1. What is Android and the latest version of Android?

Android is an operating system that is built basically for Mobile phones. It is based on the Linux Kernel and other open-source software and is developed by Google. It is used for touchscreen mobile devices such as smartphones and tablets. But nowadays these are used in Android Auto cars, TV, watches, cameras, etc. It has been one of the best-selling OS for smartphones. Android OS was developed by Android Inc.

The latest version of Android is **Android 14 (API level 34)** and the initial stable release date is October **4, 2023**.

2. What's Activity in Android?

Activity class is one of the very important parts of the Android component. Any app, no matter how small it is (in terms of code and scalability), has at least one Activity class. Unlike most programming languages, in which the **main()** method is the entry point for that program or application to start its execution, the Android operating system initiates the code in an Activity instance by invoking specific callback methods that correspond to specific stages of its lifecycle. So it can be said that An activity is the entry point for interacting with the user.

3. Why is XML used for frontend development in Android?

XML stands for **Extensible Markup Language**. XML is a markup language much like HTML used to describe data. XML itself is well readable both by humans and machines. Also, it is scalable and simple to develop. In Android, we use XML for designing our layouts because XML is a lightweight language, so it doesn't make our layout heavy.

4. What are the components of the Android Application?

There are some necessary building blocks that an Android application consists of. These loosely coupled components are bound by the application manifest file which contains the description of each component and how they interact. The four main components of Android applications are:

- Activities
- Services
- Content Providers
- Broadcast Receiver
- Intents

5. What is the Dalvik Virtual Machine?

DVM is a virtual machine to execute Android applications. The Java bytecode(.class file) generated by the javac compiler is converted into Dalvik bytecode to make the application source files executable on the DVM. Since Android devices have a definite processing capacity, memory, and battery life, the DVM design principle aims to optimize itself so that it can load fastly and run smoothly even on low memory/powered devices. This virtual machine is very efficient in running multiple instances on the same device.

8. What is Toast in Android?

A **Toast** is a short alert message shown on the Android screen for a short interval of time.
Android **Toast** is a short popup notification that is used to display information when we perform any operation in our app. It disappears automatically. If the user wants a permanently visible message, then a **notification** can be used.

9. What's Service in Android?

Services in Android are a special component that facilitates an application to run in the background in order to perform long-running operation tasks. The prime aim of a service is to ensure that the application remains active in the background so that the user can operate multiple applications at the same time. A user interface is not desirable for Android services as it is designed to operate long-running processes without any user intervention. A service can run continuously in the background even if the application is closed or the user switches to another application.

10. What's Content Provider in Android?

In Android, Content Providers are a very important component that serves the purpose of a relational database to store the data of applications. The role of the content provider in the Android system is like a central repository in which data of the applications are stored, and it facilitates other applications to securely access and modify that data based on the user requirements. The Android system allows the content provider to store the application data in several ways. Users can manage to store the application data like images, audio, videos, and personal contact information by storing them in SQLite Database, in files, or even on a network.

12. What's Gradle and write down its usage in Android?

Gradle is a build system (open source) that is used to automate building, testing, deployment, etc. "Build.gradle" are scripts where one can automate the tasks. For example, the simple task to copy some files from one directory to another can be performed by Gradle build script before the actual build process happens.

