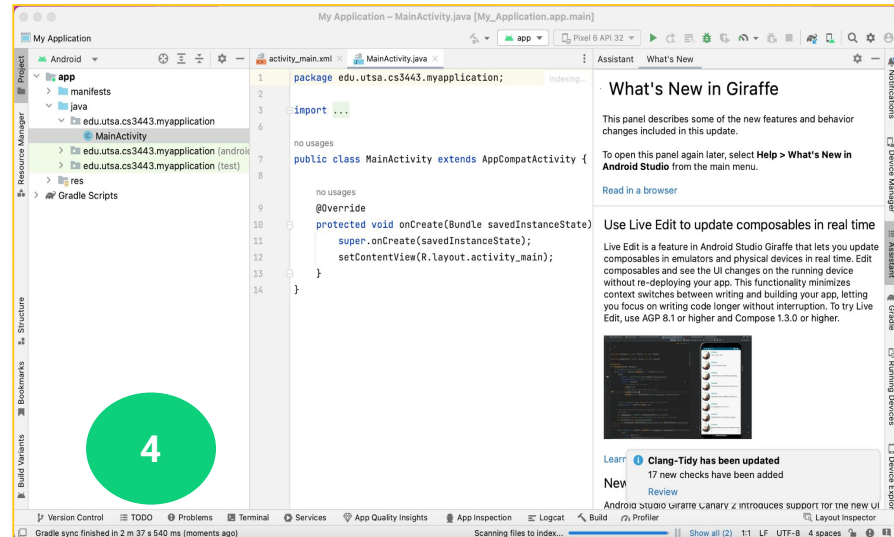
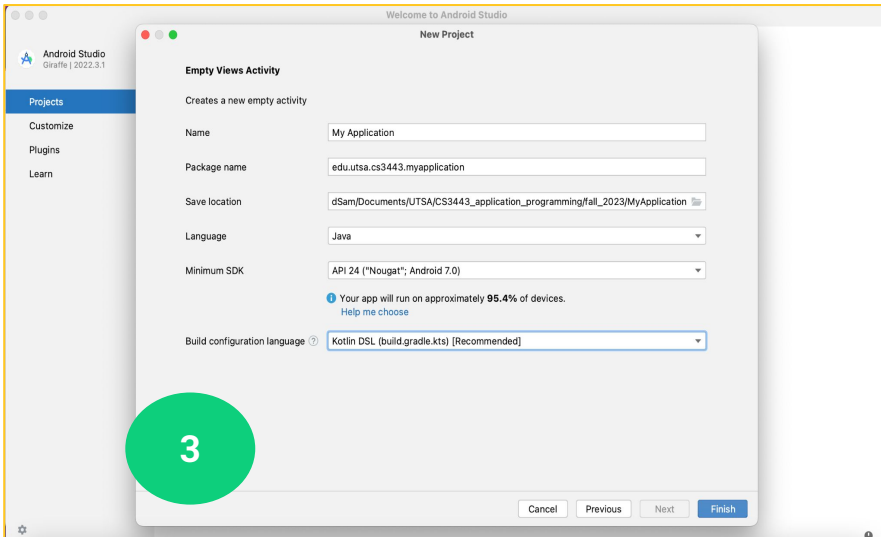
