

TOP 30

Android Developer

INTERVIEW QUESTION



Created by- **TOPPERWORLD**

Q1. What is the latest version of Android? List all the versions of Android.

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Ans: The most recent version, **Android 13**, was published on August 15, 2022, while the recently released **Android 12.1/12L** offers advancements for foldable phones, tablets, desktop-sized screens, and Chromebooks.

Android is a mobile operating system developed by Google. It is based on the Linux kernel and designed primarily for touchscreen mobile devices such as smartphones and tablets.

Every other Android version has been named after either sweet or desserts. The following table represents the Android name, version and the year of release.

Android Name	Version	Year of Release
Android 1.5	Android Cupcake	2009
1.6	Donut	2009
2.0-2.1	Eclair	2009
2.2 – 2.2.3	Froyo	2010
2.3 – 2.3.7	Gingerbread	2010
3.0 – 3.2.6	Honeycomb	2011

4.0 – 4.0.4	Ice Cream Sandwich	2011
4.1 – 4.3.1	Jelly Bean	2012
4.4 – 4.4.4	KitKat	2013
5.0 – 5.1.1	Lollipop	2014
6.0 – 6.0.1	Marshmallow	2015
7.0 – 7.1.2	Nougat	2016
8.0 – 8.1	Oreo	2017
9.0	Pie	2018

Q2. What is an Activity? Which method is implemented by all subclasses of an Activity?

ANS: An Activity is the screen representation of an application in Android.

It serves as an entry point for the user's interaction. Each activity has a layout file where you can place your UI. An application can have different activities. For example, facebook start page where you enter your email/phone and password to login acts as an activity.

Below are the two methods which almost all subclasses of Activity will implement:

➤ **onCreate(Bundle):**

It is a method where your initialization is done. Under this, you will call `setContentView(int)` with a layout resource which defines your UI. Also, you can retrieve the widgets in that UI by using `findViewById(int)`. These are required to interact programmatically.

➤ `onPause()`:

It is a method which deals with the user whenever it leaves the activity.

So any changes made by the user should be committed which is done by the `ContentProvider` that holds the data.

An activity is implemented as a subclass of **Activity** class as follows:

```
public class MainActivity extends Activity {}
```



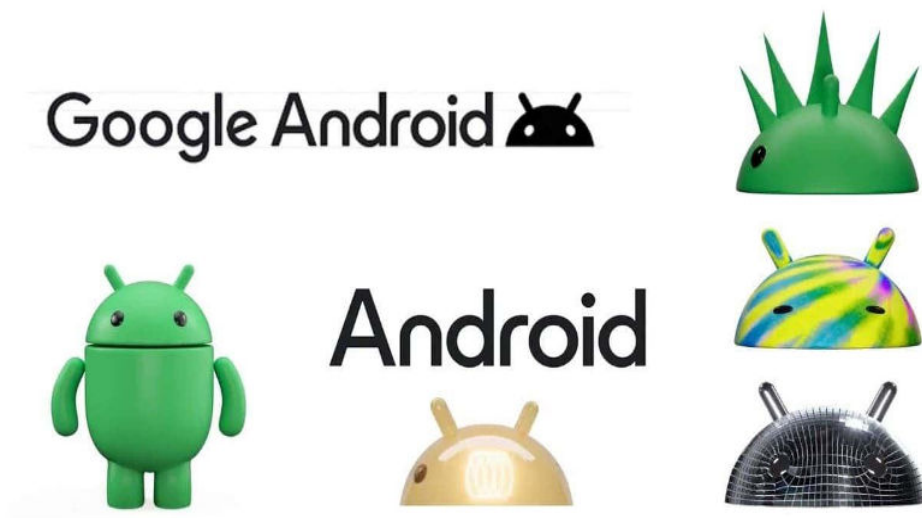
Q3. What are the features of Android?

ANS: Google has changed the lives of everyone by launching a product that improves the mobile experience for everyone.

