POLITEKNIK MALAYSIA
MERSING

DEPARTMENT OF INFORMATION & COMMUNICATION TECHNOLOGY

DFP50293
MOBILE APPLICATION DEVELOPMENT

NAME	FARAH HANIS BINTI AZAMAN SITI RABIAH BINTI ABD JABBAR
REGISTRATION NO	25DDT21F1023 25DDT21F1025
DATE	13/9/2023
CLASS	DDT5 SAD 1
CODE/SUBJECT	DFP50293 - MOBILE APPLICATION DEVELOPMENT
ASSESSMENT	PROBLEM BASE TASK 1
LECTURER	PN. MUNIRAH BINTI AB RAHMAN

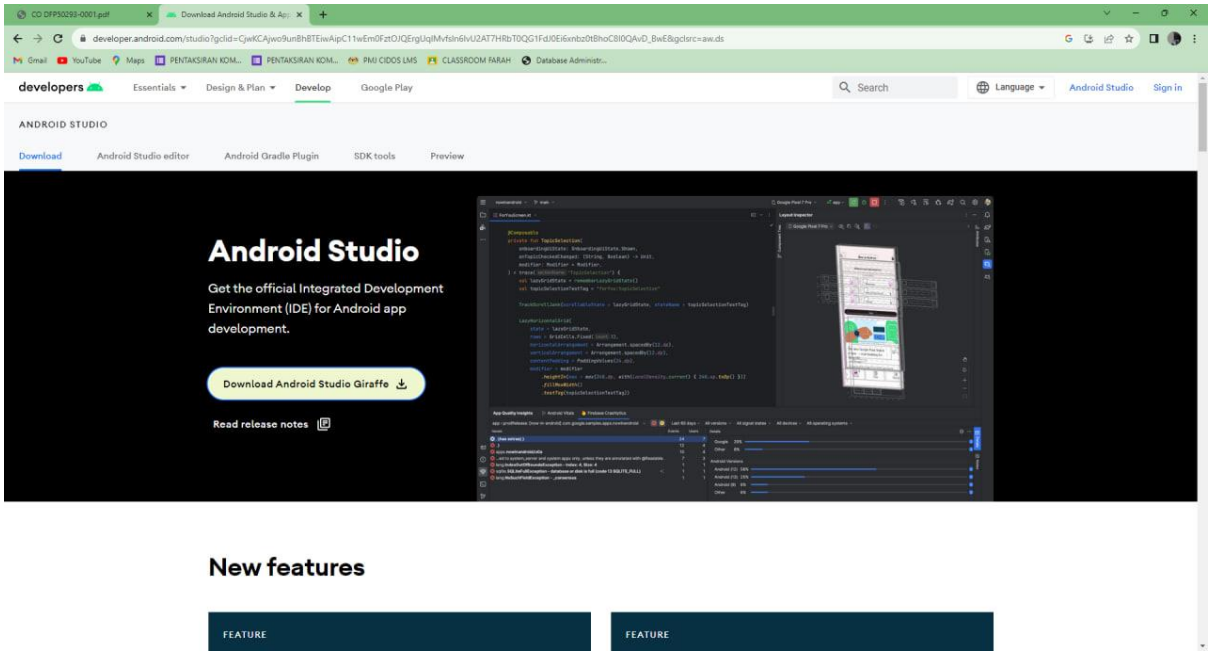
CLO 1	**:**	Construct mobile application components, APIs and libraries by using Android Development Tools (P4, PL03)
TOPIC	**:**	1.2 Construct the Development Environment for Android 1.3 Develop First Android Application
DURATION	**:**	5 Hours
INSTRUCTION	**:**	COMPLETE THE FOLLOWING TASK IN GROUP (MAXIMUM OF TWO (2) MEMBERS FOR EACH GROUP)

1. As the IT Executive of Politeknik Mersing, you are responsible for installing Android Studio in the lab. Your main tasks are installing the latest version of Android Studio and creating a complaint page for the lab using this IDE.

   i. First step, download and install Integrated Development Environment (IDE) for Android app development: (CLO 1, P4)
      a. Install the lates version of Android Studio.

      Download Android Studio.

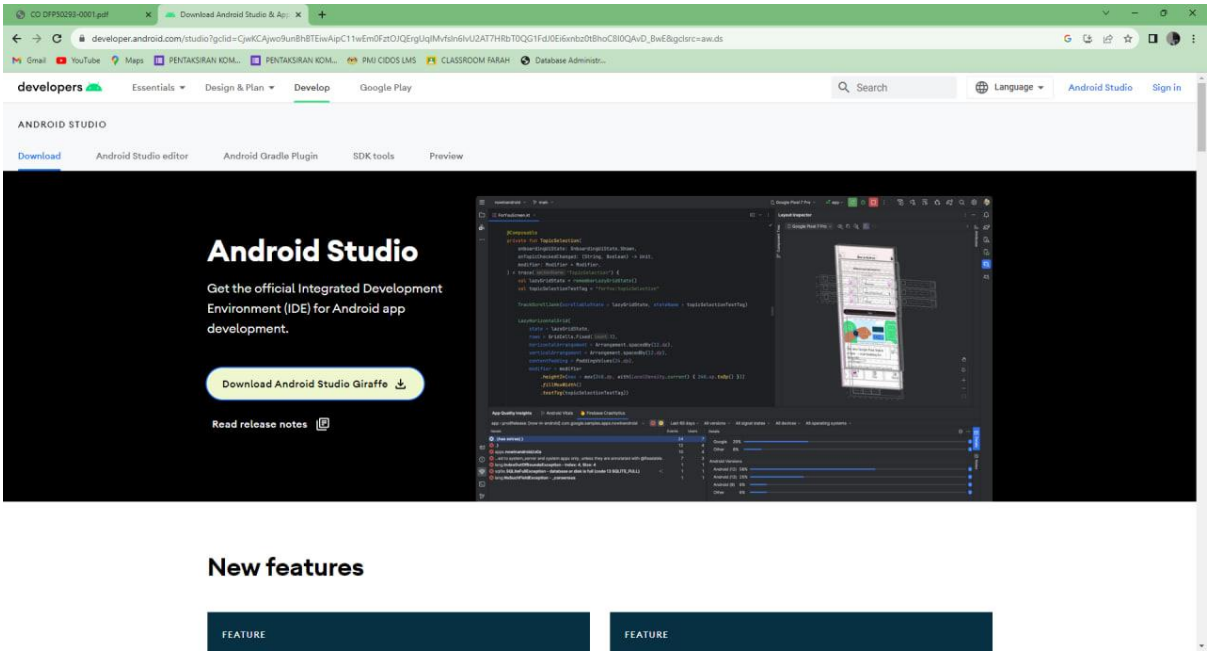
      Install android studio through the link in google or Microsoft edge. Click "Download Android Studio Giraffe"
      Link : https://developer.android.com/studio



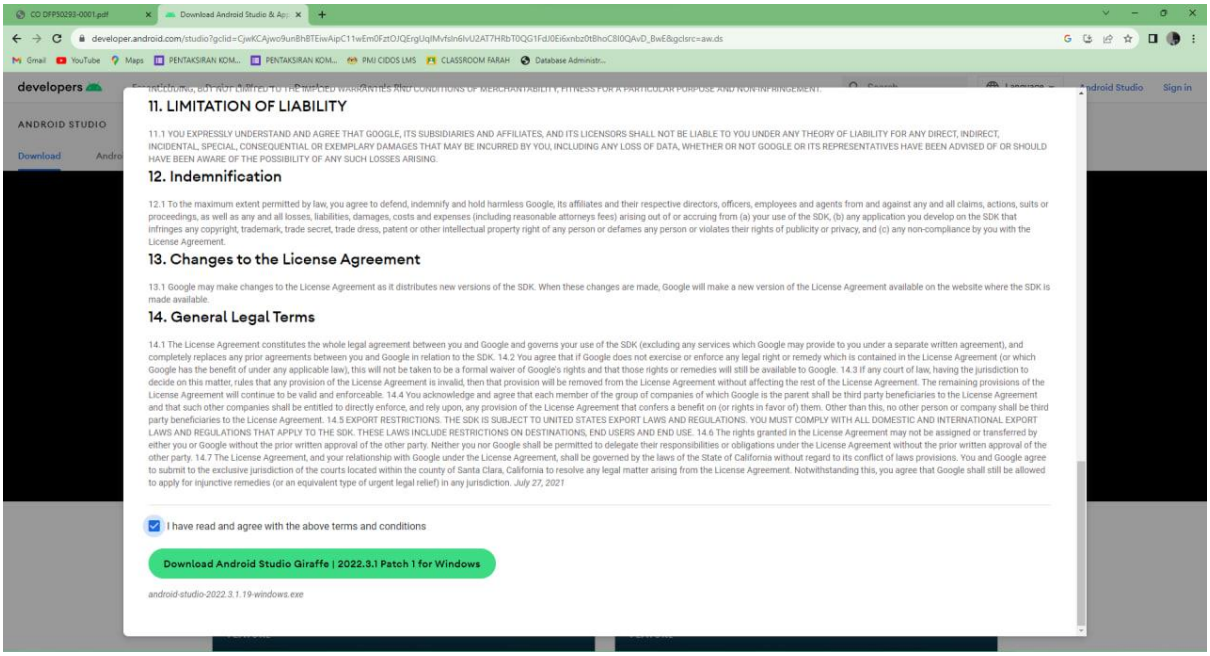
b. Show step by step to install it.

Download Android Studio.

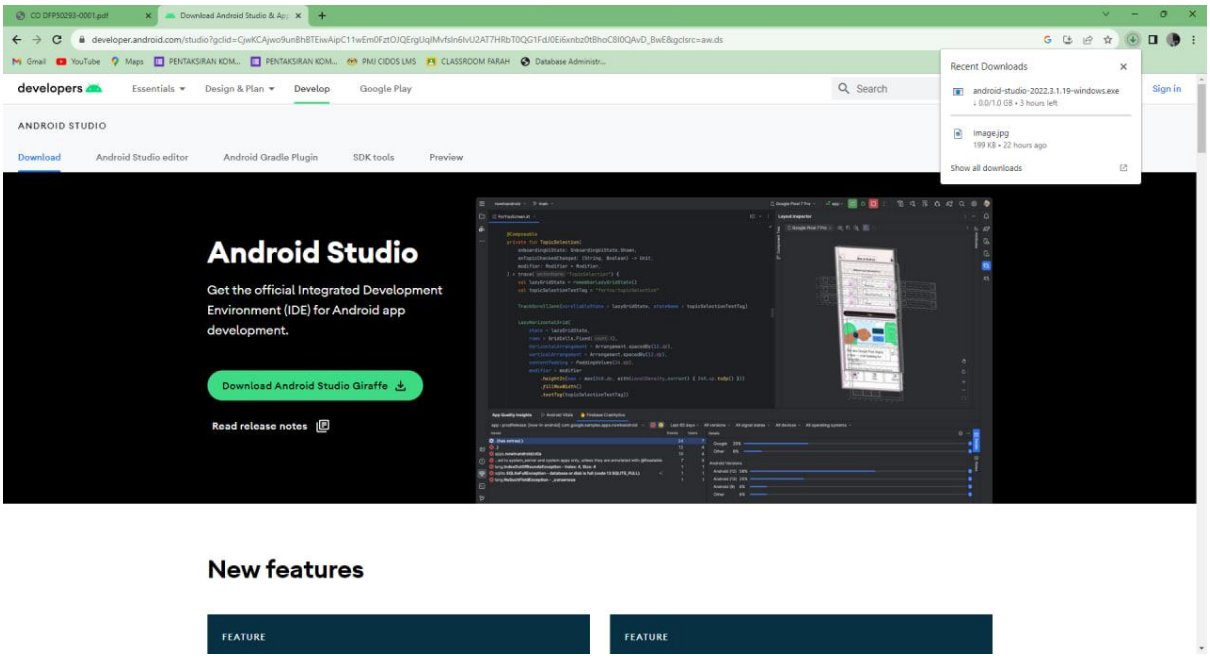
STEP 1: Install android studio through the link in google or Microsoft edge. Click “Download Android Studio Giraffe”



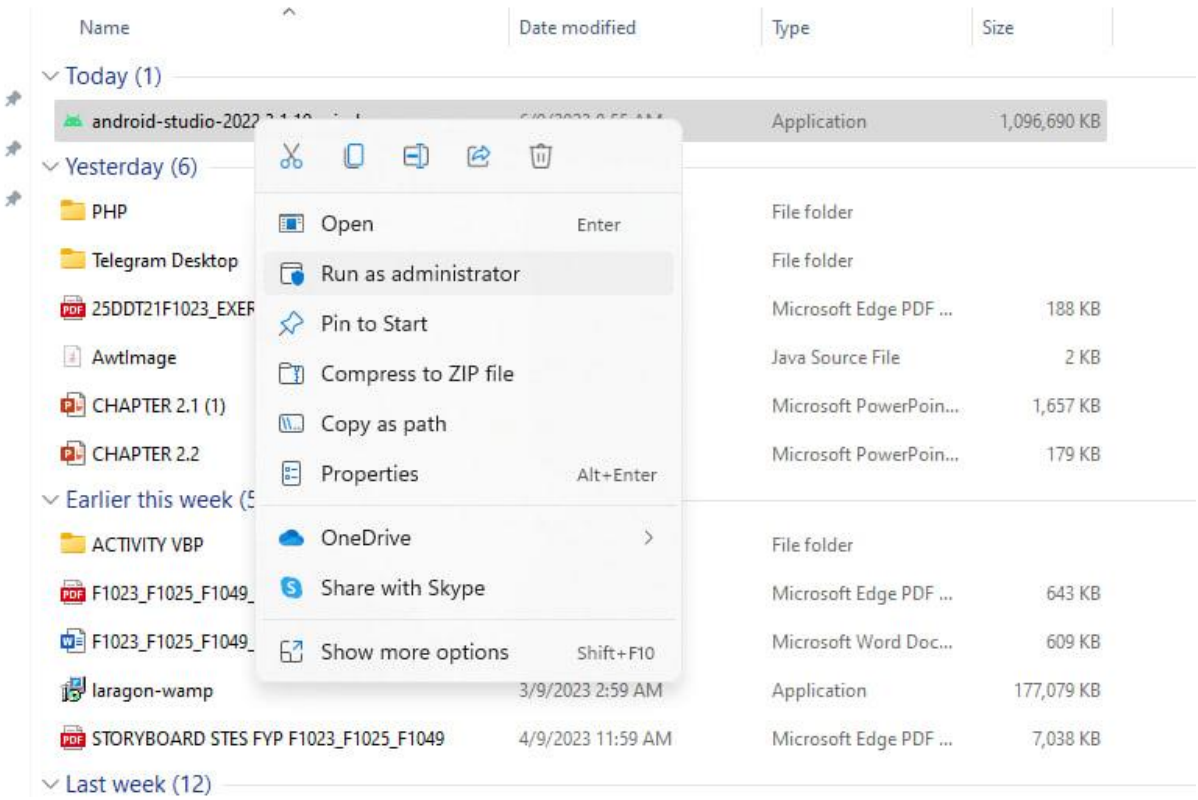
STEP 2: Read and agree the terms and conditions. Click “Download Android Studio Giraffe”



STEP 3: In your PC or Laptop, recent downloads was appeared and starting to download in the PC or Laptop.

