**1. What is Application?**

*The Application class in Android is the base class within an Android app that contains all other components such as activities and services. The Application class, or any subclass of the Application class, is instantiated before any other class when the process for your application/package is created.*

**2. What is Context?**

*A****Context****is a handle to the system; it provides services like resolving resources, obtaining access to databases and preferences, and so on. An Android app has activities. Context is like a handle to the environment your application is currently running in.****Application Context:****This context is tied to the lifecycle of an application. The application context can be used where you need a context whose lifecycle is separate from the current context or when you are passing a context beyond the scope of an activity.****Activity Context:****This context is available in an activity. This context is tied to the lifecycle of an activity. The activity context should be used when you are passing the context in the scope of an activity or you need the context whose lifecycle is attached to the current context.*

**3. What is Armv7?**

*There are 3 CPU architectures in Android.****ARMv7****is the most common as it is optimised for battery consumption.****ARM64****is an evolved version of that that supports 64-bit processing for more powerful computing.****ARMx86****, is the least used for these three, since it is not battery friendly. It is more powerful than the other two.*

**4. Why bytecode cannot be run in Android?**

*Android uses****DVM****(Dalvik Virtual Machine ) rather using JVM(Java Virtual Machine).*

**5. What is a BuildType in Gradle? And what can you use it for?**

*Build types define properties that Gradle uses when building and packaging your Android app.*

1. *A build type defines how a module is built, for example whether ProGuard is run.*
2. *A product flavour defines what is built, such as which resources are included in the build.*
3. *Gradle creates a build variant for every possible combination of your project’s product flavours and build types.*

**6. Explain the build process in Android:**

1. *First step involves compiling the resources folder (/res) using the aapt (android asset packaging tool) tool. These are compiled to a single class file called R.java. This is a class that just contains constants.*
2. *Second step involves the java source code being compiled to .class files by javac, and then the class files are converted to Dalvik bytecode by the “dx” tool, which is included in the sdk ‘tools’. The output is classes.dex.*
3. *The final step involves the android apkbuilder which takes all the input and builds the apk (android packaging key) file.*

**7. What is the Android Application Architecture?**

*Android application architecture has the following components:*

1. ***Services****− It will perform background functionalities*
2. ***Intent****− It will perform the inter connection between activities and the data passing mechanism*
3. ***Resource Externalization****− strings and graphics*
4. ***Notification****− light, sound, icon, notification, dialog box and toast*
5. ***Content Providers****− It will share the data between applications*

**8. Describe activities**

*Activities are basically containers or windows to the user interface.*

**9. Lifecycle of an Activity**

* *OnCreate(): This is when the view is first created. This is normally where we create views, get data from bundles etc.*
* *OnStart(): Called when the activity is becoming visible to the user. Followed by onResume() if the activity comes to the foreground, or onStop() if it becomes hidden.*
* *OnResume(): Called when the activity will start interacting with the user. At this point your activity is at the top of the activity stack, with user input going to it.*
* *OnPause(): Called as part of the activity lifecycle when an activity is going into the background, but has not (yet) been killed.*
* *OnStop(): Called when you are no longer visible to the user.*
* *OnDestroy(): Called when the activity is finishing*
* *OnRestart(): Called after your activity has been stopped, prior to it being started again*

**10. What’s the difference between onCreate() and onStart()?**

* *The onCreate() method is called once during the Activity lifecycle, either when the application starts, or when the Activity has been destroyed and then recreated, for example during a configuration change.*
* *The onStart() method is called whenever the Activity becomes visible to the user, typically after onCreate() or onRestart().*

**11. Scenario in which only onDestroy is called for an activity without onPause() and onStop()?**

*If finish() is called in the OnCreate method of an activity, the system will invoke onDestroy() method directly.*

**12. Why would you do the setContentView() in onCreate() of Activity class?**

*As onCreate() of an Activity is called only once, this is the point where most initialisation should go. It is inefficient to set the content in onResume() or onStart() (which are called multiple times) as the setContentView() is a heavy operation.*

**13. onSavedInstanceState() and onRestoreInstanceState() in activity?**

*OnRestoreInstanceState() - When activity is recreated after it was previously destroyed, we can recover the saved state from the Bundle that the system passes to the activity. Both the onCreate() and onRestoreInstanceState() callback methods receive the same Bundle that contains the instance state information. But because the onCreate() method is called whether the system is creating a new instance of your activity or recreating a previous one, you must check whether the state Bundle is null before you attempt to read it. If it is null, then the system is creating a new instance of the activity, instead of restoring a previous one that was destroyed.*

*onSaveInstanceState() - is a method used to store data before pausing the activity.*

**14. Launch modes in Android?**

* ***Standard****: It creates a new instance of an activity in the task from which it was started. Multiple instances of the activity can be created and multiple instances can be added to the same or different tasks.   
  Eg: Suppose there is an activity stack of A -> B -> C.   
  Now if we launch B again with the launch mode as****“standard”****, the new stack will be A -> B -> C -> B.*
* ***SingleTop****: It is the same as the standard, except if there is a previous instance of the activity that exists in the****top****of the stack, then it will****not****create a new instance but rather send the intent to the existing instance of the activity.  
  Eg: Suppose there is an activity stack of A -> B.   
  Now if we launch C with the launch mode as****“singleTop”****, the new stack will be A -> B -> C as usual.   
  Now if there is an activity stack of A -> B -> C.   
  If we launch C again with the launch mode as****“singleTop”****, the new stack will still be A -> B -> C.*
* ***SingleTask****: A new task will always be created and a new instance will be pushed to the task as the root one. So if the activity is already in the task, the intent will be redirected to onNewIntent() else a new instance will be created. At a time only one instance of activity will exist.  
  Eg: Suppose there is an activity stack of A -> B -> C -> D.   
  Now if we launch D with the launch mode as****“singleTask”****, the new stack will be A -> B -> C -> D as usual.  
  Now if there is an activity stack of A -> B -> C -> D.   
  If we launch activity B again with the launch mode as****“singleTask”****, the new activity stack will be A -> B. Activities C and D will be destroyed.*
* ***SingleInstance****: Same as single task but the system does not launch any activities in the same task as this activity. If new activities are launched, they are done so in a separate task.  
  Eg: Suppose there is an activity stack of A -> B -> C -> D. If we launch activity B again with the launch mode as****“singleInstance”****, the new activity stack will be:   
  Task1 — A -> B -> C  
  Task2 — D*

**15. How does the activity respond when the user rotates the screen?**

*When the screen is rotated, the current instance of activity is destroyed a new instance of the Activity is created in the new orientation. The onRestart() method is invoked first when a screen is rotated. The other lifecycle methods get invoked in the similar flow as they were when the activity was first created.*

**16. How to prevent the data from reloading and resetting when the screen is rotated?**

* *The most basic approach would be to use a combination of*[***ViewModels***](https://developer.android.com/reference/android/arch/lifecycle/ViewModel)*andonSaveInstanceState() . So how we do we that?*
* *Basics of*[*ViewModel*](https://developer.android.com/reference/android/arch/lifecycle/ViewModel)*: A ViewModel is****LifeCycle-Aware.****In other words,*a *ViewModel will not be destroyed if its owner is destroyed for a configuration change (e.g. rotation). The new instance of the owner will just re-connected to the existing ViewModel. So if you rotate an Activity three times, you have just created three different Activity instances, but you only have one ViewModel.*
* *So the common practice is to store data in the ViewModel class (since it persists data during configuration changes) and use OnSaveInstanceState to store small amounts of UI data.*
* *For instance, let’s say we have a search screen and the user has entered a query in the Edittext. This results in a list of items being displayed in the RecyclerView. Now if the screen is rotated, the ideal way to prevent resetting of data would be to store the list of search items in the ViewModel and the query text user has entered in the OnSaveInstanceState method of the activity.*

**17. Mention two ways to clear the back stack of Activities when a new Activity is called using intent**

*The first approach is to use a****FLAG\_ACTIVITY\_CLEAR\_TOP****flag. The second way is by using****FLAG\_ACTIVITY\_CLEAR\_TASK****and****FLAG\_ACTIVITY\_NEW\_TASK****in conjunction.*

**18. What’s the difference between FLAG\_ACTIVITY\_CLEAR\_TASK and FLAG\_ACTIVITY\_CLEAR\_TOP?**

***FLAG\_ACTIVITY\_CLEAR\_TASK****is used to clear all the activities from the task including any existing instances of the class invoked. The Activity launched by intent becomes the new root of the otherwise empty task list. This flag has to be used in conjunction with FLAG\_ ACTIVITY\_NEW\_TASK.*

***FLAG\_ACTIVITY\_CLEAR\_TOP****on the other hand, if set and if an old instance of this Activity exists in the task list then barring that all the other activities are removed and that old activity becomes the root of the task list. Else if there’s no instance of that activity then a new instance of it is made the root of the task list. Using FLAG\_ACTIVITY\_NEW\_TASK in conjunction is a good practice, though not necessary.*

**19. Describe content providers**

*A ContentProvider provides data from one application to another, when requested. It manages access to a structured set of data. It provides mechanisms for defining data security. ContentProvider is the standard interface that connects data in one process with code running in another process.*

*When you want to access data in a ContentProvider, you must instead use the ContentResolver object in your application’s Context to communicate with the provider as a client. The provider object receives data requests from clients, performs the requested action, and returns the results.*

**20. Access data using Content Provider:**

*Start by making sure your Android application has the necessary read access permissions. Then, get access to the ContentResolver object by calling getContentResolver() on the Context object, and retrieving the data by constructing a query using ContentResolver.query().*

*The ContentResolver.query() method returns a Cursor, so you can retrieve data from each column using Cursor methods.*

**21. Describe services**

*A*[*Service*](https://developer.android.com/reference/android/app/Service.html)*is an application component that can perform long-running operations in the background, and it doesn't provide a user interface. It can run in the background, even when the user is not interacting with your application. These are the three different types of services:*

* ***Foreground Service:****A foreground service performs some operation that is noticeable to the user. For example, we can use a foreground service to play an audio track. A*[*Notification*](https://developer.android.com/guide/topics/ui/notifiers/notifications.html)*must be displayed to the user.*
* ***Background Service:****A background service performs an operation that isn’t directly noticed by the user. In Android API level 26 and above, there are restrictions to using background services and it is recommended to use*[*WorkManager*](https://developer.android.com/topic/libraries/architecture/workmanager)*in these cases.*
* ***Bound Service:****A service is bound when an application component binds to it by calling bindService(). A bound service offers a client-server interface that allows components to interact with the service, send requests, receive results. A bound service runs only as long as another application component is bound to it.*

**22. Difference between Service & Intent Service**

* *Service is the base class for Android services that can be extended to create any service. A class that directly extends Service runs on the main thread so it will block the UI (if there is one) and should therefore either be used only for short tasks or should make use of other threads for longer tasks.*
* *IntentService is a subclass of Service that handles asynchronous requests (expressed as “Intents”) on demand. Clients send requests through startService(Intent) calls. The service is started as needed, handles each Intent in turn using a worker thread, and stops itself when it runs out of work.*