15. What's the Difference Between Intent and Intent filters?

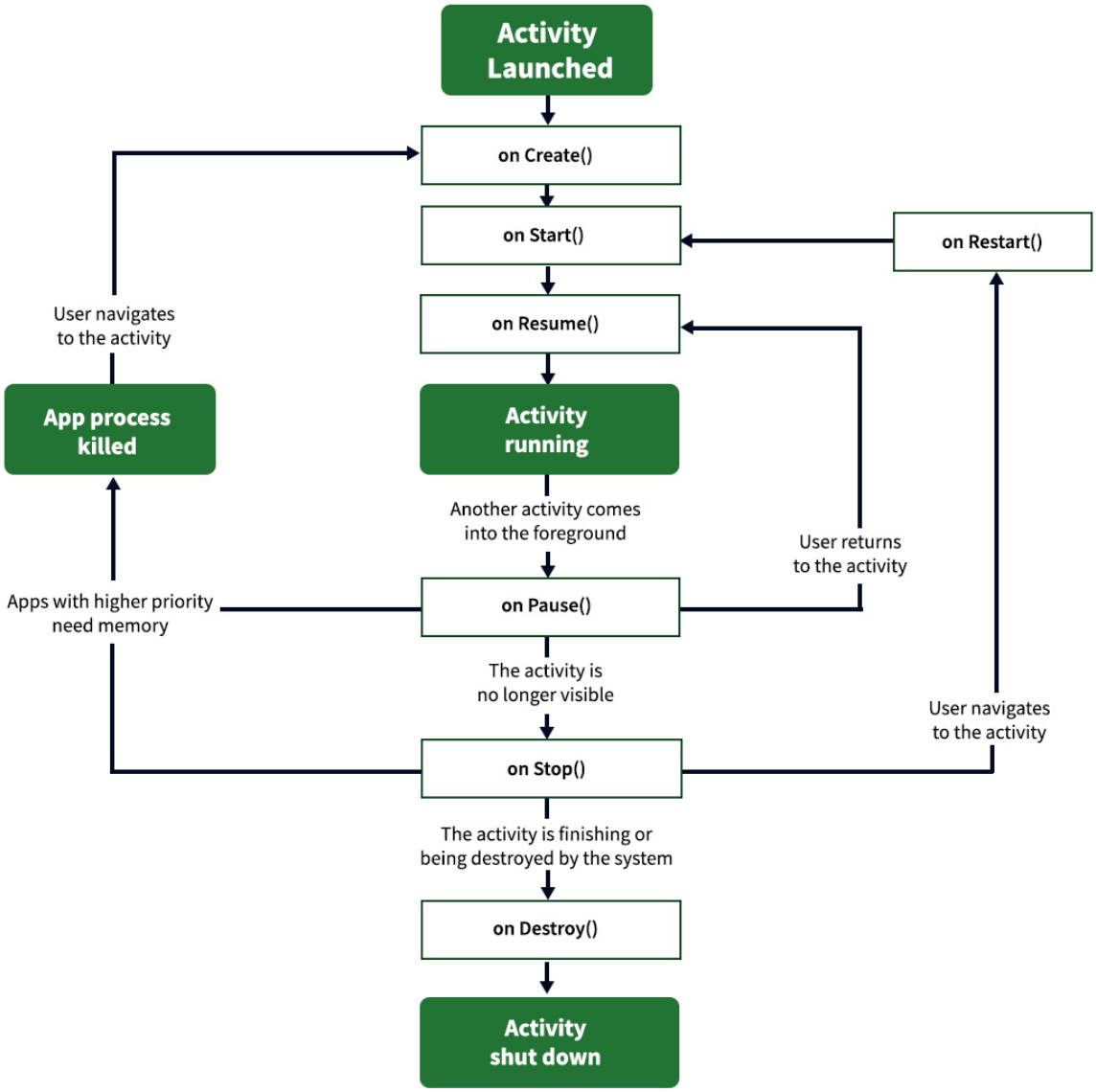
An Intent is an object passed to **Context.startActivity(), Context.startService() or Activity.startActivityForResult()** etc. to launch an activity or get an existing activity to do something new. On the other hand, an Intent filter describes the capability of the component(like activities, services, and broadcast receivers).

16. What is the AndroidManifest.xml?

Every project in Android includes a manifest file, which is AndroidManifest.xml, stored in the root directory of its project hierarchy. The manifest file is an important part of our app because it defines the structure and metadata of our application, its components, and its requirements. This file includes nodes for each of the Activities, Services, Content Providers, and Broadcast Receivers that make the application and using Intent Filters and Permissions determines how they coordinate with each other and other applications. The manifest file also specifies the application metadata, which includes its icon, version number, themes, etc., and additional top-level nodes can specify any required permissions, unit tests, and define hardware, screen, or platform requirements.

