

Getting Started with Android

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Introduction



Android Programming

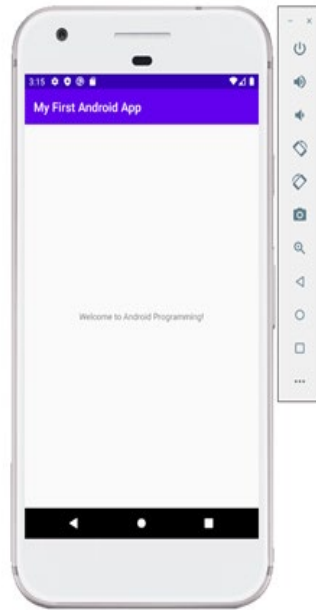
Last Updated: 7th Apr 2020

Android Studio version: 3.6.2

SDK version: Android 10.0 (Q), API level 29

What you'll build

In this codelab, you're going to build your first Android app using Android Studio.



What you'll learn

- How to install Android Studio
- How to create an Android project
- How to run your Android app using an emulator
- How to run your Android app using an Android phone

What you'll need

- A laptop that meets the recommended system requirements

Windows

- Microsoft® Windows® 7/8/10 (64-bit)
- 4 GB RAM minimum, 8 GB RAM recommended
- 2 GB of available disk space minimum, 4 GB Recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image)
- 1280 x 800 minimum screen resolution

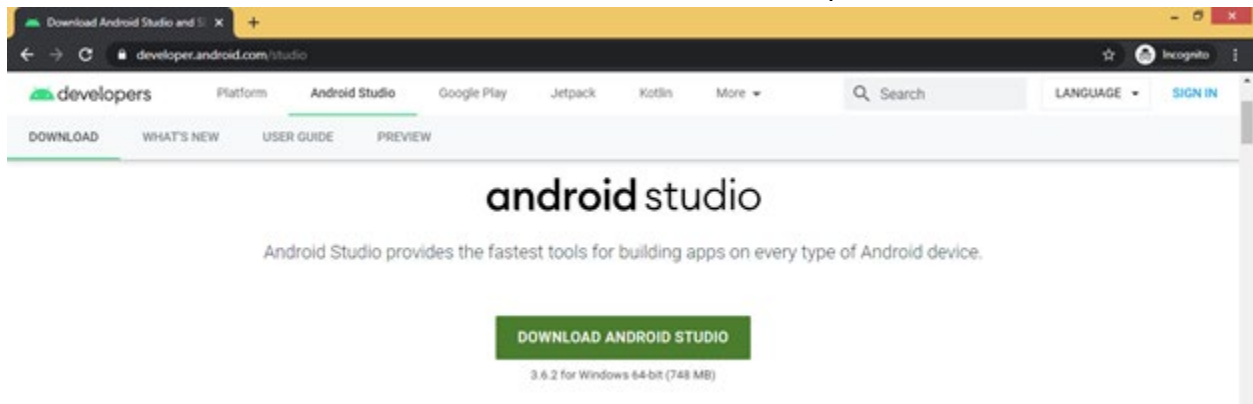
Mac

- Mac® OS X® 10.10 (Yosemite) or higher, up to 10.14 (macOS Mojave)
- 4 GB RAM minimum, 8 GB RAM recommended
- 2 GB of available disk space minimum, 4 GB Recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image)
- 1280 x 800 minimum screen resolution

Note: Please make sure that you have sufficient RAM and hard disk space. If the recommended requirements are not met, you may experience slowness and other performance issues.

Download Android Studio

Download Android Studio 3.6.2 from the official Android developers' website.



The installation requires few GB of space as many files will be downloaded during the process. Hence, make sure that you have a good Internet connection and sufficient RAM and hard disk space.

[Download Android Studio \(.exe\)](#)

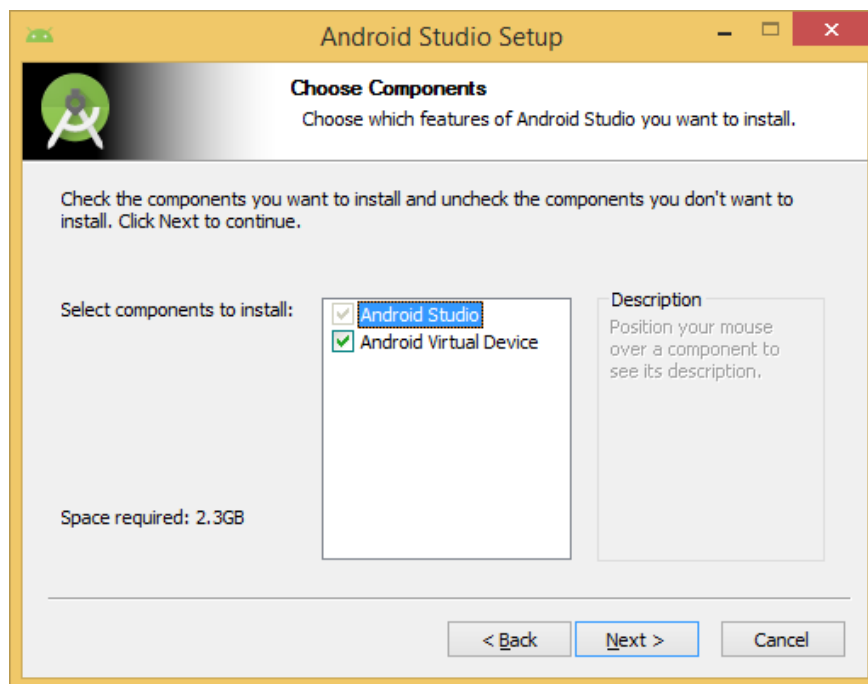
Note: Please use .exe file for installation.

Run the installer (.exe)

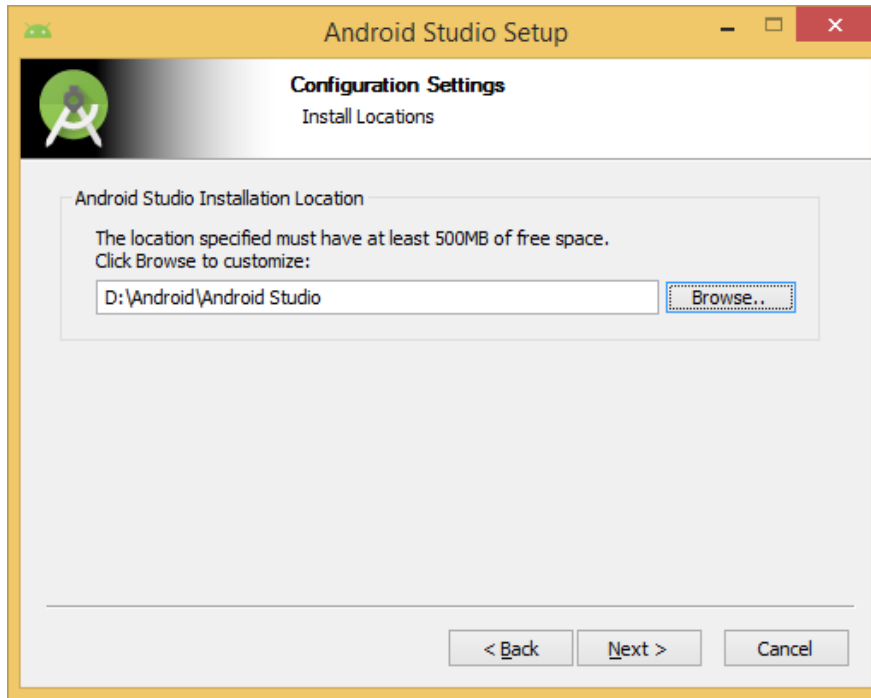
- Run the installer by clicking on the .exe file. When you see the following window, click **Next** to continue.



- Click **Next** to proceed to install. Note that the space required is 2.3GB.

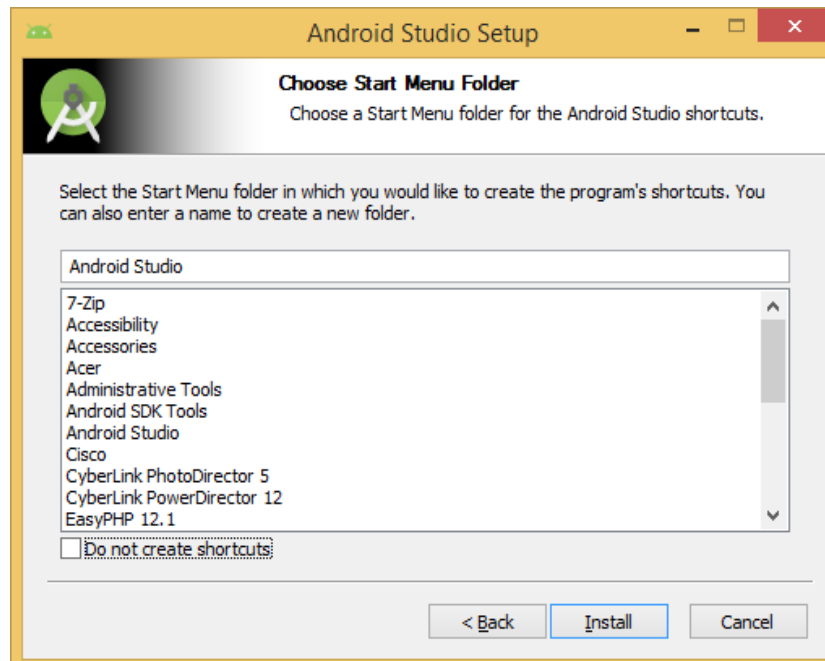


- Choose a directory where Android Studio will be installed. Click **Next**. Eg. D:\Android\Android Studio



Note: Place your Android Studio in D:\Android where possible. The SDK will be placed here as well.

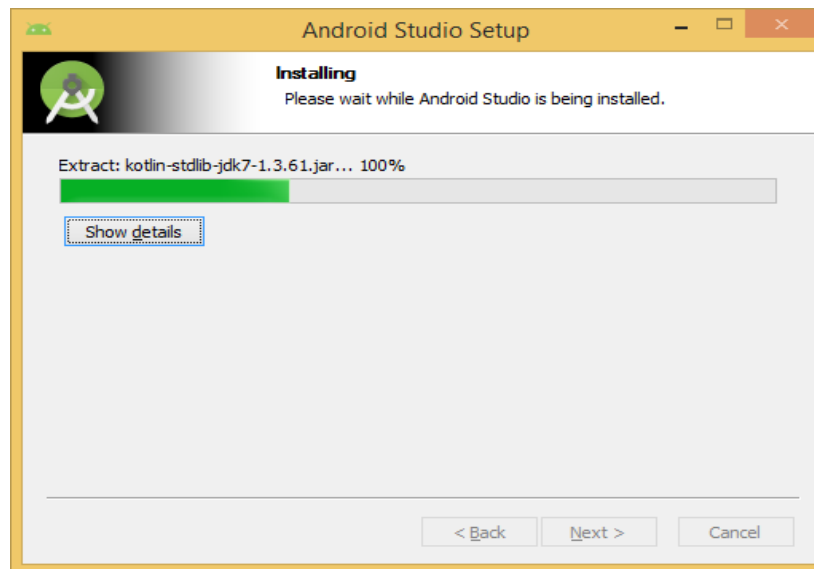
- Click **Install** to continue.



