Department of Computer Sciences

Lab Journal 02

(Fall 2018)

Course:	**Mobile Application Development**	Date:
Course Code:	EEL-210	Max Marks: 20
Faculty's Name:	Miss Iram	Lab Engineer: M. Abdul Mannan

Name:_____ Enroll No: _____

Objective(s):

- To familiarize students with Android Studio and basic android development

Lab Tasks:

Task 1.1: Create a new Android application.

Task 1.2: Create an Android Virtual Device and start the Android Emulator.

Task 2.1: Run the application you created in Part 2.

Task 2.2: Import an application project.

Task 3.1: Make basic Splash screen with matching code pattern in example uploaded to Github

Task 3.2: What is phishing attack explain in few lines.

Lab Grading Sheet :

Task	Max Marks	Obtained Marks	Comments(*if any*)
1.	6		
2.	7		
3.	7		
Total	**20**		**Signature**

Note : Attempt all tasks and get them checked by your Lab Instructor

Lab – Android Development Environment

Setting up the ADT, Creating, Running and Debugging Your First Application

Objectives:

Familiarize yourself with the Android Development Environment

Important Note: This class has many students with a wide range of previous experience. Some students are fairly new to object-oriented programming (OOP). Some have OOP experience, but are new to Android. Still others have some Android experience already, and want to just freshen up their knowledge.

This Lab will walks you through installing and setting up your development environment so you can follow the examples provided. First, you will install an essential prerequisite component called the Java Development Kit (JDK). Then you will download and install Android Studio as well as the Android Software Development Kit (SDK), which is a suite of software tools required to build Android apps. We will show you how to use the New Project Wizard to create a simple project called HelloWorld. Last, we will show you how to establish a connection to both an Android Virtual Device (AVD) and a physical Android device. By the end of this chapter, you will have everything you need to start developing apps in Android Studio along with basic splash screen app.

We have already installed android studio for you in each pc below are the task which we expect from you to complete in this lab.

This lab contains the following Parts.

1. Create a new Android application.
2. Create an Android Virtual Device and start the Android Emulator.
3. Run the application you created in Part 2.
4. Import an application project.
5. Make basic Splash screen with matching code pattern in example uploaded to GitHub
6. What is phishing attack explain in few lines.

Additional helpful information can be found on the Android Developer website:

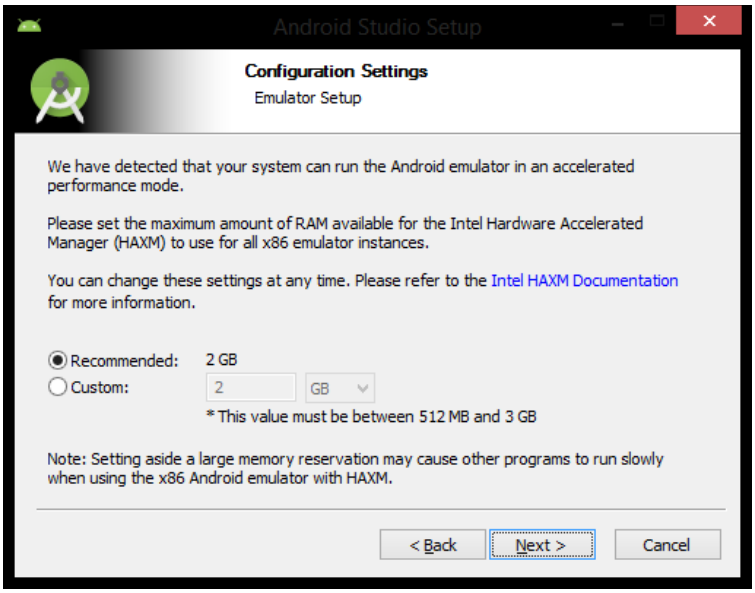
- https://developer.android.com/studio/index.html
- https://developer.android.com/training/basics/firstapp/creating-project.html
- https://developer.android.com/studio/run/managing-avds.html
- https://developer.android.com/training/basics/firstapp/running-app.html

Part 1 – Setting Up Android Studio.

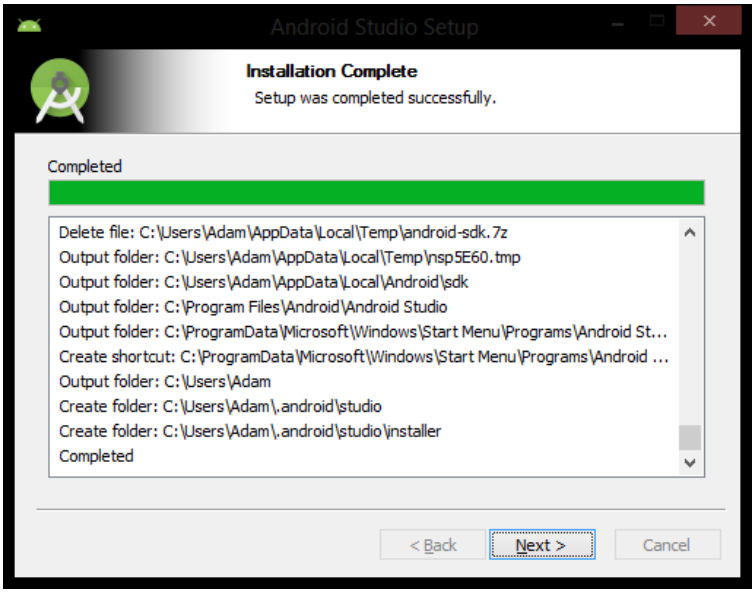
In this part you will download and install Android Studio which will be the Integrated Development Environment (IDE) used for this course. For the purposes of this document, we installed Android Studio version 2.3.3 (the current latest stable release as of 9/1/2017) on a Mac running Sierra. All screenshots correspond to that environment.

1. Download Android Studio from https://developer.android.com/studio/index.html . Click on 'Download Android Studio'.
2. Open the executable file android-studio-<xxx>.
3. Once the setup loads, you will see the Welcome Screen.

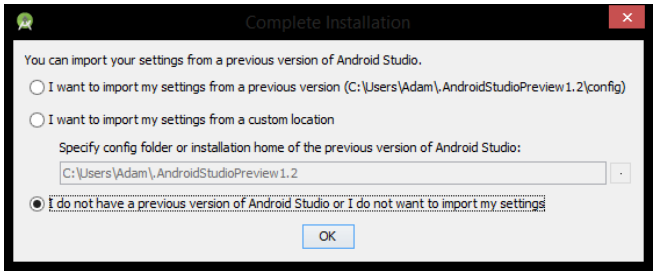
4. Click 'Next >' on the Welcome Screen.
5. When choosing components, ensure all of the checkboxes are checked in for each component to install. Once you are done, click 'Next >'.
6. Agree to the Android Studio and the Intel HAXM License Agreements after reading them.
7. Verify the install locations meet the installation requirements and click 'Next >'.
8. You may or may not see the emulator setup settings, just click 'Next >' after selecting the RAM size.



9. Finally, click ‘Install’. You will see which operations are currently running in the installation process and a progress bar displaying their progress.
10. Once the installation process is finished click ‘Next >’.

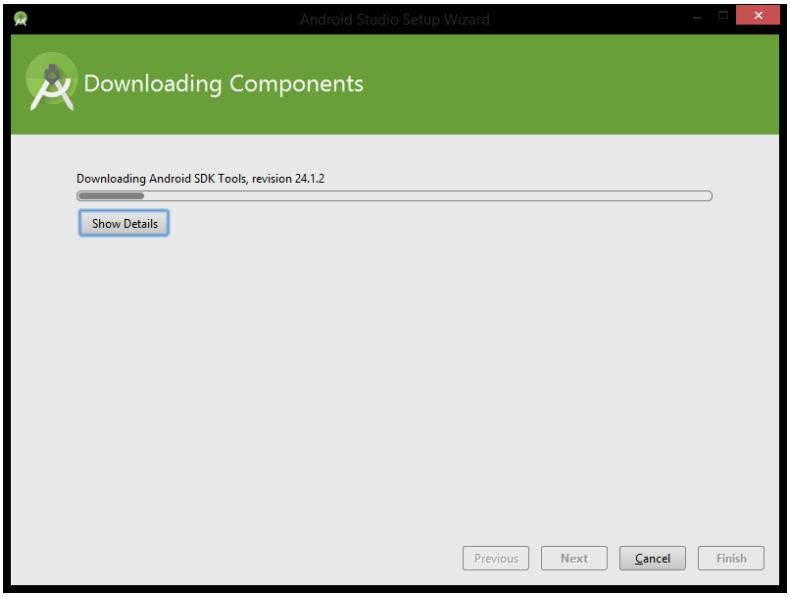


11. Android Studio is now set up. Check on ‘Start Android Studio’ and click ‘Finish’.
12. You will see the Complete Installation screen below.
13. If you had a previous version of Android Studio installed prior, then check either the first of second radio box. Otherwise, check the last radio box and hit ‘OK’.