Android helps in understanding your tastes and needs, by giving various features such as having wallpapers, themes, and launchers which completely change the look of your device's interface.

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Android has plenty of features. Some of the features are listed below:



- Open-source
- Customizable operating System
- Variety of apps can be developed.
- Reduces overall complexity
- Supports messaging services, web browser, storage(SQLite), connectivity, media and many more.

Q4. Explain Android Architecture.

ANS:Android architecture refers to the different layers in the Android stack.

It includes your operating system, middleware, and important applications.

Each layer in the architecture provides different services to the layer just above it. ©Topperworld

The four layers in the Android stack are:

- **Application layer:** Users interact with this layer to perform tasks on the device
- **Application framework layer:** Manages and supports the device's applications
- **Libraries layer:** A building block layer that helps the device function properly.
- **Linux kernel layer:** The foundation of the Android operating system, acting as a liaison between the device's hardware and software.

Q5. Which programming language is used for Android App development?

ANS: Java is the official programming language for Android App development. It is also possible to develop in C/ c++ language using NDK (Android Native Development). However, the major parts of Android are written in **Java programming language** and the APIs are also designed primarily from Java.

Kotlin : An alternative to Java that Google announced support for in 2017. Kotlin is interoperable with Java, meaning it can use the same information and access all Java libraries. Kotlin is considered a cleaner version of Java and requires fewer lines of code to achieve the same functionality. Kotlin is used to build Android's modern UI toolkit, Jetpack Compose.



Q6. What is APK format?

ANS:The APK file or Android application package is the compressed file format that is used to distribute and install application software and middleware onto Google' s Android operating system. The file has .apk extension and has all the application code, resource files, certificates, and other files, compressed in it.

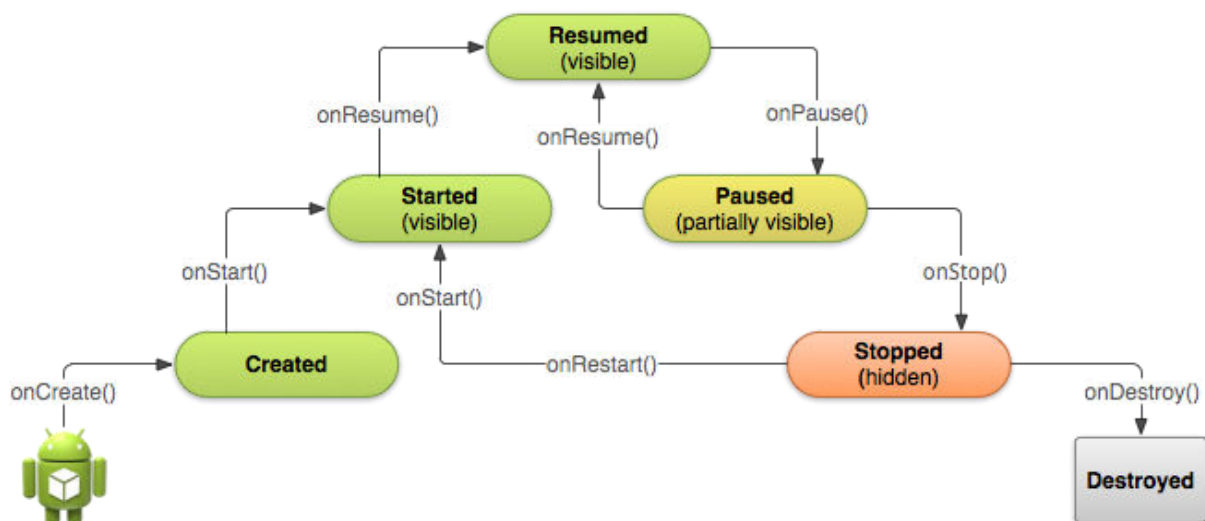
Q7. What is the life cycle of android activity?

ANS:User navigates between different screen or app, it goes through different states in their lifecycle.