**23. Difference between AsyncTasks & Threads?**

* ***Thread****should be used to separate long running operations from main thread so that performance is improved. But it can’t be cancelled elegantly and it can’t handle configuration changes of Android. You can’t update UI from Thread.*
* ***AsyncTask****can be used to handle work items shorter than 5ms in duration. With AsyncTask, you can update UI unlike java Thread. But many long running tasks will choke the performance.*

**24. Difference between Service, Intent Service, AsyncTask & Threads**

* ***Android service****is a component that is used to perform operations on the background such as playing music. It doesn’t has any UI (user interface). The service runs in the background indefinitely even if application is destroyed.*
* ***AsyncTask****allows you to perform asynchronous work on your user interface. It performs the blocking operations in a worker thread and then publishes the results on the UI thread, without requiring you to handle threads and/or handlers yourself.*
* ***IntentService****is a base class for Services that handle asynchronous requests (expressed as Intents) on demand. Clients send requests through startService(Intent) calls; the service is started as needed, handles each Intent in turn using a worker thread, and stops itself when it runs out of work.*
* *A****thread****is a single sequential flow of control within a program. Threads can be thought of as mini-processes running within a main process.*

**25. What are Handlers?**

*Handlers are objects for managing threads. It receives messages and writes code on how to handle the message. They run outside of the activity’s lifecycle, so they need to be cleaned up properly or else you will have thread leaks.*

* *Handlers allow communicating between the background thread and the main thread.*
* *A Handler class is preferred when we need to perform a background task repeatedly after every x seconds/minutes.*

**26. What is a Job Scheduling?**

*Job Scheduling api, as the name suggests, allows to schedule jobs while letting the system optimize based on memory, power, and connectivity conditions. The JobScheduler supports batch scheduling of jobs. The Android system can combine jobs so that battery consumption is reduced. JobManager makes handling uploads easier as it handles automatically the unreliability of the network. It also survives application restarts. Some scenarios:*

* *Tasks that should be done once the device is connect to a power supply*
* *Tasks that require network access or a Wi-Fi connection.*
* *Task that are not critical or user facing*
* *Tasks that should be running on a regular basis as batch where the timing is not critical*
* You can click on this [link](http://www.vogella.com/tutorials/AndroidTaskScheduling/article.html#schedulingtasks) to learn more about Job Schedulers.

**27. What is the relationship between the life cycle of an AsyncTask and an Activity? What problems can this result in? How can these problems be avoided?**

*An AsyncTask is not tied to the life cycle of the Activity that contains it. So, for example, if you start an AsyncTask inside an Activity and the user rotates the device, the Activity will be destroyed (and a new Activity instance will be created) but the AsyncTask will not die but instead goes on living until it completes.*

*Then, when the AsyncTask does complete, rather than updating the UI of the new Activity, it updates the former instance of the Activity (i.e., the one in which it was created but that is not displayed anymore!). This can lead to an Exception (of the type java.lang.IllegalArgumentException: View not attached to window manager if you use, for instance, findViewById to retrieve a view inside the Activity).*

*There’s also the potential for this to result in a memory leak since the AsyncTask maintains a reference to the Activity, which prevents the Activity from being garbage collected as long as the AsyncTask remains alive.*

*For these reasons, using AsyncTasks for long-running background tasks is generally a bad idea . Rather, for long-running background tasks, a different mechanism (such as a service) should be employed.*

***Note:****AsyncTasks by default run on a single thread using a serial executor, meaning it has only 1 thread and each task runs one after the other.*

**28. What is the onTrimMemory() method?**

*onTrimMemory(): Called when the operating system has determined that it is a good time for a process to trim unneeded memory from its process. This will happen for example when it goes in the background and there is not enough memory to keep as many background processes running as desired.*

*Android can reclaim memory for from your app in several ways or kill your app entirely if necessary to free up memory for critical tasks. To help balance the system memory and avoid the system’s need to kill your app process, you can implement the ComponentCallbacks2 interface in your Activity classes. The provided onTrimMemory() callback method allows your app to listen for memory related events when your app is in either the foreground or the background, and then release objects in response to app lifecycle or system events that indicate the system needs to reclaim memory.* [**Reference**](https://developer.android.com/topic/performance/memory)

**29. Android Bound Service**

*A bound service is a service that allows other android components (like activity) to bind to it and send and receive data. A bound service is a service that can be used not only by components running in the same process as local service, but activities and services, running in different processes, can bind to it and send and receive data.*

* *When implementing a bound service we have to extend Service class but we have to override onBind method too. This method returns an object that implements IBinder, that can be used to interact with the service.*

***Implementing Android bound service with Android Messenger***

* *Service based on Messenger can communicate with other components in different processes, known as Inter Process Communication (IPC), without using AIDL.*
* ***A service handler****: this component handles incoming requests from clients that interact with the service itself.*
* ***A Messenger****: this class is used to create an object implementing IBinder interface so that a client can interact with the service.*
* *Example Implementation:*[***Link***](https://www.survivingwithandroid.com/2014/01/android-bound-service-ipc-with-messenger-2.html)

**30. AIDL vs Messenger Queue**

* *As*[*Ariq Ahmad*](https://medium.com/@ariqahmad)*mentioned in the response, Messenger Queue builds us a queue and the data/messages are passed between 2 or more processes sequential. But in case of AIDL the messages are passed in parallel.*
* *AIDL is for the purpose when you’ve to go application level communication for data and control sharing, a scenario depicting it can be : An app requires list of all contacts from Contacts app (content part lies here) plus it also wants to show the call’s duration and you can also disconnect it from that app (control part lies here).*
* *In Messenger queues you’re more IN the application and working on threads and processes to manage the queue having messages so no Outside services interference here.*
* *Messenger is needed if you want to bind a remote service (e.g. running in another process).*

**31. What is a ThreadPool? And is it more effective than using several separate Threads?**

*Creating and destroying threads has a high CPU usage, so when we need to perform lots of small, simple tasks concurrently, the overhead of creating our own threads can take up a significant portion of the CPU cycles and severely affect the final response time. ThreadPool consists of a task queue and a group of worker threads, which allows it to run multiple parallel instances of a task.*

**32. Difference between Serializable and Parcelable?**

*Serialization is the process of converting an object into a stream of bytes in order to store an object into memory, so that it can be recreated at a later time, while still keeping the object’s original state and data.*

***How to disallow serialization?*** *We can declare the variable as transient.*

*Serializable is a standard Java interface. Parcelable is an Android specific interface where you implement the serialization yourself. It was created to be far more efficient than Serializable (The problem with this approach is that reflection is used and it is a slow process. This mechanism also tends to create a lot of temporary objects and cause quite a bit of garbage collection.).*

**33. Difference between Activity & Service**

*Activities are basically containers or windows to the user interface. Services is a component that is used to perform operations on the background. It does not have an UI.*

**34. How would you update the UI of an activity from a background service?**

*We need to register a LocalBroadcastReceiver in the activity. And send a broadcast with the data using intents from the background service. As long as the activity is in the foreground, the UI will be updated from the background. Ensure to unregister the broadcast receiver in the onStop() method of the activity to avoid memory leaks. We can also register a Handler and pass data using Handlers. You can find more details on how to implement*[*here*](https://medium.com/@anitaa_1990/how-to-update-an-activity-from-background-service-or-a-broadcastreceiver-6dabdb5cef74?source=user_profile---------7------------------)*.*

**35. What is an intent?**

*Intents are messages that can be used to pass information to the various components of android. For instance, launch an activity, open a webview etc. Two types of intents-*

* ***Implicit:****Implicit intent is when you call system default intent like send email, send SMS, dial number.*
* ***Explicit:****Explicit intent is when you call an application activity from another activity of the same application.*

**36. What is a Sticky Intent?**

*Sticky Intents allows communication between a function and a service.sendStickyBroadcast() performs a sendBroadcast(Intent) known as sticky, i.e. the Intent you are sending stays around after the broadcast is complete, so that others can quickly retrieve that data through the return value ofregisterReceiver(BroadcastReceiver, IntentFilter). For example, if you take an intent for ACTION\_BATTERY\_CHANGED to get battery change events: When you call registerReceiver() for that action — even with a null BroadcastReceiver — you get the****Intent that was last Broadcast for that action****. Hence, you can use this to find the state of the battery without necessarily registering for all future state changes in the battery.*

**37. What is a Pending Intent?**

*If you want someone to perform any Intent operation at future point of time on behalf of you, then we will use Pending Intent.*

**38. What is an Action?**

*Description of the intent. For instance, ACTION\_CALL — used to perform calls*

**39. What are intent Filters?**

*Specifies the type of intent that the activity/service can respond to.*

**40. Describe fragments:**

*Fragment is a UI entity attached to Activity. Fragments can be reused by attaching in different activities. Activity can have multiple fragments attached to it. Fragment must be attached to an activity and its lifecycle will depend on its host activity.*

**41. Describe fragment lifecycle**

* *onAttach() : The fragment instance is associated with an activity instance.The fragment and the activity is not fully initialized. Typically you get in this method a reference to the activity which uses the fragment for further initialization work.*
* *onCreate() : The system calls this method when creating the fragment. You should initialize essential components of the fragment that you want to retain when the fragment is paused or stopped, then resumed.*
* *onCreateView() : The system calls this callback when it’s time for the fragment to draw its user interface for the first time. To draw a UI for your fragment, you must return a View component from this method that is the root of your fragment’s layout. You can return null if the fragment does not provide a UI.*
* *onActivityCreated() : The onActivityCreated() is called after the onCreateView() method when the host activity is created. Activity and fragment instance have been created as well as the view hierarchy of the activity. At this point, view can be accessed with the findViewById() method. example. In this method you can instantiate objects which require a Context object*
* *onStart() : The onStart() method is called once the fragment gets visible.*
* *onResume() : Fragment becomes active.*
* *onPause() : The system calls this method as the first indication that the user is leaving the fragment. This is usually where you should commit any changes that should be persisted beyond the current user session.*
* *onStop() : Fragment going to be stopped by calling onStop()*
* *onDestroyView() : Fragment view will destroy after call this method*
* *onDestroy() :called to do final clean up of the fragment’s state but Not guaranteed to be called by the Android platform.*

**42. What is the difference between fragments & activities. Explain the relationship between the two.**

*An Activity is an application component that provides a screen, with which users can interact in order to do something whereas a Fragment represents a behavior or a portion of user interface in an Activity (with its own lifecycle and input events, and which can be added or removed at will).*

**43. When should you use a fragment rather than an activity?**

* *When there are ui components that are going to be used across multiple activities.*
* *When there are multiple views that can be displayed side by side (viewPager tabs)*
* *When you have data that needs to be persisted across Activity restarts (such as retained fragments)*