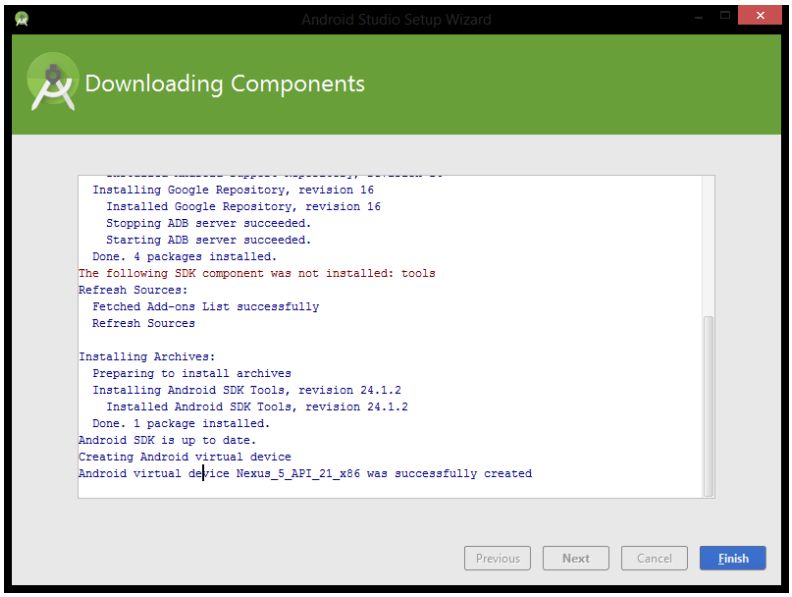


14. As Android Studio starts, the splash screen will appear.

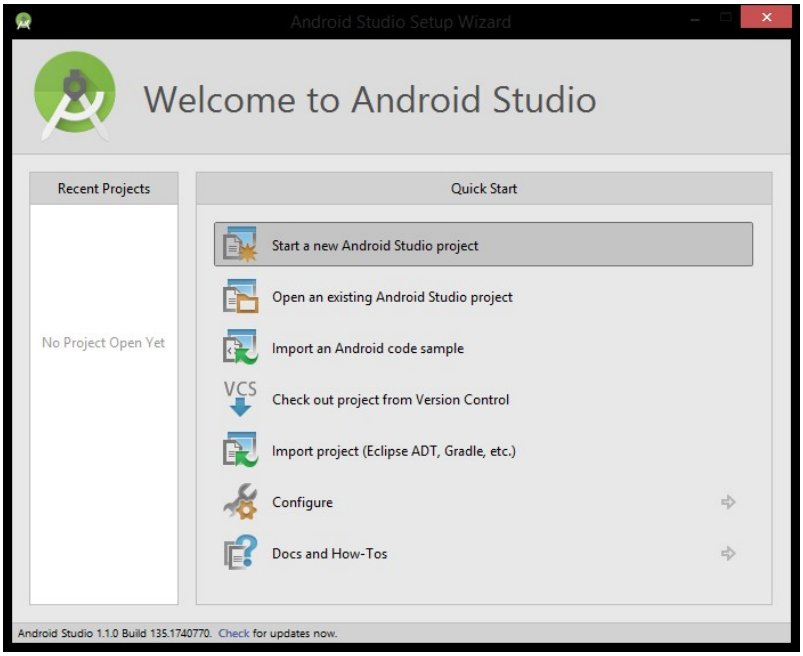
15. After the splash screen you may see some additional setup operations run, such as downloading components.



16. Once it is finished, click ‘Finish’.



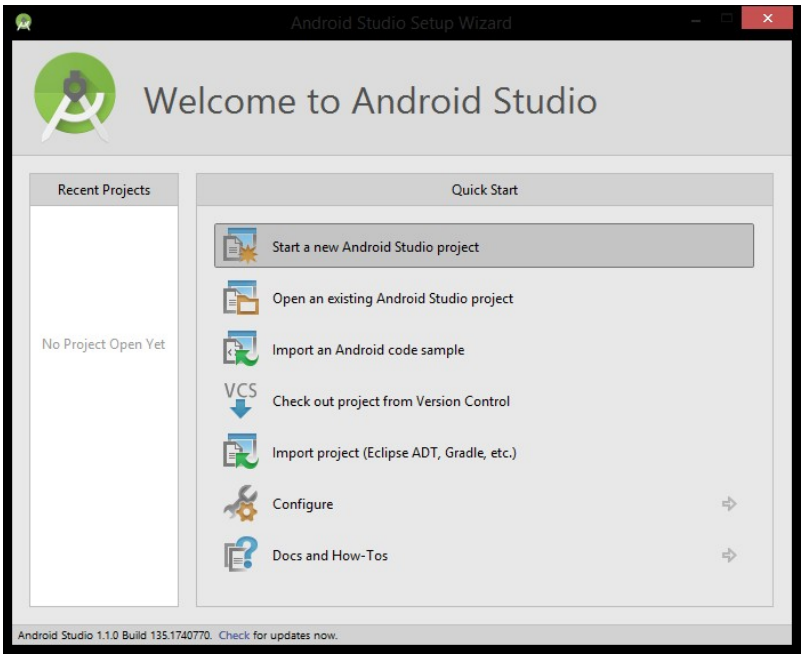
17. Welcome to Android Studio! In the next part we will start our first project.



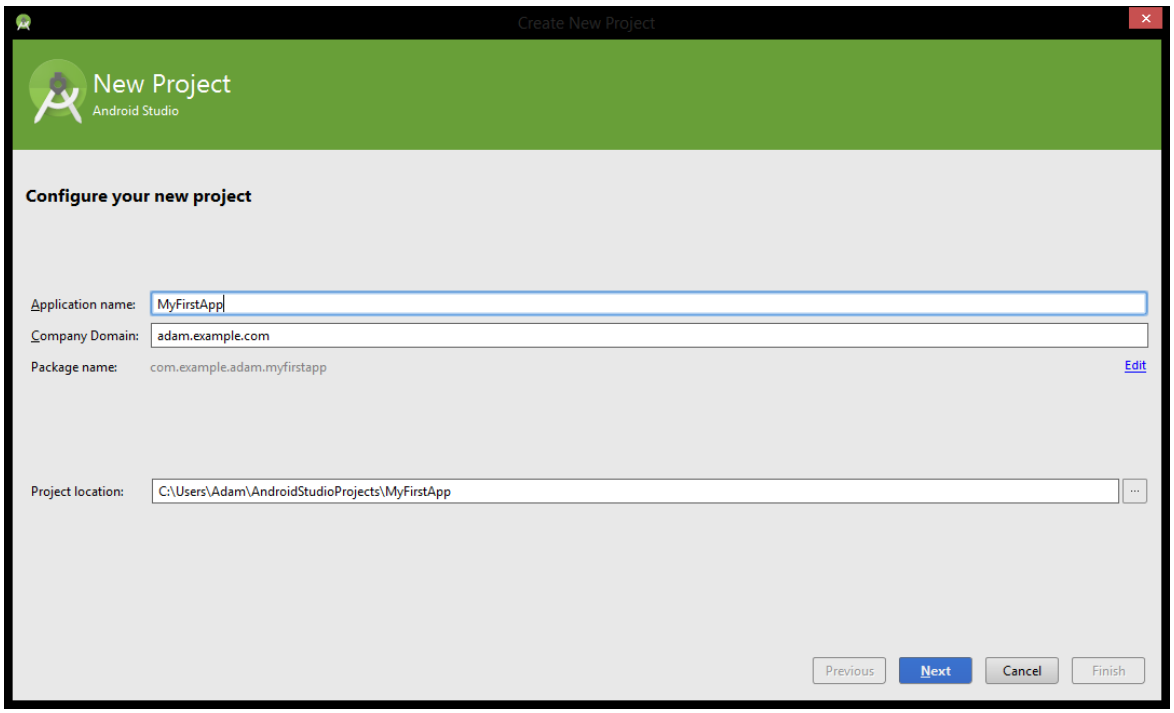
Part 2 – Creating A New Project

In this part you will create a simple Android application that displays the words, "Hello World!"

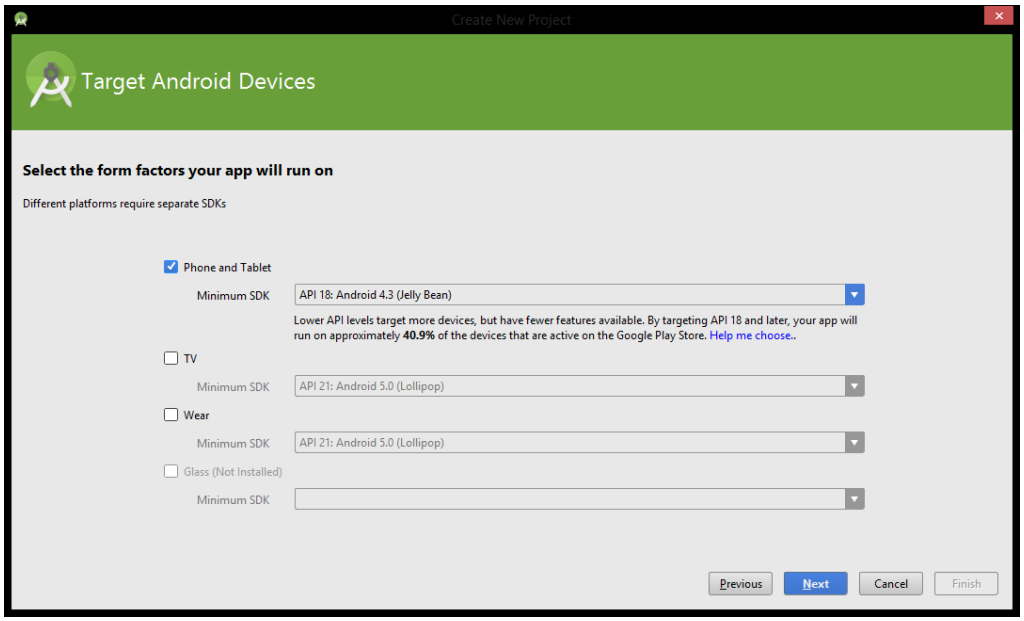
1. At the Welcome Screen, click on ‘Start a new Android Studio project’.