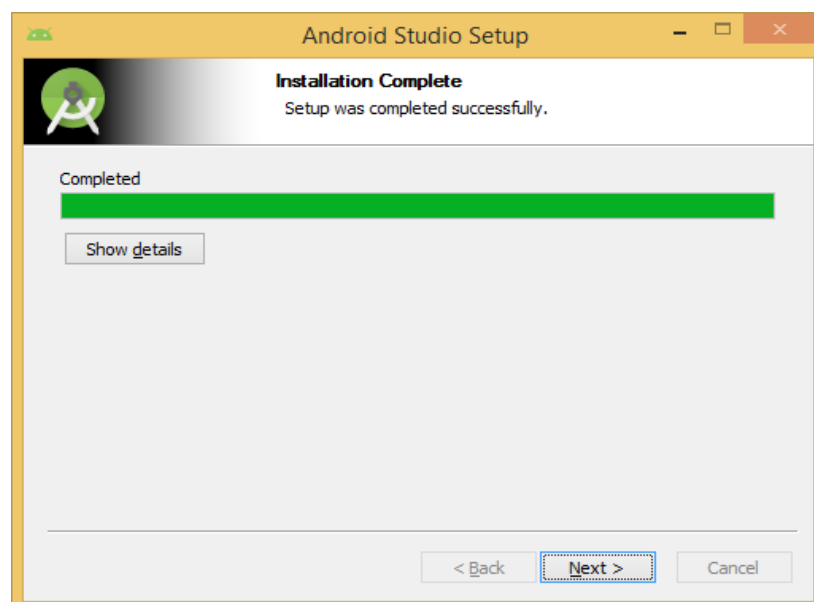
Tip: It is useful to create a shortcut on your desktop or pin to the taskbar. In this way, you need not search high and low for the .exe file whenever you want to open Android Studio.

During installation, Android Studio will download the necessary components from the internet. You will need to wait for this process to be completed.

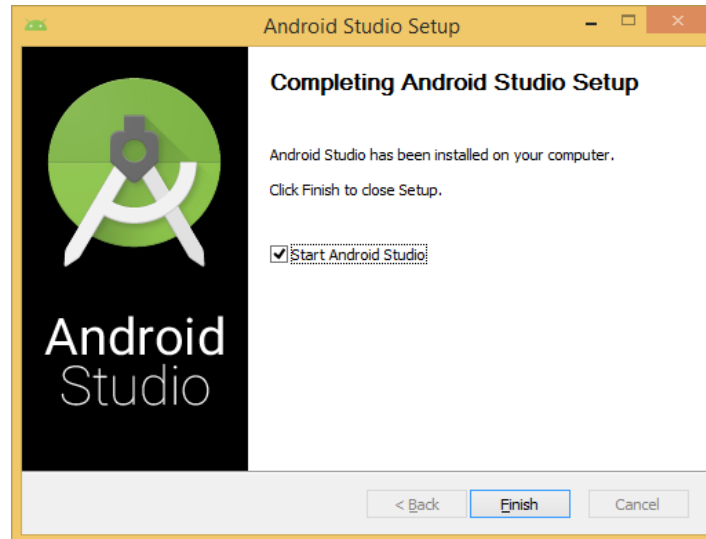
The time taken for the installation to be completed depends on the speed of the internet.



- Once installation is completed, click **Next** to continue.



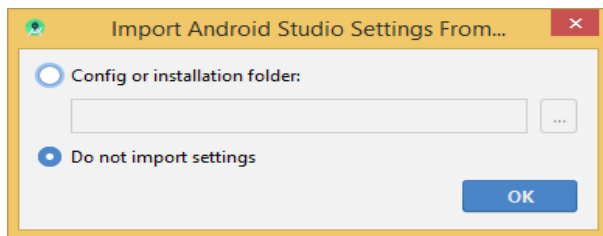
- When you see the following screen, it means that you have successfully installed Android Studio. Click **Finish** and continue with the first time setup.



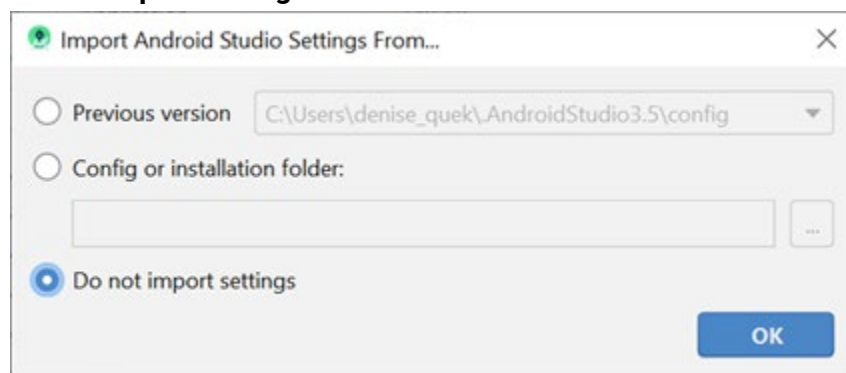
First Time Configuration

When you run Android Studio for the first time, you'll be prompted to do the initial setup.

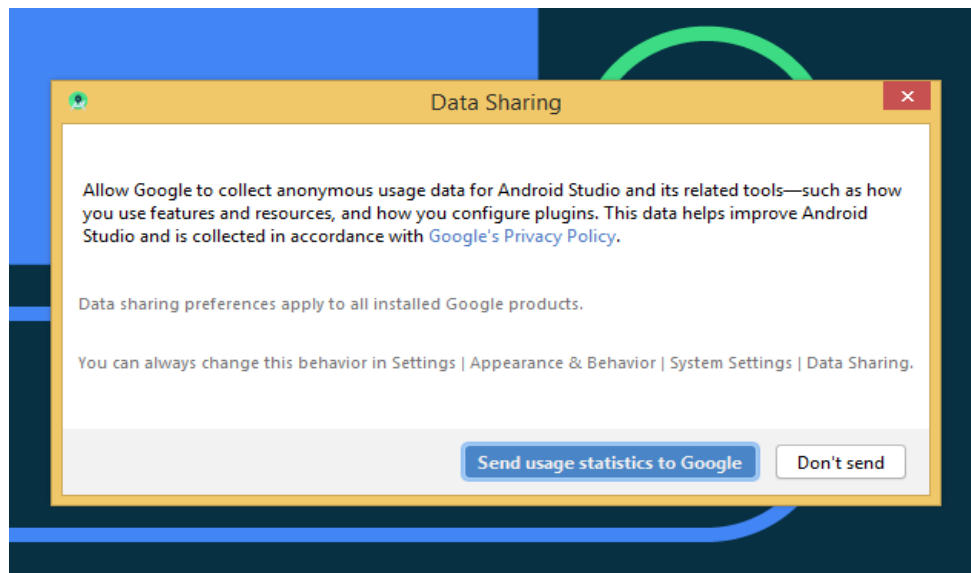
- Click **Do not import settings** and click **OK**.



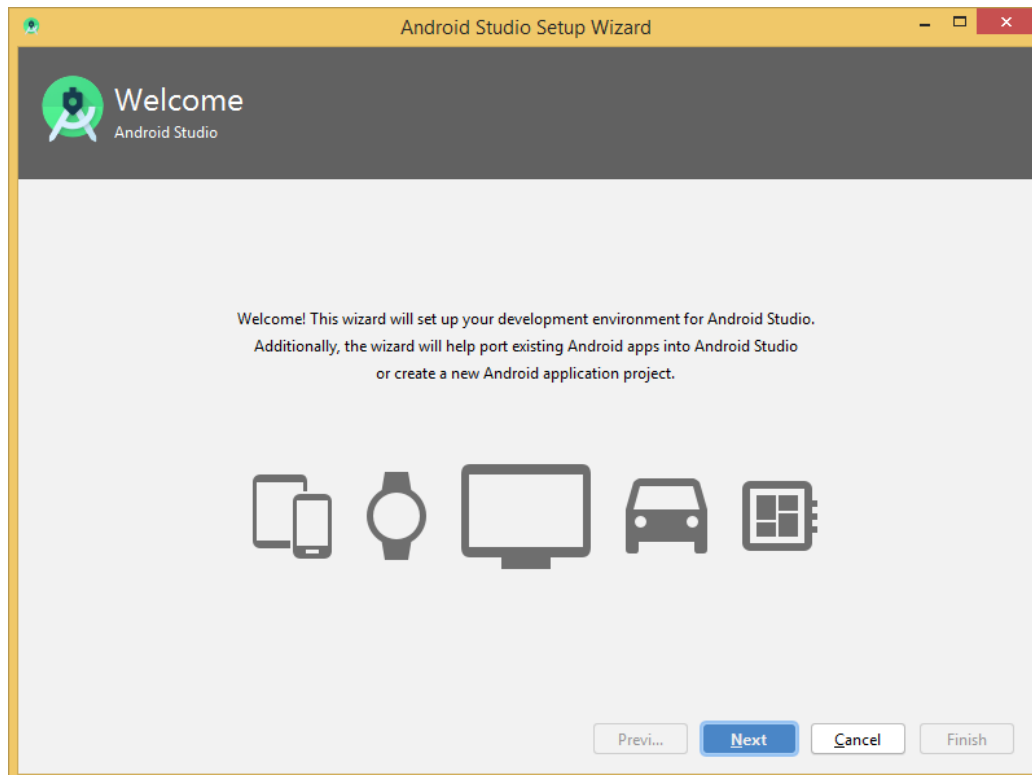
- If you have installed a previous version before, you'll see the following window instead. Choose **Do not import settings** and click **OK**.