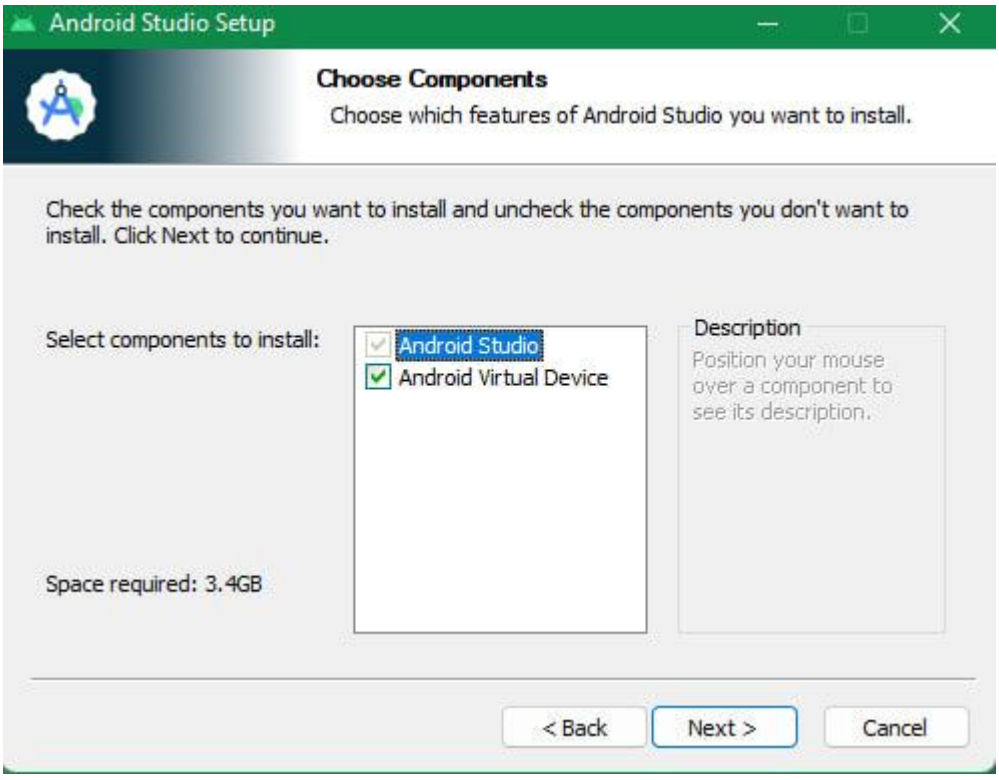


STEP 4: The software has been save in file download, right click and run as administrator Android Studio.

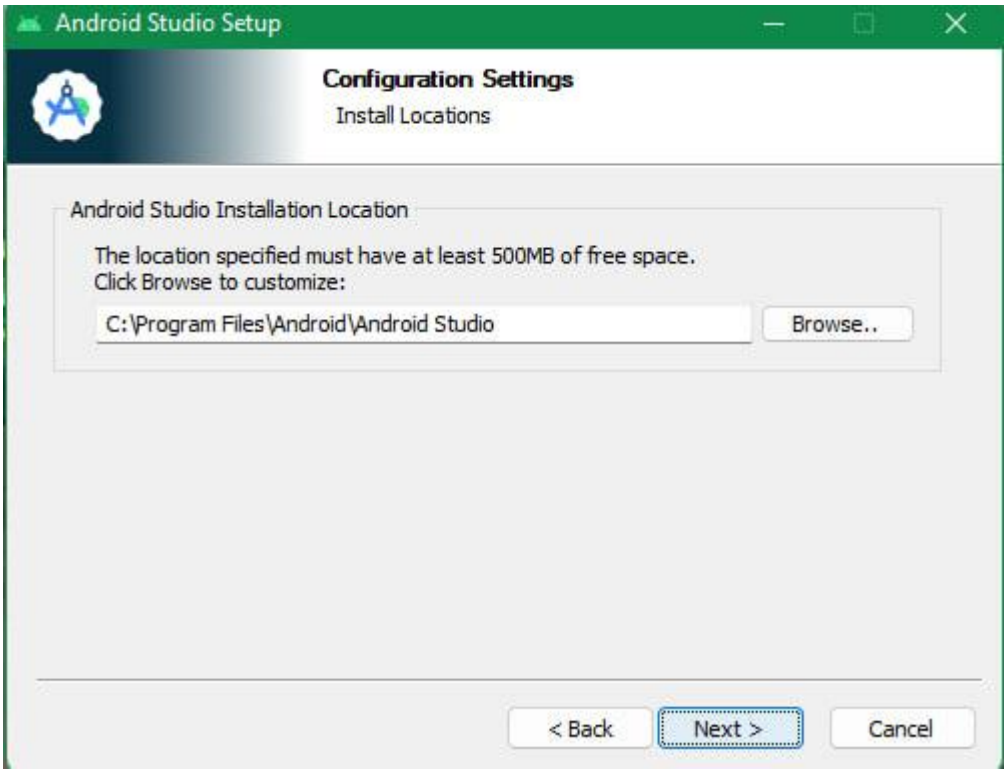


STEP 5: Message pop will appear “Welcome to Android Studio Setup” and to continue setup, click “Next >”

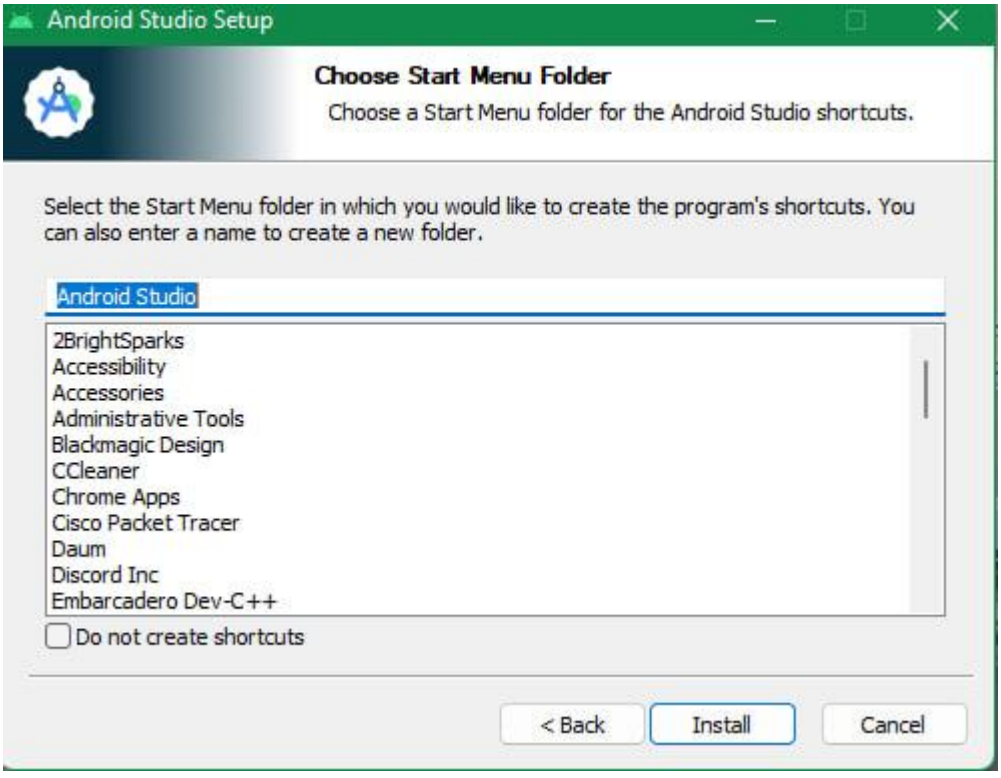
STEP 6: Choose default components and click “Next >”



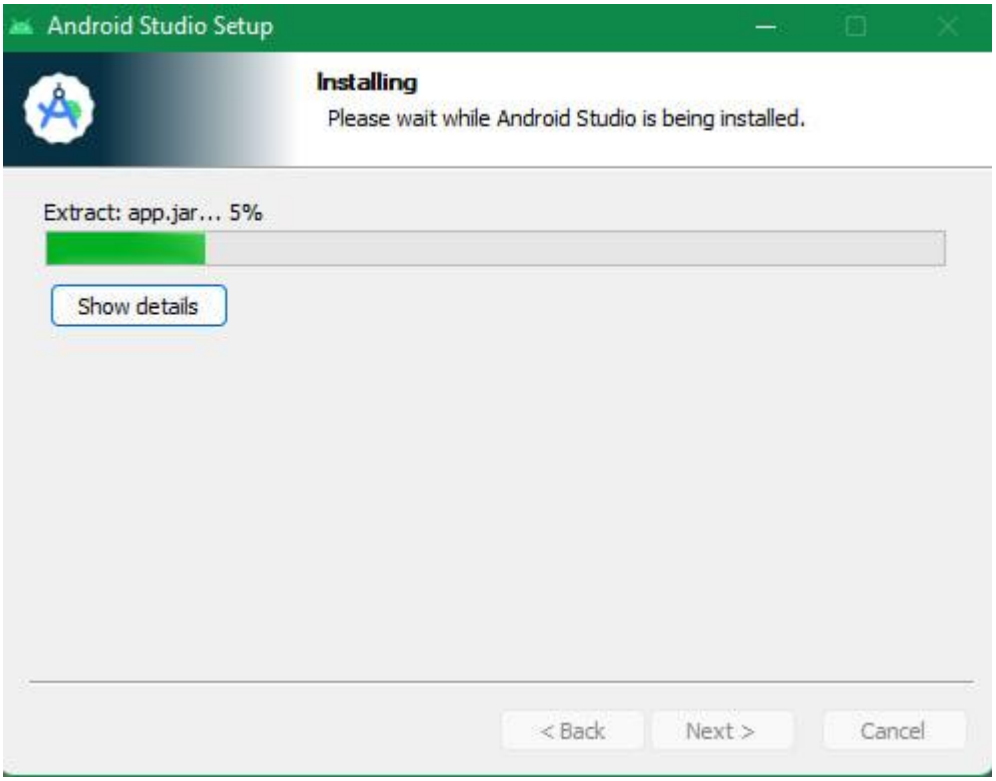
STEP 7: Click browses to find location and save installation Android Studio or the other just follow location was appeared.



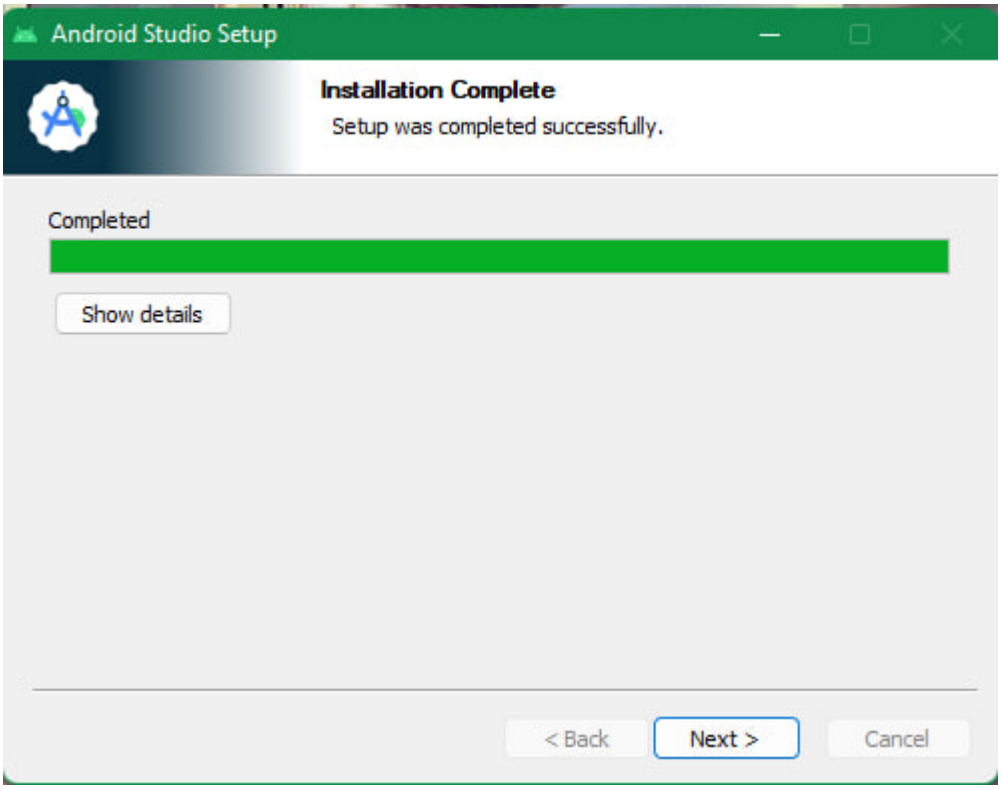
STEP 8: Choos Start Menu Folder “Android Studio” and click “Install” for crate program’s shortcuts.