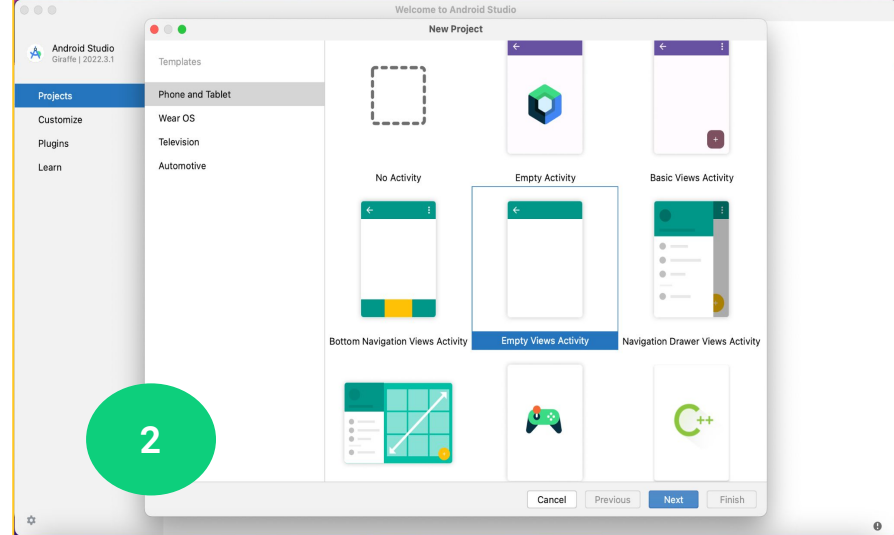
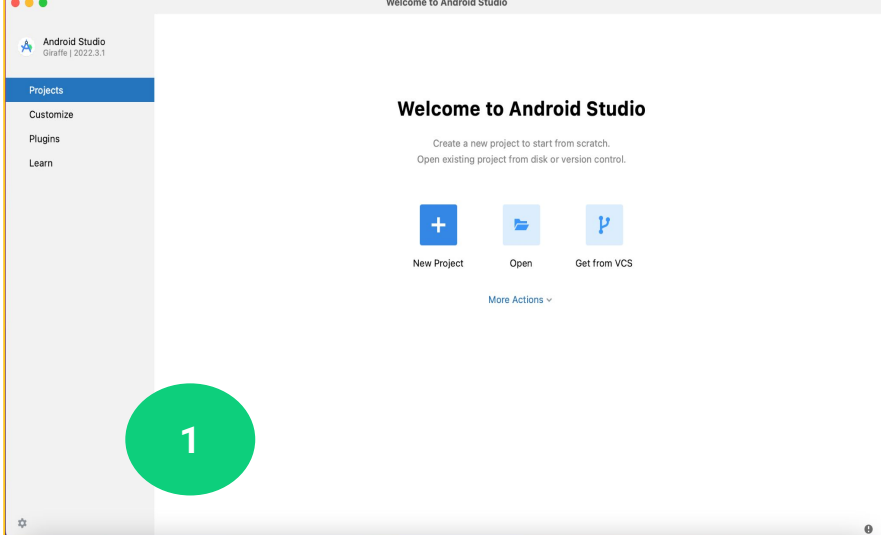
Submit