So an activity lifecycle consists of 7 different methods of android.app.Activity class i.e :

- **onCreate()** : In this state, the activity is created.
- **onStart()**: This callback method is called when the activity becomes visible to the user.
- **onResume()**: The activity is in the foreground and the user can interact with it.

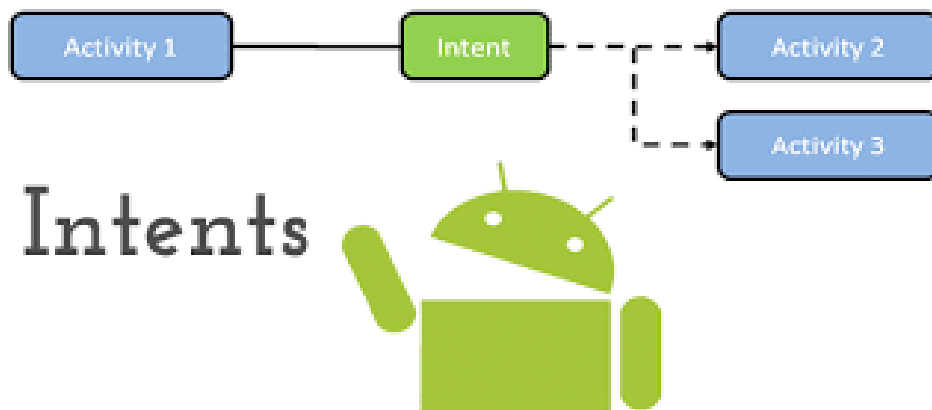
- **onPause():** Activity is partially obscured by another activity. Other activity that's in the foreground is semi-transparent.
- **onStop():** The activity is completely hidden and not visible to the user.
- **onDestroy():** Activity is destroyed and removed from the memory.



Q8. Define intents in Android. What are the different types of intents?

ANS: An Intent is an “intention” to do an action. An intent is a messaging object you can use to request an action from another app component.

Methods are used to deliver intents to different components:



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- `context.startActivity()` – To start an activity
- `context.startService()` – To start a service
- `context.sendBroadcast()` – To deliver a broadcast

❖ Types of Intent:

➤ Implicit Intent:

Implicit intent is when the target component is not defined in the intent and the android system has to evaluate the registered components based on the intent data.

➤ Explicit Intent:

Explicit intent is when an application defines the target component directly in the intent.

Q9. What is the difference between an implicit intent and explicit intent?

ANS: Implicit Intent is used whenever you are performing an action. For example, send email, SMS, dial number or you can use a Uri to specify the data type.

For example:

```
Intent i = new Intent(ACTION_VIEW,Uri.parse("<a href='https://topperworld.in/'>https://topperworld.in/</a>"));
startActivity(i);
```

Explicit, on the other hand, helps you to switch from one activity to another activity (often known as the target activity). It is also used to pass data using putExtra method and retrieved by other activity by getIntent().getExtras() methods.

For example:

```
Intent i = new Intent(this, Activitytwo.class);  
#ActivityTwo is the target component  
i.putExtra("Value1", "This is ActivityTwo");  
i.putExtra("Value2", "This Value two for ActivityTwo");  
startactivity(i);
```

Q10. What is an Android Framework?

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ANS:Android Framework is an essential part of the Android Architecture.

It is a set of APIs that allows developers to write apps and has the following components:

Services	Components that conduct long-running operations in the background, without the inclusion of a user interface.
Intent	Objects that initiate actions from other app components, either within your program (explicit intents) or through another piece of software on the device (implicit intents).
Activities	Components that provide users with screens on which they can interact with objects and perform actions. This is the base from which Intents can be deployed.
Content Providers	Components that enable users to access data within an app such as audio, video, images, contact information, etc.

Others

App widgets and Processes and Threads



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Q11. What is the difference between File, Class, and Activity in android?