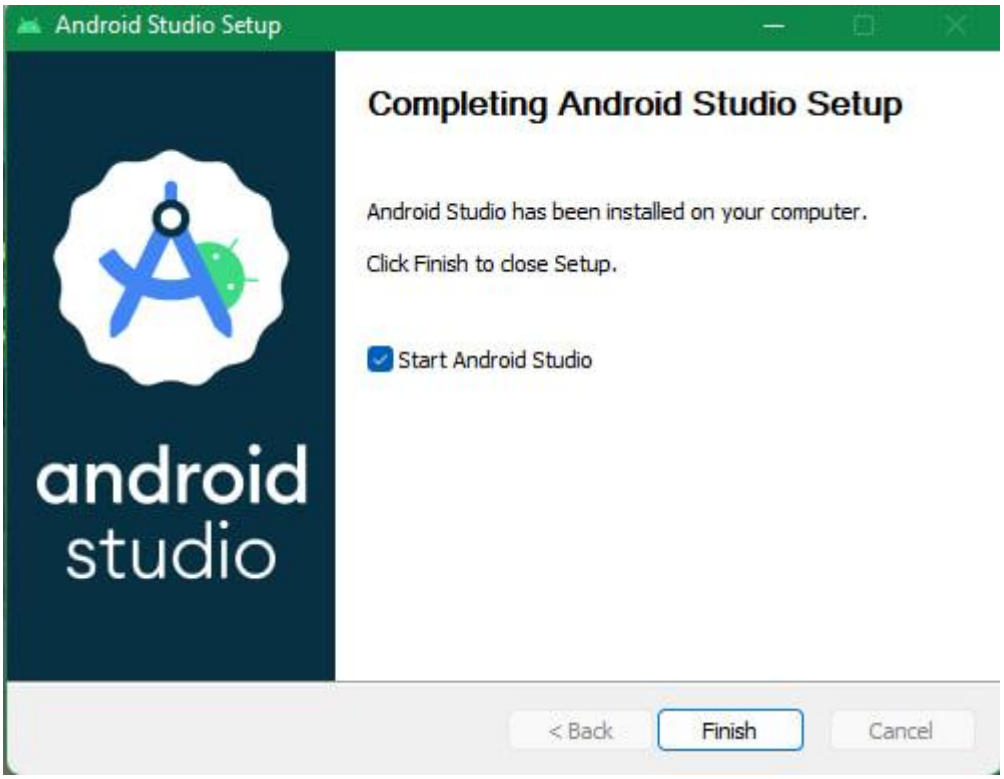
STEP 9: Waiting to install until complete and successfully.



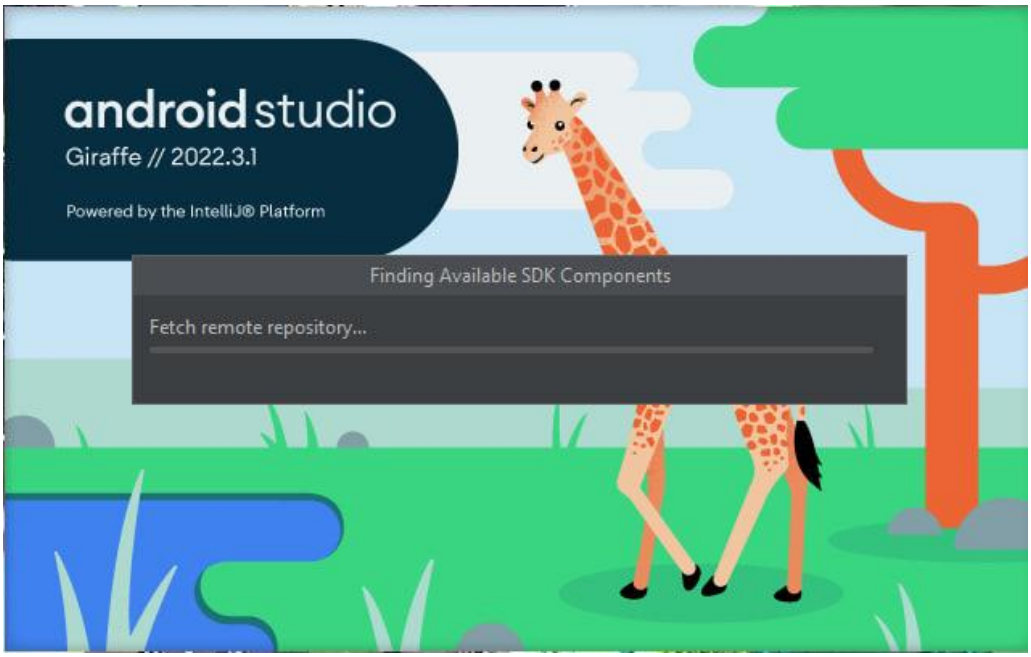
Click button next to finish the installation.

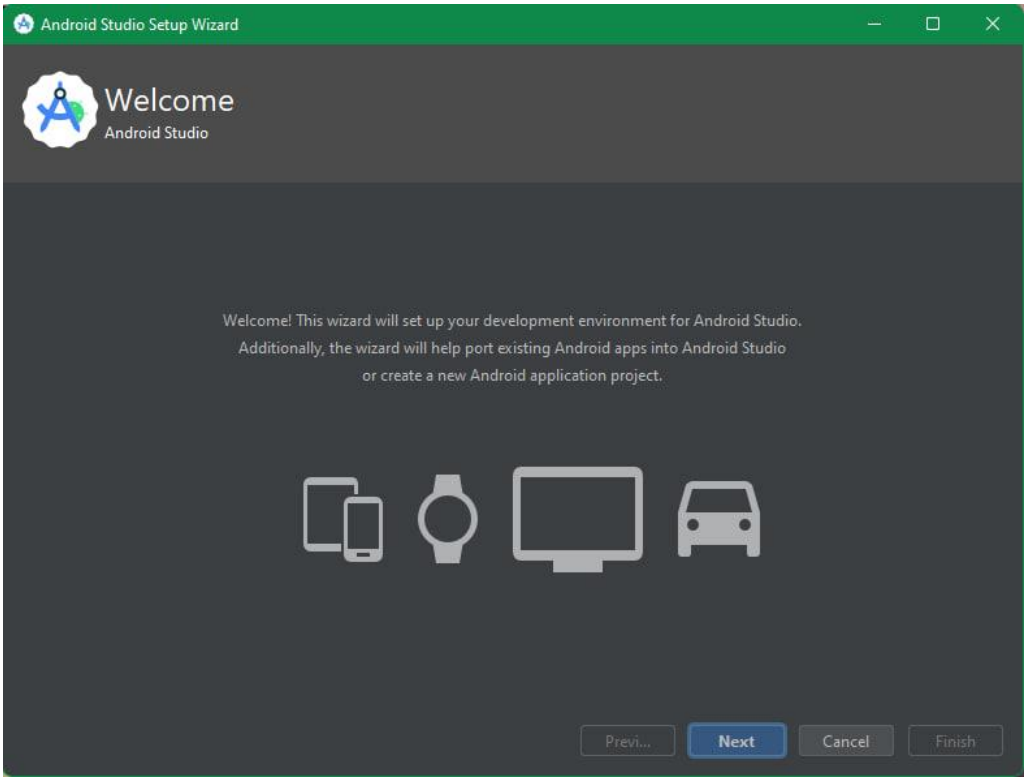


STEP 10: Completing Android Studio Setup by clicking “Finish” and start Android Studio.

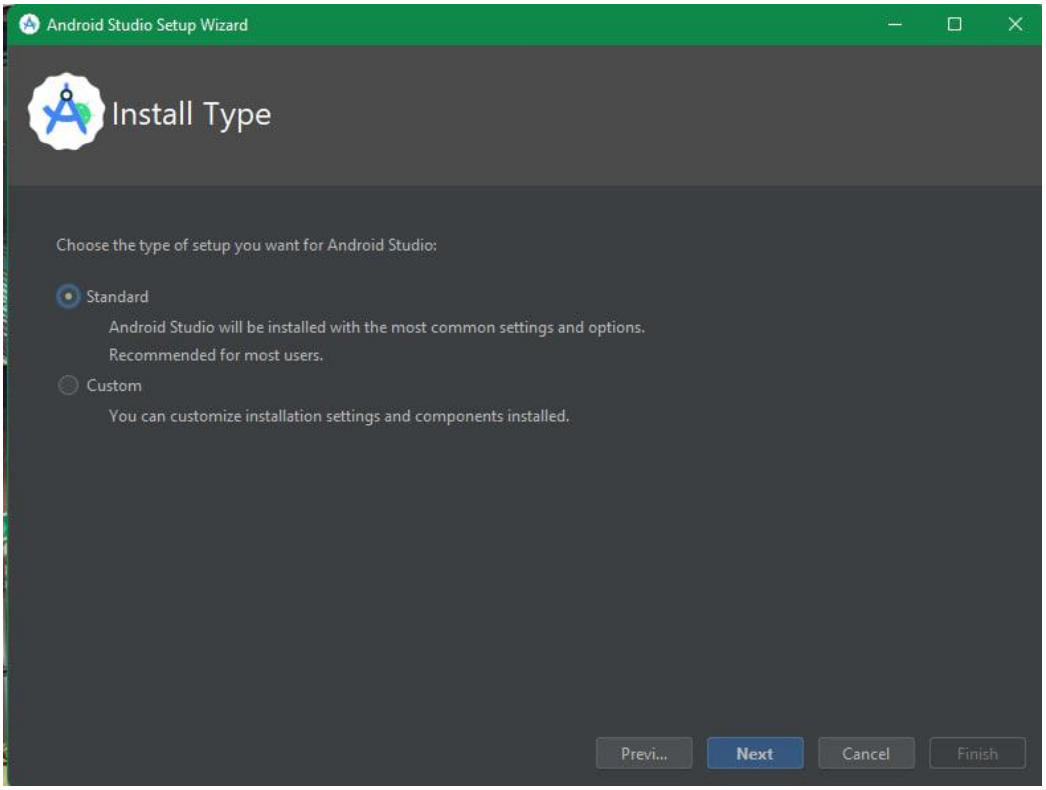


STEP 11: Waiting for Available SDK components and click button “Next” for Android Studio Setup Wizard.

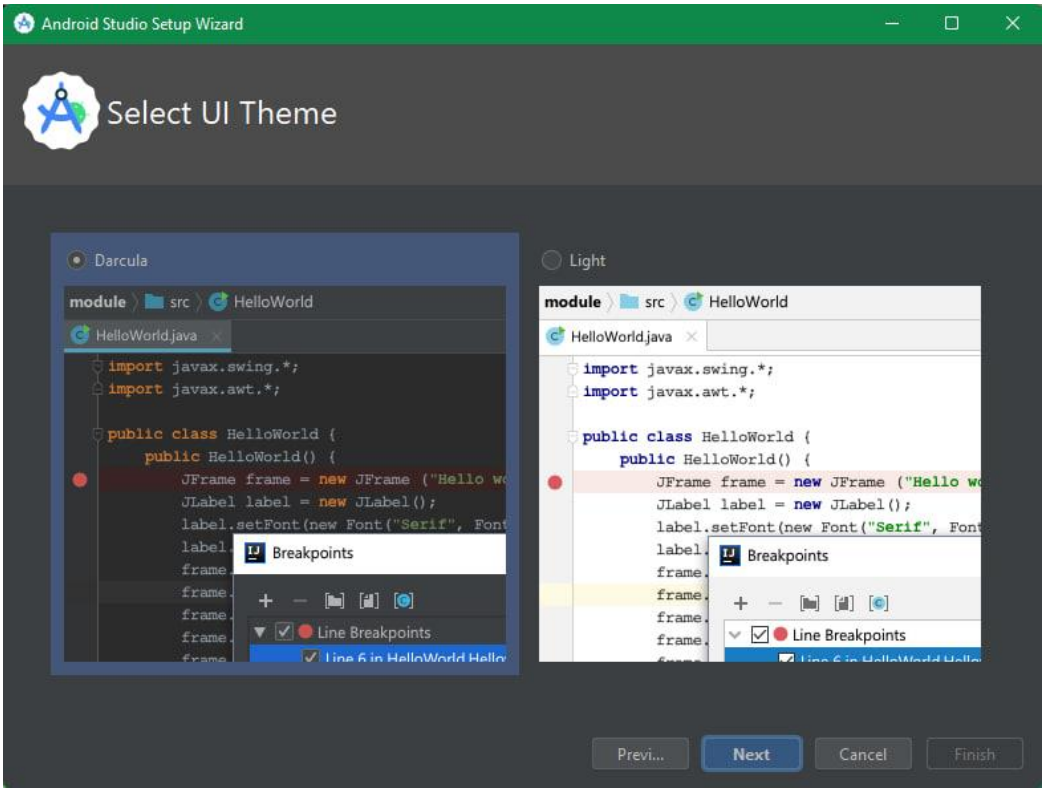




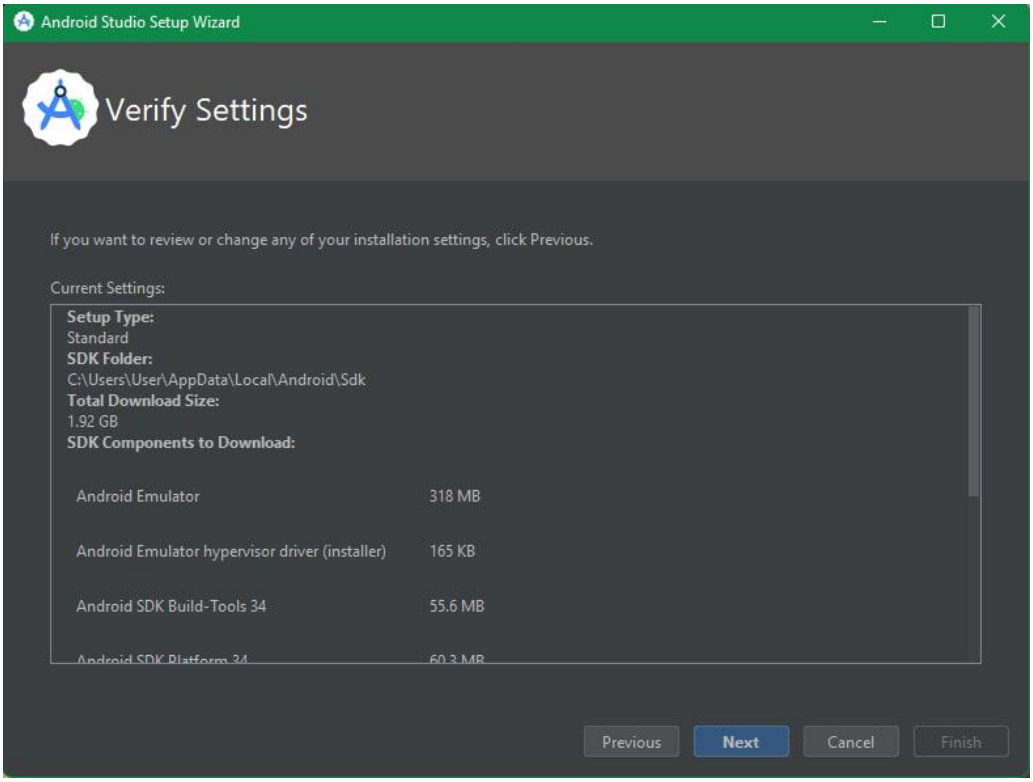
STEP 12: Choose install type for Android Studio and choose standard with the most common settings and options for most users. Click “Next” for next setup.



