2019BTCS088 YASH GUPTA MOBILE APPLICATION DEVELOPMENT 03:00PM - 04:00
BTCS06CCA6

Section-A

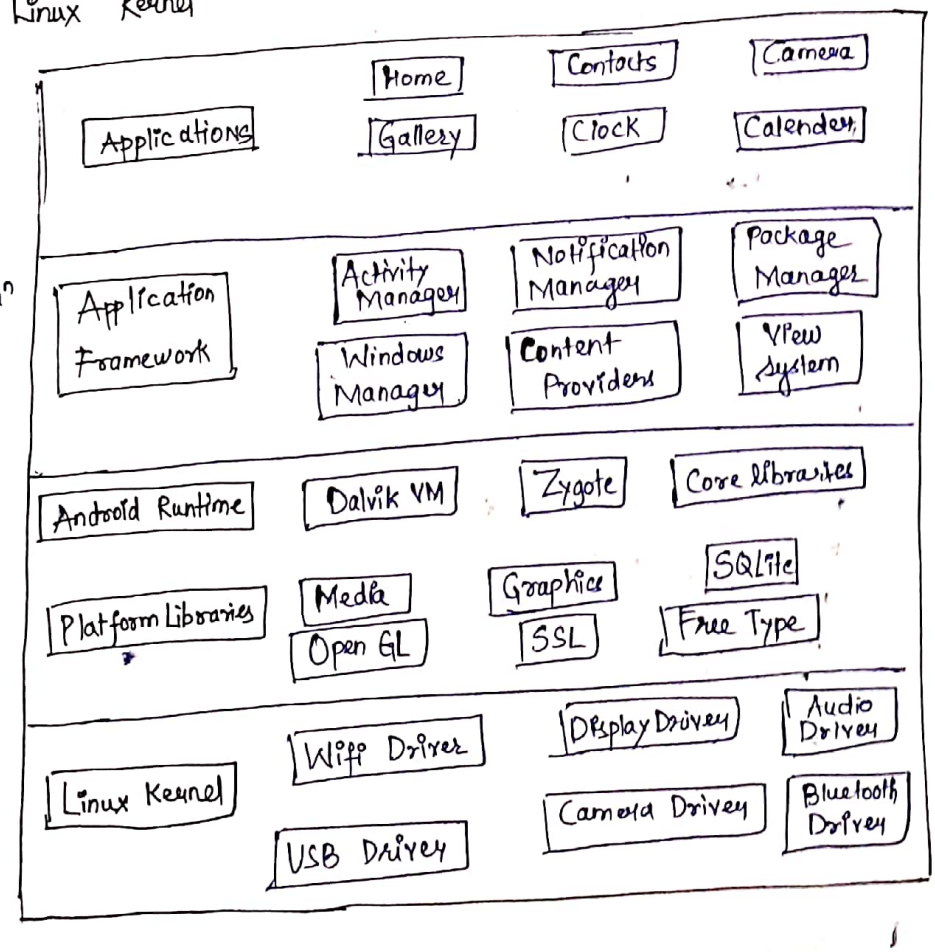
Q①

Ans ① ANDROID : It is a Mobile operating system based on the modified version of the Linux Kernel and designed primarily for touchscreen mobile devices such as smartphones & tablets. It is free and open source software that means its source code is also as Android open Source Project (AOSP), which is primarily licensed under Apache License.

ANDROID Operating System is a stack of software components which is roughly divided into five sections and four main layers. Those software components Have collection of Number of C/C++ libraries which are exposed through an application framework services.

The main components of android architecture are as follows:—

- Applications
- Application Framework
- Android Runtime
- Platform libraries
- Linux Kernel



Pictorial representation of Android application architecture with several Main Components and their sub-components.

- **Application**: It 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. It runs within the ANDROID RUNTIME 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 also helps in managing the user interface with application resources. It includes different type of services such as Activity Manager, Notification Manager, view system, package Manager etc. which are helpful for the development of our application according to the pre-requisite.

- **Application Runtime**: Android Runtime environment is one of the most imp. part of Android. It contain components like core libraries and the DVM (Dalvik Virtual Machine). It provides the base for the Application framework and powers our application with the help of the core libraries.

DVM: → is a Register Based Virtual Machine and specifically designed and optimized for Android to ensure that a device can run multiple instances efficiently. The core libraries enable us to implement android applications using the standard JAVA or KOTLIN Programming Languages.

Platform Libraries: → It includes various C/C++ core libraries and Java Based libraries such as Media, Graphics, Surface Manager, OpenGL etc. to provide a support for android development.