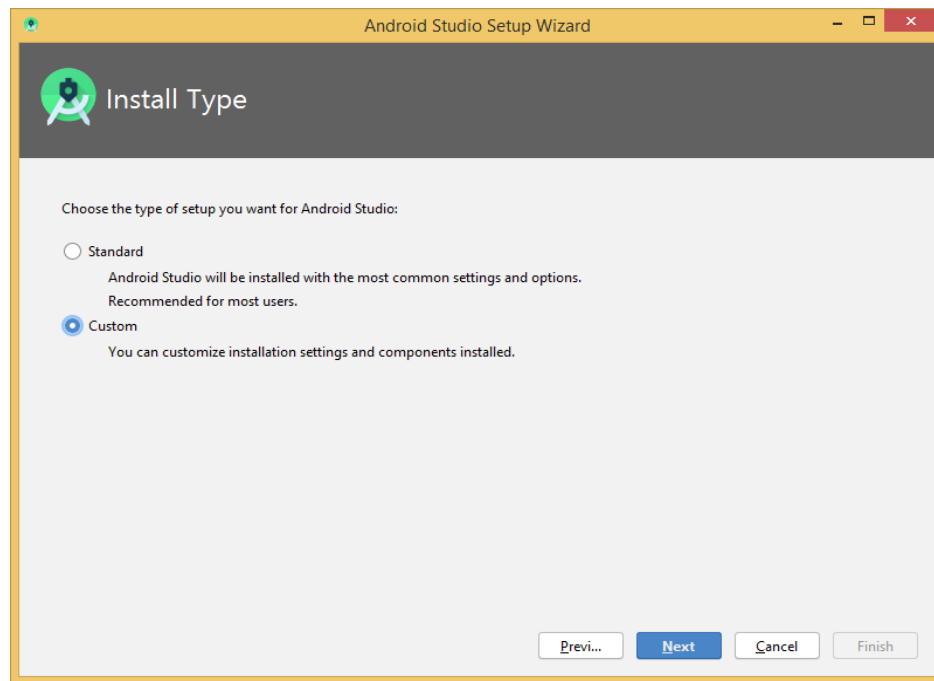
- The following is optional.



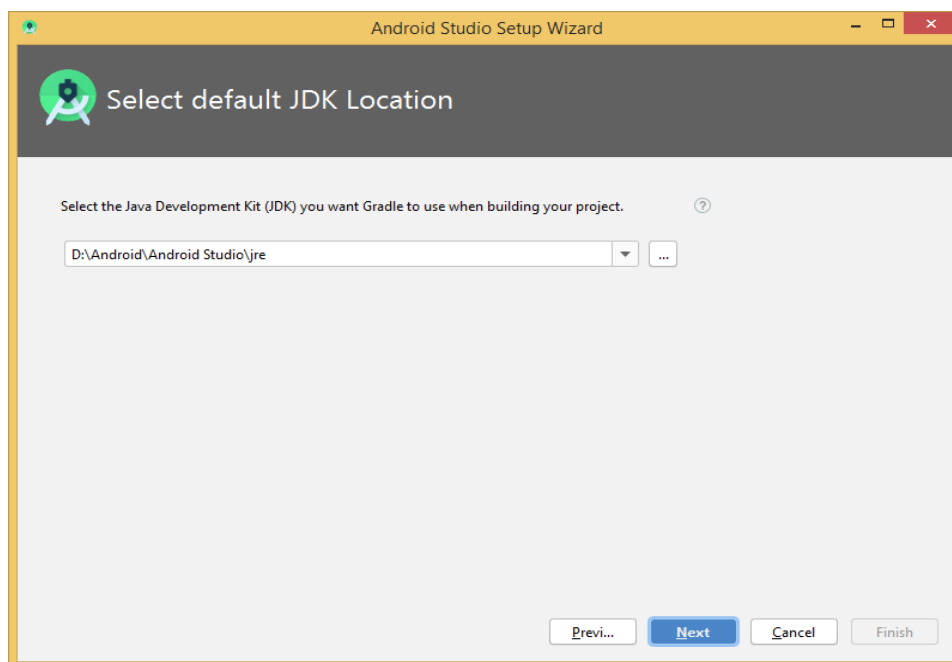
- You'll see the Android Studio Setup Wizard. Click **Next** to continue.



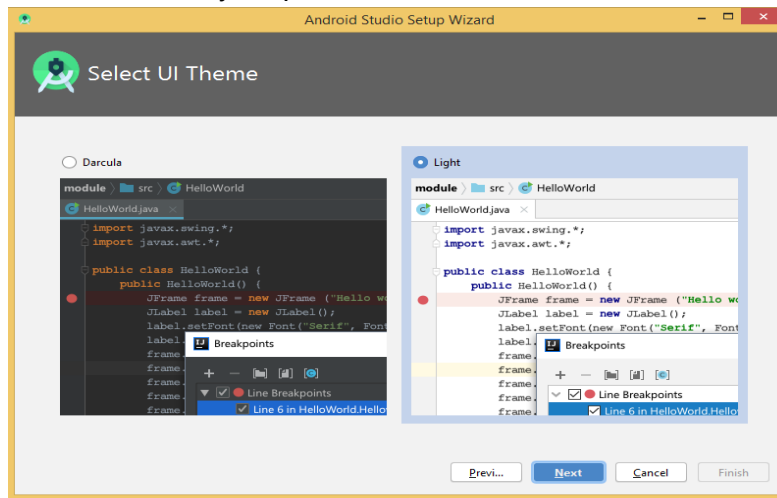
- Choose **Custom** and click **Next**.



- Select a directory to place the JDK. It is recommended that you place the JDK in an Android folder. Eg. D:\Android\Android Studio\jre



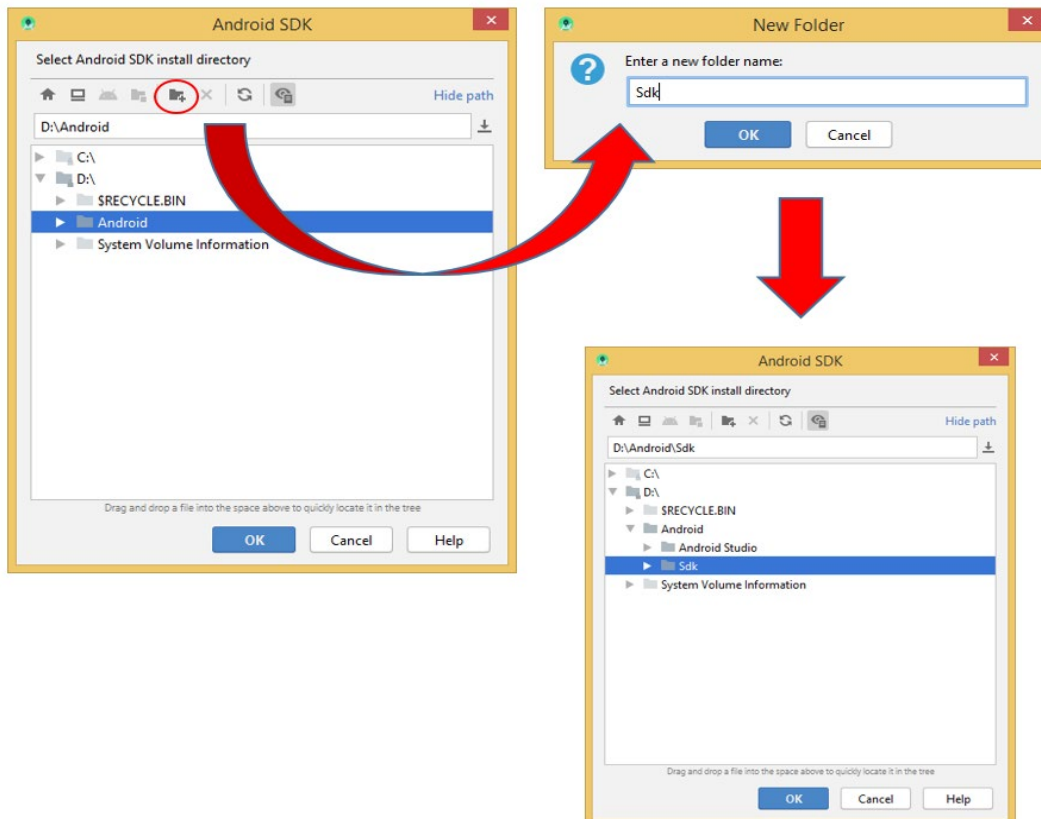
- Choose a theme based on your preference, and click **Next**.

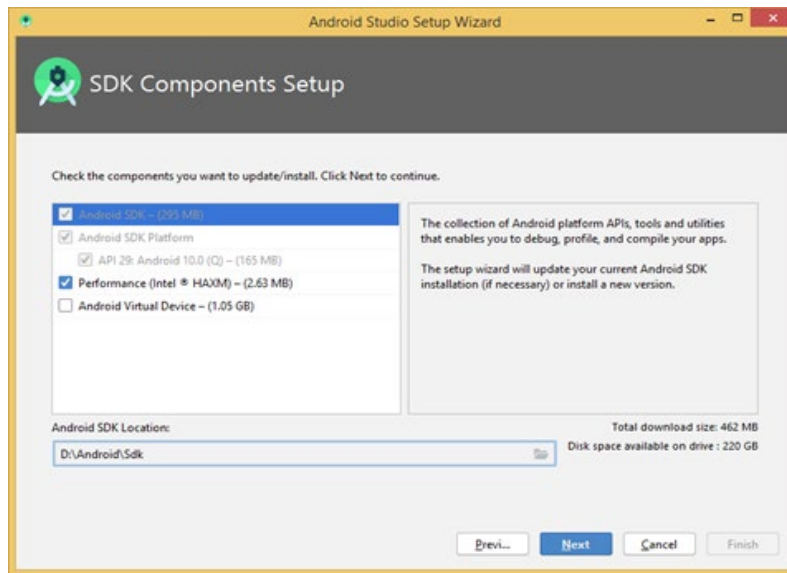


- In the SDK Components Setup page, Performance (Intel @ HAXM) will be checked by default.

Tip: It is essential to enable Intel @ HAXM for improved performance when running an Android Virtual Device (AVD).

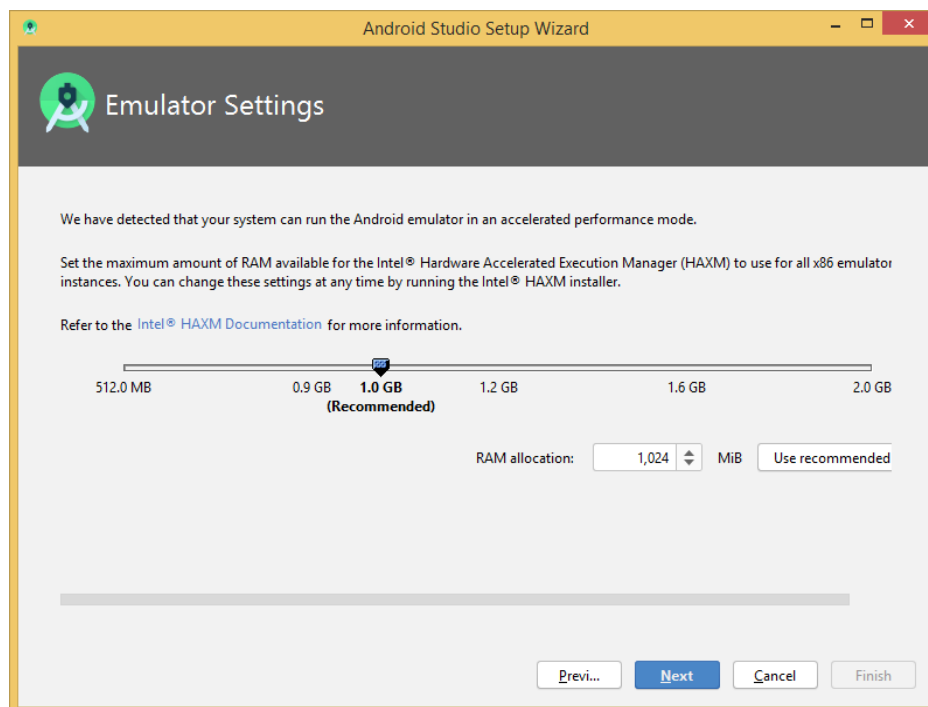
- Change the location of the Android SDK to D:\Android\Sdk.