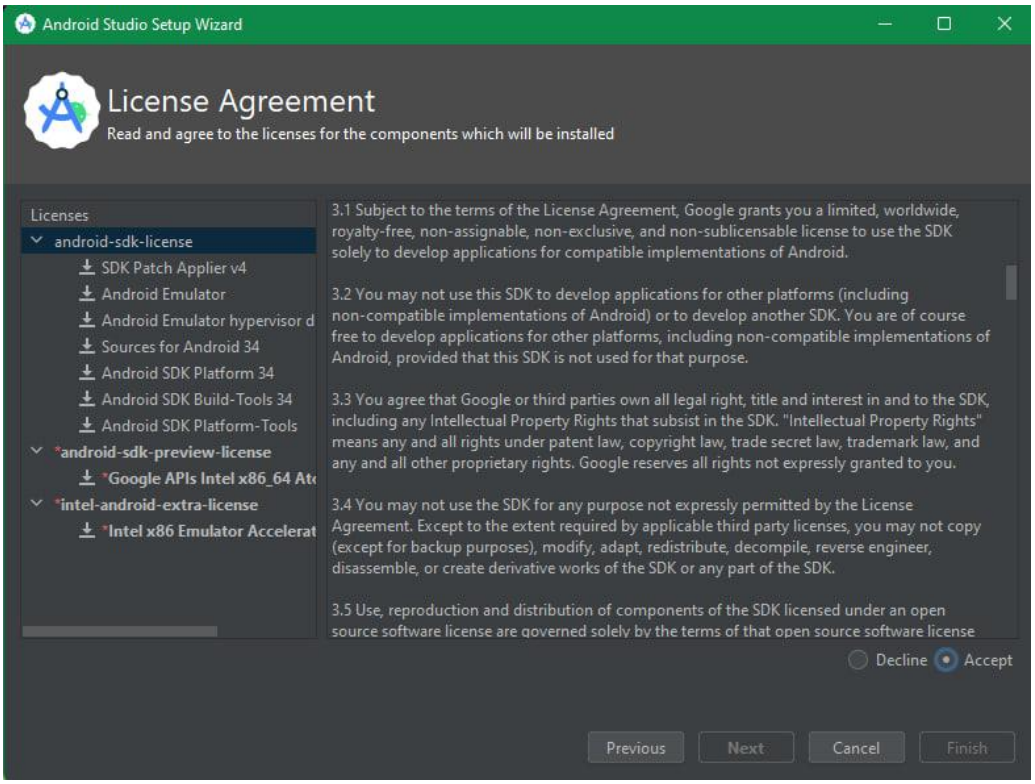
STEP 13: Android studio provide theme Darcula (dark) and Light for User Interface. And click “Next”.



STEP 14: Check confirmation the detail for current setting that has been choose in previous step. Click “Previous” to make correction and click “Next” for next setup.

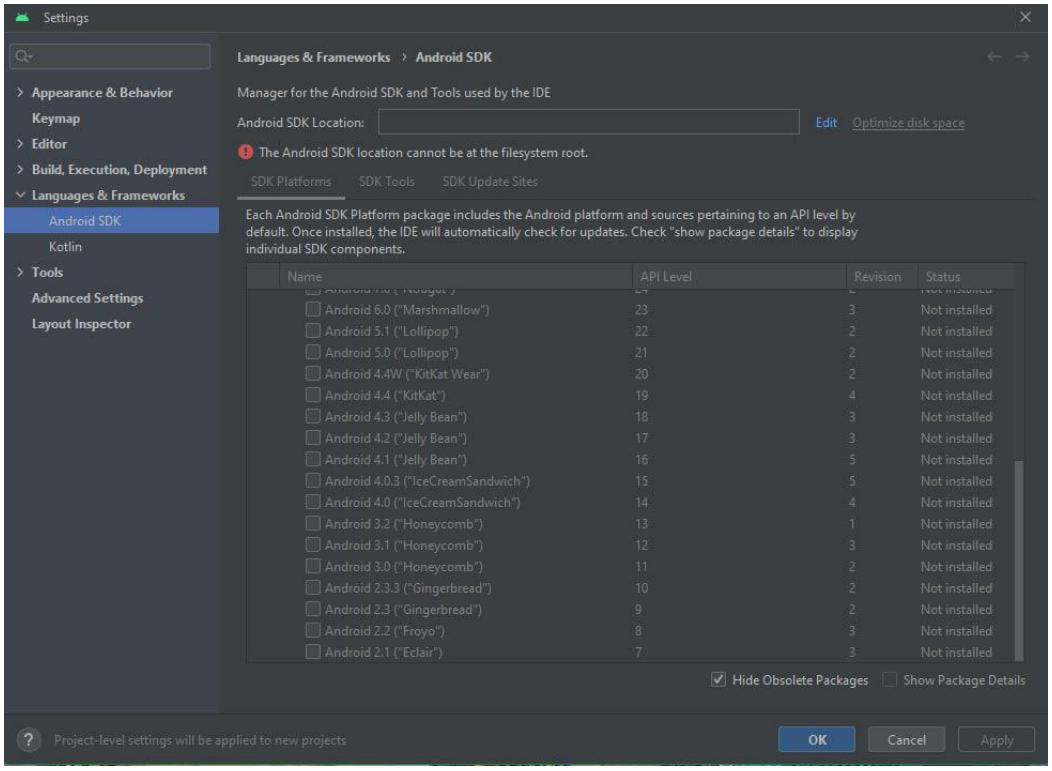


STEP 15: Read and understand the license agreement and in the last scroll of this choose “Accept” and Click “Next”.

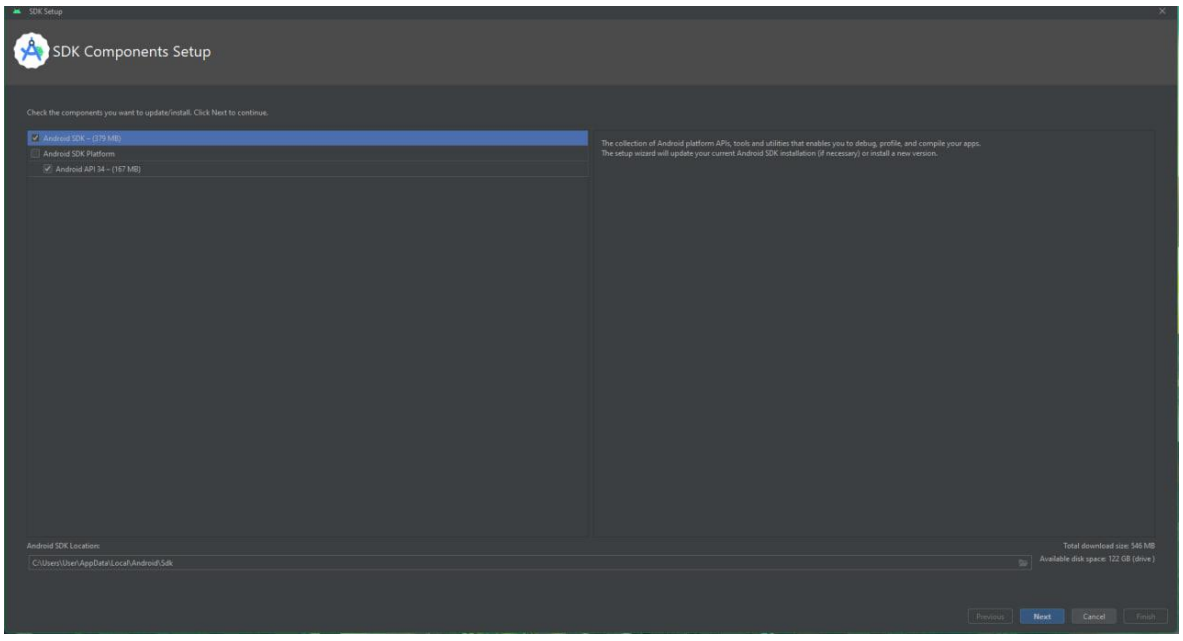


Installation of Android SDK.

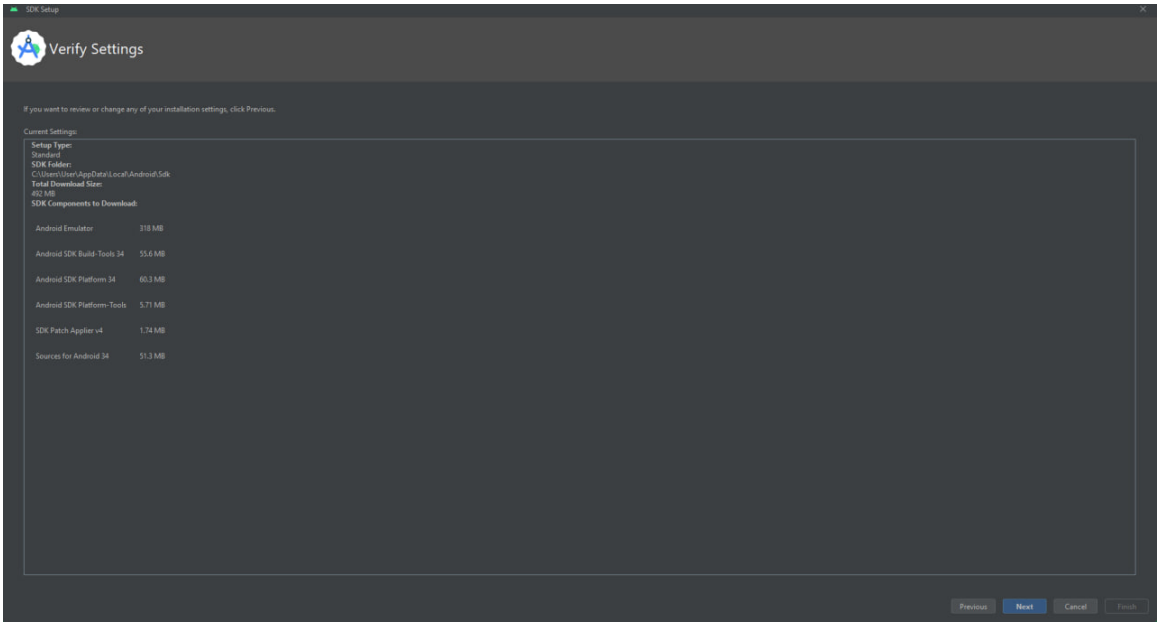
STEP 16: Start to install Android SDK, Click “Edit” for android SDK file location, Select API in SDK platform and Click “Next” to proceed.



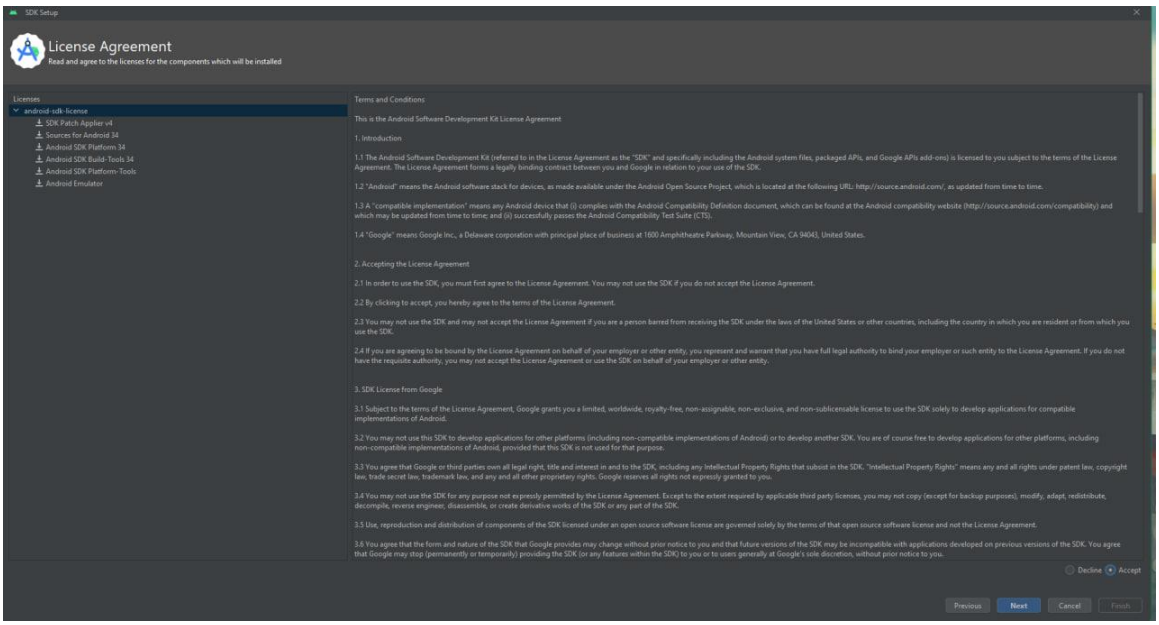
STEP 17: Check SDK component setup Android API 34 and click “Next” to proceed installation Android SDK.