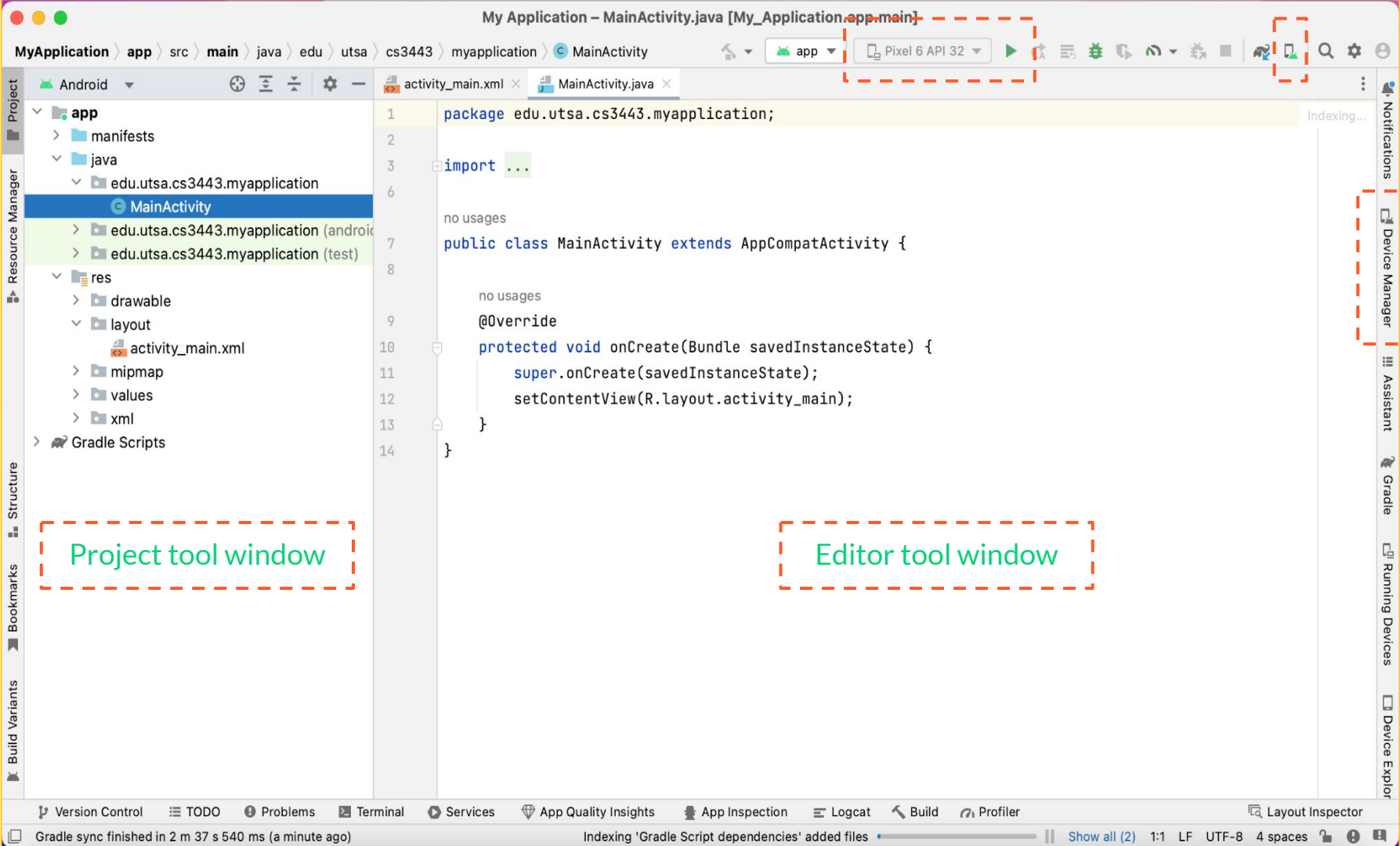
# ANDROID STUDIO

- **Android Studio** is an integrated development environment (IDE) for building Android apps
- Download and install Android Studio [here](#)
- Installing Android Studio includes
  - Android SDK (**S**oftware **D**evelopment **K**it)
  - Android SDK tools and platform tools (for debugging & testing)
  - A system image for the Android emulator
  - JDK

# HELLO, ANDROID STUDIO!

- In Android Studio, create a new project
  - Select "Phone and Tablet" template → next
  - Select "Empty Views Activity" (different from "No Activity") → next
  - Package name: `edu.utsa.cs3443.projectName` → next
  - Language: Java → next
  - Minimum SDK: Android 8 (Oreo)
  - Finish → 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!