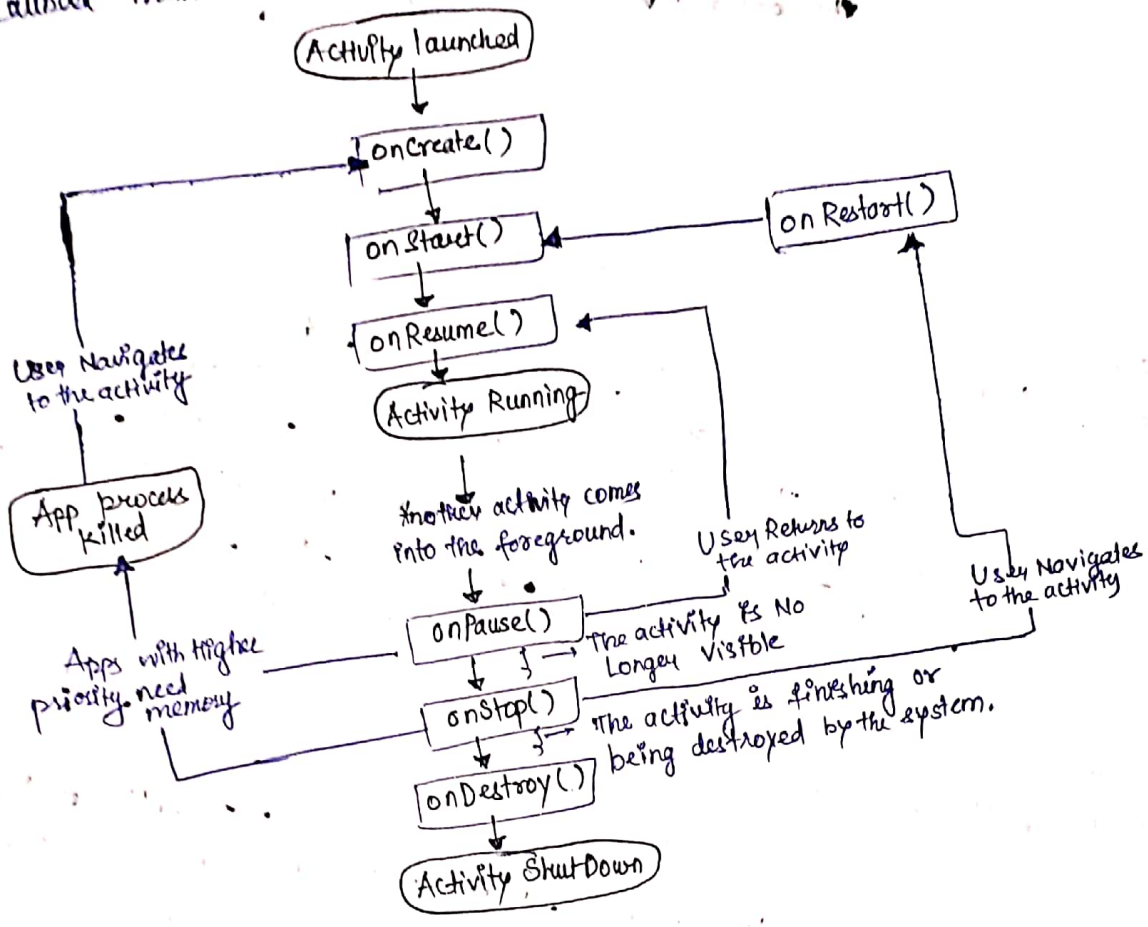
eg:
- Media
- android.app
- android.content
- android.database
- android.opengl
- android.os
- android.view
- android.widget
- android.webkit

(ANDROID LIBRARIES)

Q④
Ans④: **Activities** : It is a class which defines the follow call backs i.e. events. We don't Need to implement callbacks methods.

OR

An activity is a class designed to facilitate the instance by invoking specific callback methods that corresponds to specific stages of its lifecycle.



Section-C

Q⑤
Ans⑤ Android Package (APK) is the package file format used by the Android operating system and a Number of other Android-Based Operating systems for distribution and installation of mobile apps, mobile games and middleware.

APK is much similar to other software packages such as APPX → in Microsoft Windows
Debian-Package → Debian Based O.S.

APK file also contains all of the program's code (such as dex files), resources, assets, certificates and manifest file.

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Q(c)
Ans(c): Manifest File describes essential information about the app to the Android Build tools, the Android operating system and Google play.
The file is Normally shown as: AndroidManifest.xml
The code is written as:

```
<manifest>
    package =-
    - - -
    - - -
</manifest>
```

Q(e)
Ans(e): AVD: It stands for Android Virtual Device. It is a configuration that defines the characteristics of an Android phone, tablet, WearOS, Android TV or Automotive OS device that you want to simulate in the Android Emulator.
The AVD Manager is an interface you can launch from Android Studio that helps you create and manage AVDs.
eg: AVD Manager in Android Studio

Q(b)
Ans(b): .XML files: They are used for LAYOUT means defining the actual UI (User Interface) look and feel of our application. It holds all the elements (views) or the tools that we want to use in our application.
eg: TextViews, Buttons and other UI elements.

.Java files: They are auto-generated file by AAPT (Android Asset Packaging Tool) that contains resource IDs for all the Resources of res/directory. If we create any component in the activity_main.xml file, id for the corresponding component is automatically created in this file.

<<<THE END>>>

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