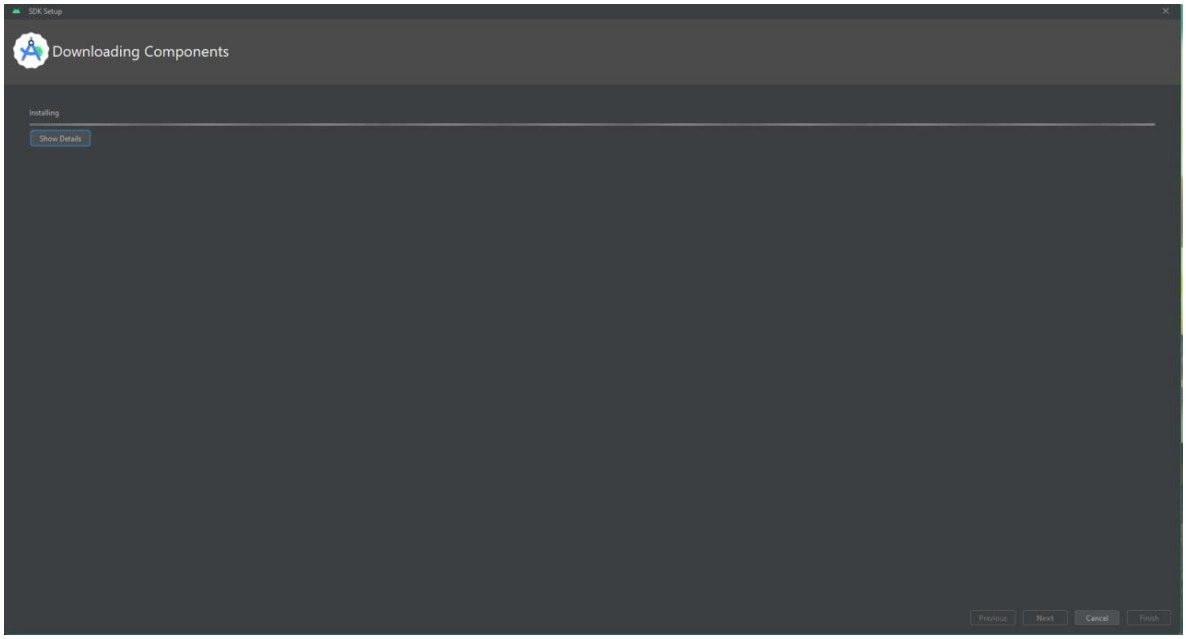
STEP 18: Check the detail setting that has been choose in previous step. And Click “Next” to proceed.

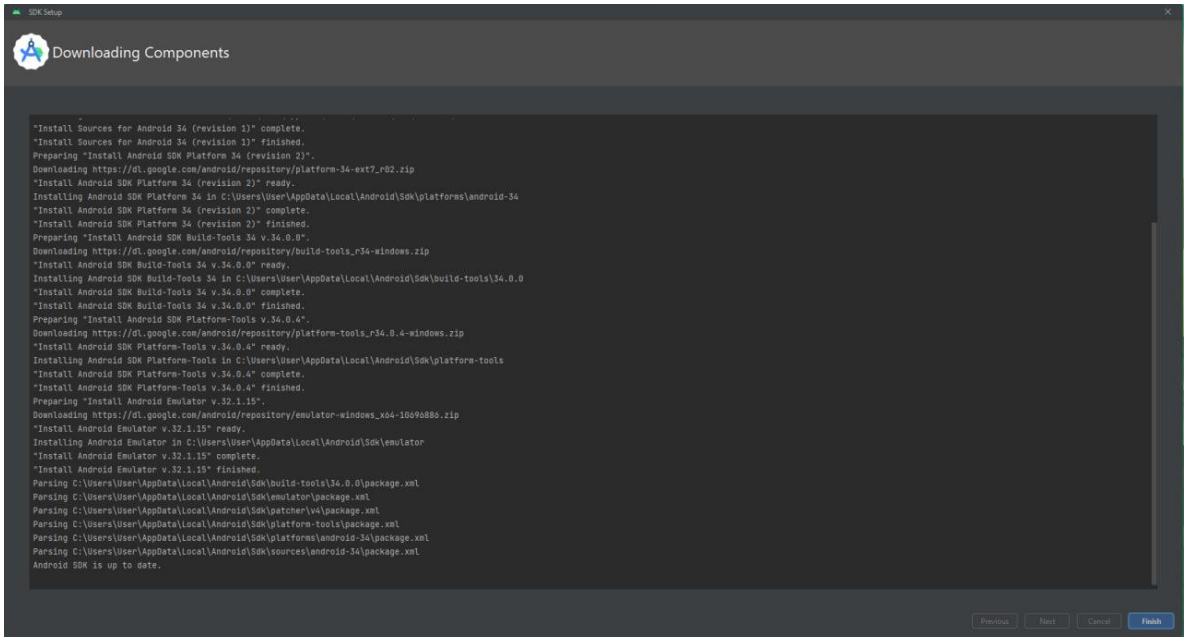


STEP 19: Read and understand license agreement for installation Android SDK. Click “Next” to proceed.



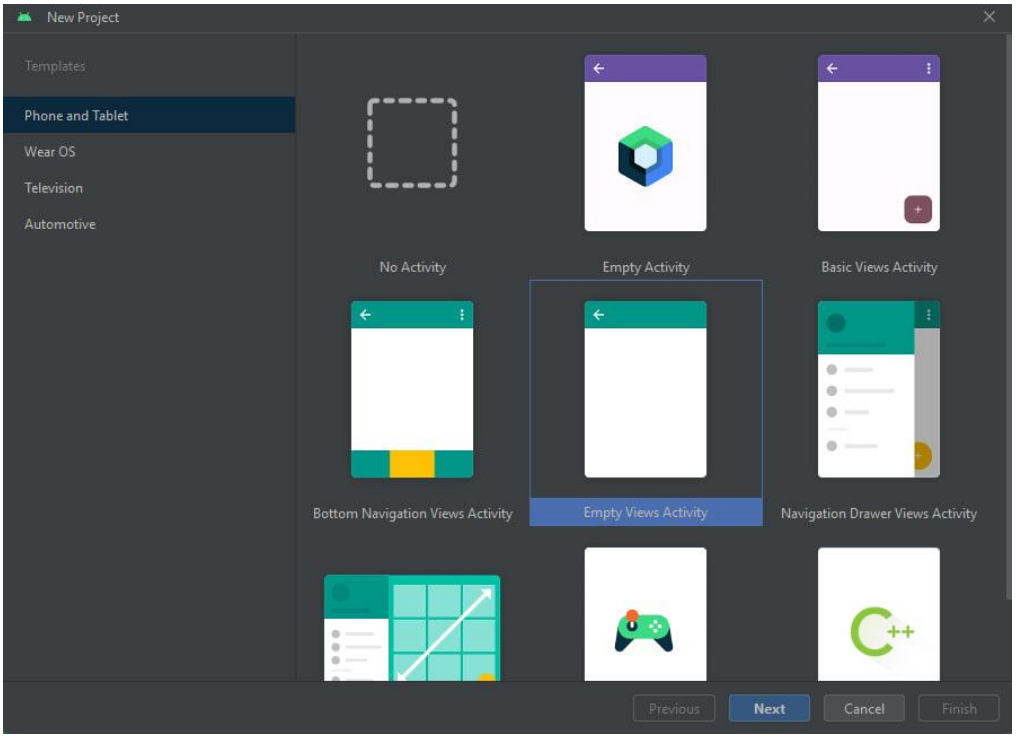
STEP 20: Installing requested components and completing installing requested components.



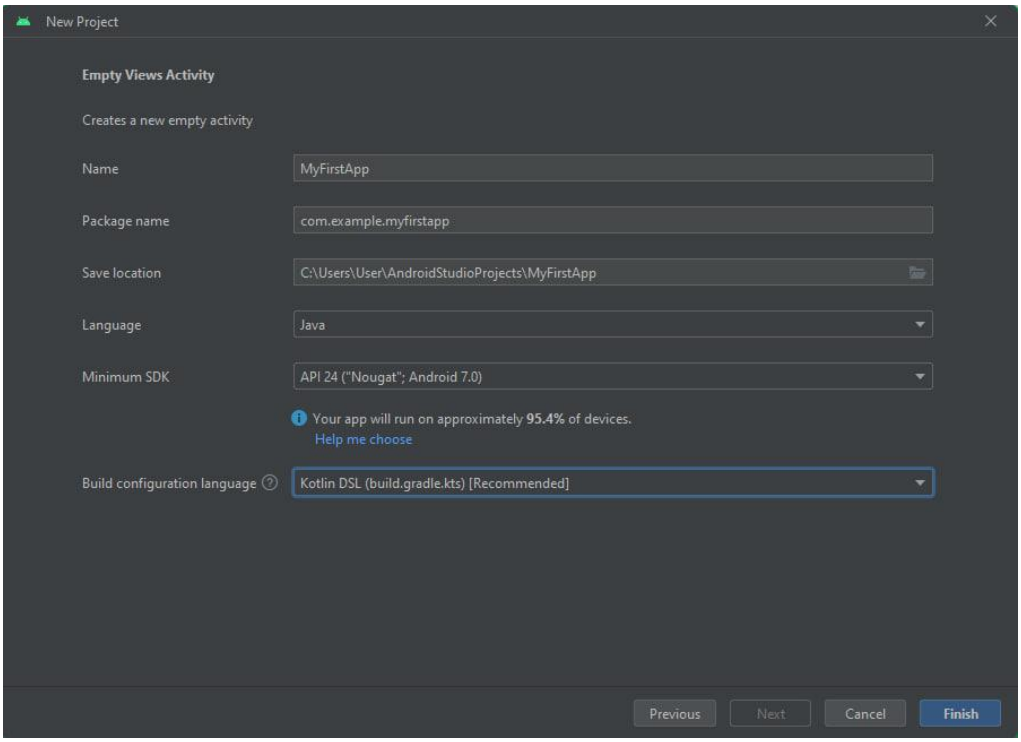


Create a Virtual Device (AVD)

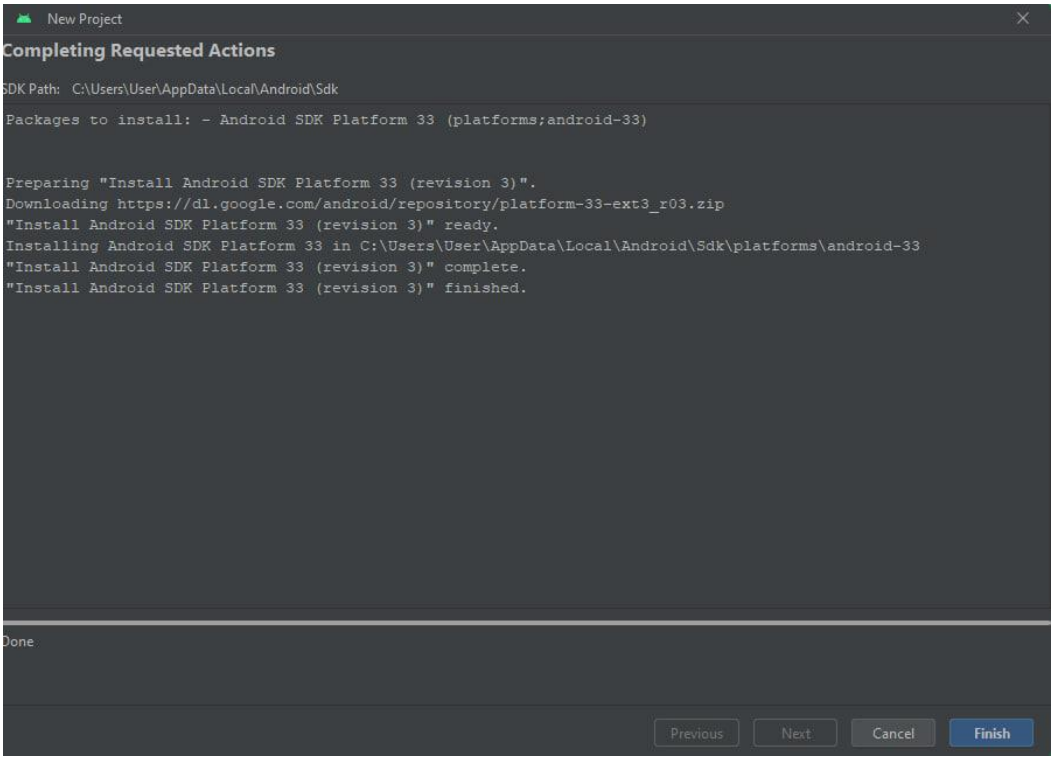
STEP 21: Create a virtual device (AVD), select template for phone and tablet. Choose “Empty View Activity” and click “Next” to proceed.



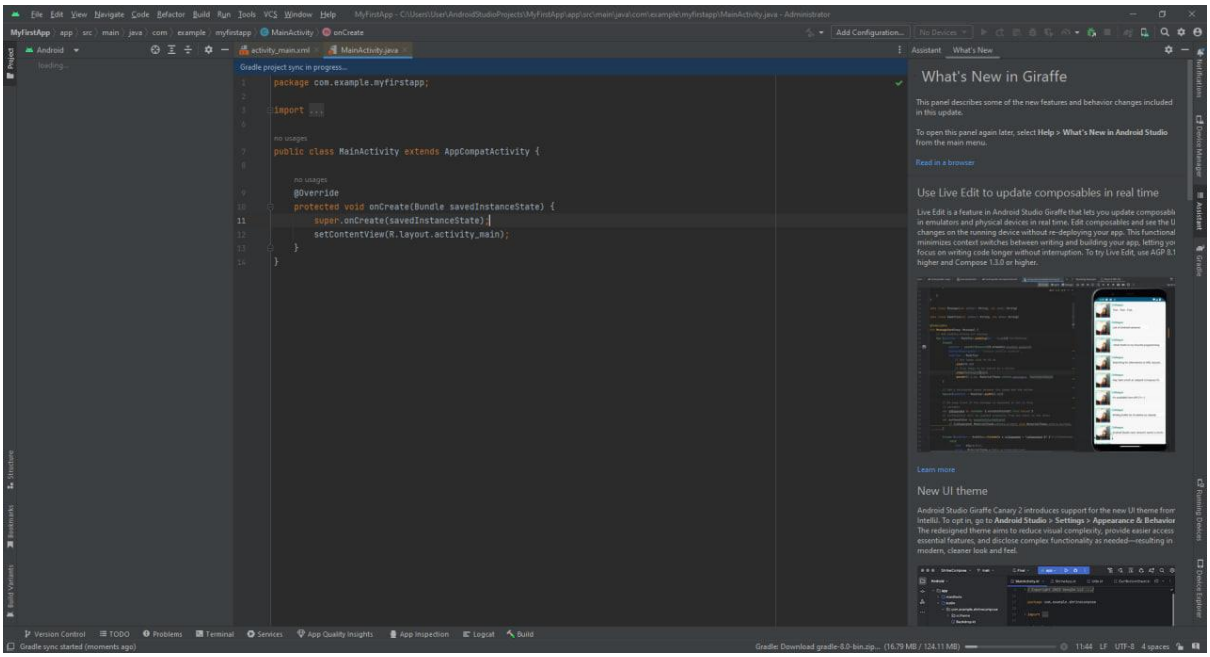
STEP 22: Complete detail to create new project which is Project name, choose save location, language java, choose default minimum SDK and choose configuration language Kotlin. Click button “Finish” if done and proceed.