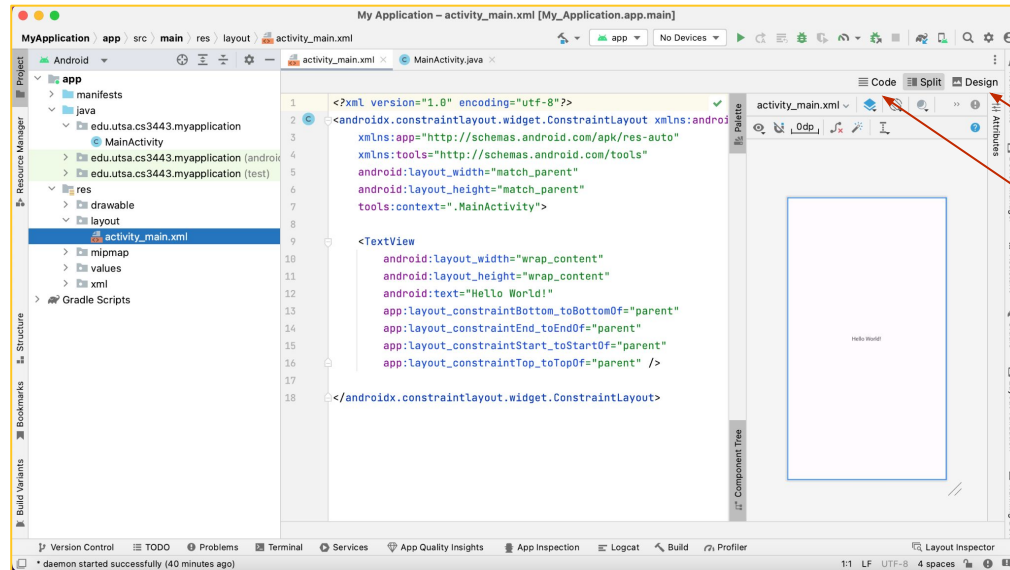
Project tool window

Editor tool window

# HELLO, ANDROID STUDIO!

## - Layout Editor

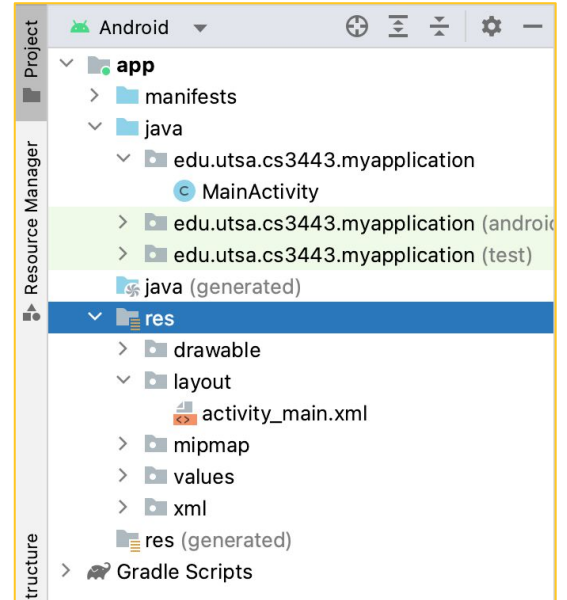
- drag and drop views in the **Design** mode
- view the **xml** code by clicking the **Code** button in the top left





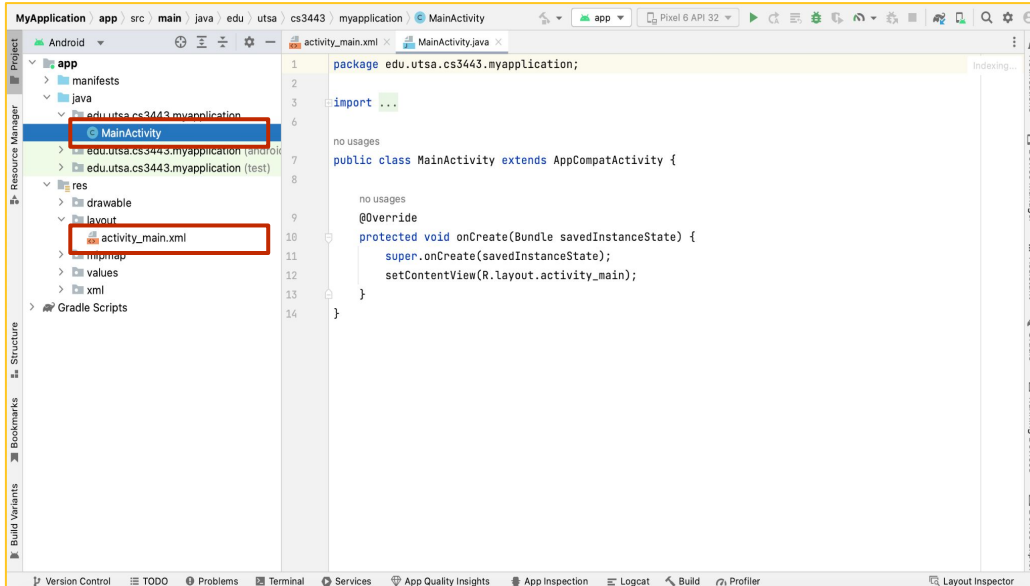
# HELLO, ANDROID STUDIO!