19. Explain the Activity Lifecycle in brief.

These are the different stages of the Activity Lifecycle:



Activity Lifecycle in Android

- **onCreate()**: It is called when the activity is first created. This is where all the static work is done like creating views, binding data to lists, etc.
- **onStart()**: It is invoked when the activity is visible to the user. It is followed by onResume() if the activity is invoked from the background.
- **onRestart()**: It is invoked after the activity has been stopped and prior to its starting stage and thus is always followed by onStart() when any activity is revived from background to on the screen.
- **onResume()**: It is invoked when the activity starts interacting with the user. At this point, the activity is at the top of the activity stack, with a user interacting with it.
- **onPause()**: It is invoked when an activity is going into the background but has not yet been killed. It is a counterpart to onResume()

- **onStop()**: It is invoked when the activity is not visible to the user. It is followed by onRestart() when the activity is revoked from the background, followed by onDestroy() when the activity is closed or finished, and nothing when the activity remains on the background only.
- **onDestroy()**: The final call received before the activity is destroyed. This can happen either because the activity is finished (when finish() is invoked) or because the system is temporarily destroying this instance of the activity to save space.

25. What is View in Android?

The view is a class that represents the basic building block for UI components. A View occupies a rectangular area on the screen and is responsible for drawing and event handling. It is a superclass for all the UI components. The most common UI components are:

- TextView
- EditText
- ImageView
- Button
- ProgressBar
- CheckBox, etc.

1) What is Android?

Android is an open-source, Linux-based operating system used in mobiles, tablets, televisions, etc.

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2) Who is the founder of Android?

Andy Rubin.

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3) Explain the Android application Architecture.

Following is a list of components of Android application architecture:

- **Services:** Used to perform background functionalities.
- **Intent:** Used to perform the interconnection between activities and the data passing mechanism.
- **Resource Externalization:** strings and graphics.
- **Notification:** light, sound, icon, notification, dialog box and toast.
- **Content Providers:** It will share the data between applications.

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4) What are the code names of android?

1. Aestro
2. Blender
3. Cupcake
4. Donut
5. Eclair
6. Froyo
7. Gingerbread
8. Honeycomb
9. Ice Cream Sandwich
10. Jelly Bean
11. KitKat
12. Lollipop
13. Marshmallow

More details...

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5) What are the advantages of Android?

Open-source: It means no license, distribution and development fee.

Platform-independent: It supports Windows, Mac, and Linux platforms.

Supports various technologies: It supports camera, Bluetooth, wifi, speech, EDGE etc. technologies.

Highly optimized Virtual Machine: Android uses a highly optimized virtual machine for mobile devices, called DVM (Dalvik Virtual Machine).

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6) Does android support other languages than java?

Yes, an android app can be developed in C/C++ also using android NDK (Native Development Kit). It makes the performance faster. It should be used with Android SDK.

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7) What are the core building blocks of android?

The core building blocks of Android are:

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- Activity
- View

- Intent
- Service
- Content Provider
- Fragment etc.

More details...

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8) What is activity in Android?

Activity is like a frame or window in java that represents GUI. It represents one screen of android.

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9) What are the life cycle methods of android activity?

There are 7 life-cycle methods of activity. They are as follows:

1. onCreate()
2. onStart()
3. onResume()
4. onPause()
5. onStop()
6. onRestart()
7. onDestroy()

More details...

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10) What is intent?

It is a kind of message or information that is passed to the components. It is used to launch an activity, display a web page, send SMS, send email, etc. There are two types of intents in android:

1. Implicit Intent
2. Explicit Intent

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11) How are view elements identified in the android program?

View elements can be identified using the keyword findViewById.

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12) Define Android toast.

An android toast provides feedback to the users about the operation being performed by them. It displays the message regarding the status of operation initiated by the user.

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13) Give a list of impotent folders in android

The following folders are declared as impotent in android:

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- AndroidManifest.xml
- build.xml
- bin/
- src/
- res/
- assets/

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14) Explain the use of 'bundle' in android?

We use bundles to pass the required data to various subfolders.

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15) What is an application resource file?

The files which can be injected for the building up of a process are called as application resource file.

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16) What is the use of LINUX ID in android?

A unique Linux ID is assigned to each application in android. It is used for the tracking of a process.

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17) Can the bytecode be written in java be run on android?

No

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18) List the various storages that are provided by Android.