**44. Difference between adding/replacing fragment in backstack?**

* ***replace****removes the existing fragment and adds a new fragment. This means when you press back button the fragment that got replaced will be created with its onCreateView being invoked.*
* ***add****retains the existing fragments and adds a new fragment that means existing fragment will be active and they wont be in ‘paused’ state hence when a back button is pressed onCreateView is not called for the existing fragment(the fragment which was there before new fragment was added).*
* *In terms of fragment’s life cycle events onPause, onResume, onCreateView and other life cycle events will be invoked in case of replace but they wont be invoked in case of add.*

**45. Why is it recommended to use only the default constructor to create a Fragment?**

*The reason why you should be passing parameters through bundle is because when the system restores a fragment (e.g on config change), it will automatically restore your bundle. This way you are guaranteed to restore the state of the fragment correctly to the same state the fragment was initialised with.*

**46. You’re replacing one Fragment with another — how do you ensure that the user can return to the previous Fragment, by pressing the Back button?**

*We need to save each Fragment transaction to the backstack, by callingaddToBackStack() before you commit() that transaction*

**47. Callbacks invoked during addition of a fragment to back stack and while popping back from back stack:**

*addOnBackStackChangedListener is called when fragment is added or removed from the backstack. Checkout this*[*link*](https://why-android.com/2016/03/29/learn-how-to-use-the-onbackstackchangedlistener/)*for reference.*

**48. What are retained fragments?**

*By default, Fragments are destroyed and recreated along with their parent Activity’s when a configuration change occurs. CallingsetRetainInstance(true) allows us to bypass this destroy-and-recreate cycle, signaling the system to retain the current instance of the fragment when the activity is recreated.*

**49. Difference between FragmentPagerAdapter vs FragmentStatePagerAdapter?**

* [***FragmentPagerAdapter***](https://developer.android.com/reference/android/support/v4/app/FragmentPagerAdapter)***:****the fragment of each page the user visits will be stored in memory, although the view will be destroyed. So when the page is visible again, the view will be recreated but the fragment instance is not recreated. This can result in a significant amount of memory being used. FragmentPagerAdapter should be used when we need to store the whole fragment in memory. FragmentPagerAdapter calls detach(Fragment) on the transaction instead of remove(Fragment).*
* [***FragmentStatePagerAdapter***](https://developer.android.com/reference/android/support/v4/app/FragmentStatePagerAdapter)*: the fragment instance is destroyed when it is not visible to the User, except the saved state of the fragment. This results in using only a small amount of Memory and can be useful for handling larger data sets. Should be used when we have to use dynamic fragments, like fragments with widgets, as their data could be stored in the savedInstanceState.Also it won’t affect the performance even if there are large number of fragments.*

**50. What is Toast in Android?**

*Android Toast can be used to display information for the short period of time. A toast contains message to be displayed quickly and disappears after sometime.*

**51. What are Loaders in Android?**

*Loader API was introduced in API level 11 and is used to load data from a data source to display in an activity or fragment. Loaders persist and cache results across configuration changes to prevent duplicate queries.*

*Checkout the*[*Sample Implementation*](https://medium.com/mindorks/a-journey-to-the-world-of-mvp-and-loaders-part-2-e176200e5866)*.*

**52. What is the difference between Dialog & DialogFragment?**

*A fragment that displays a dialog window, floating on top of its activity’s window. This fragment contains a Dialog object, which it displays as appropriate based on the fragment’s state. Dialogs are entirely dependent on Activities. If the screen is rotated, the dialog is dismissed. Dialog fragments take care of orientation, configuration changes as well.*

**53. Difference between margin & padding?**

*Padding will be space added inside the container, for instance, if it is a button, padding will be added inside the button. Margin will be space added outside the container.*

**54. What is View Group? How are they different from Views?**

***View:****View objects are the basic building blocks of User Interface(UI) elements in Android. View is a simple rectangle box which responds to the user’s actions. Examples are EditText, Button, CheckBox etc. View refers to theandroid.view.View class, which is the base class of all UI classes.*

***ViewGroup:****ViewGroup is the invisible container. It holds View and ViewGroup. For example, LinearLayout is the ViewGroup that contains Button(View), and other Layouts also. ViewGroup is the base class for Layouts.*

**55. What is the difference between a regular .png and a nine-patch image?**

*It is one of a resizable bitmap resource which is being used as backgrounds or other images on the device. The NinePatch class allows drawing a bitmap in nine sections. The four corners are unscaled; the middle of the image is scaled in both axes, the four edges are scaled into one axis.*

**56. Difference between RelativeLayout and LinearLayout?**

***Linear Layout****— Arranges elements either vertically or horizontally. i.e. in a row or column.*

***Relative Layout****— Arranges elements relative to parent or other elements.*

**57. What is ConstraintLayout?**

*It allows you to create large and complex layouts with a flat view hierarchy (no nested view groups). It’s similar to RelativeLayout in that all views are laid out according to relationships between sibling views and the parent layout, but it’s more flexible than RelativeLayout and easier to use with Android Studio’s Layout Editor.*

Checkout the [**Sample Implementation**](https://github.com/anitaa1990/ConstraintLayout-Sample)and you can read more about how to implement a simple app with ConstraintLayout [here](https://android.jlelse.eu/learning-to-implement-constraintlayout-in-android-8ddc69fe0a1a), by yours truly :)

**58. When might you use a FrameLayout?**

*Frame Layouts are designed to contain a single item, making them an efficient choice when you need to display a single View.*

*If you add multiple Views to a FrameLayout then it’ll stack them one above the other, so FrameLayouts are also useful if you need overlapping Views, for example if you’re implementing an overlay or a HUD element.*

**59. What is Adapters?**

*An adapter responsible for converting each data entry into a View that can then be added to the AdapterView (ListView/RecyclerView).*

**60. How to support different screen sizes?**

* ***Create a flexible layout****— The best way to create a responsive layout for different screen sizes is to use ConstraintLayout as the base layout in your UI. ConstraintLayout allows you to specify the position and size for each view according to spatial relationships with other views in the layout. This way, all the views can move and stretch together as the screen size changes.*
* ***Create stretchable nine-patch bitmaps***
* ***Avoid hard-coded layout sizes****— Use wrap\_content or match\_parent.****Create alternative layouts****— The app should provide alternative layouts to optimise the UI design for certain screen sizes. For eg: different UI for tablets*
* ***Use the smallest width qualifier****— For example, you can create a layout named main\_activity that’s optimised for handsets and tablets by creating different versions of the file in directories as follows:****res/layout/main\_activity.xml****— For handsets (smaller than 600dp available width)****res/layout-sw600dp/main\_activity.xml*** — *For 7” tablets (600dp wide and bigger).*
* *The smallest width qualifier specifies the smallest of the screen’s two sides, regardless of the device’s current orientation, so it’s a simple way to specify the overall screen size available for your layout.*

**61. Outline the process of creating custom Views:**

* *Create a class that Subclass a view*
* *Create a res/values/attrs.xml file and declare the attributes you want to use with your custom View.*
* *In your View class, add a constructor method, instantiate the Paint object, and retrieve your custom attributes.*
* *Override either onSizeChanged() or onMeasure().*
* *Draw your View by overriding onDraw().*
* *Checkout the*[***Sample Implementation***](https://code.tutsplus.com/tutorials/android-sdk-creating-custom-views--mobile-14548)

**62. Briefly describe some ways that you can optimize View usage**

* ***Checking for excessive overdraw:****install your app on an Android device, and then enable the “Debug GPU Overview” option.*
* ***Flattening your view hierarchy:****inspect your view hierarchy using Android Studio’s ‘Hierarchy Viewer’ tool.*
* ***Measuring how long it takes each View to complete the measure****, layout, and draw phases. You can also use Hierarchy Viewer to identify any parts of the rendering pipeline that you need to optimise.*

**63. Bitmap pooling in android?**

*Bitmap pooling is a simple technique, that aims to reuse bitmaps instead of creating new ones every time. When you need a bitmap, you check a bitmap stack to see if there are any bitmaps available. If there are not bitmaps available you create a new bitmap otherwise you pop a bitmap from the stack and reuse it. Then when you are done with the bitmap, you can put it on a stack.*

[***Find more info here***](https://www.linkedin.com/pulse/performance-improvement-bitmap-pooling-android-ali-muzaffar/)

**64. How to load bitmap to memory?**

* Checkout this [article](https://android.jlelse.eu/loading-large-bitmaps-efficiently-in-android-66826cd4ad53) on it. I couldn’t have explained it better myself.

**65. What are the permission protection levels in Android?**

* ***Normal****— A lower-risk permission that gives requesting applications access to isolated application-level features, with minimal risk to other applications, the system, or the user. The system automatically grants this type of permission to a requesting application at installation, without asking for the user’s explicit approval.*
* ***Dangerous****— A higher-risk permission. Any dangerous permissions requested by an application may be displayed to the user and require confirmation before proceeding, or some other approach may be taken to avoid the user automatically allowing the use of such facilities.*
* ***Signature****— A permission that the system grants only if the requesting application is signed with the same certificate as the application that declared the permission. If the certificates match, the system automatically grants the permission without notifying the user or asking for the user’s explicit approval.*
* ***SignatureOrSystem****— A permission that the system grants only to applications that are in the Android system image or that are signed with the same certificate as the application that declared the permission.*

**66. What is an Application Not Responding (ANR) error, and how can you prevent them from occurring in an app?**

*An ANR dialog appears when your UI has been unresponsive for more than 5 seconds, usually because you’ve blocked the main thread. To avoid encountering ANR errors, you should move as much work off the main thread as possible.*

**67. What is a singleton class in Android?**

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

I took references from this [article](https://medium.com/exploring-code/how-to-make-the-perfect-singleton-de6b951dfdb0) to implement the below code.