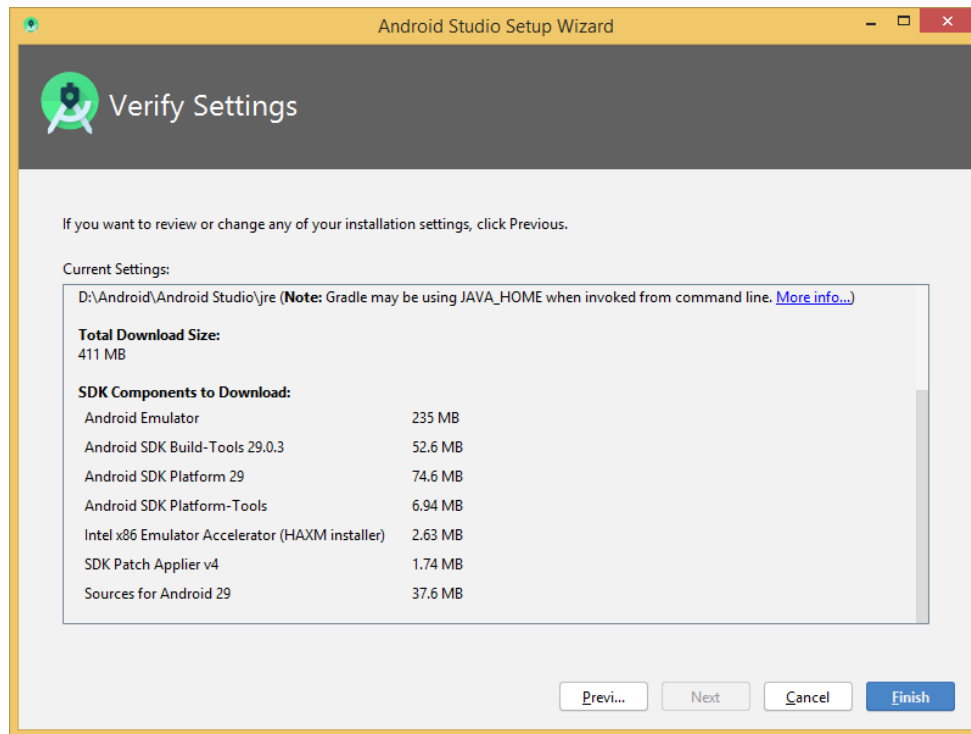


Tip: By default, the Android SDK location will be defaulted to the user's AppData folder. It is recommended to change.

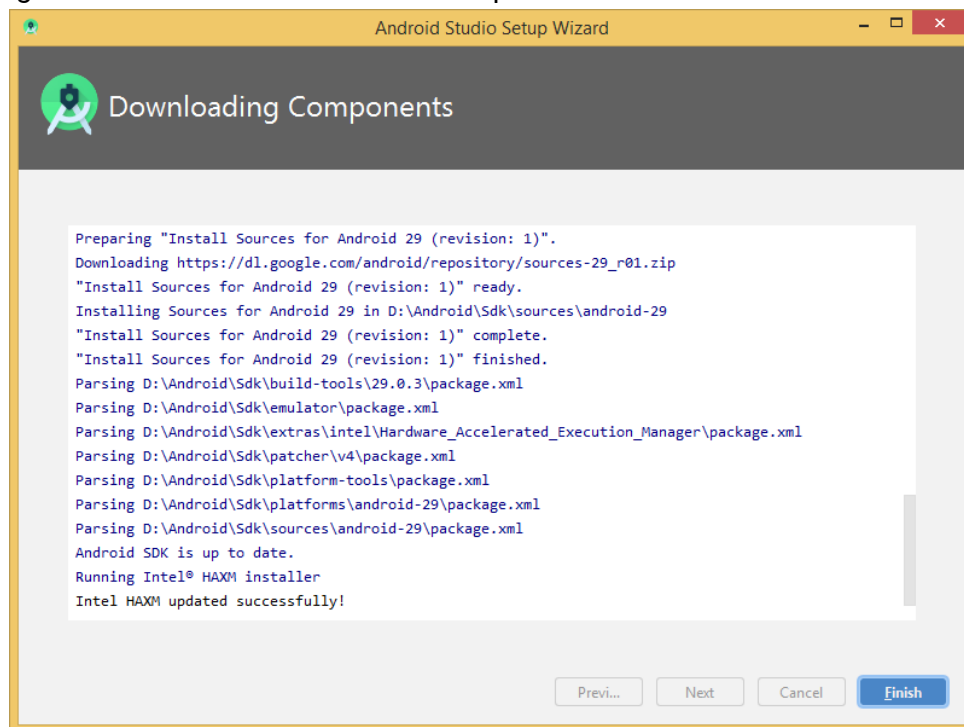
- Leave the setting as recommended and click **Next**.



- Click **Finish** to start downloading. Be patient. This may take a long time.

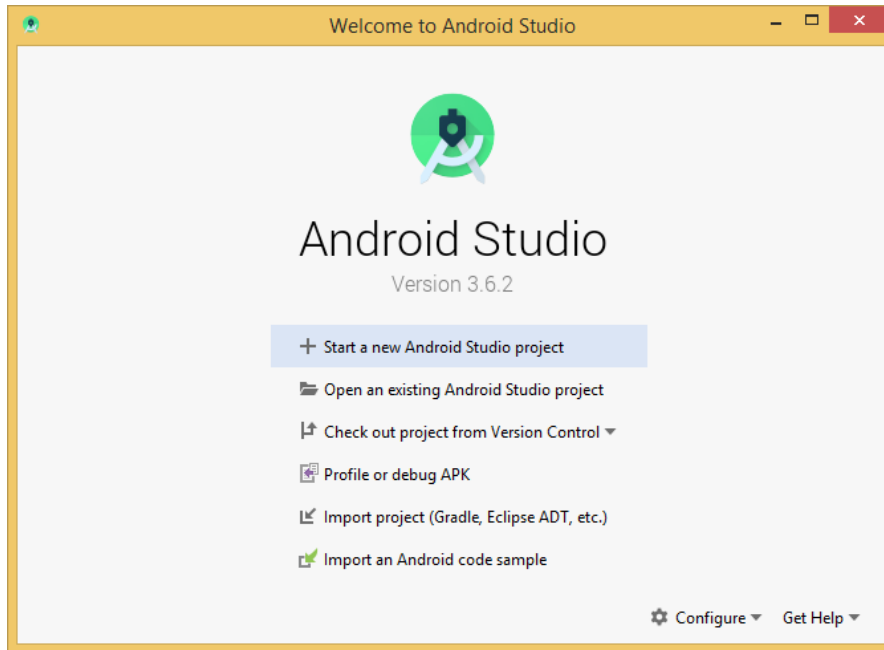


- After the installation has completed, you should see the screenshot below. Click **Finish**. Congratulations! Your installation is completed!

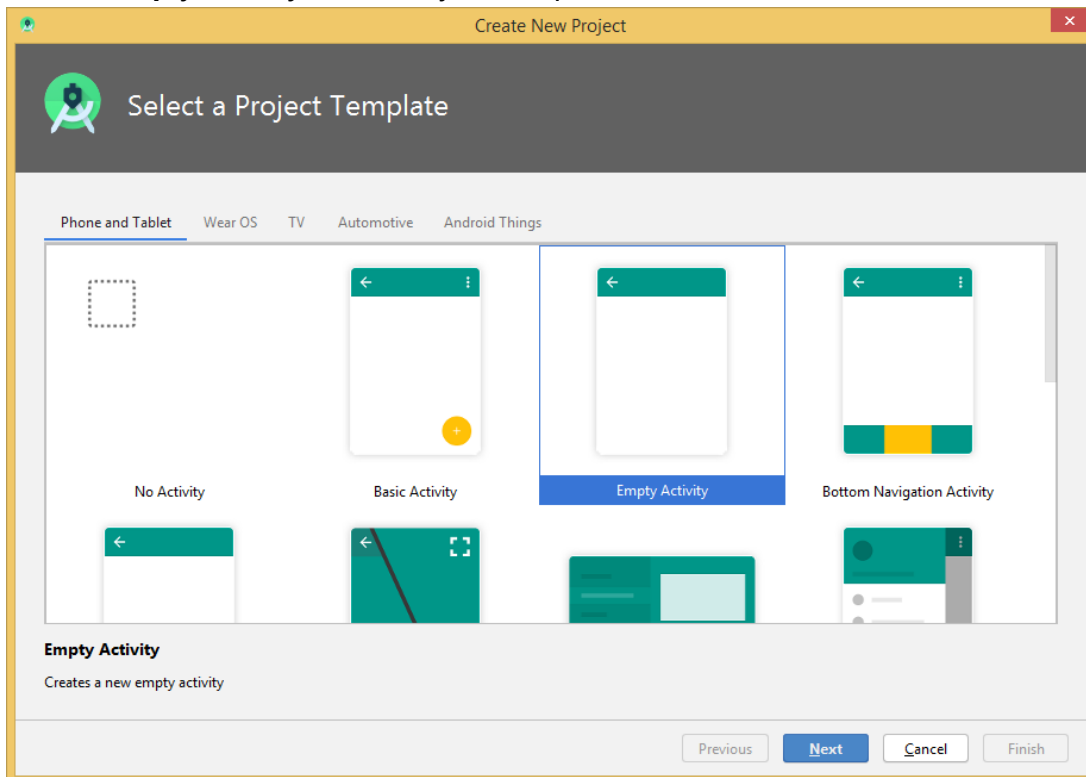


Create Your First Android Project

- Choose **Start a new Android Studio project**.

