

## Assignment - 01

a) What is Android? List the version of Android.

→ Android is an open source and Linux based operating system for mobile that primarily runs on smartphones and tablets. The android platform includes an operating system based upon the Linux kernel, a GUI, a web browser and end-user application that can be down-loaded.

Code Name	Version Number	API level.
No (Code Name)	1.0	1
No (Code Name)	1.1	2
Honeycomb	1.5	3
Donut	1.6	4
Eclair	2.0-2.1	5-7
Froyo	2.2-2.3	8
gingerbread	2.3-2.3.7	9-10
Honeycomb	3.0-3.2.6	11-13
Ice cream sandwich	4.0-4.0.4	14-15
Jelly bean	4.1-4.3.1	16-18
Kitkat	4.4-4.4.4	19-20
Lollipop	5.0-5.1.1	21-22
Marshmallow	6.0-6.0.1	23
Nougat	7.0	24-25
Oreo	8.0	26-27
Pie	9.0	28
Android 10	10.0	29
Android 11	11.0	30
Android 12	12.0	31

Q] What are the requirements that need to be fulfilled by for developing Application On An Android Platform?

→ Following are the requirements that need to be fulfilled:

i) Java (or any other programming language)  
The most basic building block of Android development is the programming language Java. To be a successful Android developer, you'll need to be comfortable with Java concepts like loop, lists, variables, and control structures.

It is one of the most popular programming languages used by software developers today, so learning its ins and outs will be a good start for work even beyond the Android platform.

## 2] XML

Programmers use XML to describe data. The basics of the XML syntax will be helpful in your journey to becoming a full-fledged Android developer in doing tasks like designing user Interface (UI) layouts and parsing data feeds from the internet. Much of what you'll need XML for can be done through Android studio, but it's constructive to be grounded in the basics of the markup language.

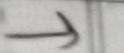
## Android Software Development Kit (SDK)

One of the best parts about developing for android studio is that the necessary tools are free and easy to obtain. The Android SDK is available via free of charge download , as is android studio . the official integrated development environment (IDE) for android app development.

### 4) Android Studio :

Android Studio is the main program developers use to write code and assemble their apps from various packages and libraries. The android SDK includes SDK Sample code, software libraries , handy Coding tools & much more to help you build , test and deploy android applications .

a] Explain Android architecture.



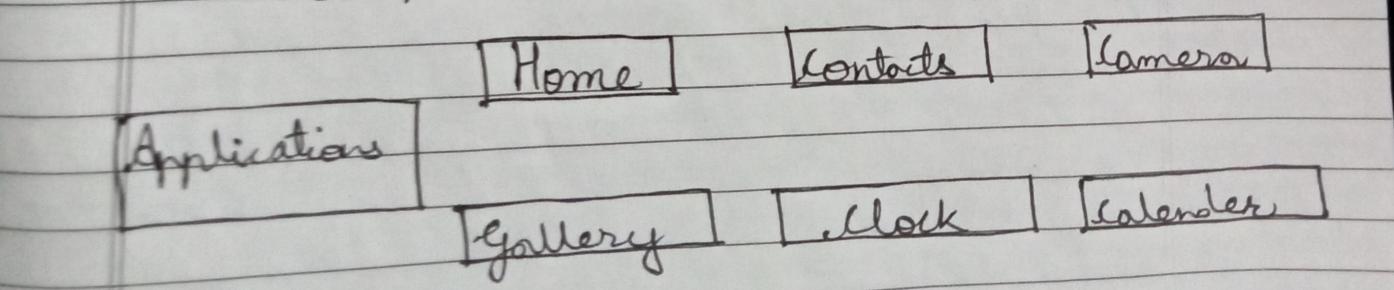
Android architecture contains different no. of components to see an open source linux kernel having collection of number of C/C++ libraries which are exposed through an application framework services.