**68. What’s the difference between commit() and apply() in SharedPreferences?**

***commit()****writes the data synchronously and returns a boolean value of success or failure depending on the result immediately.*

***apply()****is asynchronous and it won’t return any boolean response. Also if there is an apply() outstanding and we perform another commit(). The commit() will be blocked until the apply() is not completed.*

**69. How does RecyclerView work?**

* *RecyclerView is designed to display long lists (or grids) of items. Say we want to display 100 row of items. A simple approach would be to just create 100 views, one for each row and lay all of them out. But that would be wasteful because at any point of time, only 10 or so items could fit on screen and the remaining items would be off screen. So RecyclerView instead creates only the 10 or so views that are on screen. This way you get 10x better speed and memory usage.*
* ***But what happens when you start scrolling and need to start showing next views?****Again a simple approach would be to create a new view for each new row that you need to show. But this way by the time you reach the end of the list you will have created 100 views and your memory usage would be the same as in the first approach. And creating views takes time, so your scrolling most probably wouldn’t be smooth.****This is why RecyclerView takes advantage of the fact that as you scroll, new rows come on screen also old rows disappear off screen. Instead of creating new view for each new row, an old view is recycled and reused by binding new data to it.***
* *This happens inside the onBindViewHolder() method. Initially you will get new unused view holders and you have to fill them with data you want to display. But as you scroll you will start getting view holders that were used for rows that went off screen and you have to replace old data that they held with new data.*

**70. How does RecyclerView differ from ListView?**

* ***ViewHolder Pattern:****Recyclerview implements the ViewHolders pattern whereas it is not mandatory in a ListView. A RecyclerView recycles and reuses cells when scrolling.*
* ***What is a ViewHolder Pattern?****— A ViewHolder object stores each of the component views inside the tag field of the Layout, so you can immediately access them without the need to look them up repeatedly. In ListView, the code might call findViewById() frequently during the scrolling of ListView, which can slow down performance. Even when the Adapter returns an inflated view for recycling, you still need to look up the elements and update them. A way around repeated use of findViewById() is to use the "view holder" design pattern.*
* ***LayoutManager:****In a ListView, the only type of view available is the vertical ListView. A RecyclerView decouples list from its container so we can put list items easily at run time in the different containers (linearLayout, gridLayout) by setting LayoutManager.*
* ***Item Animator:****ListViews are lacking in support of good animations, but the RecyclerView brings a whole new dimension to it.*

**71. How would you implement swipe animation in Android**

<set xmlns:android="<http://schemas.android.com/apk/res/android>" android:shareInterpolator=”false”>   
<translate android:fromXDelta=”-100%”   
 android:toXDelta=”0%”   
 android:fromYDelta=”0%”   
 android:toYDelta=”0%”   
 android:duration=”700"/>   
</set>

**72. Arraymap/SparseArray vs HashMap in Android?**

[Article 1 on the subject](https://android.jlelse.eu/app-optimization-with-arraymap-sparsearray-in-android-c0b7de22541a)

[Article 2 on the subject](https://medium.com/@mohom.r/optimising-android-app-performance-with-arraymap-9296f4a1f9eb)

**73. How to plug memory Leak in Android?**

*Checkout this awesome*[*article*](https://medium.com/@anitaa_1990/9-ways-to-avoid-memory-leaks-in-android-b6d81648e35e)*by yours truly :)*

**74. How to reduce apk size in Android?**

*Checkout this awesome*[*article*](https://medium.com/exploring-code/how-you-can-decrease-application-size-by-60-in-only-5-minutes-47eff3e7874e)*.****The summary the article states:***

* *Enable proguard in your project by adding following lines to your release build type.*
* *Enable shrinkResources .*
* *Strip down all the unused locale resources by adding required resources name in “resConfigs”.*
* *Convert all the images to the webp or vector drawables.*

**75. How to reduce build time of an android application?**

*Checkout this awesome*[*article*](https://medium.com/exploring-code/how-to-decrease-your-gradle-build-time-by-65-310b572b0c43)*.****What I got from the article was:****A few commands we can add to the gradle.properties file:*

* *org.gradle.configureondemand=true - This command will tell gradle to only build the projects that it really needs to build.*
* *Use Daemon — org.gradle.daemon=true - Daemon keeps the instance of the gradle up and running in the background even after your build finishes. This will remove the time required to initialize the gradle and decrease your build timing significantly.*
* *org.gradle.parallel=true - Allow gradle to build your project in parallel. If you have multiple modules in you project, then by enabling this, gradle can run build operations for independent modules parallelly.*
* *Increase Heap Size — org.gradle.jvmargs=-Xmx3072m -XX:MaxPermSize=512m -XX:+HeapDumpOnOutOfMemoryError -Dfile.encoding=UTF-8 - Since android studio 2.0, gradle uses dex in the process to decrease the build timings for the project. Generally, while building the applications, multiple dx processes runs on different VM instances. But starting from the Android Studio 2.0, all these dx processes runs in the single VM and that VM is also shared with the gradle. This decreases the build time significantly as all the dex process runs on the same VM instances. But this requires larger memory to accommodate all the dex processes and gradle. That means you need to increase the heap size required by the gradle daemon. By default, the heap size for the daemon is about 1GB.*
* *Ensure that dynamic dependency is not used. i.e. do not use   
  implementation 'com.android.support:appcompat-v7:27.0.+'.   
  This command means gradle will go online and check for the latest version every time it builds the app.  
  Instead use fixed versions i.e. 'com.android.support:appcompat-v7:27.0.2'*

*I followed the steps in there and reduced by build time from****167****seconds to****65****seconds ~****38%.***

**76. Android Architecture Components?**

*A collection of libraries that help you design robust, testable, and maintainable apps.*

*Checkout the*[*Official documentation*](https://developer.android.com/topic/libraries/architecture/)*.*

* ***Room***[*Official documentation*](https://developer.android.com/topic/libraries/architecture/room)[*Article on how to implement Room Db*](https://medium.com/@anitaa_1990/5-steps-to-implement-room-persistence-library-in-android-47b10cd47b24)[*Sample implementation*](https://github.com/anitaa1990/RoomDb-Sample)
* ***Live Data***[*Official documentation*](https://developer.android.com/topic/libraries/architecture/livedata)[*Sample implementation*](https://github.com/anitaa1990/GameOfThronesTrivia)
* ***ViewModel***[*Official documentation*](https://developer.android.com/topic/libraries/architecture/viewmodel)[*Sample implementation*](https://github.com/anitaa1990/GameOfThronesTrivia)
* ***Data Binding***[*Official documentation*](https://developer.android.com/topic/libraries/data-binding/)[*Sample implementation*](https://github.com/anitaa1990/DataBindingExample)
* ***Lifecycles***[*Official documentation*](https://developer.android.com/topic/libraries/architecture/lifecycle)

**77. Difference between MVC & MVP & MVVM?**

***MVC****is the****Model-View-Controller****architecture where model refers to the data model classes. The view refers to the xml files and the controller handles the business logic. The issue with this architecture is unit testing. The model can be easily tested since it is not tied to anything. The controller is tightly coupled with the android apis making it difficult to unit test. Modularity & flexibility is a problem since the view and the controller are tightly coupled. If we change the view, the controller logic should also be changed. Maintenance is also an issues.*

***MVP architecture:******Model-View-Presenter architecture****. The View includes the xml and the activity/fragment classes. So the activity would ideally implement a view interface making it easier for unit testing (since this will work without a view).*[***Sample Implementation***](https://github.com/anitaa1990/Inshorts)

***MVVM: Model-View-ViewModel Architecture****. The Model comprises data, tools for data processing, business logic. The View Model is responsible for wrapping the model data and preparing the data for the view. IT also provides a hook to pass events from the view to the model.*[***Sample Implementation***](https://github.com/anitaa1990/Trailers)

**78. S.O.L.I.D principles in software development?**

* *The Single Responsibility Principle (SRP)*
* *The Open-Closed Principle (OCP)*
* *The Liskov Substitution Principle (LSP)*
* *The Interface Segregation Principle (ISP)*
* *The Dependency Inversion Principle (DIP)*

*You can checkout the whole article on what this means from*[*here*](https://proandroiddev.com/exploring-s-o-l-i-d-principle-in-android-a90947f57cf0)*.*

**79. RxJava in Android?**

* [*RxJava Introduction and Operators for creating Observables*](https://medium.com/p/e52ed7ef32e2)
* [*RxJava Operators: Operators for Transforming Observables*](https://medium.com/p/367c22d86677)
* [*RxJava Operators: Operators for Filtering Observables*](https://medium.com/p/b0a299ea23a3)
* [*RxJava Operators: Operators for Combining Observables*](https://medium.com/p/25734080f4be)
* [*RxJava Operators: Utility Operators*](https://medium.com/p/a6115024800d)
* [*RxJava Operators: Conditional and Boolean Operators*](https://medium.com/p/3bca84c773af)
* [*RxJava Operators: Mathematical and Aggregate Operators*](https://medium.com/@anitaa_1990/exploring-rxjava-in-android-mathematical-and-aggregate-operators-eb3e37322ac8)
* [*RxJava: Different types of Observables*](https://medium.com/p/f23b3c78aeb6)

Dear readers, these **Android Interview Questions** have been designed specially to get you acquainted with the nature of questions you may encounter during your interview for the subject of **Android**. As per my experience good interviewers hardly plan to ask any particular question during your interview, normally questions start with some basic concept of the subject and later they continue based on further discussion and what you answer −

**What is Android?**

Android is a stack of software for mobile devices which includes an Operating System, middleware and some key applications. The application executes within its own process and its own instance of Dalvik Virtual Machine.

**Describe Android application Architecture?**

Android application architecture has the following components.They are as follows −

Services − It will perform background functionalities

Intent − It will perform the inter connection 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

**What is An Activity?**

Activity performs actions on the screen.If you want to do any operations, we can do with activity

**What is the APK format?**

The Android packaging key is compressed with classes,UI's, supportive assets and manifest.All files are compressed to a single file is called APK.

**What is An Intent?**

It is connected to either the external world of application or internal world of application ,Such as, opening a pdf is an intent and connect to the web browser.etc.

**What is an explicit Intent?**

Android Explicit intent specifies the component to be invoked from activity. In other words, we can call another activity in android by explicit intent.

**What is an implicit Intent?**

Implicit Intent doesn't specifiy the component. In such case, intent provides information of available components provided by the system that is to be invoked.

**What is An android manifest file?**

Every application must have an AndroidManifest.xml file (with precisely that name) in its root directory. The manifest file presents essential information about your app to the Android system, information the system must have before it can run any of the app's code.

**What language does android support to develop an application?**

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

**What do ADT stands for?**

ADT stands for Android development tool,This is useful to develop the applications and test the applications.

**What are the tools are placed in An Android SDK?**

Android SDK collaborated with Android Emulator,DDMS(Dalvik Debug Monitoring Services),AAPT(Android Asset Packaging tool) and ADB(Android debug bridge)

**What is viewGroup in android?**

View group is a collection of views and other child views, it is an invisible part and the base class for layouts.

**What is a service in android?**

The Service is like as an activity to do background functionalities without UI interaction.

**What is a content provider in android?**

A content provider component supplies data from one application to others on request. Such requests are handled by the methods of the ContentResolver class. A content provider can use different ways to store its data and the data can be stored in a database, in files, or even over a network.

**What are the notifications available in android?**

Toast Notification − It will show a pop up message on the surface of the window

Status Bar Notification − It will show notifications on status bar

Dialogue Notification − It is an activity related notification.

**What is container in android?**

The container holds objects,widgets,labels,fields,icons,buttons.etc.

**What is ADB in android?**

It is acts as bridge between emulator and IDE, it executes remote shell commands to run applications on an emulator

**What is ANR in android?**

ANR stands for application is not responding, basically it is a dialog box that appears when the application is not responding.

**What is an Adapter in android?**

The Adapter is used to create child views to represent the parent view items.