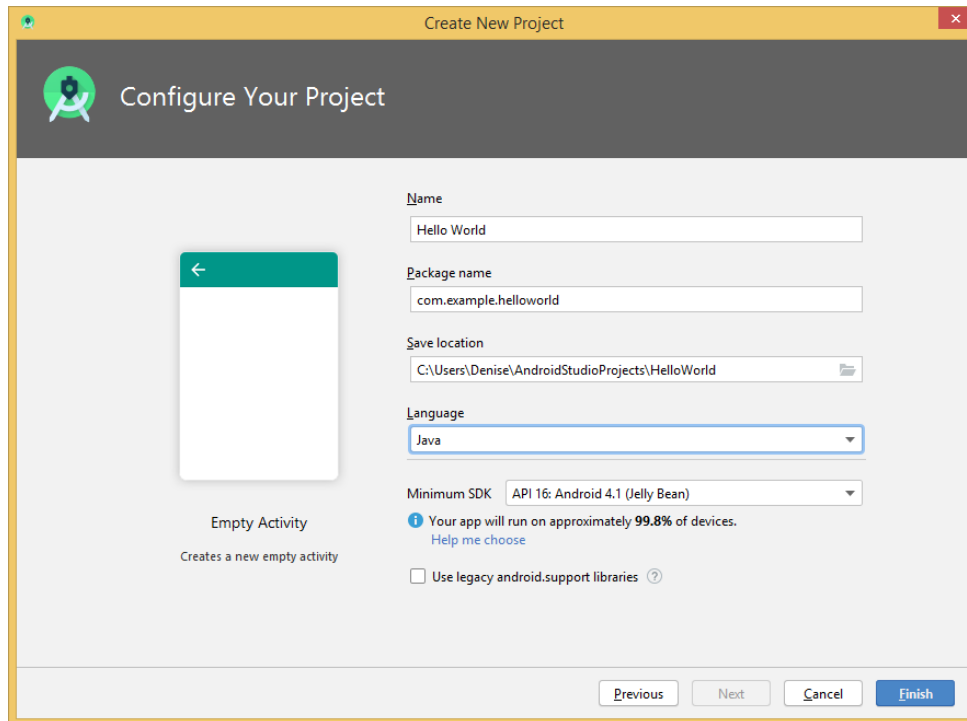


- Select **Empty Activity** as the Project Template.

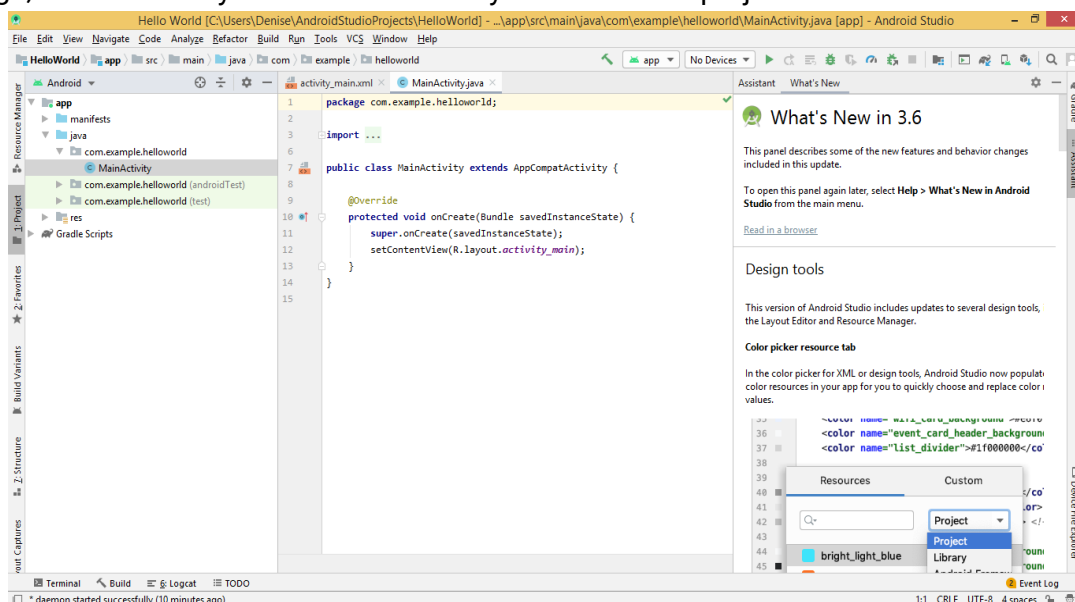


- Fill in the project details as below, and click **Finish**.

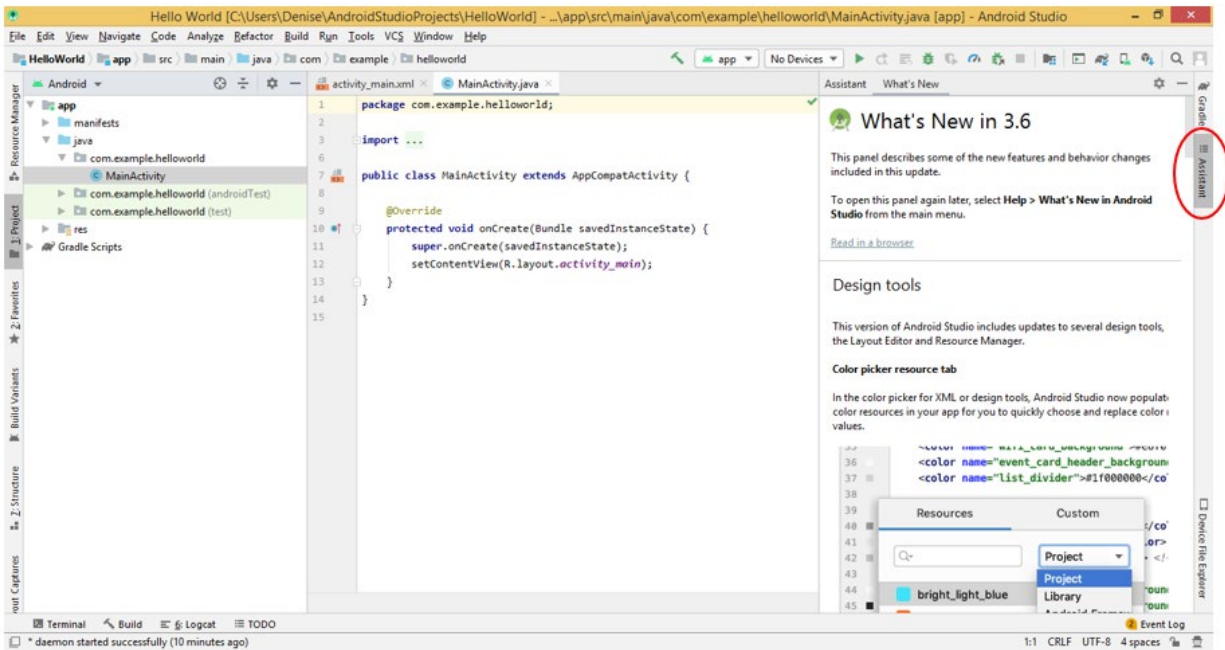
Name:	Hello World
Package name:	com.example.helloworld
Save location:	D:\C346\Workspace\P01\HelloWorld
Language:	Java
Minimum SDK:	API 16



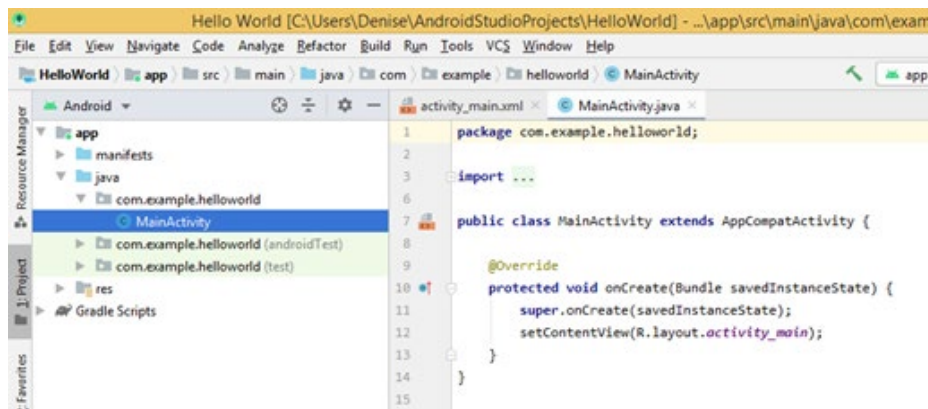
The first build will take some time. Be patient. When you see the page below or the main start-up page, it means that you have successfully created a new project.



- Click on the **Assistant** tab to close the right panel



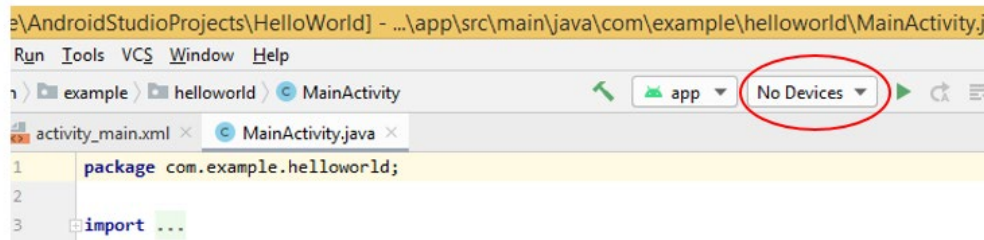
- Notice that 2 essential files are opened by default. They are activity_main.xml and MainActivity.java. These files already contained some codes and your app is ready to run!



Create an emulator

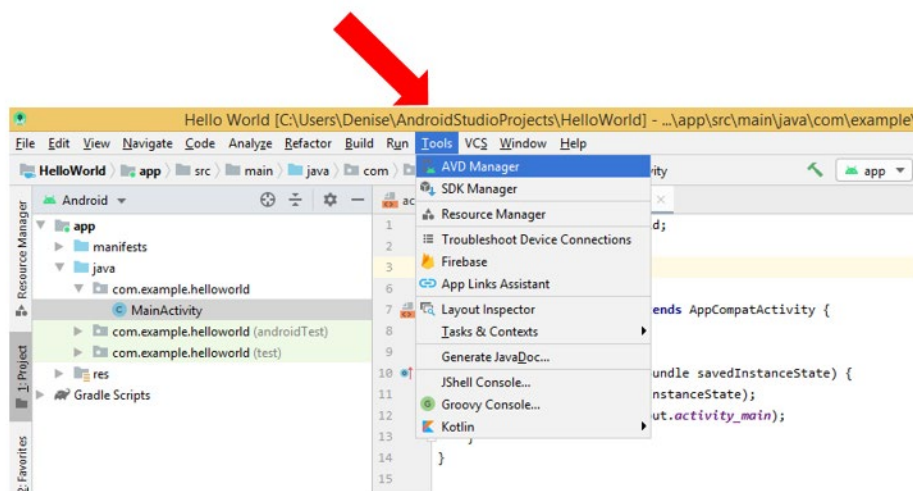
Before you can run any Android Studio project, you need to create an Android Virtual Device (AVD) first.