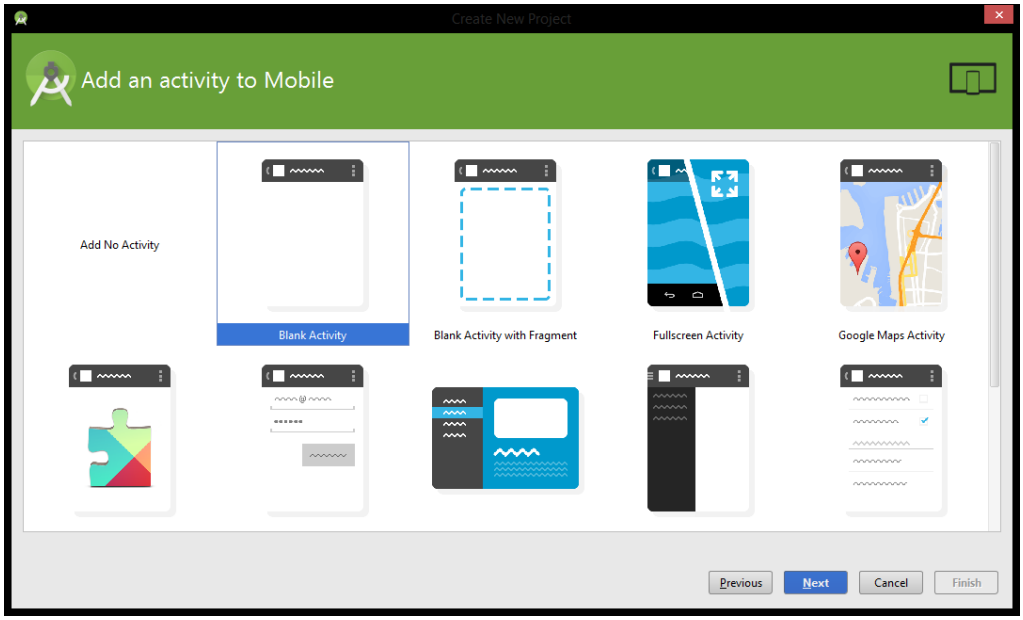
2. Enter the application name ‘MyFirstApp’ and note where the project is located. The AndroidStudioProjects folder is the default location for new projects.



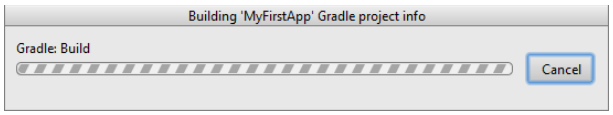
3. Select which devices you would like your app to run on. For now we will be working with ‘Phone and Tablet’. Make sure to set the Minimum SDK version to API 21 for this course.



4. Select ‘Blank Activity’ from the ‘Create New Project’ dialog box and click ‘Next’.

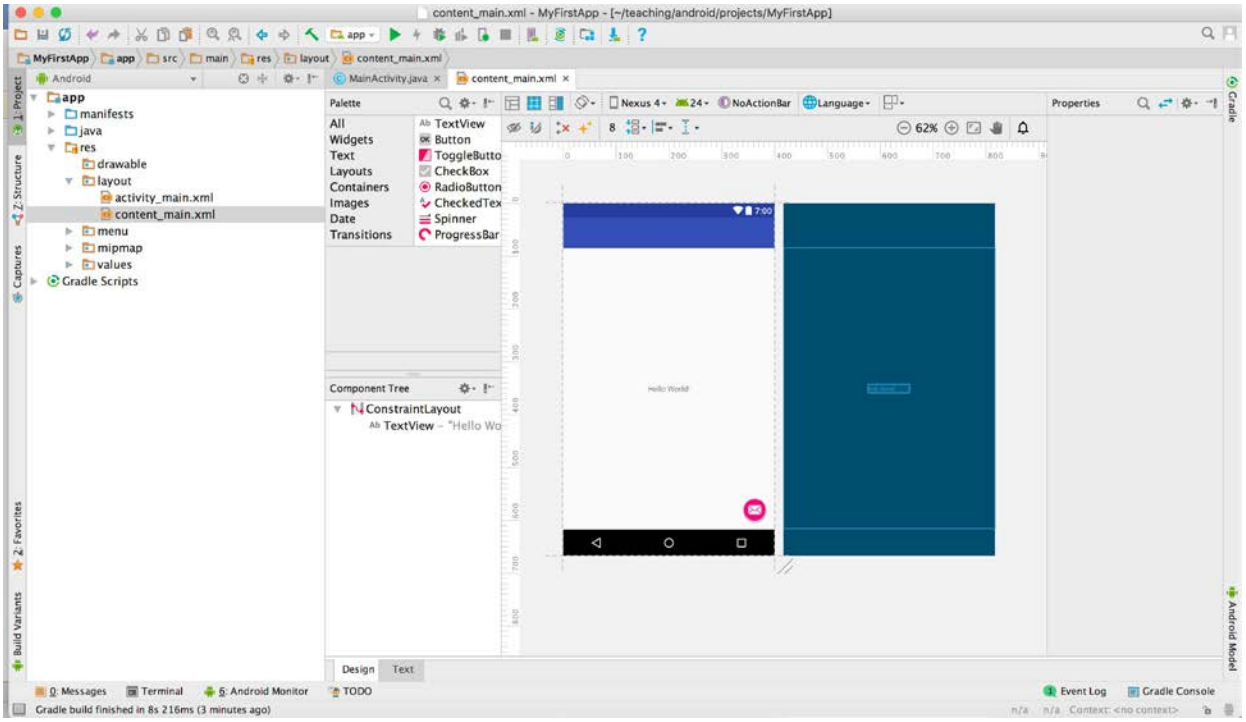


5. In the next window, leave all the settings as default, and then click Finish.
6. Android Studio will now create the project and build it.

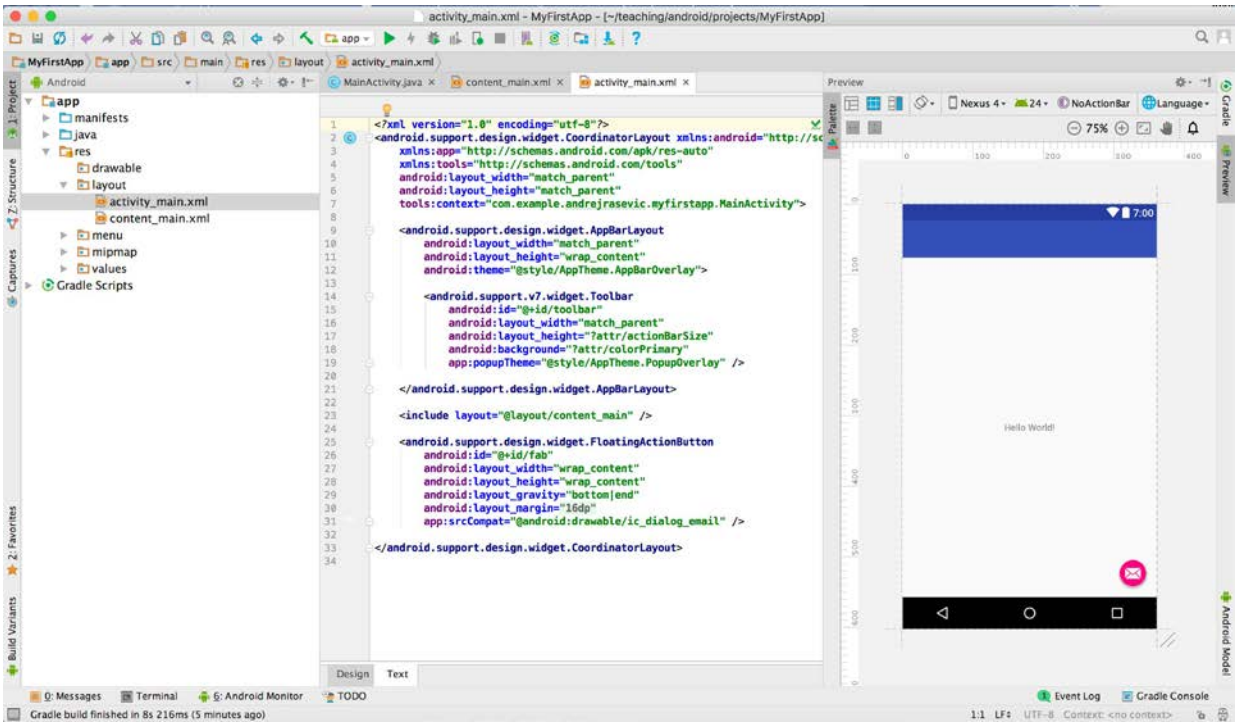


7. You may see a security alert if you are on Windows, click ‘Allow access’ to continue.

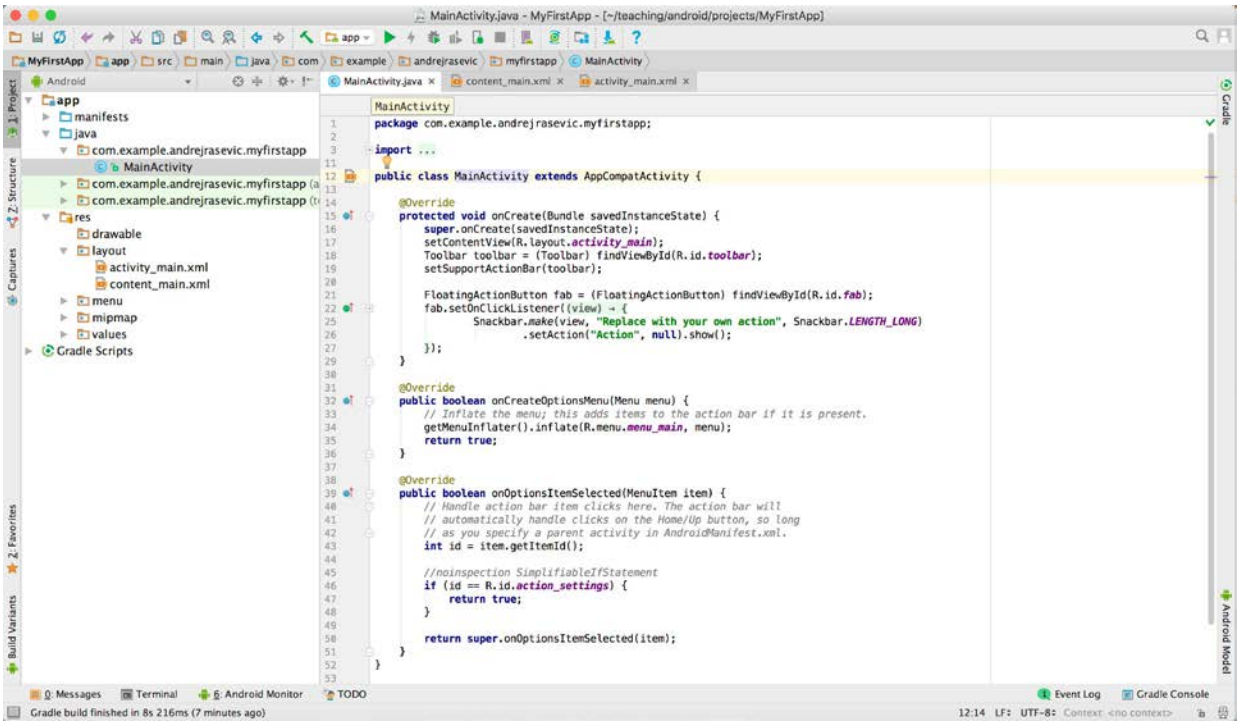
8. Once the Android Studio IDE fully loads, you will see the screen below. If you see text rather than the layout designer make sure the ‘Design’ tab is selected.