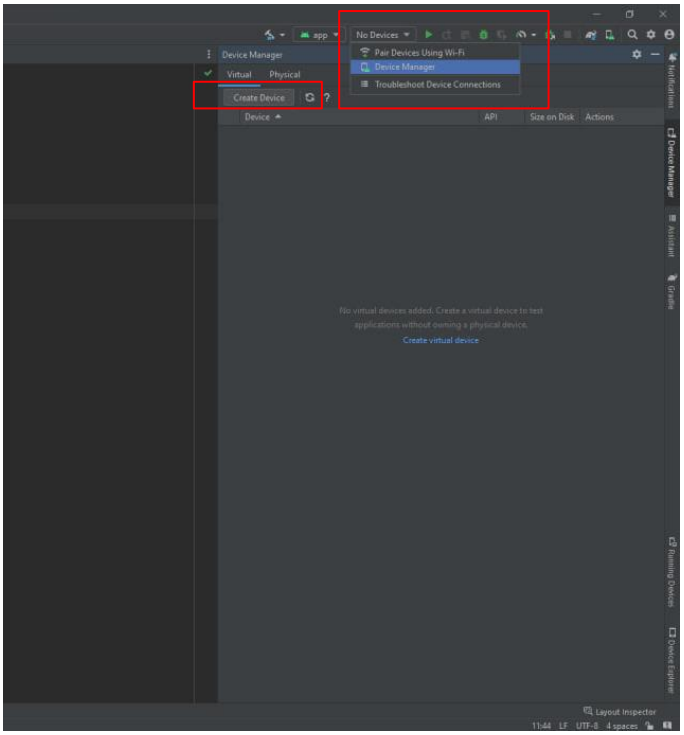
STEP 23: The download ing of New Project gets started. After downloading is complete, Click on button “Finish”.



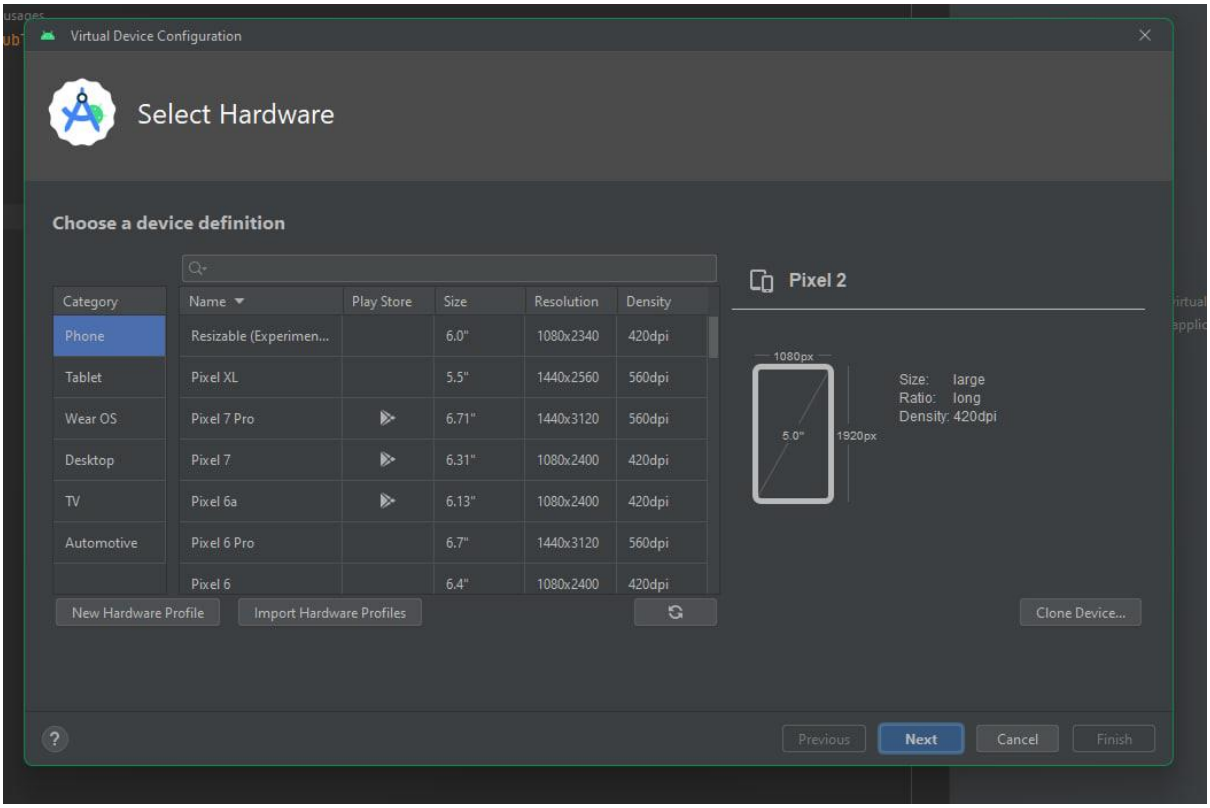
STEP 24: Waiting for all the Android device finished load.



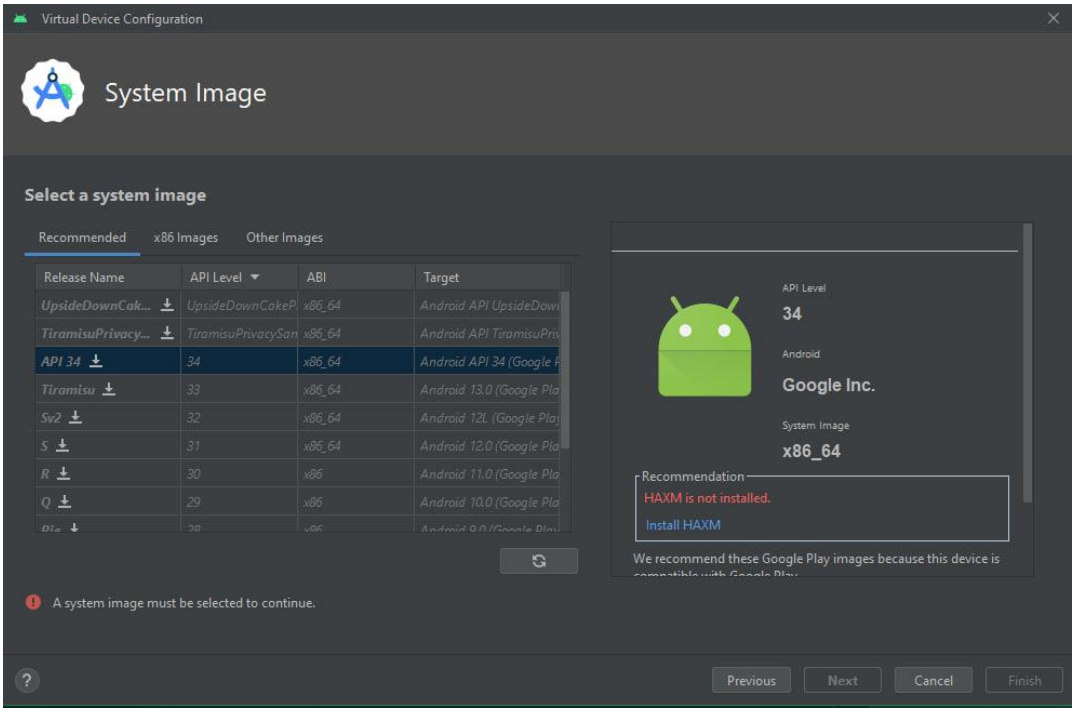
STEP 25: Click Device manager, after that click Create Device.



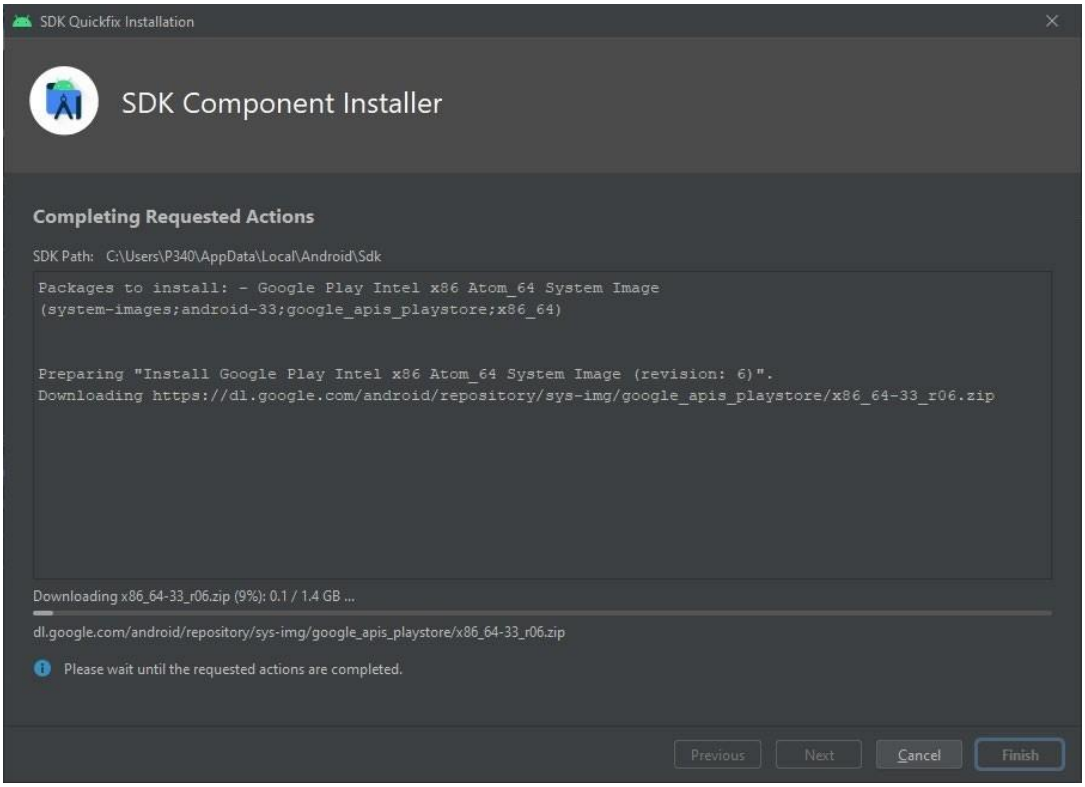
STEP 26: Choose a device definition, such as Pixel 2 and Click Next.



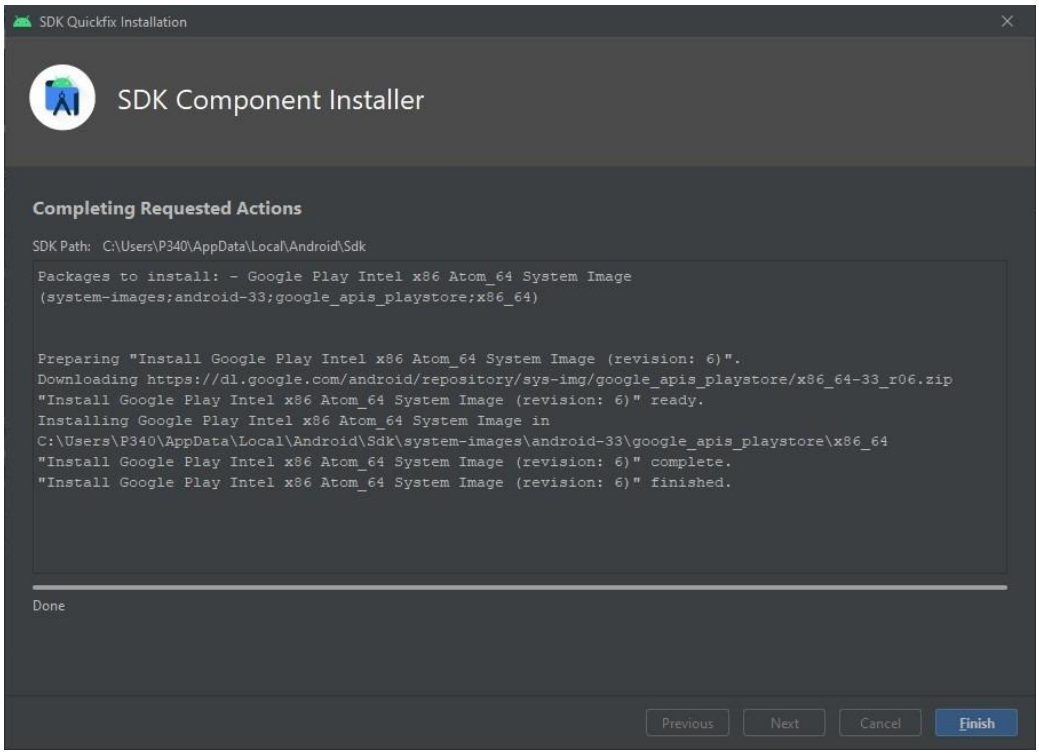
STEP 27: In the System Image dialog, from the Recommended tab, choose the latest release. If a Download link is visible next to a latest release, it is not installed yet, and you need to download it first. If necessary, click the link to start the download.