**What is shared preferences in android?**

Shared preferences are the simplest mechanism to store the data in XML documents.

**What are the key components in android architecture?**

* Linux Kernel
* Libraries
* Android Framework
* Android applications.

What does the intent filter do in android?

Intent filters are filter out the intents.

**Where layouts are placed in android?**

In The Layout folder, layouts are placed as XML files

**What is nine-patch images tool in android?**

We can change bitmap images in nine sections as four corners,four edges and an axis

**How many dialog boxes do support in android?**

AlertDialog, ProgressDialog,DatePickerDialog, and TimePickerDialog

**What are the exceptions available in android?**

InflateException,Surface.OutOfResourceException,SurfaceHolder.BadSurfaceTypeException,and WindowManager.BadTokenException

**What is the order of dialog-box in android?**

Positive, Neutral, Negative.

**What are the different storages available in android?**

Shared Preferences,Internal Storage,External Storage,SQLite Databases and Network Connection

**What is a Sticky Intent in android?**

Sticky Intent is also a type of intent which allows the communication between a function and a service for example,sendStickyBroadcast() is perform the operations after completion of intent also.

**How to Translate in Android?**

Android uses Google translator to translate data from one language into another language and placed as a string while development

**How is the use of web view in Android?**

WebView is UI component that can display either remote web-pages or static HTML

**Why can't you run java byte code on Android?**

Android uses DVM (Dalvik Virtual Machine ) rather using JVM(Java Virtual Machine), if we want, we can get access to .jar file as a library.

**How does android track the application on process?**

Android provides a Unique ID to all applications is called as Linux ID,this ID is used to track each application.

**How to change application name after its deployment?**

It's not truly recommended to change application name after it's deployment, if we change, it will impact on all other internal components.

**Define the application resource file in android?**

JSON,XML bitmap.etc are application resources.You can injected these files to build process and can load them from the code.

**How to launch an activity in android?**

Using with intent, we can launch an activity.

Intent intent = new Intent(this, MyTestActivity.class);

startActivity(intent);

**How do you pass the data to sub-activities android?**

Using with Bundle, we can pass the data to sub activities.

Bundle bun = new Bundle();

bun.putString("EMAIL", "contact@tutorials.com");

**What is singleton class in android?**

A class which can create only an object, that object can be share able to all other classes.

**What is fragment in android?**

Fragment is a piece of activity, if you want to do turn your application 360 degrees, you can do this by fragment.

**What is sleep mode in android?**

Sleep mode mean CPU will be sleeping and it doesn't accept any commands from android device except Radio interface layer and alarm.

**Which kernal is used in android?**

Android is customized Linux 3.6 kernel.

**How to update UI from a service in android?**

Use a dynamic broadcast receiver in the activity, and send a broadcast from the service. Once the dynamic receiver is triggered update UI from that receiver.

**What folders are impotent in android project?**

AndroidManifest.xml

build.xml

bin/

src/

res/

assets/

**What are application Widgets in android?**

App Widgets are miniature application views that can embedded in other applications (such as the Home screen) and receive periodic updates. These views has referred to as Widgets in the user interface, and you can publish one with an App Widget provider.

**How do you find any view element into your program?**

Using with findViewById we can find view element.

**What is drawable folder in android?**

A compiled visual resource that can used as a backgrounds,banners, icons,splash screen etc.

**What are the type of flags to run an application in android?**

FLAG\_ACTIVITY\_NEW\_TASK

FLAG\_ACTIVITY\_CLEAR\_TOP.

## **What is Next?**

Further you can go through your past assignments you have done with the subject and make sure you are able to speak confidently on them. If you are fresher then interviewer does not expect you will answer very complex questions, rather you have to make your basics concepts very strong.

Second it really doesn't matter much if you could not answer few questions but it matters that whatever you answered, you must have answered with confidence. So just feel confident during your interview. We at tutorialspoint wish you best luck to have a good interviewer and all the very best for your future endeavor. Cheers :-)

### **Most Popular Android Interview Questions & Answers**

Given below is the list of most commonly asked Android Interview questions

**Q #1) What is Android?**

**Answer:** Android is an open source operating system and is mainly popular for Smartphones and Tablets.

This operating system is Linux Kernel based. Using Android operating system, the developer develops the functions or programs which can perform basic as well as the advanced type of operations on the Smartphone.

**Q #2) What is Android SDK?**

**Answer:** To develop a mobile application, Android developers require some tools and this requirement is satisfied by “Android SDK” which is a set of tools that are used for developing or writing apps.

It has a Graphical User Interface which emulates the Android environment. This emulator acts as an actual mobile device on which the developers write their code and then debug/test the same code to check if anything is wrong.

**Q #3) What are the different versions of Android OS that you remember?**

**Answer:** **Given below are the various versions of Android.**

| **Version** | **Name** |
| --- | --- |
| Android 8.0 | Oreo |
| Android 7.0 – 7.1.2 | Nougat |
| Android 6 – 6.0.1 | Marshmallow |
| Android 5 – 5.1.1 | Lollipop |
| Android 4.4 – 4.4.4 | KitKat |
| Android 4.1 – 4.3 | Jelly Bean |
| Android 4.0-4.0.4 | Ice Cream Sandwich |

**Q #4) What is the difference between Mobile Application Testing and Mobile Testing?**

**Answer:** Mobile app testing is the testing of applications on a device which mainly focuses on functions and features of the application.

And Mobile Testing is the testing of the actual mobile device and focuses on the mobile features like Call, SMS, Contacts, Media Player, inbuilt browsers etc.

**Q #5) Name the languages supported for Android development.**

**Answer:** Java is the widely used language for Android development.

It also supports C/C++ and when used with Android SDK, it improves the performance speed too.

**Q #6) What are the advantages of Android Operating System?**

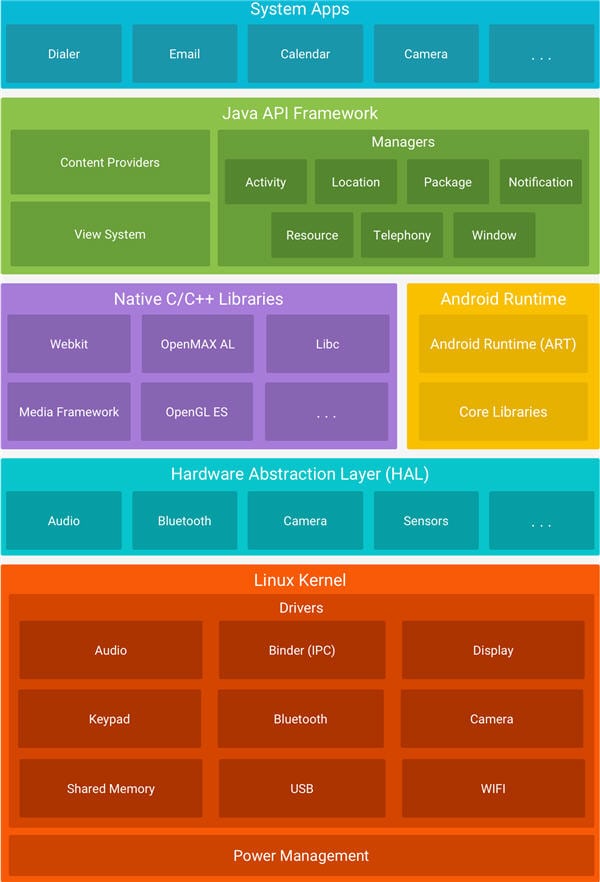
**Answer:** It is an open-source and platform independent. It supports various technologies like Bluetooth, Wi-Fi, etc

**Q #7) Explain Android Architecture briefly.**

**Answer:** Android architecture is in the form of software stack components.

**The below diagram describes the different layers in the Android architecture.**

* **Linux Kernel**: Linux Kernel is placed at the bottom of the software stack and is the foundation of the Android architecture. Using Linux kernel, Android provides a connection between the other layers of the software. It helps to develop drivers like the keypad, display, audio for device manufacture etc.
* **Hardware Abstraction Layer (HAL)**: HAL provides an interface between device drivers and API framework. It consists of library modules which are specific to the hardware component.
* **Android Runtime**: Linux kernel provides multi-tasking execution environment so that multiple processes can execute each process runs on its own instance of Android Runtime (ART). Android has core runtime libraries like Dalvik VM specific libraries, Java Interoperability Libraries, Android Libraries and C/C++ libraries.

[](https://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2017/09/android-architecture.jpg)

[**source**](https://developer.android.com/guide/platform/index.html)

* **Application Framework (Java API Framework)**: The entire android functionalities are available through the API. It consists of multiple services like Activity Manager, Resource Manager, Notification Manager, etc., which form the environment in which the android application runs.
* **Applications**: The Android application is a top layer and all types of in-built applications such as SMS, Browsers, Contact, etc are included in this top layer. It also includes third party applications which are installed by the user such as Games, etc.

**Q #8) Define and explain Android Framework.**

**Answer:** Android framework is a set of API’s using which the Android developers write code for the mobile apps. It contains the methods and classes to write the programming code.

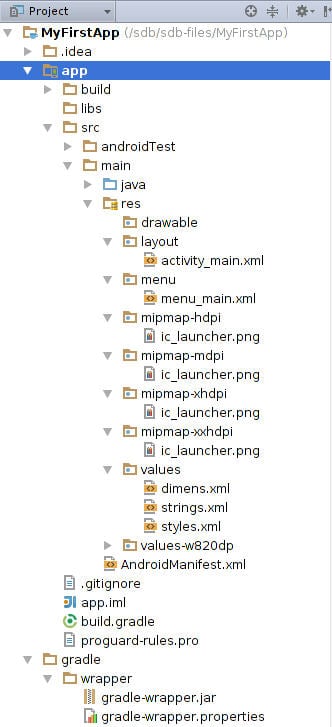
Android framework includes a different set of tools to create image pane, text field, buttons, etc. It also includes “Activities” with which the user interacts and “Services”, which are the programs that run in the background. It is a package of different components like Intents, Broadcast Receivers, Content Providers, etc.

**Q #9) Which components are necessary for a New Android project?**

**Answer:** **Whenever a new Android project is created, the below components are required:**

* **manifest:** It contains **xml** file.
* **build/:** It contains build output.
* **src/:** It contains the code and resource files.
* **res/:** It contains bitmap images, UI Strings and XML Layout i.e. all non-code resources.
* **assets/:** It contains a file which should be compiled into a **.apk** file.

**The below image shows the Project View once an Android project is created:**

[](https://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2017/09/project-view.jpg)

[**source**](https://developer.android.com/studio/projects/index.html)

**Q #10) Provide the important core components of Android.**

**Answer:** **The core components of Android operating systems are:**

* Activity
* Intents
* Services
* Content Provider
* Fragment

**Q #11) Explain briefly – what is meant by Activities?**

**Answer:** Activities are the part of the mobile app which the user can see and interact with.

**For Example**, if you open an SMS app which has multiple activities like create new SMS, add a contact from the address book, write the content in the SMS body, send SMS to the selected contact, etc.