- **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



# HELLO, ANDROID STUDIO!

- **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`



In this example:  
`MainActivity.java`  
and  
`activity_main.xml`

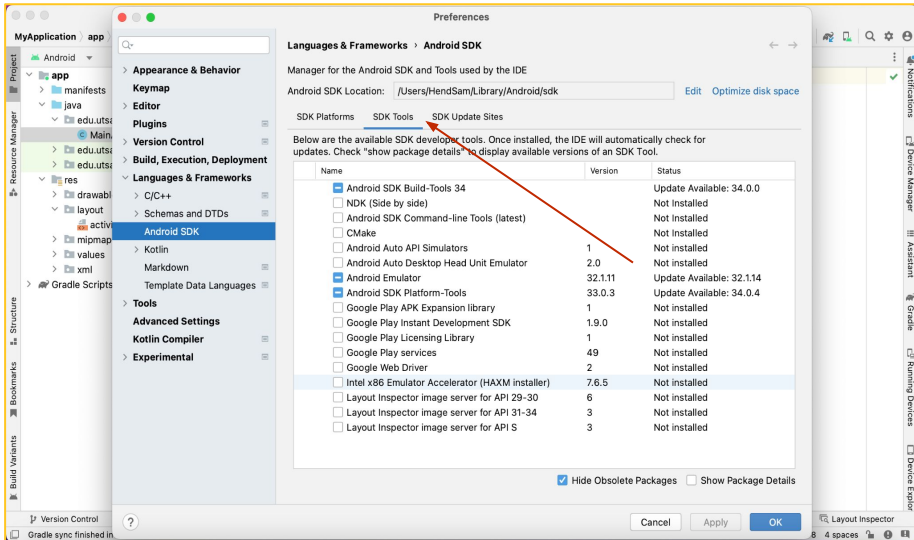
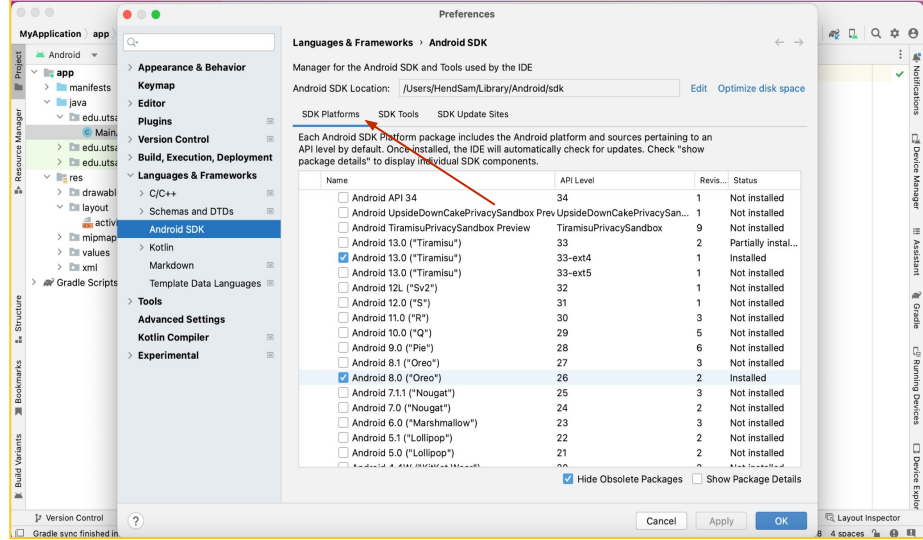
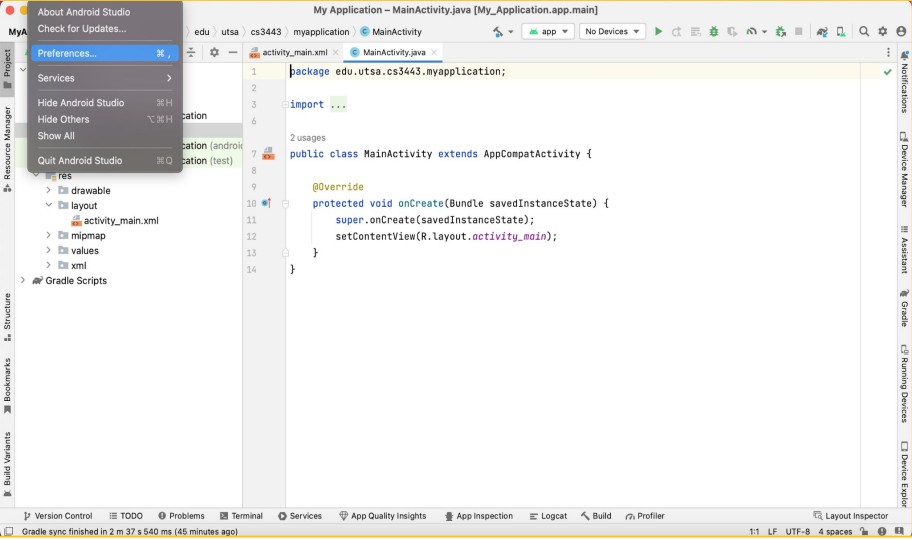
# HELLO, ANDROID STUDIO!