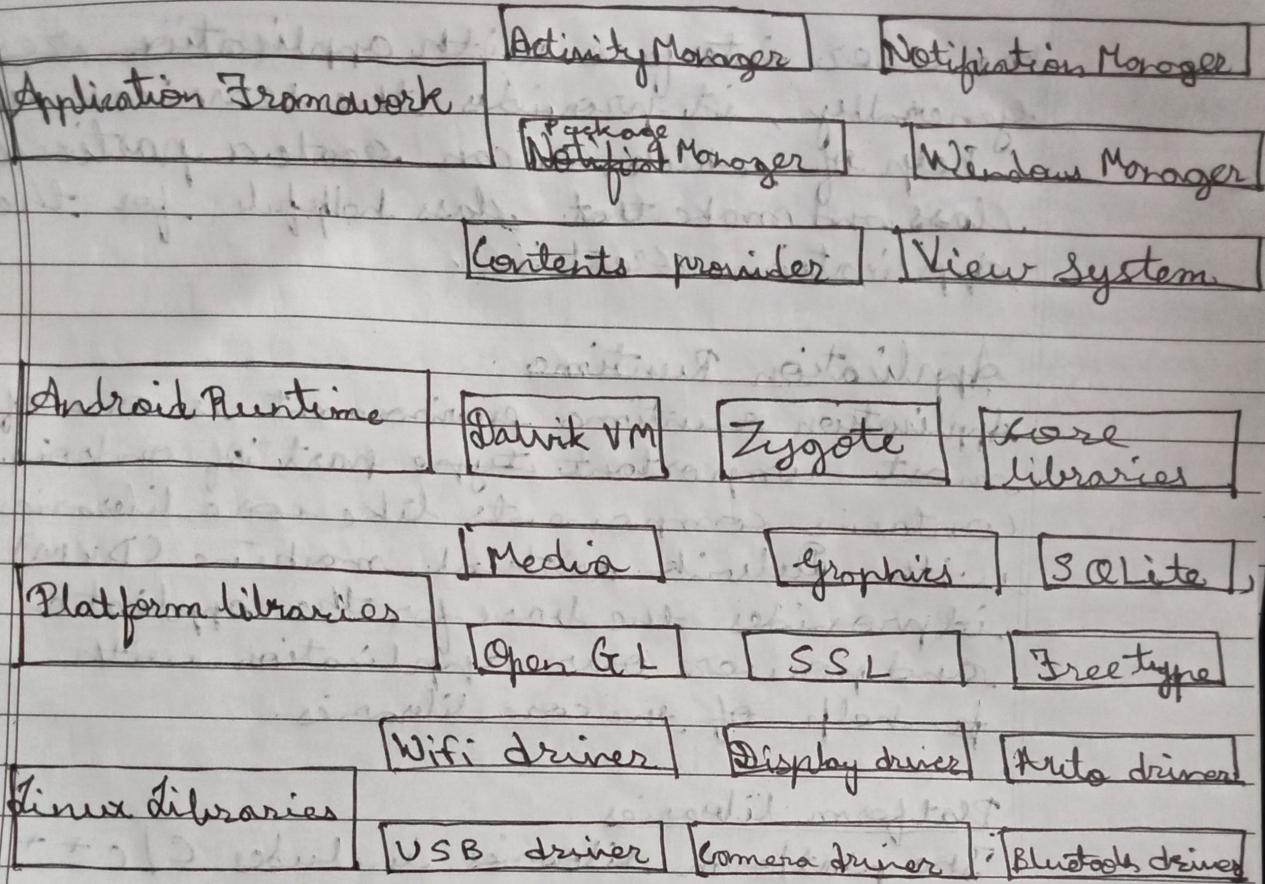
Among all the components linux provides main functionality of operating system functions to smartphones and Dalvik Machine (DVM) provides platform for running an android application.

The main components are:

- 1] Applications
- 2] Application framework
- 3] Android runtime
- 4] Platform libraries.
- 5] Linux Kernel.

Representation of android architecture with several main components and their sub components:





### Applications:

It is top layer of android architecture. The pre-installed applications like home, contacts, camera, gallery, etc and third party applications downloaded from the playstore like chat applications, games, etc will be installed on this layer only.

### Applications framework:

Application framework provides several important classes which are used to create an android application. It provides a generic abstraction for hardware access and also 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 application creation.

### Application Runtime

Application runtime environment is one of the most important type part of android. It contains components like core libraries and with Dalvik virtual machine (DVM). Mainly it provides the base for the application framework and powers our application with the help of the core libraries.

### Platform Libraries

The platform libraries includes C/C++ core libraries and Java based libraries such as Media, graphics, surface manager, OpenGL etc. to provide a support for the android development.

### Linux Kernel:

It is the heart of 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 runtime.

Q) What is the step by step guide to Android application development?

→ Step 1: Downloading the tools you need for android app development.

Step 2: Start a new project.

Step 3: Select the language whether you want to use Java or nothing.

Step 4: Familiarize yourself with the files.

Step 5: You can choose your layout files as you wish.

Step 6: Add the variables, values, and code.

Step 7: Test your application.

Step 8: Update and make the changes as per your need.

(Q) Explain JDK and JRE.

→ JDK (Java Development Kit)

JDK is used to develop Java applications. JDK also contains numerous development tools like compilers, debuggers, etc.

It is mainly used for the execution of code and its main functionality is development.

It is a platform-dependent.

It is responsible for the development purpose, therefore it contains tools which are required for development and debugging purpose.

JRE (Java Runtime Environment)

It is the implementation of JVM (Java Virtual Machine) and it is specially designed to execute Java programs.

It is mainly used for creating an environment for code execution.

It is also platform-dependent like JDK. JRE is not responsible for development purposes so it doesn't contain such tools as the compiler, debugger, etc. Instead, it contains class libraries and supporting files required for the purpose of execution of the program.