**Activity keeps a track of the following:**

* Keeps track of what a user is currently looking for in an app.
* Keeps a track of previously used processes, so that the user can switch between ongoing process and previous process.
* It helps to kill the processes so that the user can return to their previous state

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

Public class MyActivity extends Activity  
{  
}

**Q # 12) What is meant by Services?**

**Answer:** Service is an Android component which runs in the background and acts independently. It does not provide any user interface.

Though the services are running behind the scene, a user can continue their work on different apps. Most of the time, the users are not aware of the services which are running in the background. These services allow the system to kill the process without interrupting the user’s ongoing work.

**A service is implemented as a subclass of Service class:**

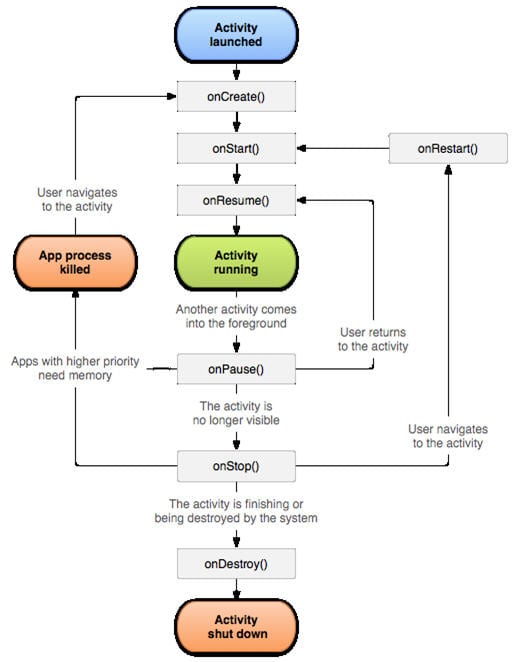
Public class MainService extends Service  
{  
}

**Q #13) Explain Activity Lifecycle briefly.**

**Answer:** When a user interacts with the app and moves here and there, out of the app, returns to the app, etc. During all this process “Activity” instances also move in the different stages in their lifecycle.

There are seven different states  like – onCreate(), onStart(), onRestart(), onResume(), onPause(), onStop(), and onDestroy(). These are termed as a ‘callback’. Android system invokes these callbacks to know that the state has been changed.

**The below-given diagram describes the Activity Lifecycle:**

[](https://cdn.softwaretestinghelp.com/wp-content/qa/uploads/2017/09/activity-lifecycle.jpg)

[**Source**](https://developer.android.com/guide/components/activities/activity-lifecycle.html)

When a user is working on an app, then there are many activities involved in it like Open, Close, Save, Delete, Send, etc.

Based on the user action these activities are partially disconnected from the UI but these activities always reside in the memory so that when the user calls back the same activity, the user will be in the same state where he has left off.

**Q #14) What is an Intent?**

**Answer:** Android has an Intent class when the user has to navigate from one Activity to another. Intent displays notifications from the device to the user and then the user can respond to the notification if required.

**Given below are the two types:**

* Implicit Intents
* Explicit Intents

**Q #15) Explain Implicit and Explicit Intents.**

**Answer:** Implicit Intent calls the system components while explicit Intents invoke the Activity class.

**Q #16) What is the importance of setting up permission in app development?**

**Answer:** Once the permissions are set for the app development, then the data and code are restricted to the authorized users only.

If the code is kept without any restriction or if it is accessible to anyone then there are chances of compromise of code which results in defect leakage.

**Q #17) What is .apk extension in Android?**

**Answer:** It is a default file format that is used by Android Operating System. Application Package Kit (APK) is used for installation of mobile apps. The .apk contains resource file, certificate, manifest file and other code.

APK files are archive files in the zip format with .apk extension.

**Q #18) What is the database used for Android platform?**

**Answer:** SQLite is the database that is used for Android platform. It is an open-source, serverless database.

**Q #19) What is ANR in Android?**

**Answer:** ANR stands for Application Not Responding. It is a notification or pop-up displayed by the Android platform whenever the application is performing too many functions at a time and if it is suddenly not responding for a long time to the user action.

**Q #20) Which are the dialog boxes supported by Android platform?**

**Answer:** **Android supports four types of dialog boxes:**

* **AlertDialog**: It has a maximum of 3 buttons and sometimes AlertDialog includes check boxes and Radio buttons to select the element.
* **ProgressDialog**: It displays the progress bar or wheels.
* **TimePickerDialog**: Using this dialog box, a user selects the Time.
* **DatePickerDialog**: Using this dialog box, a user selects the Date

**Q #21) What is ADB?**

**Answer:** Android Debug Bridge (ADB) is a command line tool which performs shell commands.

ADB is used for direct communication between the emulator ports. It gives the direct control of the communication between the emulator instances to the developer.

**Q #22) What is ActivityCreator?**

**Answer:** ActivityCreator is a batch file and shell script which was used to create a new Android project. It is now replaced by “Create New Project” in Android SDK.

**Q #23) What is Orientation?**

**Answer:** Orientation is the key feature in Smartphones nowadays. It has the ability to rotate the screen between Horizontal or Vertical mode.

**Android supports two types of screen Orientations as mentioned below:**

* **Portrait**: When your device is vertically aligned.
* **Landscape**: When your device is horizontally aligned.

setOrientation() is a method using which you can set a screen alignments. HORIZONTAL and VERTICAL are two values which can be set in the setOrientation() method. Whenever there is a change in the display orientation i.e. from Horizontal to Vertical or vice versa then onCreate() method of the Activity gets fired.

Basically, when the orientation of the Android mobile device gets changed then the current activity gets destroyed and then the same activity is recreated in the new display orientation. Android developers define the orientation in the AndroidManifest.xml file.

**Q #24) What is AIDL?**

**Answer:** In the Android platform, there are remote methods which facilitate the use of methods from one program to another. To create and implement the remote methods the first step is to define communication interface in AIDL.

AIDL stands for Android Interface Definition Language. It facilitates the communication between the client and service. It also communicates the information through inter-process communication.

For communication between processes, the data is broken down into chunks which are easily understandable by the Android platform.

**Q #25) What are the data types supported by AIDL?**

**Answer:** **Data Types supported by AIDL are as follows:**

* String
* List
* Map
* charSequence
* Java data types such as INT, Long, Char, Boolean etc

**Q #26) Explain AndroidManifest.xml file and why do you need this?**

**Answer:** Every application must have AndroidManifest.xml file in the root directory. It contains the information about your app and provides the same to the Android system.

The information includes the package name, Android components such as Activity, Services, Broadcast Receivers, Content Providers, etc. Every Android system must have this information before running any app code.

**AndroidManifest.xml file performs the following tasks:**

* It provides a name to the Java package and this name is a unique identifier for the application.
* It describes the various components of the application which include Activity, Services, Content Providers, etc. Also, it defines the classes which implement these components.
* It is responsible to protect the application and it declares the permission for accessing the protected part of the app.
* It also declares the Android API which is going to be used by the application.
* It contains the library file details which are used and linked to the application.

**Q #27) What all devices have you worked on?**

**Answer:** There are many mobile devices available in the market with different operating systems.

Specifically, I have worked on Android, Windows, Symbian, iPhone, etc

**Q #28) Which tools are used for debugging on the Android platform?**

**Answer:** To understand the cause of the failure or cause of any issue, debugging is important. On the Android platform **Android Monitor.bat** utility is used while on iOS platform, iPhone Configuration utility is used for debugging purposes.

There are different tools for debugging which include – Android DDMS, Android Debug Bridge, iOS simulator, Debugging from Eclipse with ADT, Remote debugging on Android with Chrome etc.

**Q #29) Which scenario can test only on real devices but not on emulator?**

**Answer:** Emulators are used for performing similar kind of testing which is performed on the real devices. Basically, emulators are used as a replacement for real devices as sometimes real devices are not available for testing, use of real mobile devices for testing purpose is costlier at times.

But there are few scenarios which cannot be tested using emulator, these can be tested only using real devices. These scenarios are interrupted scenarios i.e. message, phone call interruption while using the app, low battery, Bluetooth, memory card mount and unmount etc.

**Q #30) Name the mobile automation tools that are available in the market.**

**Answer:** There are quite a few mobile automation testing tools that are available in the market but these are used only if the project requires it and if the application supports the automation.

These tools are paid as well as free tools, hence analysis needs to be done within the project team and then the appropriate mobile automation tool needs to be selected. Silk Mobile, SeeTest, Ranorex are the paid mobile automation tool while Appium, KIF, Robotium, Calabash are few free tools.

**Q #31) How do you troubleshoot android application which is crashing frequently?**

**Answer:** **Given below are the few steps that we need to follow while troubleshooting the crashing issue:**

* **Free up memory space**: There is only a limited space available on the mobile devices for mobile apps. To avoid crashing issue or memory related issue, you need to first check the memory space.
* **Clear app data usage**: You can clear the app data using the Application Manager under “Settings”. This will clear the cache memory and allow some free space to install another app or it will boost up your current app.
* **Memory Management**: Some apps run perfectly on one type of mobile device but the same app may not work on another type of device as for such devices the processing power, memory management, and CPU speed is different. For any app to run properly on any type of mobile device, you should manage the memory on the device.
* **Compatibility issue**: It is always not possible to test mobile app on all mobile devices, browsers, operating systems etc. So you need test your mobile app on as many mobile devices as you can in order to avoid any compatibility issue.

**Q #32) How do you find memory leaks in the mobile app on Android platform?**

**Answer:** Android Studio is using Android Device Manager (ADM), this ADM is used to detect the memory leaks in the Android platform.

When you open ADM in the Android Studio then on the left-hand side of the ADM, you will find your device or emulator in which a heap sign will be displayed. When you are running any mobile app then you will see the heap size, memory analysis and other statistics displayed on it.

**Q #33) What is DDMS?**

**Answer:** Android Studio has debugging tools known as DDMS i.e. Dalvik Debug Monitor Server.

**It has wide debugging features which include:**

* Port forwarding services.
* Screen capture on the device.
* Thread and Heap information.
* Incoming call and SMS spoofing.
* Logcat
* Radio state information.
* Location data spoofing.

DDMS is integrated with the Android studio. To launch the DDMS, you need to open Android Device Monitor (ADM) first and then click on the DDMS menu button. Once DDMS is launched, then on the left-hand side the list of connected devices are displayed along with the processes which are running on each device.

With the help of DDMS, you can debug both on real devices and emulators.

**Q #34) What are the different data storage options available on the Android platform?**

**Answer:** Android platform provides a wide range of data storage options. These options must be used based on the need such as data is secure and used with the permission only or can be accessed publicly.