ANS:The difference between them are as follows:

- **File** is a block of arbitrary information or resources for storing information. It can be any file type.
- **Class** is a compiled from of .Java file which Android uses to produce an executable apk.
- **Activity** is the equivalent of a Frame/Window in GUI toolkits. It is not a file or a file type but just a class that can be extended in Android to load UI elements on view.

Q12. What is Google Android SDK? What are the tools placed in android SDK?

ANS:The Google Android SDK is a toolset that provides a developer the API libraries and tools required to build, test, and debug apps for Android in Windows, Mac or Linux.

The tools placed in Android SDK are:

- Android Emulator
- DDMS – Dalvik Debug Monitoring Services
- AAPT – Android Asset Packaging tool
- ADB – Android debug bridge

Q13. What is a Toast? Write its syntax.

ANS:

- Toast notification is a message that pops up on the window.
- It only covers the expanse of space required for the message and the user's recent activity remains visible and interactive.
- The notification automatically fades in and out and does not accept interaction events.

Syntax:

```
Toast.makeText(ProjectActivity.this, "Your message here", Toast.LENGTH_LONG).show();
```

Q14. What is an Android Framework?

ANS: Android Framework is an essential part of the Android Architecture. It is a set of APIs that allows developers to write apps and has the following components:

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Q15. What is an ANR? What are some measures you can take to avoid ANR?

ANS: ANR stands for 'Application Not Responding'. This dialogue is displayed if the main thread in the application has been unresponsive for a long time and in the following conditions:

- When there is no response to an input event after 5 seconds.
- When a broadcast receiver is not done executing within 10 seconds.

Following measures can be taken to avoid ANR:

- To avoid ANR, an app should perform a lengthy database or networking operations in separate threads.

- One technique is to create a child thread to prevent the Android system from concluding a code that has been unresponsive for a long period of time. Most of the actual workings of the codes can be placed within the child thread to ensure that the main thread runs with minimal unresponsive time.
- For background task-intensive apps, you can alleviate pressure from the UI thread by using the IntentService.

Q16. What are broadcast receivers? How is it implemented?

ANS:

- Broadcast Receiver is a mechanism using which host application can listen for System level events.
- Broadcast receiver is used by the application whenever they need to perform the execution based on system events. Like listening for Incoming call, sms etc.
- Broadcast receivers helps in responding to broadcast messages from other application or from the system.
- It is used to handle communication between Android operating system and applications.

It is implemented as a subclass of **BroadcastReceiver** class and each message is broadcaster as an **Intent** object.

```
public class MyReceiver extends BroadcastReceiver {  
    Public void onReceive(context,intent){}  
}
```

Q17. How will you pass data to sub-activities?

ANS:

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- We can use **Bundles** to pass data to sub-activities.
- There are like HashMaps that and take trivial data types. These Bundles transport information from one Activity to another

```
Bundle b=new Bundle();  
b.putString("Email","abc@xyz.com");  
i.putExtras(b); // where I is intent
```

Q18. What is the use of WebView in Android?

ANS:WebView is a view that display web pages inside your application.

According to Android, “this class is the basis upon which you can roll your own web browser or simply display some online content within your Activity. It uses the WebKit rendering engine to display web pages and includes methods to navigate forward and backward through a history, zoom in and out, perform text searches and more.

In order to add WebView to your application, you have to add `<WebView>` element to your XML layout file.



Q19. What are the different kinds of context in Android?

ANS: Context defines the current state of an App. Context provides access to creating new activity instance, access databases, start a service, etc. There is a base class `ApplicationContext`, and subclasses for components: `Activity`, `Service`.

Q20. Explain in brief about the important file and folder when you create a new app?

ANS:

- **App** – It describes the fundamental characteristics of the app and defines each of its components.
- **java** – This contains the `.java` source files for your project. By default, it includes an `MainActivity`.

`java` source file. Under this, you create all the activities which have `.java` extensions and all the code behind the application.

MainActivity.java is the actual file which gets converted to a dalvik executable and runs your app.