- In the Android project shown below, there is no AVD available to run the project.

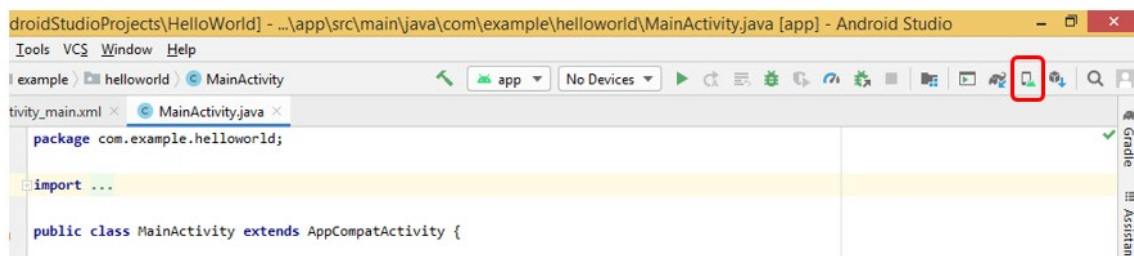


Let's proceed to create an AVD!

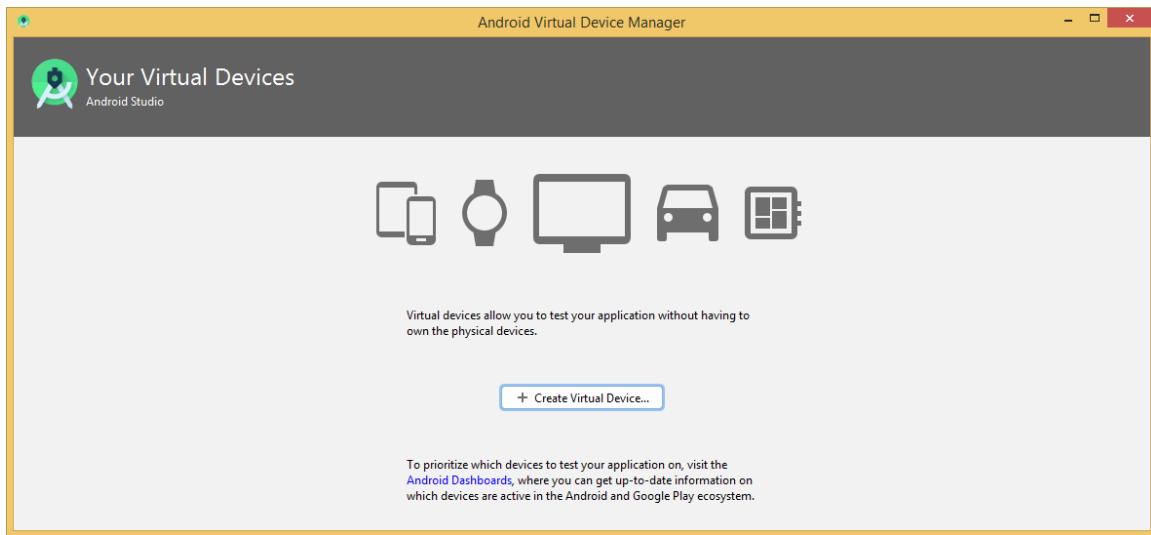
- Choose AVD Manager from the **Tools** menu



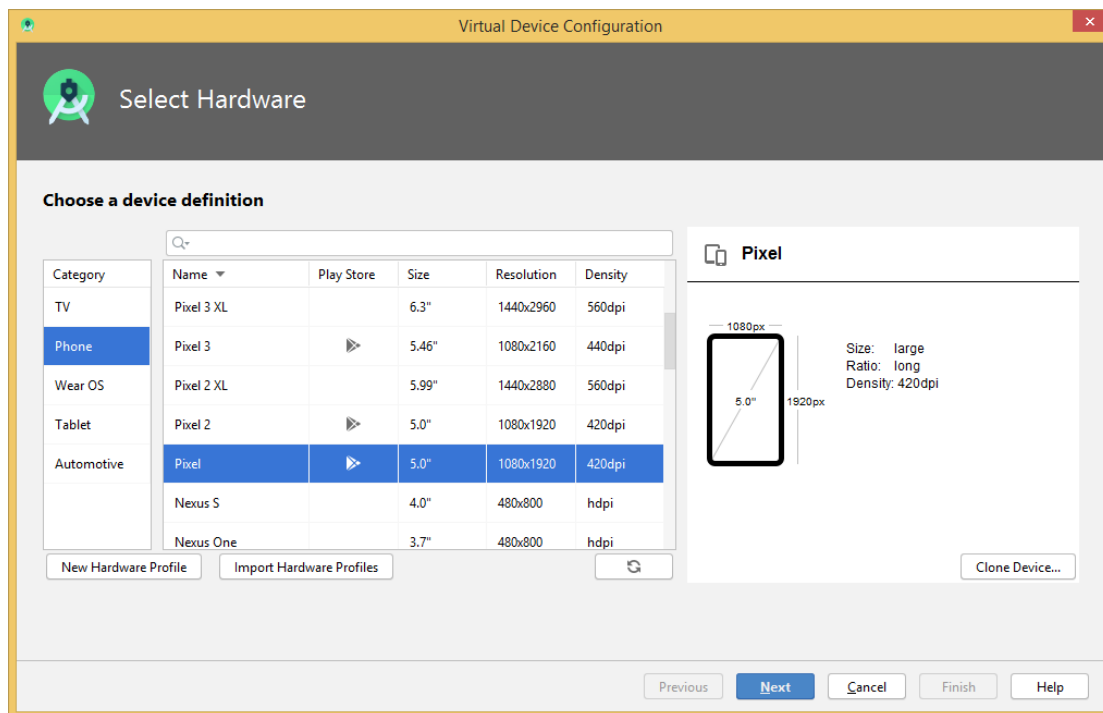
- Alternatively, you can click on the AVD Manager icon from the Toolbar



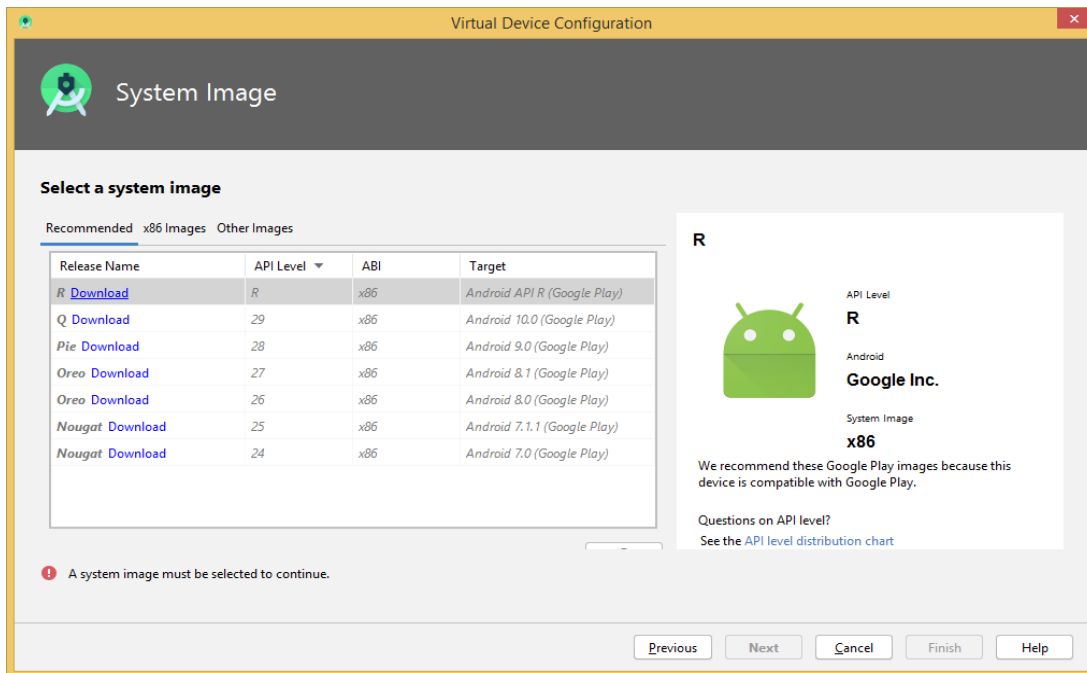
- Click on **Create Virtual Device** to create a new virtual device



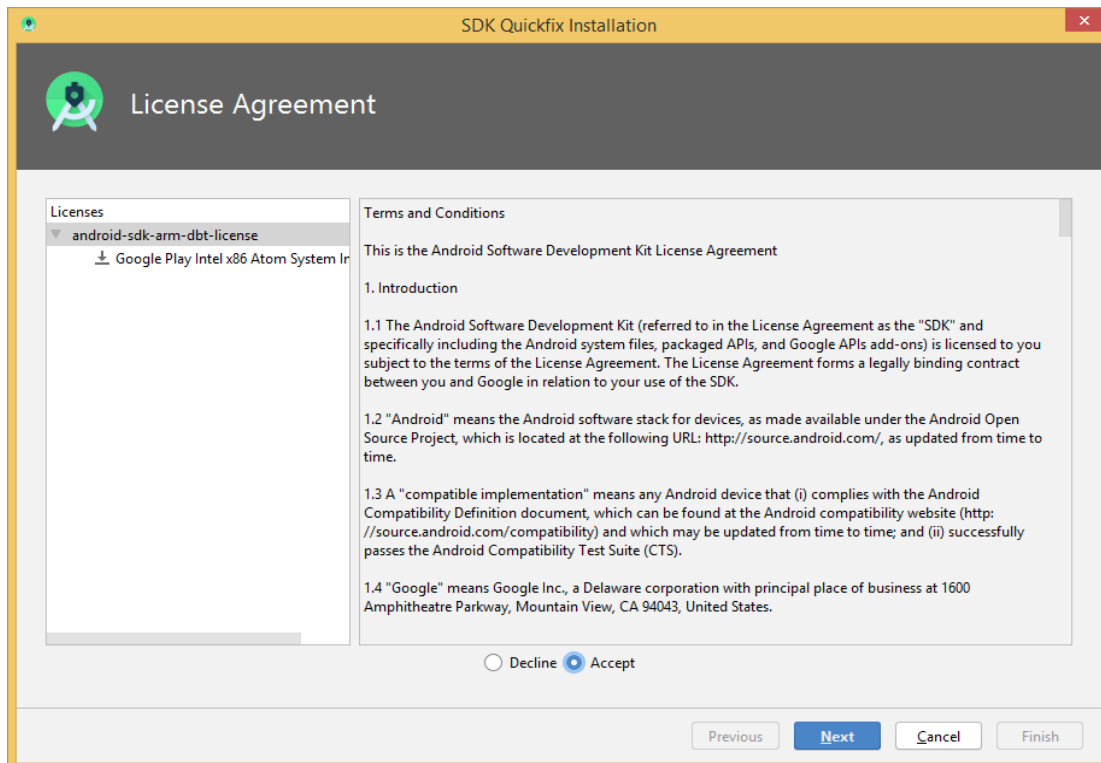
- Under the Phone Category choose **Pixel**, and click **Next**