**Below is the list of data storage options on the Android platform:**

* **SharedPreference**: It stores data in XML files. It is the simplest way to store private data in the key-value pair.
* **SQLite**: It stores structure data in the private database.
* **Internal Storage**: It stores data in the device file system and any other app cannot read this data.
* **External Storage**: Data is stored in the file system but it is accessible to all apps in the device

**Q #35) Explain Sensors in Android.**

**Answer:** Android-enabled devices have built-in Sensors which measures Orientation, Motion and other conditions.

These sensors provide data with high accuracy, which will help to monitor positioning and movement of the device. Some of the sensors are hardware based and few are software based.

**There are three categories of sensors as mentioned below:**

* **Motion Sensors**: These sensors measure the rotational & acceleration forces and it includes gravity sensors, rotational vector sensor, accelerometers, etc.
* **Environmental Sensors**: It measures air temperature, pressure, humidity, etc.
* **Position Sensors**: It measures the physical position of the device and includes orientation sensors and magnetometers.

**There are four types of Java Classes as shown below:**

* Sensor Manager
* Sensor
* SensorEvent
* SensorEventListener

### **Conclusion**

Almost all the important Android interview questions and answers have been covered here in this article. I hope that this would have been very useful to you.

I'm sure that you can crack any android interview successfully with a thorough knowledge of all these questions.

***Hope you are ready for an interview!! Wish you all success!!***

## Android Developer Interview Questions

### **1. What’s the difference between an implicit and an explicit intent?**

An **explicit intent** is where you tell the system which Activity or system component it should use to respond to this intent. **Implicit intents** allow you to declare the action you want to perform; the Android system will then check which components are registered to handle that action.

Here, you’re looking for an understanding of when you should use each type of intent, as the vast majority of the time you’ll use explicit intents to start components in your own application, while implicit intents are most commonly used to communicate with components from other third party applications.

### **2. When should you use a Fragment, rather than an Activity?**

This is still a much-debated topic, but the code used to create an Activity is fundamentally more involved than the code used to create a Fragment. The old Activity has to be destroyed, paused or stopped, and a new Activity has to be created. The developer should acknowledge that the best practice is to only use Activities when you need to swap the entire screen, and use fragments everywhere else.

**Bonus points** if the Android developer mentions any of the following use cases, where you’ll almost always use a Fragment, rather than an Activity:

* When you’re working with UI components or behavior that you’re going to use across multiple Activities.
* When you’re using one of the navigational methods that are closely linked to fragments, such as swipe views.
* When your users would benefit from seeing two different layouts side-by-side.
* When you have data that needs to persist across Activity restarts (i.e you need to use retained fragments).

### **3. You’re replacing one Fragment with another — how do you ensure that the user can return to the previous Fragment, by pressing the Back button?**

This question provides an insight into the app developer’s understanding of the lifecycle of dynamic fragments, as well as Fragment transactions, and the back stack.

If the "Back" button is going to return the user to the previous Fragment, then you’ll need to save each Fragment transaction to the back stack, by calling addToBackStack() before you commit() that transaction.

The developer definitely **shouldn’t suggest** creating a "Back" button specifically to handle navigating between fragments, but bonus points if they mention that you should never try to commit a FragmentTransaction after calling onSaveInstanceState(), as this can result in an exception.

### **4. How would you create a multi-threaded Android app without using the Thread class?**

If you only need to override the run() method and no other Thread methods, then you should implement Runnable.

In particular, be on the lookout for an Android developer demonstrating an understanding that you should only extend from a class when you need to modify some of its functionality.

### 5. What is a ThreadPool? And is it more effective than using several separate Threads?

ThreadPool consists of a task queue and a group of worker threads, which allows it to run multiple parallel instances of a task.

Here, you’re assessing the app developer’s understanding of how multithreading has the potential to improve an app’s performance, but also how it can negatively impact performance when used incorrectly.

Using ThreadPool is more efficient than having multiple operations waiting to run on a single thread, but it also helps you avoid the considerable overhead of creating and destroying a thread every time you require a worker thread.

### 6. What is the relationship between the lifecycle of an AsyncTask and the lifecycle of an Activity? What problems can this result in, and how can these problems be avoided?

An **AsyncTask** is not tied to the lifecycle of the Activity that contains it. If the Activity is destroyed and a new instance of the Activity is created, the AsyncTask won’t be destroyed. This can lead to a number of problems, but the major ones an Android developer should be aware of are:

* Once the AsyncTask completes, it’ll try to update the former instance of the Activity, resulting in an IllegalArgumentException.
* Since the AsyncTask maintains a reference to the previous instance of the Activity, that Activity won’t be garbage collected, resulting in a memory leak.

The solution is to avoid using AsyncTasks for long-running background tasks.

### **7. How would you access data in a ContentProvider?**

Start by making sure your Android application has the necessary read access permissions. Then, get access to the ContentResolver object by calling getContentResolver() on the Context object, and retrieving the data by constructing a query using ContentResolver.query().

The ContentResolver.query() method returns a Cursor, so you can retrieve data from each column using Cursor methods.

Accessing data is one of the tasks that’s most likely to block the main thread, so the developer should stress the importance of performing data queries on a separate thread.

### **8. What is the difference between Serializable and Parcelable?**

**Serializable** is a standard Java interface that’s easy to integrate into your app, as it doesn’t require any methods. Despite being easy to implement, Serializable uses the Java reflection API, which makes it a slow process that creates lots of temporary objects.

**Parcelable** is optimized for Android, so it’s faster than Serializable. It’s also fully customizable, so you can be explicit about the serialization process, which results in less garbage objects.

While the developer may acknowledge that implementing Parcelable does require more work, the performance benefits mean that they should advise using Parcelable over Serialization, wherever possible.

### **9. What is an Adapter?**

Here, you’re checking that the Android eveloper understands that you need an additional component to connect an AdapterView (such as ListView or GridView), to an external data source. An Adapter acts as this bridge, and is also responsible for converting each data entry into a View that can then be added to the AdapterView.

### **10. What is an Application Not Responding (ANR) error, and how can you prevent them from occurring in your app?**

This question checks whether the developer is aware of the **golden rule** of threading on Android: never perform lengthy or intensive operations on the main thread.

An ANR dialog appears when your UI has been unresponsive for more than 5 seconds, usually because you’ve blocked the main thread. To avoid encountering ANR errors, you should move as much work off the main thread as possible.

Learn more about [*common Android errors*](https://www.codementor.io/android/tutorial/most-common-android-errors-how-to-fix-them?icn=post-3ey9hu32ut&ici=android-error-infographic) with our infographic.

### **11. Outline the process of creating custom Views**

This is a complex topic, so you’re only looking for a high-level overview of the steps involved. However, the developer should make it clear that you should always subclass the View that most closely resembles the custom component you want to create — very rarely would you extend the View class.

After extending your class, you need to complete the following steps:

* Create a res/values/attrs.xml file and declare the attributes you want to use with your custom View.
* In your View class, add a constructor method, instantiate the Paint object, and retrieve your custom attributes.
* Override either onSizeChanged() or onMeasure().
* Draw your View by overriding onDraw().

### **12. What is a BuildType in Gradle? And what can you use it for?**

Build types define properties that Gradle uses when building and packaging your Android app.

This question allows you to check that the developer can differentiate between product flavors, build variants, and build types, as these are very similar concepts that are a common source of confusion:

* A **build type** defines how a module is built, for example whether ProGuard is run.
* A **product flavor** defines what is built, such as which resources are included in the build.
* **Gradle** creates a build variant for every possible combination of your project’s product flavors and build types.

### **13. What are the major difference between ListView and RecyclerView?**

There are many differences between **ListView** and **RecyclerView**, but the Android developer should be aware of the following in particular:

* The ViewHolder pattern is entirely optional in ListView, but it’s baked into RecyclerView.
* ListView only supports vertical scrolling, but RecyclerView isn’t limited to vertically scrolling lists.

### **14. Briefly describe some ways that you can optimize View usage.**

There are a number of methods, but the ones that tend to have the most impact are:

* **Checking for excessive overdraw**: install your app on an Android device, and then enable the "Debug GPU Overview" option.
* **Flattening your view hierarchy**: inspect your view hierarchy using Android Studio’s ‘Hierarchy Viewer’ tool.
* Measuring how long it takes each View to complete the measure, layout, and draw phases. You can also use Hierarchy Viewer to identify any parts of the rendering pipeline that you need to optimize.

### **15. What is a Handler typically used for?**

You use **Handler** to communicate between threads, most commonly to pass an action from a background thread to Android’s main thread.

This question allows you to check that the developer understands another fundamental concept of multithreading in Android: you cannot update the UI from any thread other that the main thread.

### **16. What are the steps involved in creating a bound service through Android Interface Definition Language (AIDL)?**

* **Define** an AIDL interface in an .aidl file.
* **Save** this file in the src/ directory of the application hosting the Activity and any other application that needs to bind to this service — the latter is particularly important, and is often overlooked.
* **Build** your application. Android SDK tools will then generate an IBinder interface file in your gen directory.
* **Implement** this interface, by extending the generated Binder interface and implementing the methods inherited from the .aidl file.
* **Extend** Service and override onBind() to return your implementation of the Stub class.

### **17. What’s the difference between onCreate() and onStart()?**

The **onCreate**() method is called once during the Activity lifecycle, either when the application starts, or when the Activity has been destroyed and then recreated, for example during a configuration change.

The **onStart**() method is called whenever the Activity becomes visible to the user, typically after onCreate() or onRestart().

### **18. When might you use a FrameLayout?**

Here, you’re looking for an understanding that you should **always use the simplest layout possible** for what you want to achieve, as FrameLayouts are designed to contain a single item, making them an efficient choice when you need to display a single View.

If you add multiple Views to a **FrameLayout** then it’ll stack them one above the other, so **FrameLayouts** are also useful if you need overlapping Views, for example if you’re implementing an overlay or a HUD element.

## Wrapping up the Android Developer Interview

Technical interviews and screenings are a crucial part of hiring an app developer, whether it's a Android developer, an [iOS developer](https://www.codementor.io/ios-developers), or any mobile app developer familiar with making apps for both operating systems. With these interview questions, you'll be able to properly vet your candidates' technical skills in Android development — even if you are not rehearsed with the technology.