9. The opening screen is the Design View of the activity_main.xml file. You can already see the words “Hello World!” on the App’s User Interface.
10. If you click on the Text tab you can see the layout file underlying the user interface.



11. To view the backing code for this activity, double click on ‘MainActivity’ inside of the Project directory tree. This file is located in: ‘java’ > ‘com.example.<user_name>.myfirstapp’ > ‘MainActivity’.

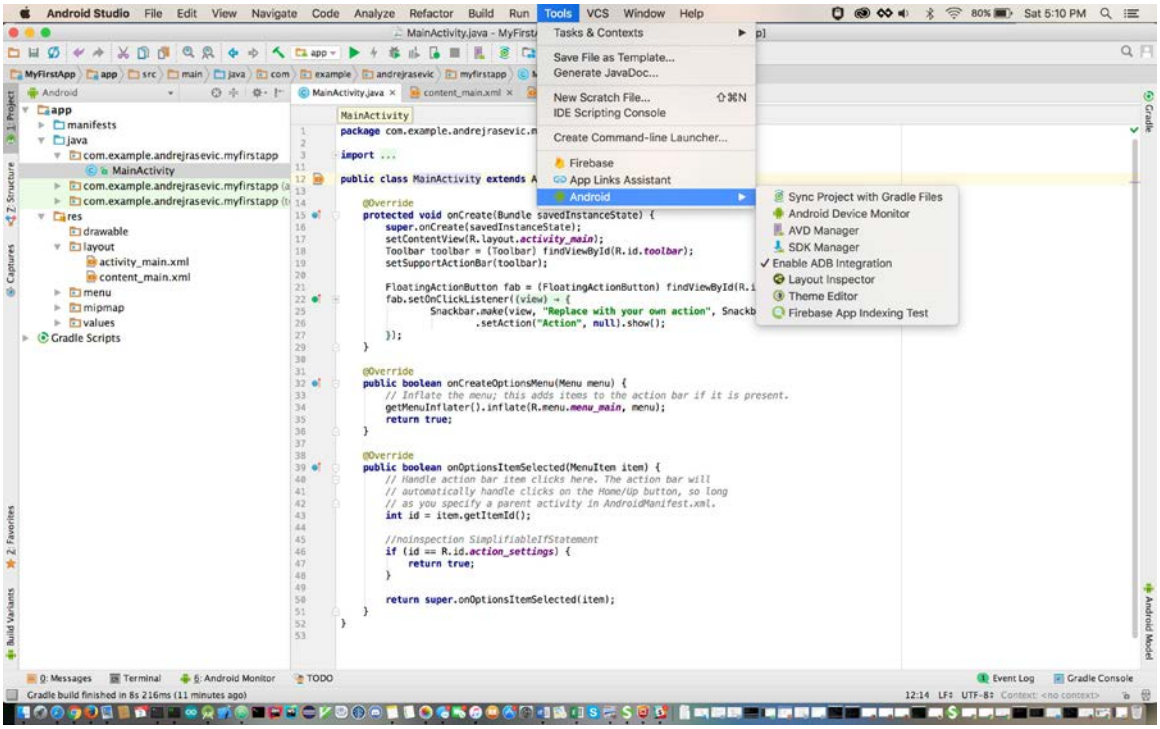


In Part 4 we will show you how to run this app in the Android Emulator.

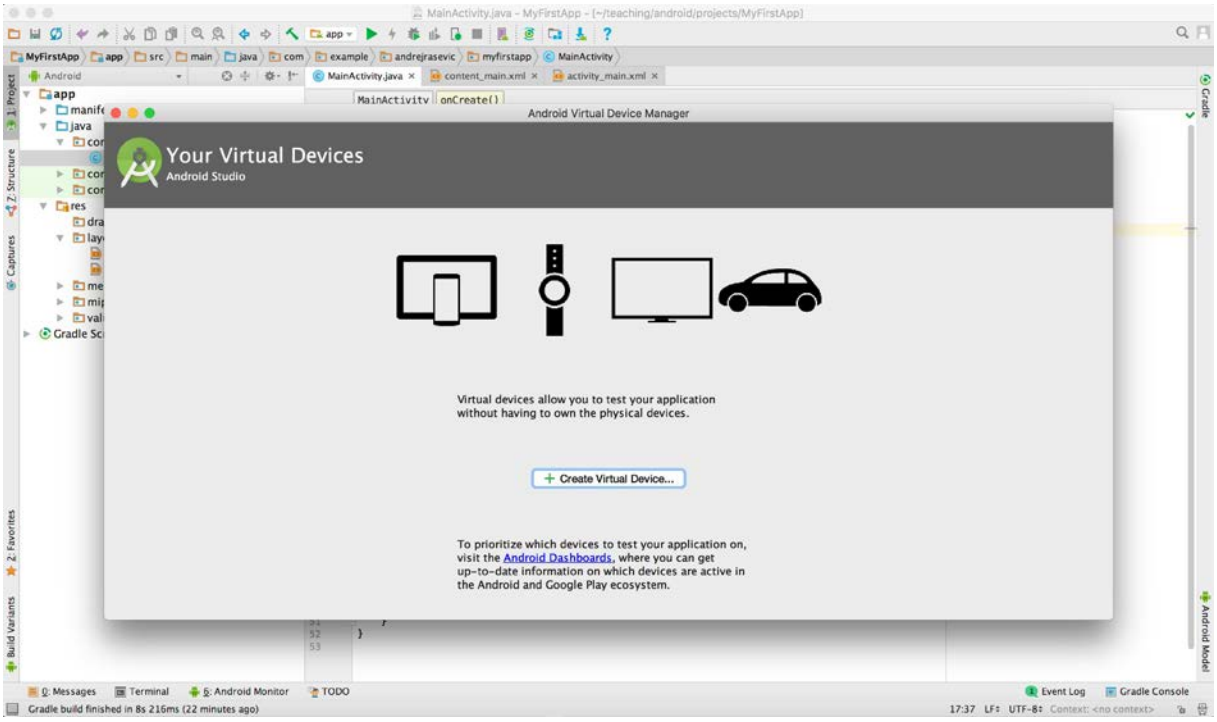
Part 3 – Using the Emulator

In this part you will learn how to set up and use the Android Emulator.

1. First start up the Android Virtual Device Manager. You can do that by selecting Tools > Android > AVD Manager from the Android Studio menu bar.