- **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);
    }
}
```

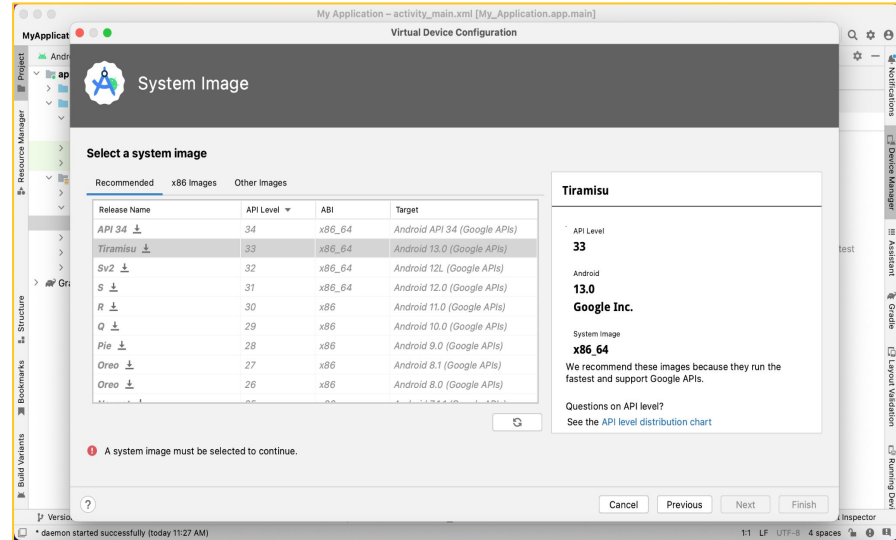
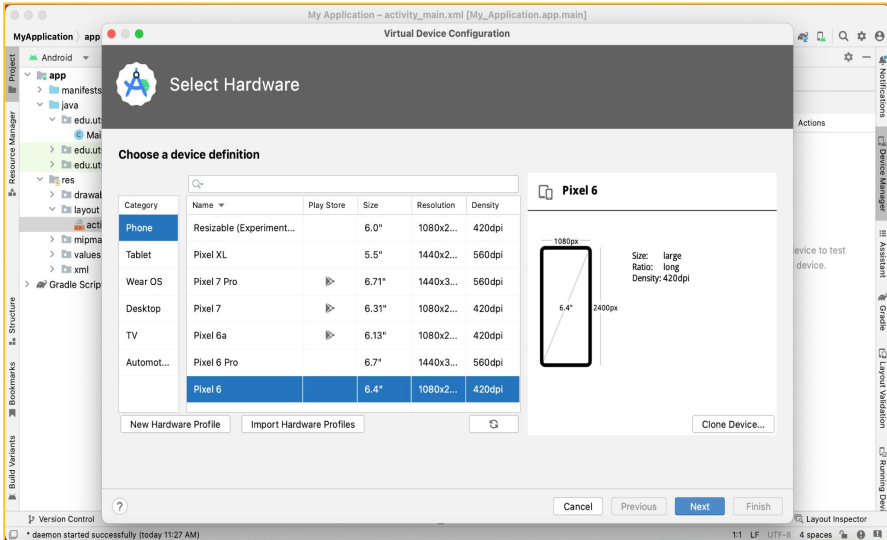
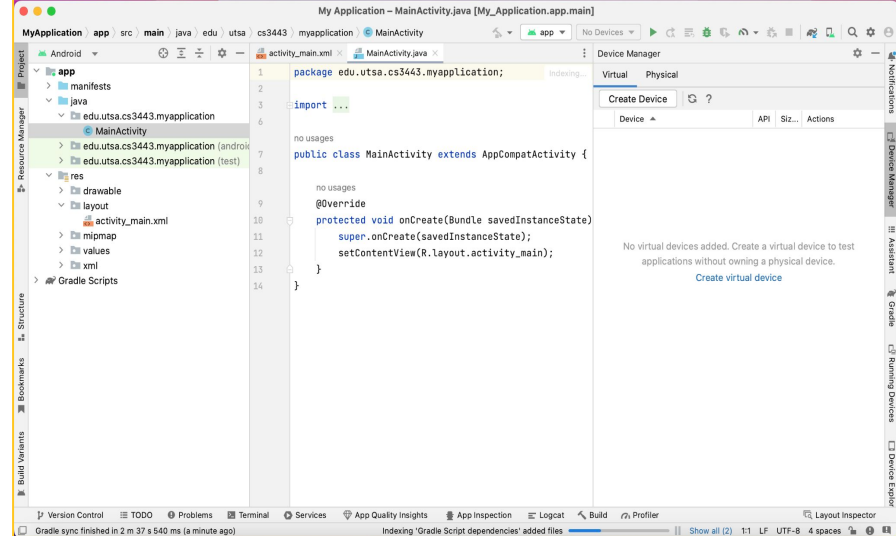
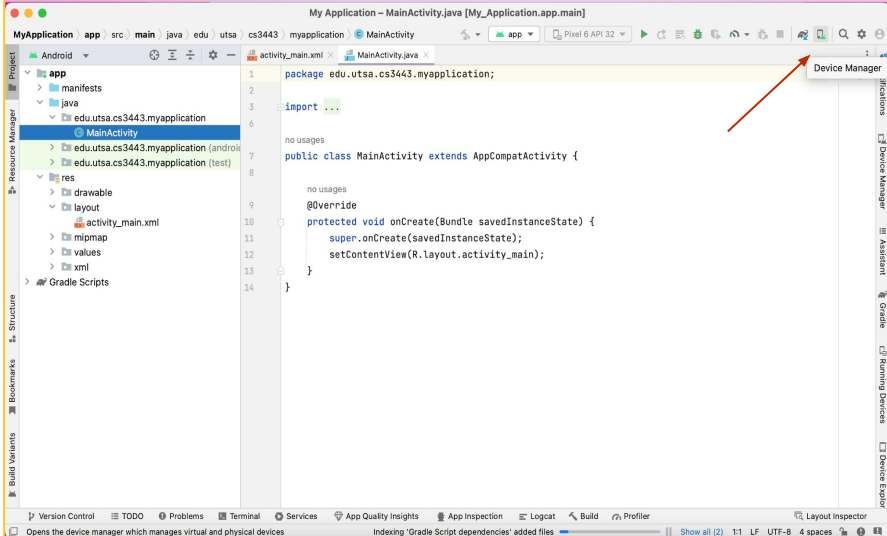
# ANDROID SDK

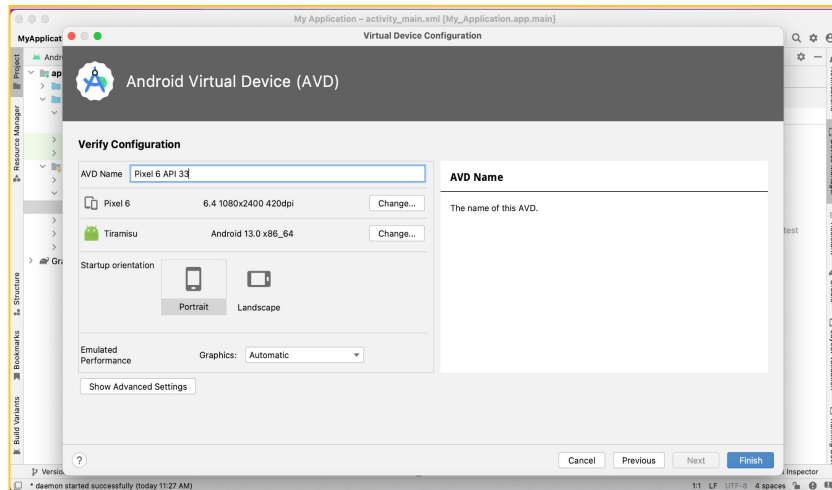
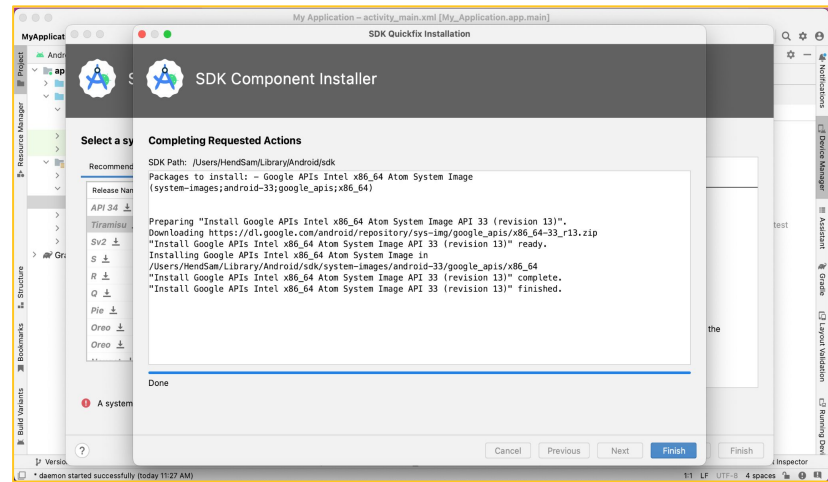
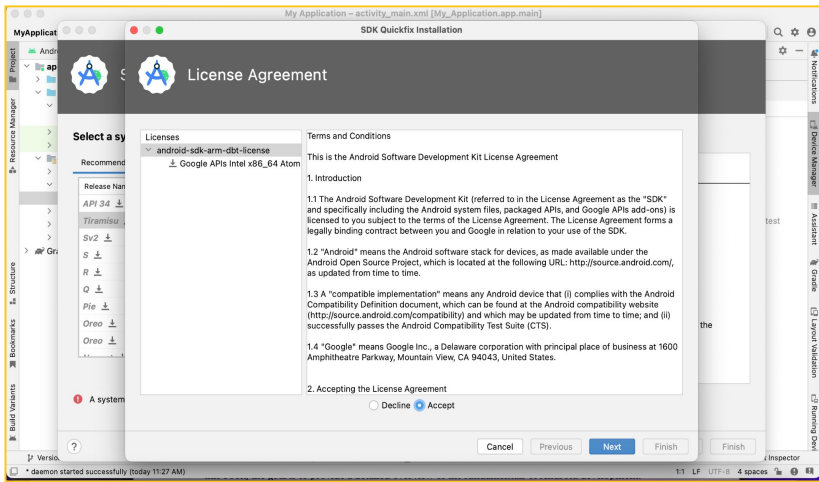