The various storage provided by android are:

- Shared Preferences
- Internal Storage
- External Storage

- SQLite Databases
- Network Connection

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19) How are layouts placed in Android?

Layouts in Android are placed as XML files.

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20) Where are layouts placed in Android?

Layouts in Android are placed in the layout folder.

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21) What is the implicit intent in android?

The Implicit intent is used to invoke the system components.

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22) What is explicit intent in android?

An explicit intent is used to invoke the activity class.

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23) How to call another activity in android?

```
1. Intent i = new Intent(getApplicationContext(), ActivityTwo.class);
2. startActivity(i);
```

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24) What is service in android?

A service is a component that runs in the background. It is used to play music, handle network transaction, etc.

More details...

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25) What is the name of the database used in android?

SQLite: An opensource and lightweight relational database for mobile devices.

More details...

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26) What is AAPT?

AAPT is an acronym for android asset packaging tool. It handles the packaging process.

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27) What is a content provider?

A content provider is used to share information between Android applications.

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28) What is fragment?

The fragment is a part of Activity by which we can display multiple screens on one activity.

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29) What is ADB?

ADB stands for Android Debug Bridge. It is a command line tool that is used to communicate with the emulator instance.

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30) What is NDK?

NDK stands for Native Development Kit. By using NDK, you can develop a part of an app using native language such as C/C++ to boost the performance.

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31) What is ANR?

ANR stands for Application Not Responding. It is a dialog box that appears if the application is no longer responding.

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32) What is the Google Android SDK?

The Google Android SDK is a toolset which is used by developers to write apps on Android-enabled devices. It contains a graphical interface that emulates an Android-driven handheld environment and allows them to test and debug their codes.

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33) What is an APK format?

APK is a short form stands for Android Packaging Key. It is a compressed key with classes, UI's, supportive assets and manifest. All files are compressed to a single file is called APK.

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34) Which language does Android support to develop an application?

Android applications are written by using the java (Android SDK) and C/C++ (Android NDK).

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35) What is ADT in Android?

ADT stands for Android Development Tool. It is used to develop the applications and test the applications.

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36) What is View Group in Android?

View Group is a collection of views and other child views. It is an invisible part and the base class for layouts.

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37) What is the Adapter in Android?

An adapter is used to create a child view to present the parent view items.

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38) What is nine-patch images tool in Android?

We can change bitmap images into nine sections with four corners, four edges, and an axis.

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39) Which kernel is used in Android?

Android is a customized Linux 3.6 kernel.

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40) What is application Widgets in Android?

Application widgets are miniature application views that can be embedded in other applications and receive periodic updates.

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41) Which types of flags are used to run an application on Android?

Following are two types of flags to run an application in Android:

- FLAG_ACTIVITY_NEW_TASK
- FLAG_ACTIVITY_CLEAR_TOP

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42) What is a singleton class in Android?

A singleton class is a class which can create only an object that can be shared by all other classes.

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43) What is sleep mode in Android?

In sleep mode, CPU is slept and doesn't accept any commands from android device except Radio interface layer and alarm.

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44) What do you mean by a drawable folder in Android?

In Android, a drawable folder is compiled a visual resource that can use as a background, banners, icons, splash screen, etc.

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45) What is DDMS?

DDMS stands for Dalvik Debug Monitor Server. It gives the wide array of debugging features:

1. Port forwarding services
2. Screen capture
3. Thread and heap information
4. Network traffic tracking
5. Location data spoofing

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46) Define Android Architecture?

The Android architecture consists of 4 components:

1. Linux Kernal
2. Libraries
3. Android Framework
4. Android Applications

More details...

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47) What is a portable wi-fi hotspot?

The portable wi-fi hotspot is used to share internet connection to other wireless devices.

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48) Name the dialog box which is supported by Android?

- Alert Dialog
- Progress Dialog
- Date Picker Dialog
- Time picker Dialog

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49) Name some exceptions in Android?

- Inflate Exception
- Surface.OutOfResourceException

- SurfaceHolder.BadSurfaceTypeException
- WindowManager.BadTokenException

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50) What are the basic tools used to develop an Android app?

- JDK
- Eclipse+ADT plugin
- SDK Tools