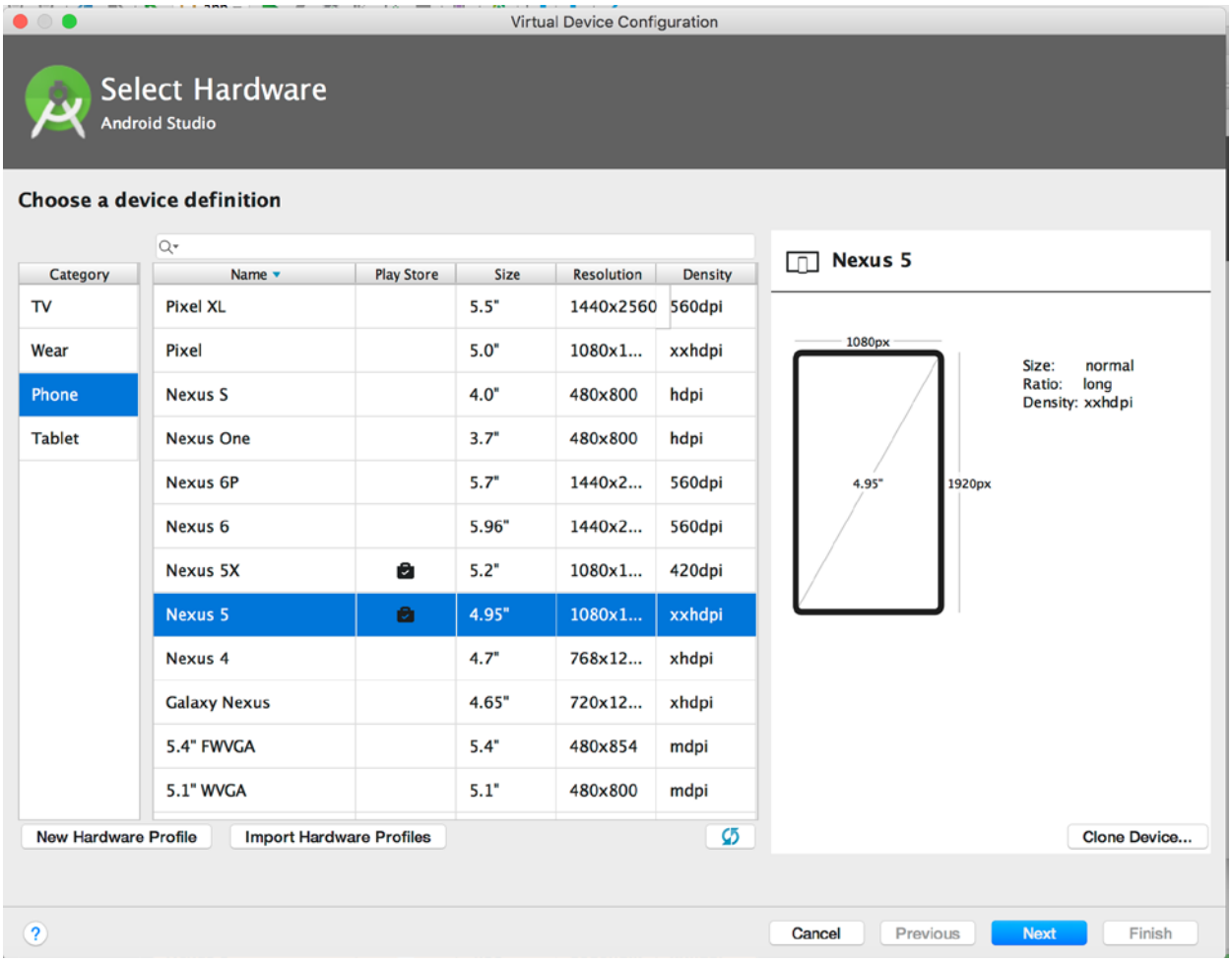


2. A new dialog box will pop up.



3. Click "Create Virtual Device" to create a new Android Virtual Device (AVD).

4. Another dialog box will pop up displaying various pre-made AVD templates. Select whichever device you would like to emulate and click ‘Next’. For example, select the Nexus 5.



5. Select the appropriate System Image for the virtual machine. To allow users with limited computer memory to participate, all of the class projects will be tested against API level 21. If you haven’t downloaded that already, make sure to download it now, by clicking on the “Download” link.

Virtual Device Configuration

System Image

Android Studio

Select a system image

Recommended | Other Images

Release Name	API Level	ABI	Target
Marshmallow Download	23	x86	Android 6.0
Marshmallow Download	23	x86_64	Android 6.0
Lollipop Download	22	x86_64	Android 5.1 (Google APIs)
Lollipop Download	22	x86	Android 5.1
Lollipop Download	22	x86_64	Android 5.1
Lollipop Download	21	x86	Android 5.0 (Google APIs)
Lollipop Dllwnload	21	x86_64	Android 5.0 (Google APIs)
Lollipop Download	21	x86_64	Android 5.0
Lollipop Download	21	x86	Android 5.0
KitKat Download	19	x86	Android 4.4 (Google APIs)
KitKat Download	19	x86	Android 4.4
Jelly Bean Download	18	x86	Android 4.3 (Google APIs)
Jelly Bean Download	18	x86	Android 4.3
Jelly Bean Download	17	x86	Android 4.2 (Google APIs)
Jelly Bean Download	17	x86	Android 4.2

Lollipop

21

5.0

Google Inc.

Sys t em Image

x86_64

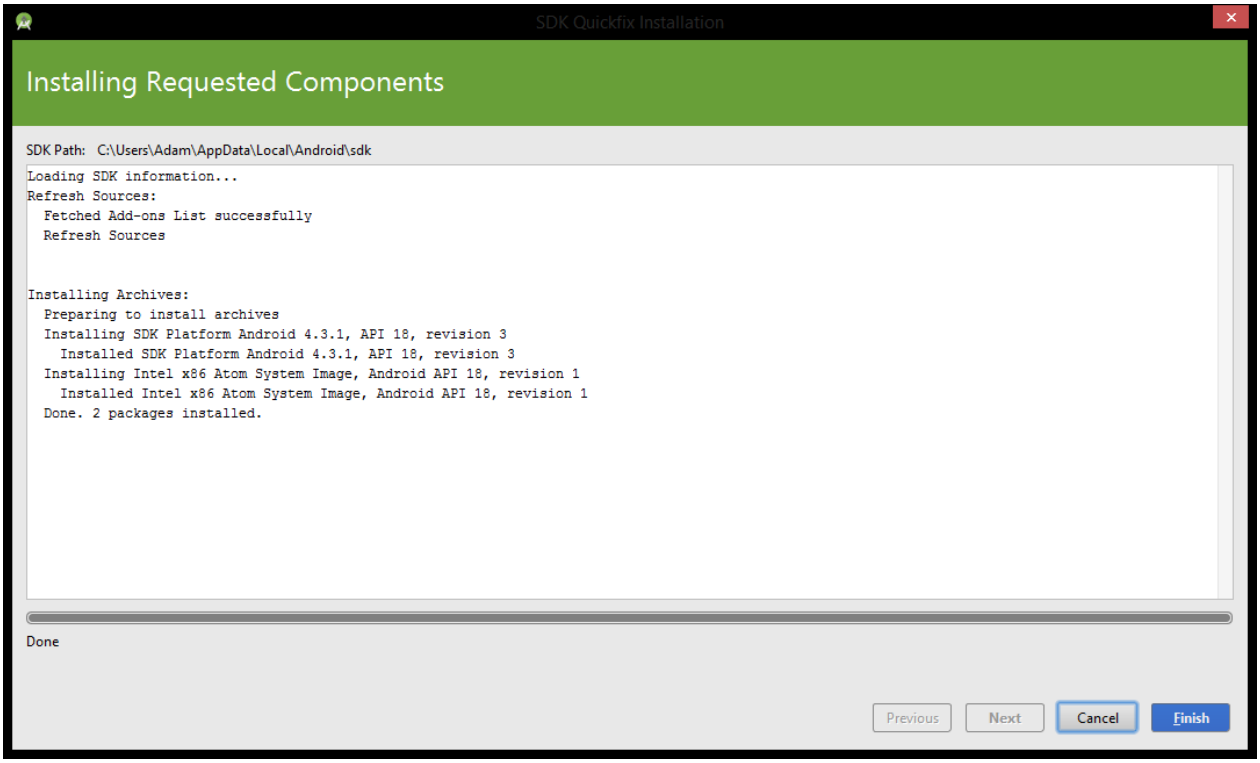
Questions on API level?
See the API level distribution chart

8 A system image must be selected to continue.

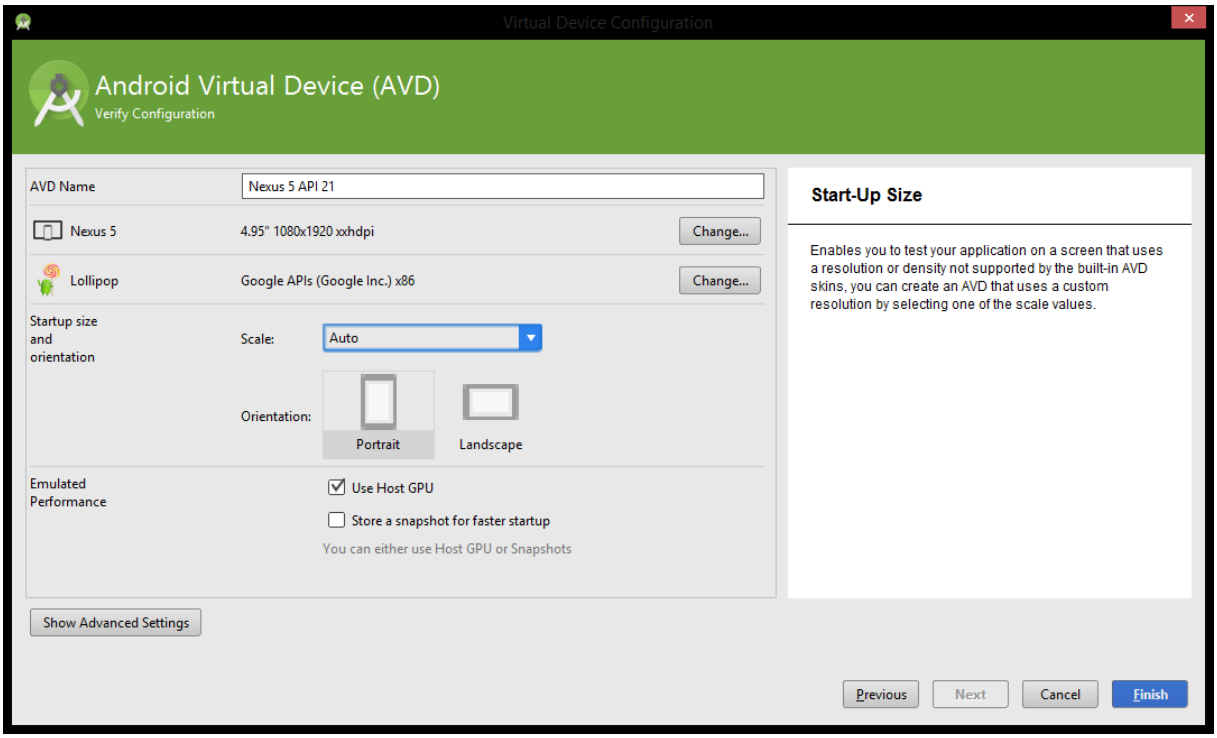
(j)