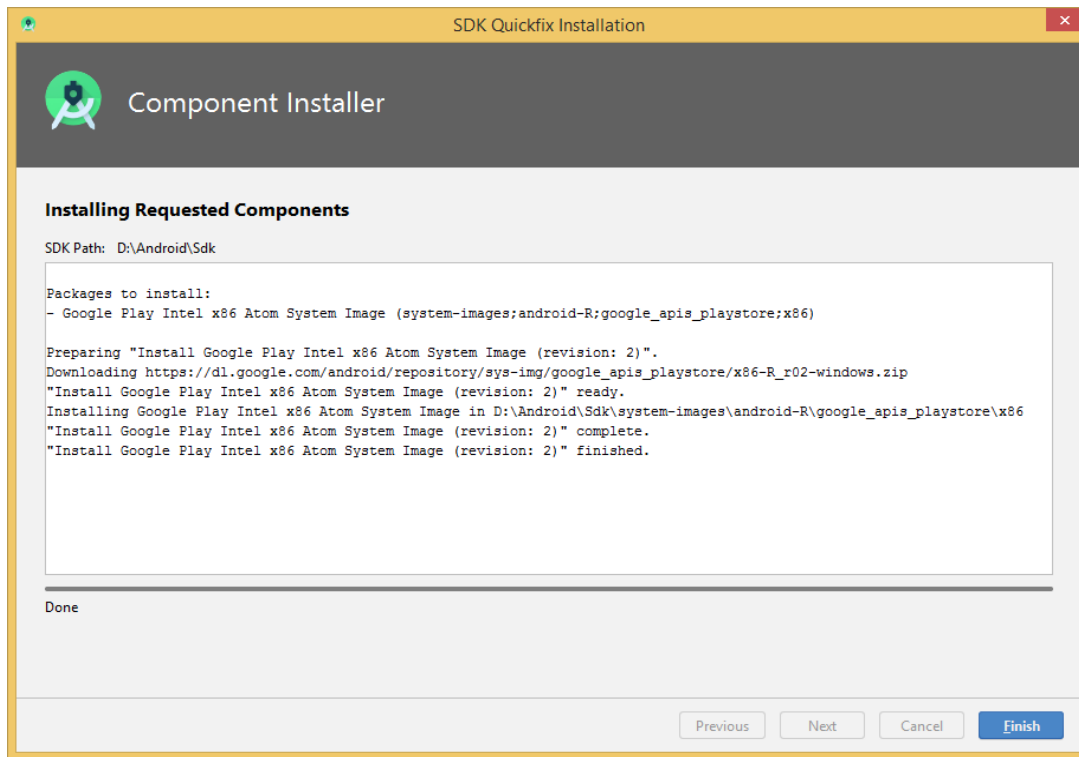
- Select a System Image. Under **Recommended** tab, download API Level R by clicking on the **Download** link.



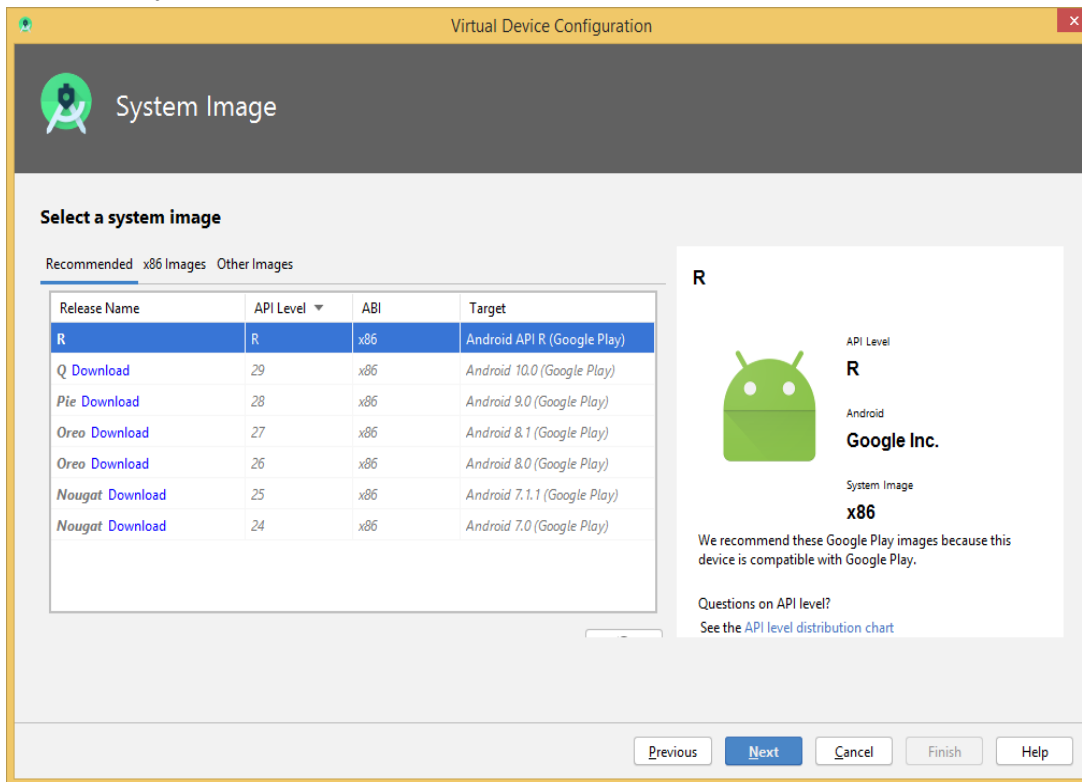
- Accept the Terms and Conditions for the SDK license and Click **Next**.



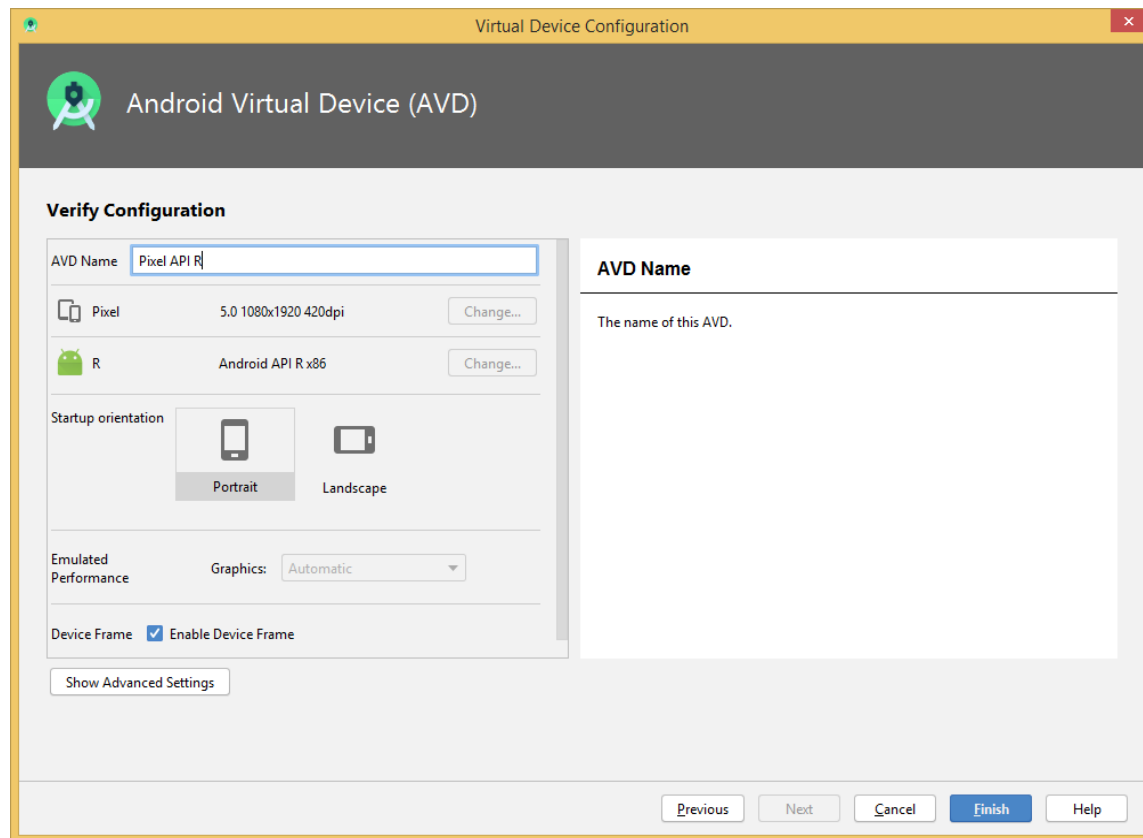
- Click **Finish** when the installation is done.



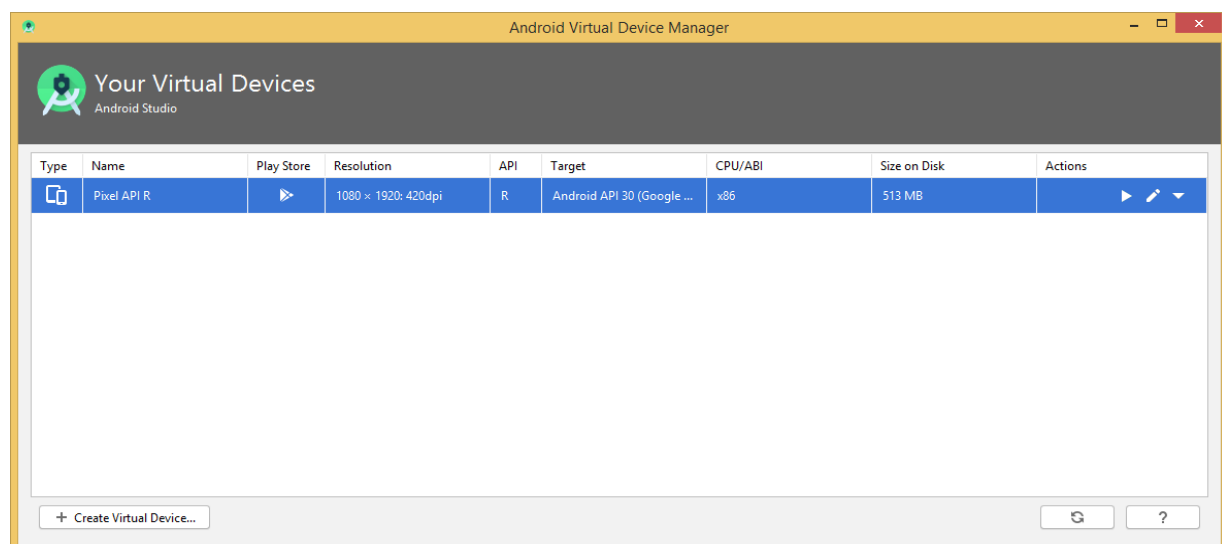
- Now the system image has been downloaded. Choose API Level R and click **Next**.