- Immediately after installing Android Studio for the first time it is likely that only the latest released version of the Android SDK has been installed.
- To install older versions of the Android SDK simply select the checkboxes corresponding to the versions and click on the Apply button.
- This task 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)





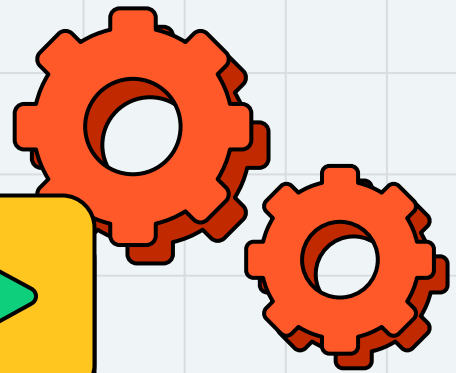
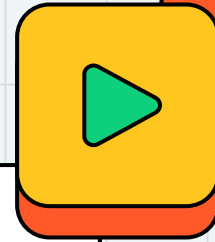
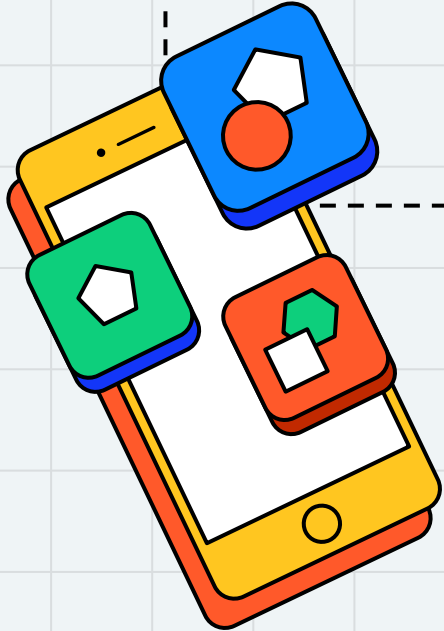