- **res** – It is a directory for files that define your app's user interface. You can add TextView, button etc to build the GUI and use various attributes like android:layout_width, android:layout_height etc which are used to set its width and height.
- **Gradle Scripts** – This is an auto-generated file which contains compileSdkVersion, buildToolsVersion, applicationId, minSdkVersion, targetSdkVersion, versionCode and versionName

Q21. What are the different storage methods in Android?

ANS: Android offers several options to store persistent application data. They are:

- **Shared Preferences** – Store private primitive data in key-value pairs
- **Internal Storage** – Store private data on the device memory
- **External Storage** – Store public data on the shared external storage
- **SQLite Databases** – Store structured data in a private database



Q22. Can you deploy executable JARs on android? Which package is supported by it?

ANS:No, Android does not support JAR deployments. Applications are packed into Android Package(.apk) using Android Asset Packaging Tool (APT) and then deployed on to the Android platform.

Q23. What is a Service? How is it implemented?

ANS: A service in android is a background process which is used to perform long-running operations. Let' s say, a service of location is active in the background while the user is in a different application. So it does not disturb the user interaction with an activity. Now, services are classified into two types, namely:

1. **Local** : This service is accessed from within the application.
2. **Remote** : This service is accessed remotely from other applications running on the same device.

It is implemented as a subclass of **Service** class as follows :

```
public class MyService extends Service {}
```

Q24. What is a Sticky Intent?

ANS:A Sticky Intent is a broadcast from sendStickyBroadcast() method which floats around even after the broadcast, allowing others to collect data from it.

Q25. Explain Folder, File & Description of Android Apps

ANS:

- **src:** contains the .java source files for your project.
- **gen:** contains the .R file, a compiler-generated file that references all the resources found in your project.
- **bin:** contains the Android package files .apk built by the ADT during the build process and everything else needed to run an Android application.
- **res/drawable-hdpi:** this is a directory for drawable objects that are designed for high-density screens.
- **res/layout:** this is a directory for files that define your app' s user interface.
- **res/values:** this is a directory for other various XML files that contain a collection of resources, such as strings and colors definitions.
- **AndroidManifest.xml:** this is the manifest file which describes the fundamental characteristics of the app and defines each of its components.



Q26. How does Manifest file plays an integral role in App development?

ANS:Manifest file plays an integral role as it provides the essential information about your app to the Android system, which the system must have before it can run any of the app' s code.

Manifest file performs various tasks such as:

- It names the Java package for the app as the package name serves as a unique identifier for the application.
- It protects the application by declaring permissions in order to access protected parts of the API and interact with other applications.
- Manifest file declares the minimum level of the android API and list the libraries which is linked with the application.
- Manifest file list the instrumentation classes.
- These classes provide profiling and other information as the application runs, but this information is removed as soon the application is publishes. It remains only till the application is in development mode.

Q27. What is the difference between a fragment and an activity?

ANS:Activity is typically a single, focused operation that a user can perform such as dial a number, take a picture, send an email, view a map etc.

Fragment is a modular section of an activity, with its own lifecycle and input events, and which can be added or removed at will. Also, a fragment's lifecycle is directly affected by its host activity's lifecycle i.e. when the activity is paused, so are all fragments in it, and when the activity is destroyed, so are all of its fragments.

Q28. Can you change the name of an application after its deployment?

ANS:It is not recommended to change the application after its deployment. This may break some functionality.

Q29. What database is used in Android? How does it differ from client-server database management systems?

ANS:SQLite is the open-source relational database. The SQLite engine is serverless, transactional, and self-contained.

Instead of the typical client-server relationship of most database management systems, the SQLite engine is integrally linked with the application.

The library can also be called dynamically and makes use of simple function calls that reduce latency in database access.

Q30. What is DDMS?

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

- Port forwarding services
- Screen capture on the device
- Thread and heap information
- Logcat
- Incoming call and SMS spoofing
- Network traffic tracking
- Location data spoofing



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