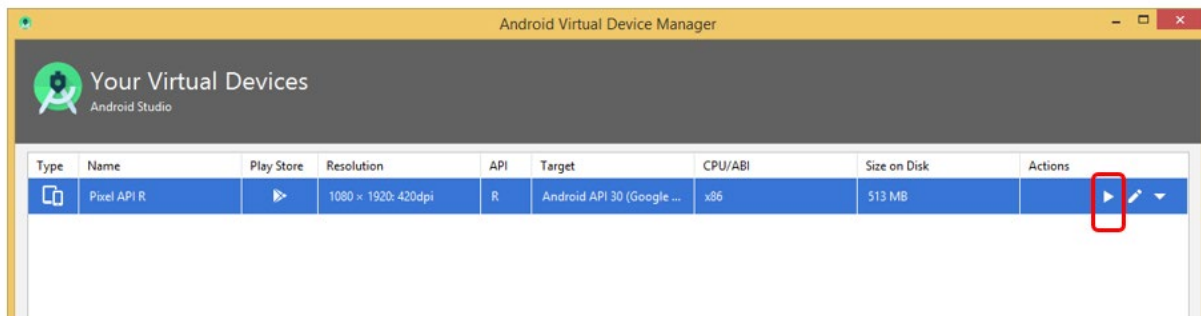
- You may change the AVD name if you wish to. Leave all other settings unchanged and click **Finish**.



- Now you should see the virtual device that you have just created.

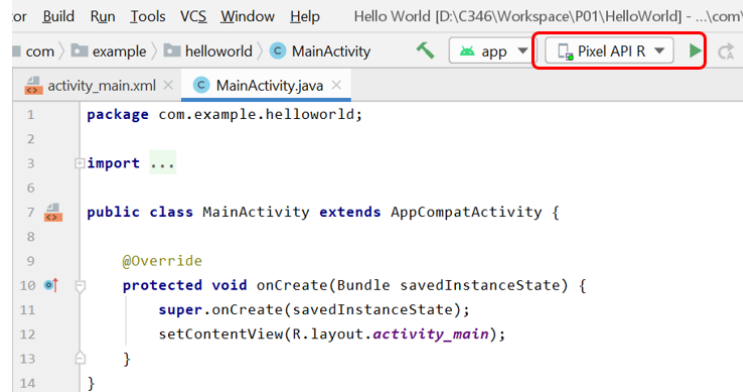


- At this point, you may launch your new AVD by clicking the green button. However, since we are going to run the app on the emulator, we'll skip this step.

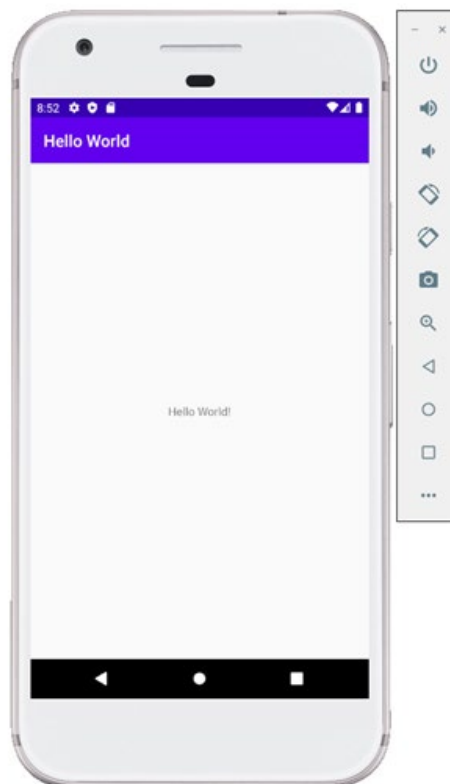


Run your app

- From the menu bar in Android Studio, click the green play button to run the app.



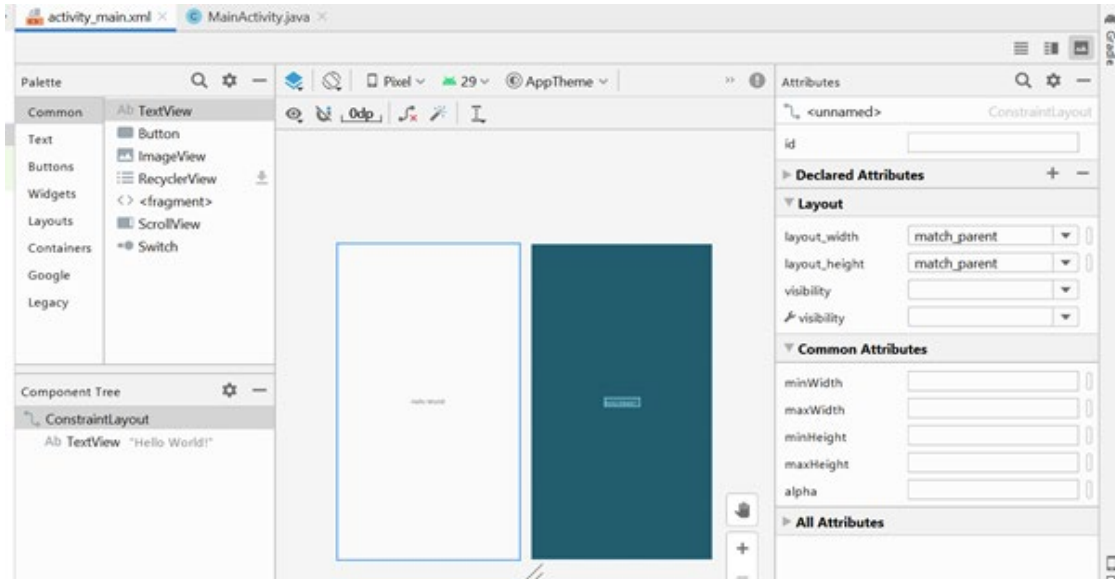
- You should see your first "Hello World" app appearing on the emulator. Congratulations! You have successfully run your first Android app on the virtual device.



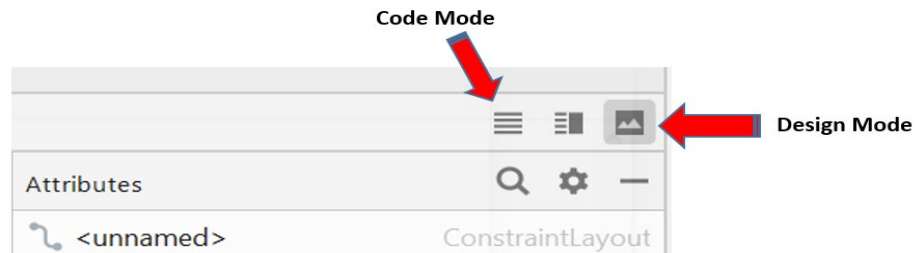
Making some modifications to your app

Let's change the message from "Hello World!" to "Android is fun!".

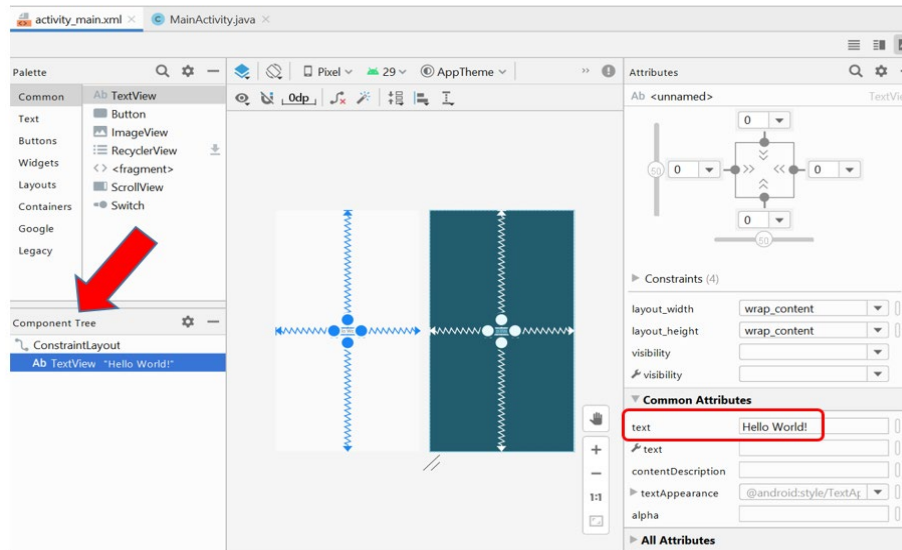
- In the main panel, click **activity_main.xml** tab.



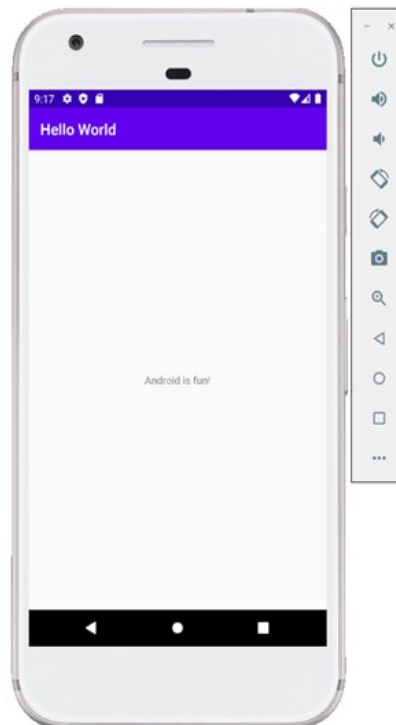
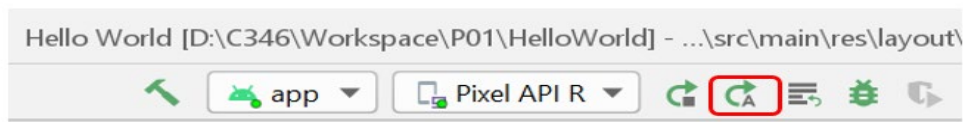
- Navigate to the **Design** mode as shown below. In this mode, you'll be able to preview your app. You'll also be able to add new components and modify their attributes.



- In the **Component Tree** panel, select **TextView** item. In the **Attributes** panel, you'll notice that the value for **Text** attribute is "**Hello World!**".



- Change the text to "**Android is fun!**" and run the app again.



Congratulations, you've successfully set up and create your first Android App!