# ANDROID DEVELOPMENT RESOURCES

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

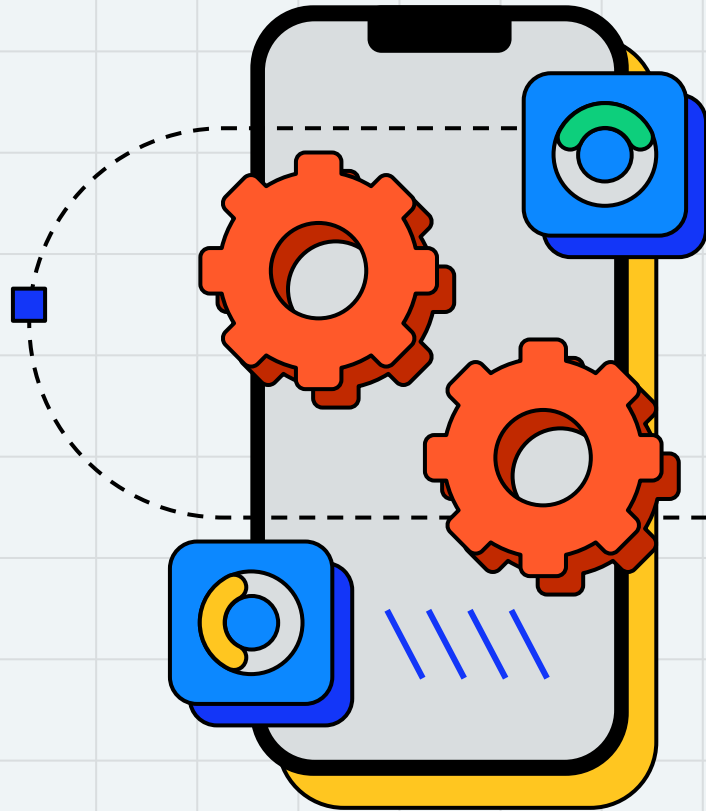
## CODE DEMO

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



# IMPORTANT

Run the *HelloWorld* Android App on your machine and/or VDI before the end of the week!





**THANK**

**YOU!**



## DO YOU HAVE ANY QUESTIONS?



hend.alkittawi@utsa.edu



By Appointment



Online