Cancel | Previous | Next | Finish

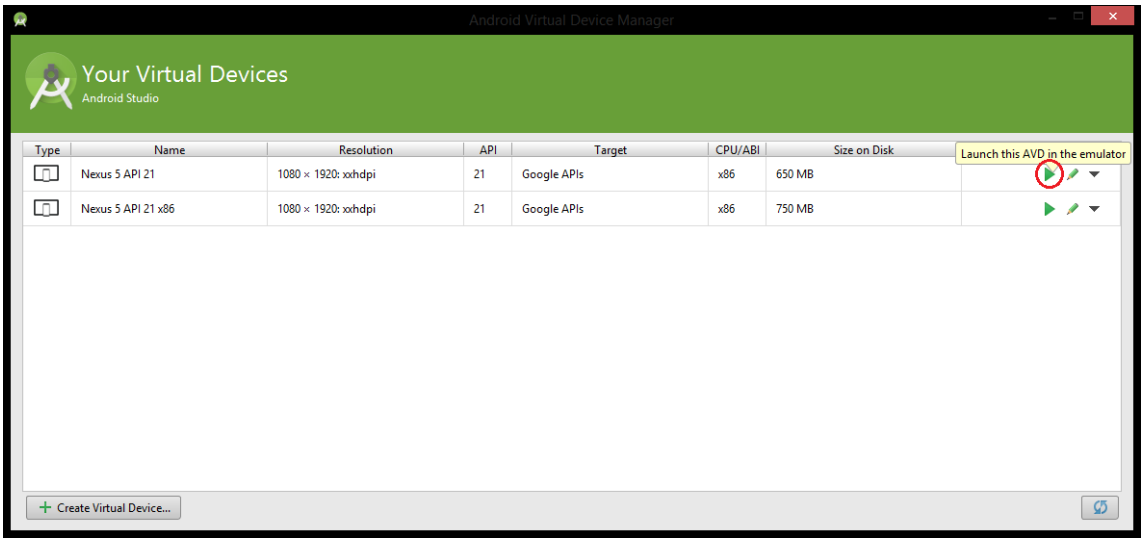
6. Once the Download is finished, click ‘Finish’.



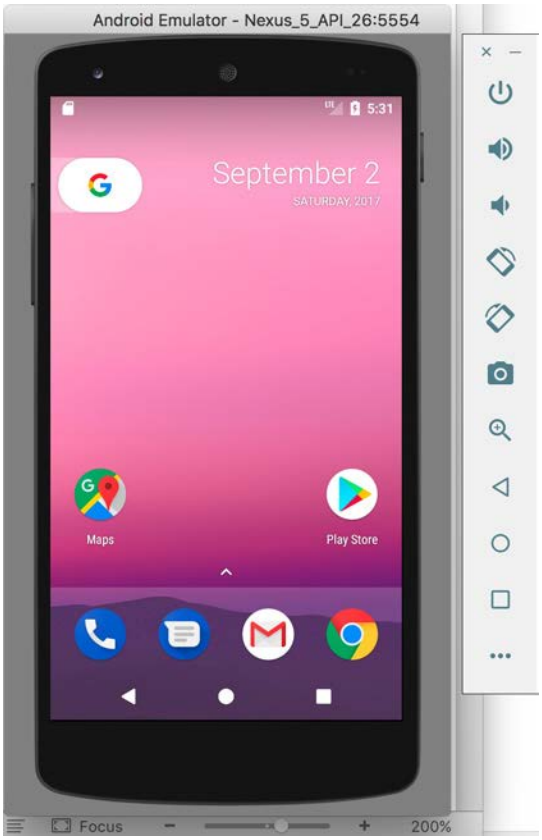
7. Click ‘Next’ once you have returned to the previous screen.
8. You can keep all of the default selections in the next screen and hit ‘Finish’.



9. Now click on the green ‘Play’ icon to start the emulator, after clicking on it you can close the Android Virtual Device Manager.



10. As the emulator starts up, you will see a progress dialog appear in Android Studio.
11. Next, the emulator will appear and start its boot sequence.

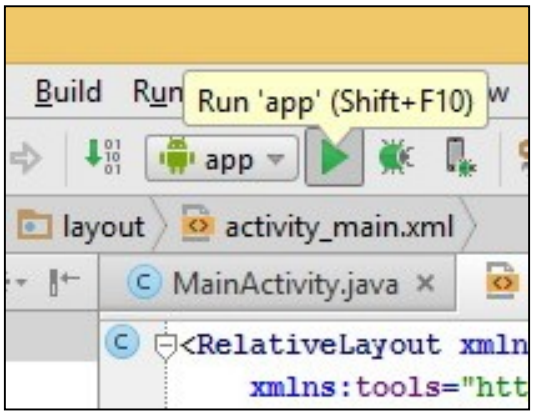


After the device has booted, the emulator will be ready for user interaction.

Part 4 – Running Your First App

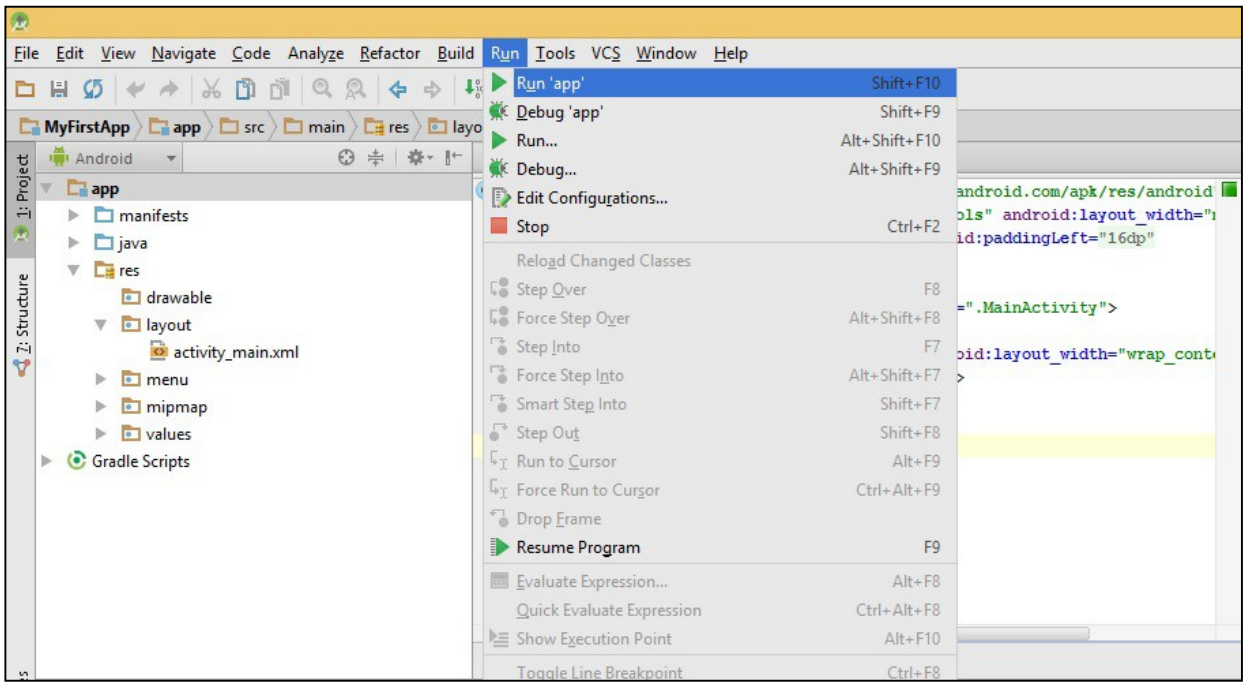
In this part you will learn how to run the application you created in Part 2 in the Android Emulator.

1. There are two ways to run the app.

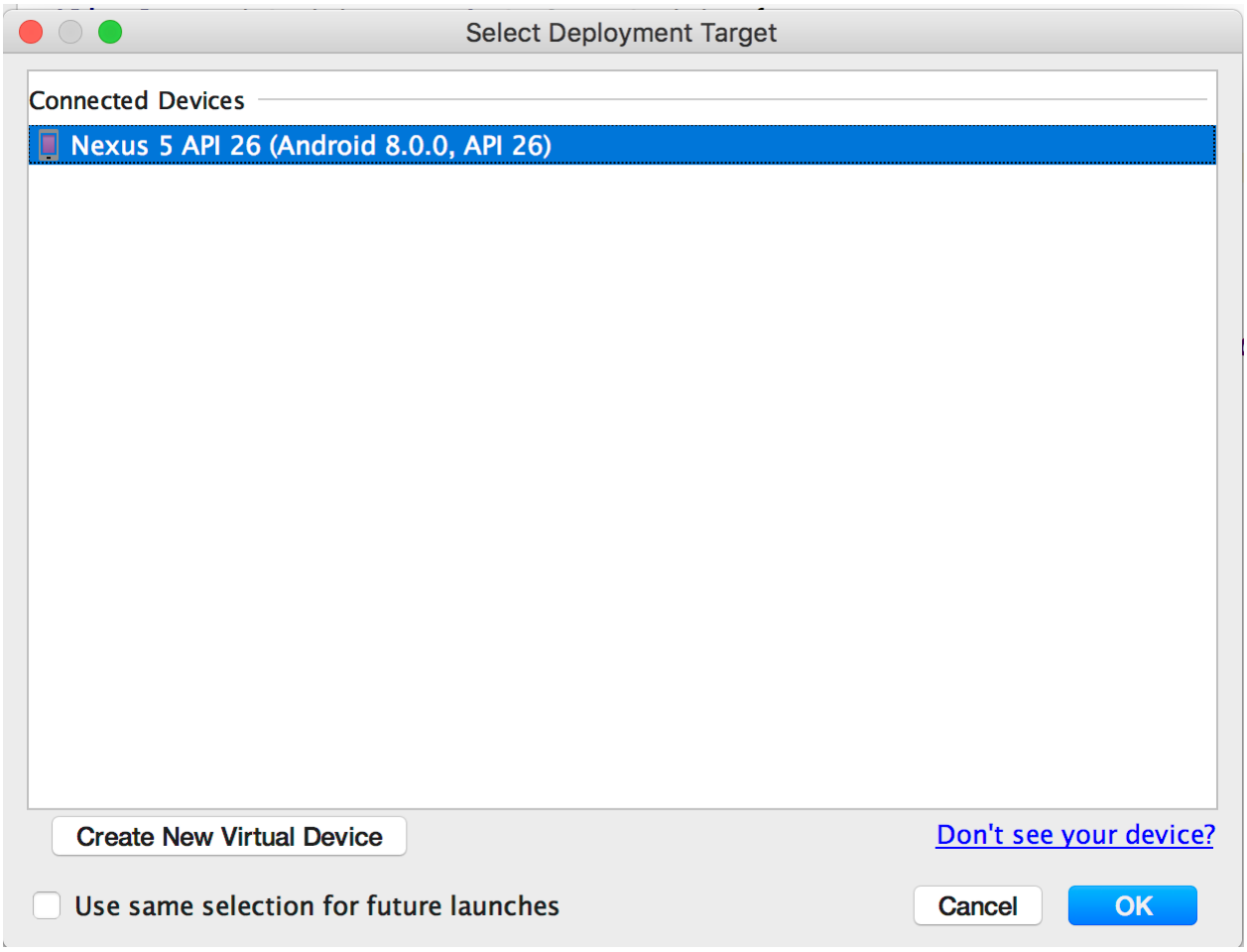


Method 1: Return to Android Studio and simply click on the “Run ‘app’” Button (Shortcut: Windows - Shift + F10, Mac - Ctrl + R)