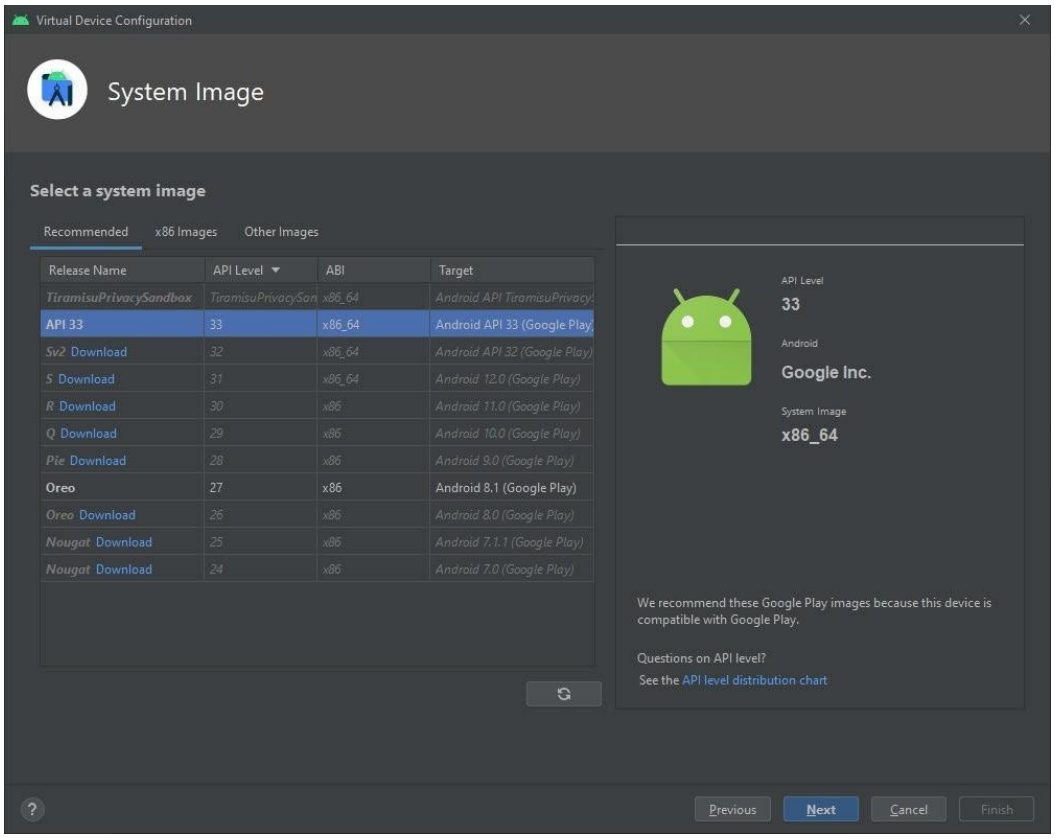
STEP 28: This may take a while depending on your connection speed.



STEP 29: After done, click Finish.

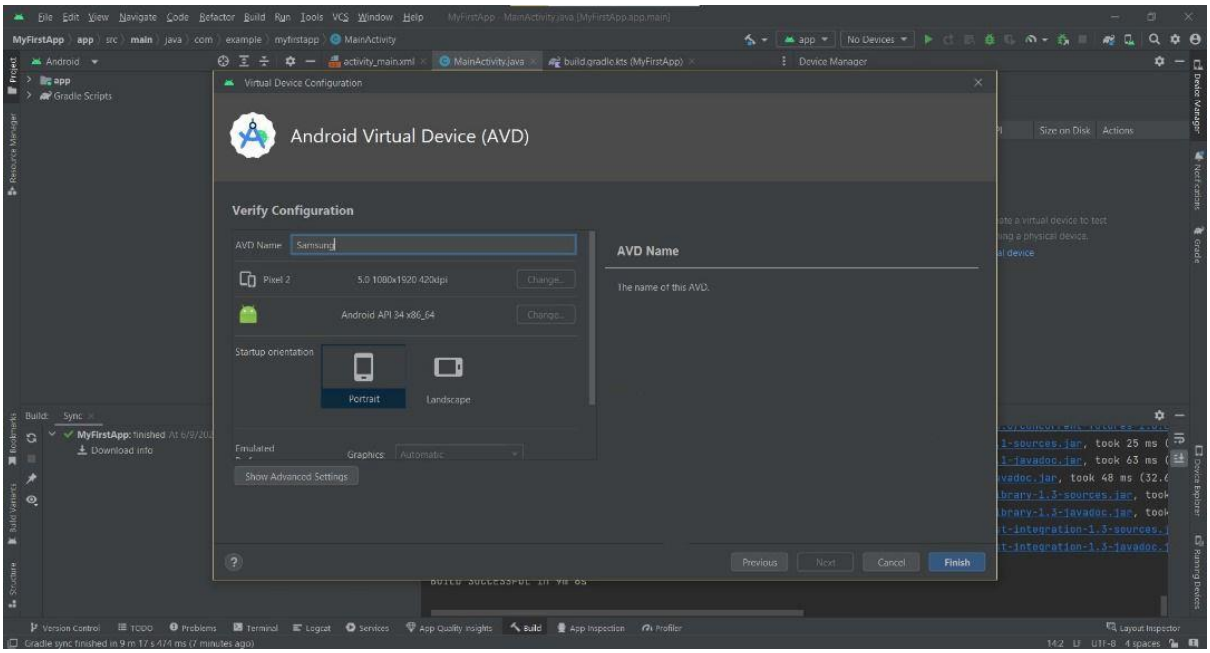


STEP 30: Select a system image and click Next.

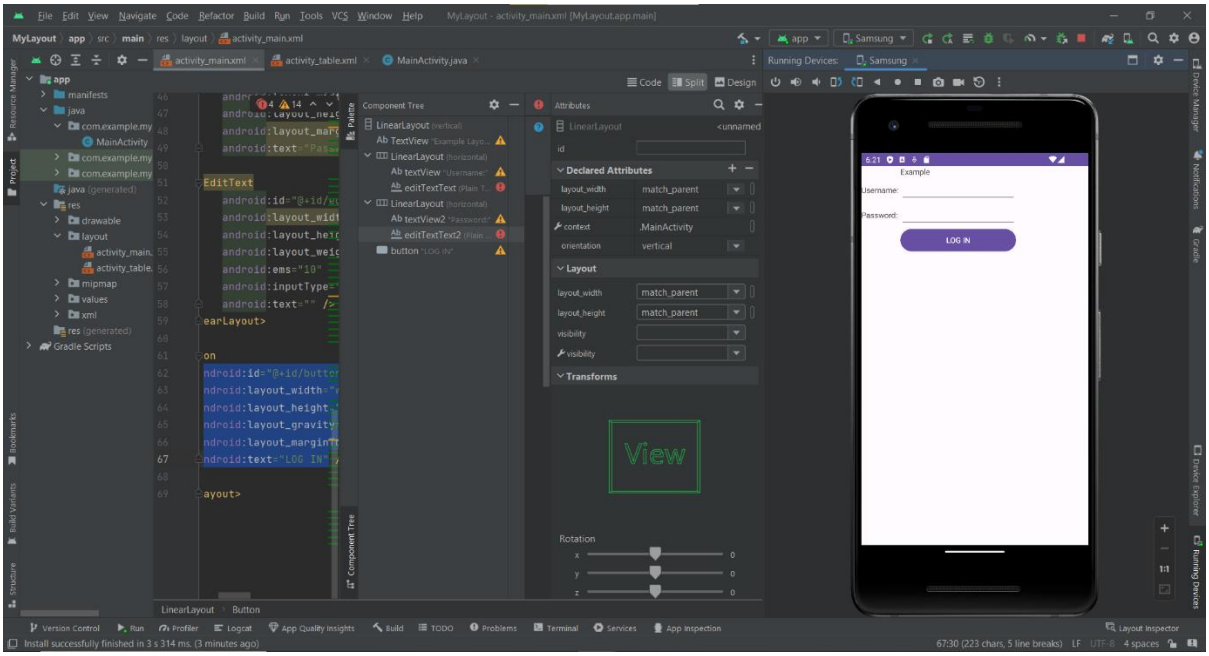


STEP 31: Verify Configuration. Write your AVD Name. Then, click Finish.

.



STEP 32: Launch your first AVD by click on the run icon. Your virtual device is ready to run our android app.



c. Explain the latest target API level on the Android version.

Every new Android version introduces changes that enhance the user experience, security, and performance of the Android platform overall. Each app specifies a targetSdkVersion (also known as the target API level) in the manifest file.

Starting August 31, 2023, new apps must target android 13 (API level 33) or higher, except for Wear OS apps, which must target android 11 (API level 30) or up to Android 13 (API level 33). This is the target API level requirement for Google Play Apps.

- List of API level on the Android Version

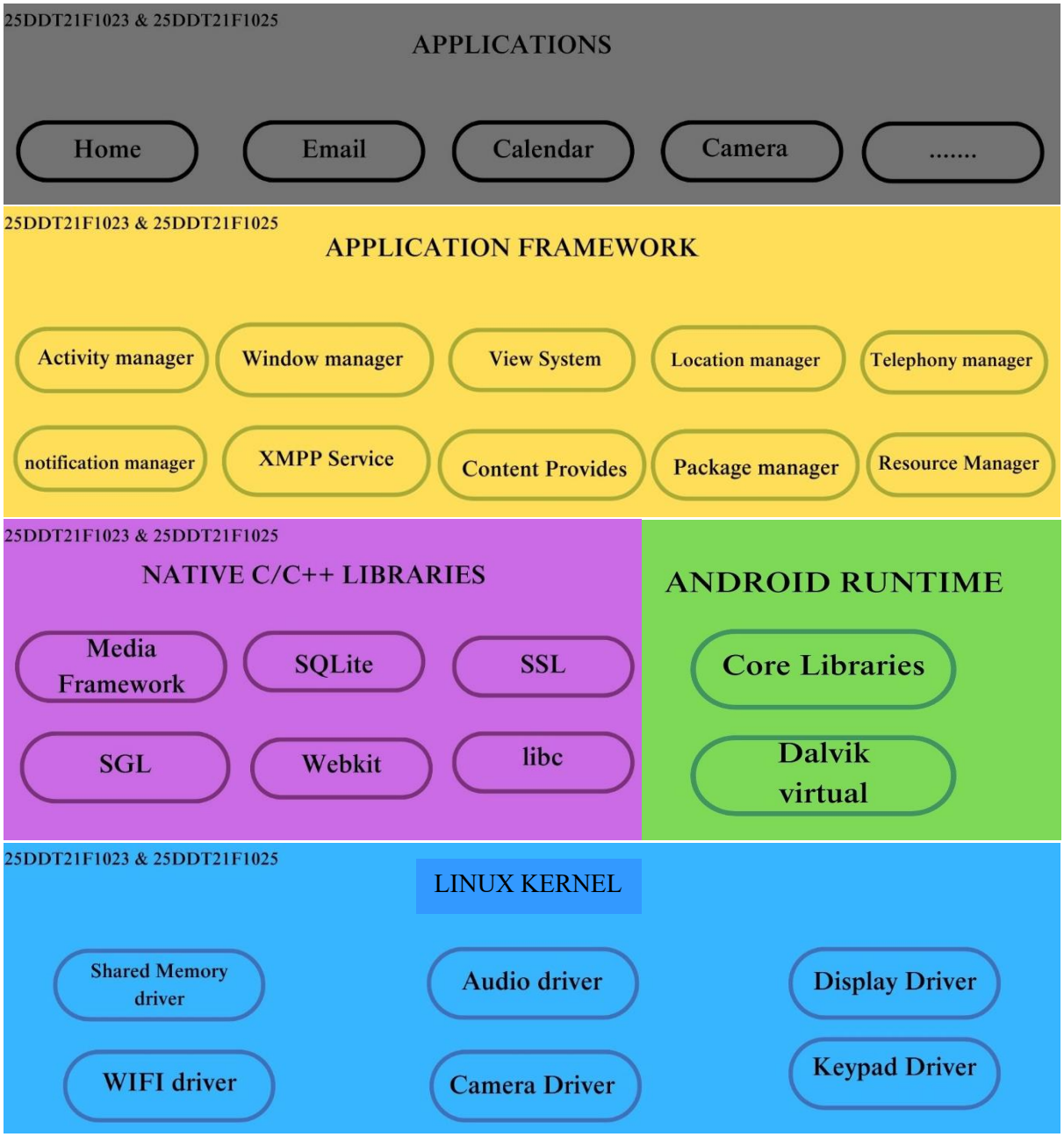
Codename	Version	API level/NDK release
Android13	13	API level 33
Android12L	12	API level 32
Android12	12	API level 31
Android11	11	API level 30
Android10	10	API level 29
Pie	9	API level 28
Oreo	8.1.0	API level 27
Oreo	8.0.0	API level 26
Nougat	7.1	API level 25
Nougat	7.0	API level 24
Marshmallow	6.0	API level 23
Lollipop	5.1	API level 22
Lollipop	5.0	API level 21
KitKat	4.4 - 4.4.4	API level 19

- Choosing a lower API level may support more devices but gain less functionality for your app. you may also work harder to achieve features you could've easily gained if you chose higher API level.

- It’s also based on the storage to download API level, if the storage of device is small and then choose low level.

ii. After installation:(CLO1, P4)

a. Sketch the Android Architecture.



b. Describe each layer and function.

- **Applications**

  Applications is the top layer of android architecture. The pre-installed applications like home, contacts, camera, gallery etc and third-party applications downloaded from the play store like chat applications, games etc. will be installed on this layer only which is download app from google play store or other sources. It runs within the Android run time with the help of the classes and services provided by the application framework.

- **Application Framework**

  Application Framework provides several important classes which are used to create an Android application. It provides a generic abstraction for hardware access and helps in managing the user interface with application resources. Generally, it provides the services with the help of which we can create a particular class and make that class helpful for the Applications creation.

- **Native C/C++ Libraries**

  These libraries consist of native code (C and C++) that provides low-level access to device hardware and system resources. They include libraries like OpenGL ES for graphics rendering, WebKit for web content rendering, and SQLite for local data storage. Developers often use these libraries for performance-critical tasks and hardware-specific functions.

- **Android Runtime (ART)**

  Android Runtime environment is one of the most important parts of Android. It contains components like core libraries and the Dalvik virtual machine (DVM). Mainly, it provides the base for the application framework and powers our application with the help of the core libraries.

  Like Java Virtual Machine (JVM), Dalvik Virtual Machine (DVM) is a register-based virtual machine and specially designed and optimized for android to ensure that a device can run multiple instances efficiently.

- **Linux Kernel**

  Linux Kernel is heart of the android architecture. It manages all the available drivers such as display drivers, camera drivers, Bluetooth drivers, audio drivers, memory drivers, etc. which are required during the runtime.
  It acts as the intermediary between the hardware and the higher-level Android layers, ensuring that apps can communicate with the device's hardware effectively.

iii. Create the first interface for complaint page based on Figure 1 and run it.

- First, use textview for the header.


```
<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="54dp"
    android:background="@color/design_default_color_primary"
    android:paddingLeft="10dp"
    android:paddingTop="10dp"
    android:text="PBT1"
    android:textColor="#FFFFFF"
    android:textColorHighlight="#FFFFFF"
    android:textColorHint="#FFFFFF"
    android:textSize="24sp" />
```

- Insert Linear Layout horizontal and use Text view for this text and change the font and size.


```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="50dp"
        android:layout_marginTop="10dp"
        android:layout_marginRight="50dp"
        android:layout_weight="1"
        android:fontFamily="@font/akaya_telivigala"
        android:text="Politeknik Mersing Lab Complaint"
        android:textAlignment="center"
        android:textSize="34sp" />
</LinearLayout>
```

- For this fields, use text view for the name and use plain text for the blank space.