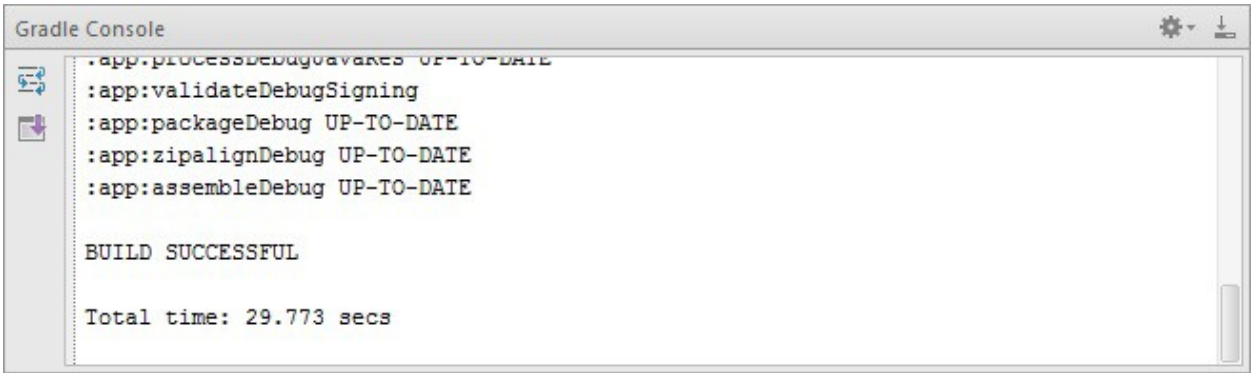
Method 2: Return to Android Studio and select Run > Run ‘app’.



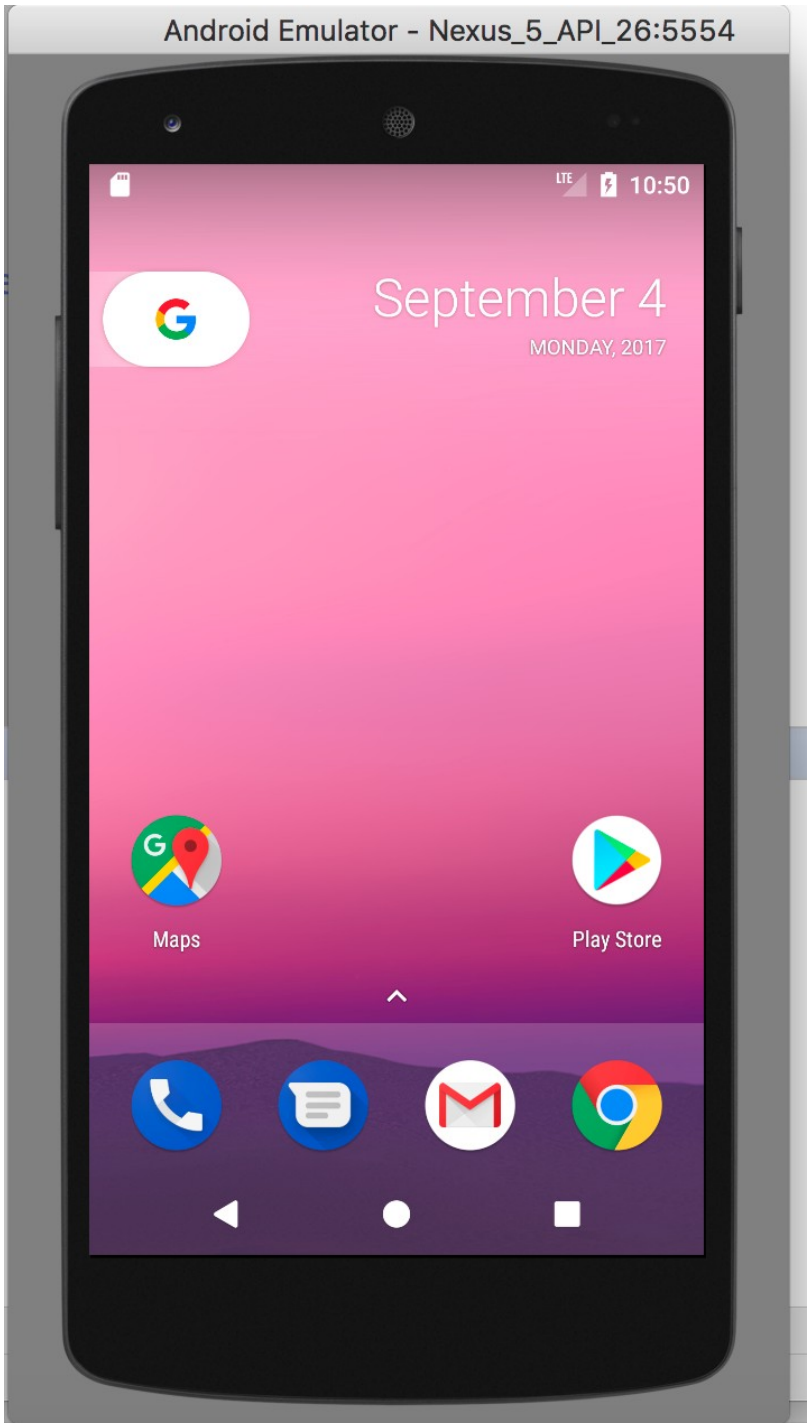
2. Next a window will pop-up to ask you to select which of your pre-configured AVD devices you would like to run the app on. If you do not have the correct SDK installed on your AVD for your app you will be prompted to install it.



3. In the Gradle Console panel, below the editor window, you will see output indicating that the application is being loaded onto the Android Emulator.