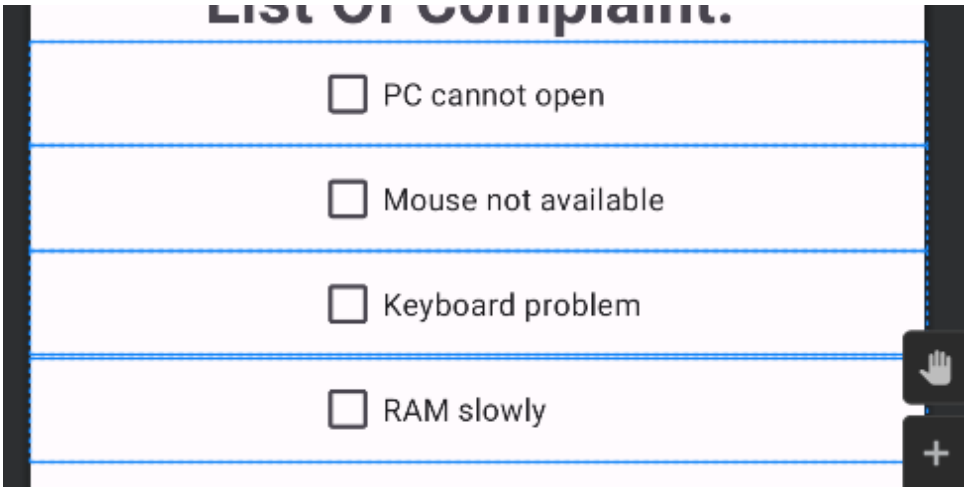

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:textAlignment="center">

    <TextView
        android:id="@+id/textView2"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="50dp"
        android:layout_marginRight="5dp"
        android:layout_weight="1"
        android:text="Name: "
        android:textAlignment="center" />
```

```xml
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="40dp"
    android:orientation="horizontal">

    <TextView
        android:id="@+id/textView4"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="50dp"
        android:layout_marginRight="5dp"
        android:layout_weight="1"
        android:text="No HP: "
        android:textAlignment="center" />

    <EditText
        android:id="@+id/editTextText3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="40dp"
        android:ems="10"
        android:inputType="text"
        android:text="" />
</LinearLayout>
```

- This field use textview and adjust the size and the font.


```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <TextView
        android:id="@+id/textView6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:layout_weight="1"
        android:text="List Of Complaint: "
        android:textAlignment="center"
        android:textSize="30dp"
        android:textStyle="bold" />
</LinearLayout>
```

- We insert linear layout for each line for checkbox and edit the margin and width to make the list looks parallel.



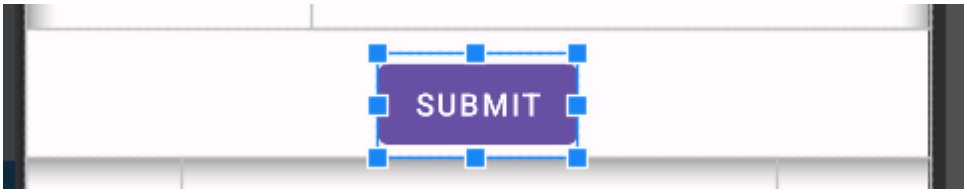
```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <CheckBox
        android:id="@+id/checkBox6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginLeft="130dp"
        android:layout_weight="1"
        android:text="PC cannot open" />

</LinearLayout>
```

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <CheckBox
        android:id="@+id/checkBox4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginLeft="130dp"
        android:layout_weight="1"
        android:text="Mouse not available" />
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <CheckBox
        android:id="@+id/checkBox7"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginLeft="130dp"
        android:layout_weight="1"
        android:text="Keyboard problem" />
</LinearLayout>
```

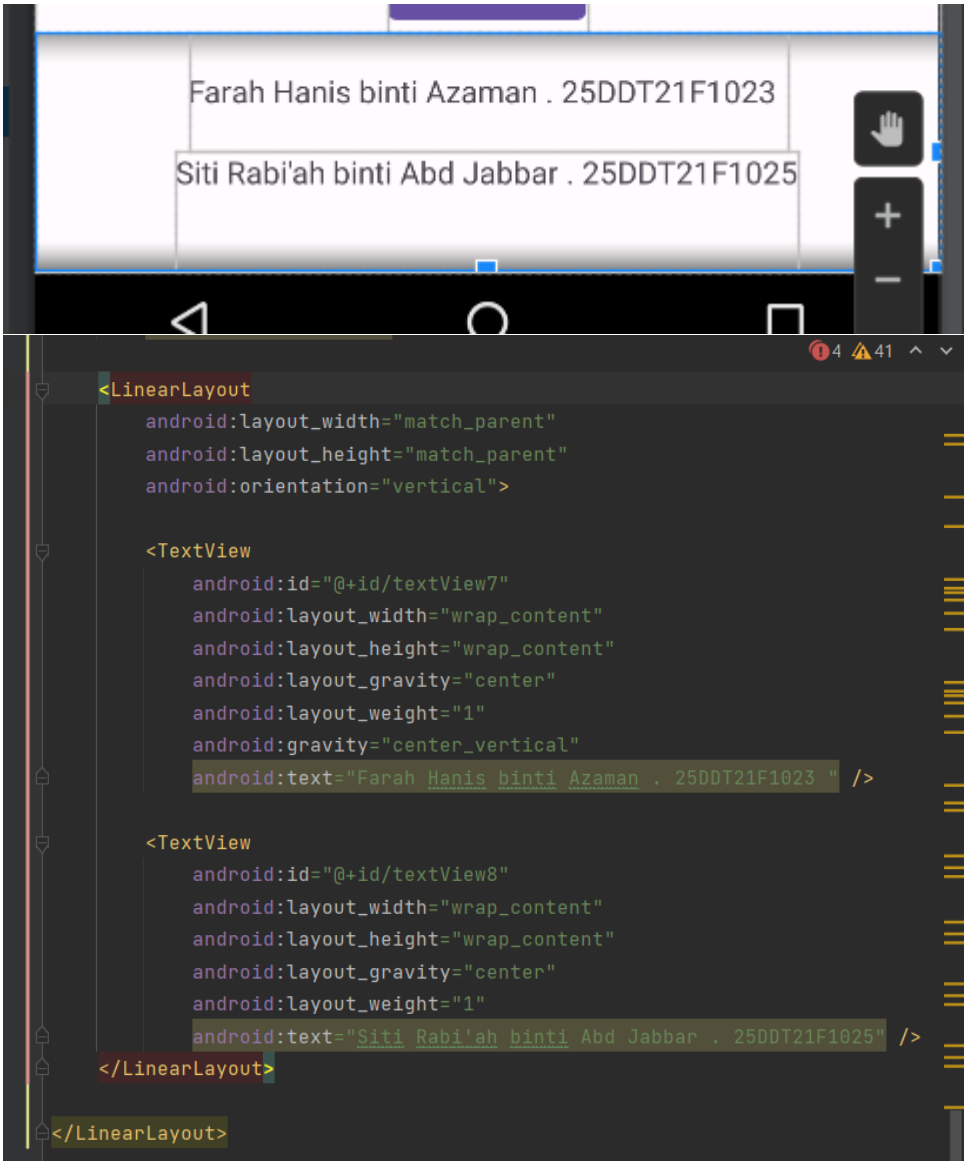
```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <CheckBox
        android:id="@+id/checkBox5"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginLeft="130dp"
        android:layout_weight="1"
        android:text="RAM slowly" />
</LinearLayout>
```

- For submit button, we use the button and adjust the margin and the style for the button box.

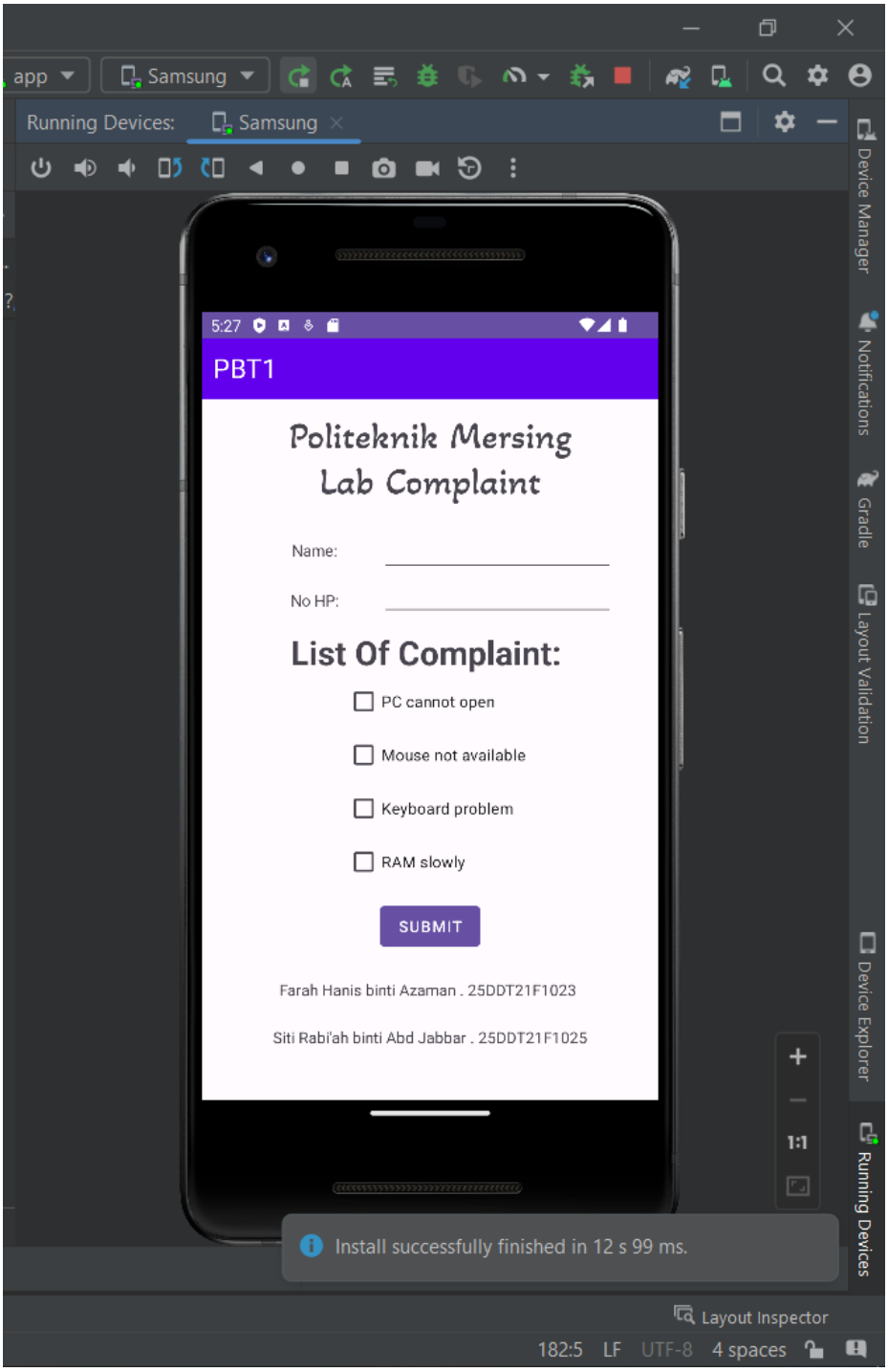



```
    <Button
        android:id="@+id/button"
        style="@style/Widget.MaterialComponents.Button.UnelevatedButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="10dp"
        android:text="SUBMIT" />
```

- For the footer, we use text view and adjust the margin .



- This is the full Output.



RUBRIC PROBLEM BASED TASK 1								
PLO 3 : DISPLAY INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SKILL IN PERFORMING DIAGNOSTIC AND DOCUMENTING PROCESSES IN ICT RELATED FIELDS								
Criteria	EXCELLENT (4)	VERY GOOD (3)	GOOD (2)	POOR (1)	WEIGHTAGE (%)	STANDARD	MARKS	
							S1	S2
Question i.	Clear explain and listing step to install the android development software.	Moderately clearly explain and listing step to install the android development software.	Unclear explain and listing step to install the android development software.	Very unclear explain and listing step to install the android development software.	20	(/4)*20		
	The installation process is successfully completed without any issues.	The installation process is mostly successful with very minor issues that do not affect functionality.	The installation process may not be able to complete and may have some issues	The installation process consistently fails to complete.	15	(/4)*15		
	Clear explain about latest target API Level	Moderate clearly explain about latest target API Level	Unclear explain about latest target API Level	Very unclear explain about latest target API Level	5	(/4)*5		
Question ii.	Clear sketch Android architecture	Moderately clear Android architecture	Unclear clear Android architecture	Very unclear Android architecture	10	(/4)*10		
	Clear provide suitable information and explanation	Moderately clear provide suitable information and explanation	Unclear clear information and explanation	Not provide suitable information and explanation	20	(/4)*20		

Question iii.	Information was sequenced in a logical manner. Information was organized so that viewer was ready to accept the idea.	Information was sequenced in a logical manner. Ideas flowed in page.	Information did not always flow logically in page.	Information was not clear and did not flow in a logical order.	10	(/4)*10		
	Exceptionally attractive and usable layout. It is easy to locate important elements. Organize material effectively.	Moderately attractive and usable layout. Most of the important elements are easy to locate. Organize material moderately.	Slightly usable layout, but may appear busy or boredom. It Is easy to locate important elements. Some of the material are organized.	Least usable layout, but may appear busy or boredom. It is easy to locate most of the important elements.	15	(/4)*15		
	The application contains no error	The application contains no major error.	The application has minor error.	The application cannot execute.	5	(/4)*5		
					TOTAL MARKS (100 marks)			

ZURAIDAH BINTI MOHD RAMLY
Ketua Program (PPPT DH44)
Diploma Teknologi Maklumat (Teknologi Digital)
Trek Pembangunan Perisian dan Aplikasi
Jabatan Teknologi Maklumat & Komunikasi
Politeknik Mersing