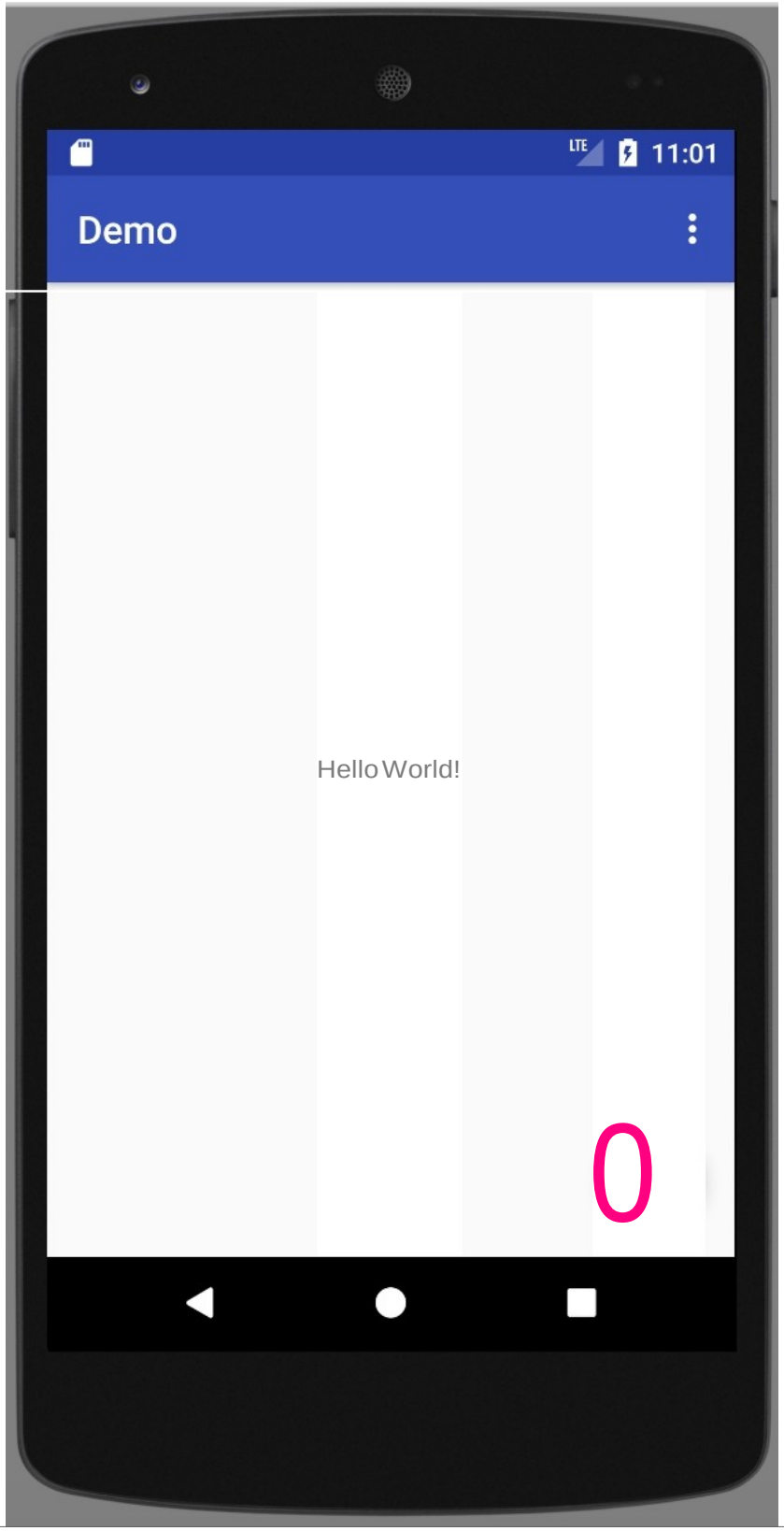


4. Return to your Emulator instance. If necessary, drag the lock icon to unlock your device.



5. You should now see your application, running in the Android Emulator.

Android Emulator - Nexus_5_API_26:5554

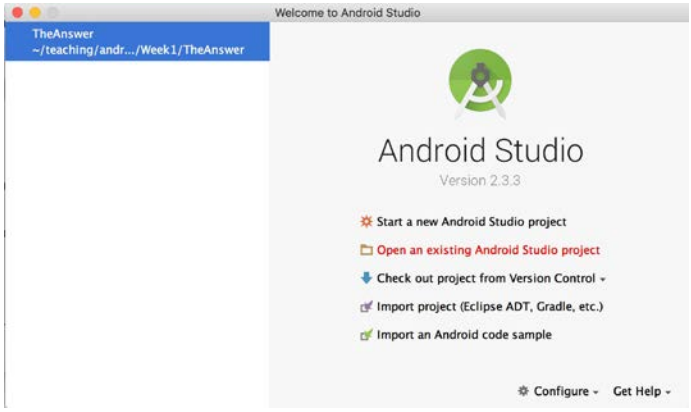


Part 5 – Importing and Running an Existing Application

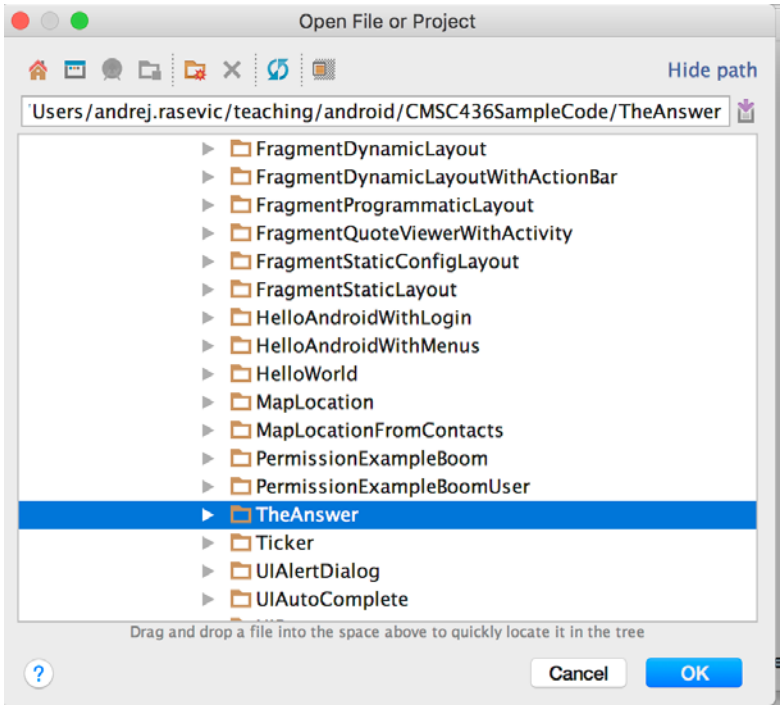
In this part you'll learn to import a pre-existing application into Android Studio and then run it.

1. TheAnswer application exists in the course source code repository.

2. Return to Android Studio. Select Open an Existing Android Studio Project from the menu bar. Note all the course example applications have been built with Android Studio.



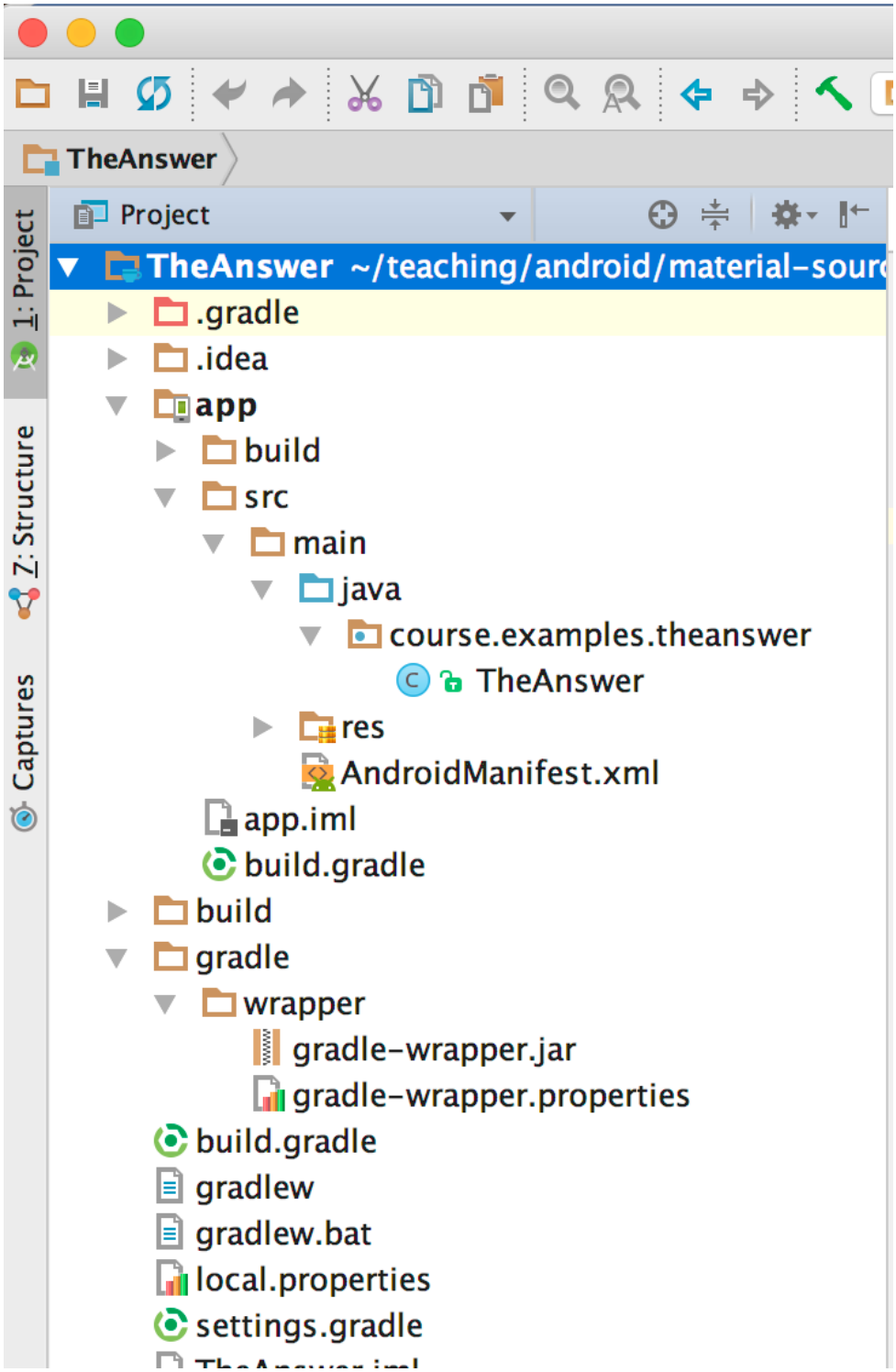
3. Next, in the dialog box that appears, browse and select the Project that you want to import. For this example, select "The Answer" from where you cloned the CMSC436SampleCode repository in your local environment.



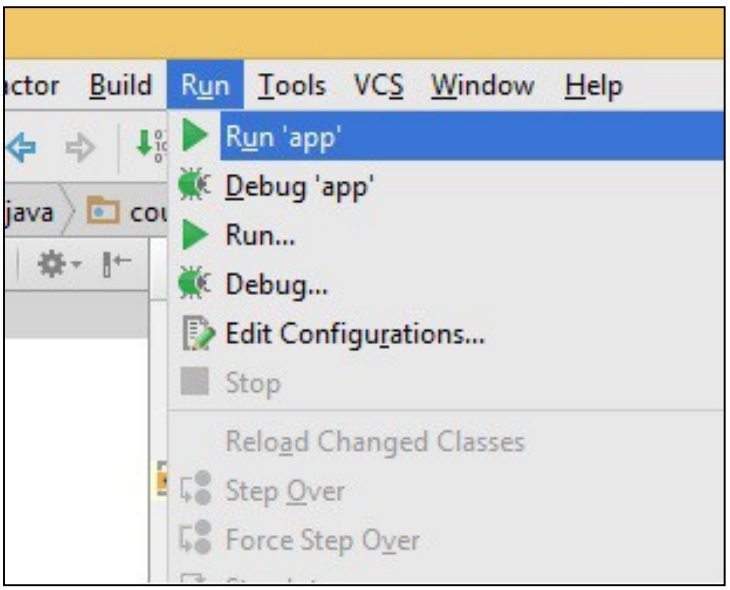
Then press OK Button

Keep all default settings and press Finish Button.

4. At this point the application should appear in the project window on the left side of the IDE.



5. Select Run > Run ‘app’ from the tool bar.



6. The Android Emulator will now open up and run the example application.