For more general interview questions to kick-off your assessment, take a look at our [interview questions](https://www.codementor.io/blog/software-engineer-interview-questions-3ey7wme14h?icn=post-3ey9hu32ut&ici=post-3ey7wme14h) for software engineers, with a mix of technical and behavioral interview questions. If you want to ask Java-specific interview questions, you can find those [here](https://www.codementor.io/blog/java-interview-sample-questions-answers-du107xs23?icn=post-3ey9hu32ut&ici=post-du107xs23). **Good luck!**

Have a good Android interview question that we missed? Let us know below!

|  |
| --- |
| **Android Interview Questions** Android programming is growing day by day. The questions asked by interviewers in android is given below. A list of top android interview questions and answers: **1) What is Android?** Android is an open-source, Linux-based operating system used in mobiles, tablets, televisions, etc. **2) Who is the founder of Android?** Andy Rubin. **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.  **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...](https://www.javatpoint.com/android-history-and-versions) **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). **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. **7) What are the core building blocks of android?** The core building blocks of Android are:   * Activity * View * Intent * Service * Content Provider * Fragment etc.   [More details...](https://www.javatpoint.com/android-core-building-blocks) **8) What is activity in Android?** Activity is like a frame or window in java that represents GUI. It represents one screen of android. **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...](https://www.javatpoint.com/android-life-cycle-of-activity) **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  **11) How are view elements identified in the android program?** View elements can be identified using the keyword findViewById. **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. **13) Give a list of impotent folders in android** The following folders are declared as impotent in android:   * AndroidManifest.xml * build.xml * bin/ * src/ * res/ * assets/  **14) Explain the use of 'bundle' in android?** We use bundles to pass the required data to various subfolders. **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. **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. **17) Can the bytecode be written in java be run on android?** No **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  **19) How are layouts placed in Android?** Layouts in Android are placed as XML files. **20) Where are layouts placed in Android?** Layouts in Android are placed in the layout folder. **21) What is the implicit intent in android?** The Implicit intent is used to invoke the system components. **22) What is explicit intent in android?** An explicit intent is used to invoke the activity class. **23) How to call another activity in android?**  1. Intent i = **new** Intent(getApplicationContext(), ActivityTwo.**class**); 2. startActivity(i);  **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...](https://www.javatpoint.com/android-service-tutorial) **25) What is the name of the database used in android?** **SQLite:** An opensource and lightweight relational database for mobile devices.  [More details...](https://www.javatpoint.com/android-sqlite-tutorial) **26) What is AAPT?** AAPT is an acronym for android asset packaging tool. It handles the packaging process. **27) What is a content provider?** A content provider is used to share information between Android applications. **28) What is fragment?** The fragment is a part of Activity by which we can display multiple screens on one activity. **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. **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. **31) What is ANR?** ANR stands for Application Not Responding. It is a dialog box that appears if the application is no longer responding. **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. **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. **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). **35) What is ADT in Android?** ADT stands for Android Development Tool. It is used to develop the applications and test the applications. **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. **37) What is the Adapter in Android?** An adapter is used to create a child view to present the parent view items. **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. **39) Which kernel is used in Android?** Android is a customized Linux 3.6 kernel. **40) What is application Widgets in Android?** Application widgets are miniature application views that can be embedded in other applications and receive periodic updates. **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  **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. **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. **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. **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  **46) Define Android Architecture?** The Android architecture consists of 4 components:   1. Linux Kernal 2. Libraries 3. Android Framework 4. Android Applications   [More details...](https://www.javatpoint.com/android-software-stack) **47) What is a portable wi-fi hotspot?** The portable wi-fi hotspot is used to share internet connection to other wireless devices. **48) Name the dialog box which is supported by Android?**  * Alert Dialog * Progress Dialog * Date Picker Dialog * Time picker Dialog  **49) Name some exceptions in Android?**  * Inflate Exception * Surface.OutOfResourceException * SurfaceHolder.BadSurfaceTypeException * WindowManager.BadTokenException  **50) What are the basic tools used to develop an Android app?**  * JDK * Eclipse+ADT plugin * SDK Tools  Вопросы на собеседованиях (не упорядочены по сложности) 1. Какие последние версии Android? Наиболее важные новые фичи в Marshmallow?  Версии:   4.0.3. Ice Cream Sandwich   4.1. Jelly Bean   4.4. KitKat   5.0. Lollipop   6.0. Marshallow   7.0. Nougat   8.0. Oreo   Marshallow: 1. <https://ru.wikipedia.org/wiki/Android_Marshmallow> 2. <https://4pda.ru/2015/10/05/249631/>  **2. Какая цель у Activity?**  Activity — это компонент приложения, который выдает экран, и с которым пользователи могут взаимодействовать для выполнения каких-либо действий, например набрать номер телефона, сделать фото, отправить письмо или просмотреть карту. Каждой Activity присваивается окно для прорисовки соответствующего пользовательского интерфейса. Обычно окно отображается во весь экран, однако его размер может быть меньше, и оно может размещаться поверх других окон.   Все объекты Activity представляют собой объекты класса android.app.Activity, которая содержит базовую функциональность для всех Activity.  **3. Какая цель у Fragment'ов?**  Cодержит часть UI в Activity.   Организация приложения на основе нескольких Activity не всегда может быть оптимальной. Мир ОС Android довольно сильно фрагментирован и состоит из многих устройств. И если для мобильных аппаратов с небольшими экранами взаимодействие между разными Activity выглядит довольно неплохо, то на больших экранах - планшетах, телевизорах окна Activity смотрелись бы не очень в силу большого размера экрана. Собственно поэтому и появилась концепция Fragment.   Fragment существует в контексте Activity и имеет свой жизненный цикл, вне Activity обособлено он существовать не может. Каждая Activity может иметь несколько Fragment.  **4. Расскажите о жизненном цикле Activity?**  См. [здесь](https://developer.android.com/guide/components/activities.html?hl=ru#Lifecycle)  **5. Расскажите о жизненном цикле Fragment?**  См. [здесь](https://developer.android.com/guide/components/fragments.html?hl=ru#Lifecycle)  **6. Вы используете приложение для путешествий, затем нажимаете кнопку настроек, открывается Activity настроек, затем вы кликаете "назад" - что происходит с жизненным циклом Activity настроек и с циклом главного Activity при этом?**  ответ:  **7. Что вы знаете о Material design?**  ответ:  **8. Какая разница между абстрактным классом и интерфейсом в Java?**  https://ziginsider.github.io/images/interview/rfDUm.png  **9. Что такое интерфейс в Java?**  ответ:  **10. Что такое абстрактный класс в Java?**  **ответ:**  **11. Почему нельзя создать экземпляр абстрактного класса?**  ответ:  **12. Какая разница между Dialog и AlertDialog в Android?**  ответ:  **13. Какая разница между LinearLayout и RelativeLayout?**  ответ:  **14. Где выше производительность, у LinearLayout или RelativeLayout?**  **15. Возьмем макет контакта с картинкой, именем и номером, как вы реализуете его в XML?**  **16. Что такое Service, с какими потоками он работает?**  **17. Какая разница между Service и IntentService?**  **18. Что такое ANR message?**  **19. Объясните работу BroadcastReciever и его реализацию.**  **20. Можете ли вы использовать фрагмент без UI? В каких случаях вы бы использовали этот паттерн?**  **21. Расскажите о модификаторах доступа в Java?**  ответ:  **22. Какая разница между Default и Protected модификаторами в Java?**  **23. Что вы знаете об AsyncTask?**  **24. В чем разница между Parcelable и Serializable? Что лучше? Почему?**  **25. Как получить доступ к переменной в Activity из Fragment'а?**  **26. У вас есть Activity с двумя Fragment'ами, у одного есть кнопка, у другого - TextView, кликая на кнопку, меняется TextView. Как вы реализуете это?**  **27. Как сделать переменную потоко-безопасной?**  **28. Какие стратегии мы можем использовать, чтобы достигнуть потоко-безопасности?**  **29. В чем цель ключевого слова "static" в Java?**  **30. Как можно инициализировать static-переменную в Java?**  **31. Какие паттерны проектирования вы знаете?**  **ответ:**  **32. Объясните принцип паттерна проектирования "Строитель"?**  **33. Где вы использовали паттерн "Наблюдатель"?**  **34. Паттерн Singleton, где его использовать в Android?**  **35. В чем разница между LinkedList, ArrayList и Arrays?**  **36. Над каким проектом вы сейчас работаете? Каков ваш рабочий процесс реализации задуманной функциональности?**  **37. Как вы управляетесь с Firebase push notifications?**  **38. Как реализовать Firebase realtime Database?**  **39. У вас есть большой проект и у вас есть требования к безопасному входу в систему. Как вы будете реализовывать эти требования?**  **40. Что такое Eventbus?**  **41. В каком потоке вызывается метод onRecieve() в BroadcastReceiver'е?**  **42. Как реализовать кастомный BroadcastReceiver?**  **43. В чем разница между MVC и MVP?**  **44. Объясните как устроен MVVM?**  **45. Что означает M в MVP? Ответ … могло бы это быть чем-то еще?**  **46. Какова цель Content Provider'а?**  **47. Для чего используется библиотека SQLite?**  **48. Какие библиотеки вы используете для работы с сетью (networking), загрузки картинок, баз данных?**  **49. Что вы используете для очень быстрого Sensor, который излучает много показаний за раз в Rx?  (what do you use to handle a very fast Sensor that emit many readings at a time in Rx way?)**  **50. В чем разница между map и flatMap() в Rxjava?**  **51. Как создавать параллельные сетевые запросы в Rxjava?**  **52. Если у вас есть запрос к сети и вы хотите запросить кеш, если сеть выдает ошибку, как это сделать на RxJava? Самое смешное, что я читал об этом в**[**блоге Дэна Лью**](http://blog.danlew.net/)**, затем реализовал это дважды, но не смог ответить на этот вопрос на интервью. Плохие вещи случаются...**  **53. В чем разница между concatMap() и flatMap() в Rxjava?**  **54. Что вам известно об Intents? Какова цель категорий в Intents?**  **55. В чем цель FrameLayout?**  **56. Как сравнить два объекта?**  **57. Переменные в Java передаются по ссылке или по значению?**  **58. Когда вы используете observeOn() и когда subscribeOn()?**  Ну, это все что я могу вспомнить на сегодняшний момент. Обычно в большинстве случаев спрашивают ООП, особенности Android и паттерны проетирования.  К счастью, благодаря сообществу Android, существуют ответы на многие из вышеперечисленных вопросов. Не спешите. Потратьте ваше время, чтобы понять основы. Не накидывайтесь сразу на такие вещи как RxJava или Dagger без хорошей основы.  end. Bonus Еще парочка вопросов с ответами  Основные вопросы:  1. Что такое Android и кем он основан?  2. Назовите основные компоненты Android-фреймворка  3. Какие дополнительные компоненты у Android?  4. Какие уведомления доступны в Android и каково их использование?  5. Какие флаги используются при запуске приложения Android?  6. Версии Android идут под кодовыми номерами. Назовите как можно больше этих имен.  7. Какие главные преимущества Android?  8. Назовите базу данных, которую использует Android, и расскажите о ней.  9. Как можно организовать хранение данных в Android? Расскажите об этих способах.  10. Что такое виджеты приложений?   **Android**  * Как можно выявить проблемы в скорости UI и устранить их? * Какие проблемы были с использованием Dagger? * Приходилось ли использовать Guard? * Что такое multidex? * Приходилось ли сталкиваться с миграцией с Dalvik на новую технологию ART? * Начиная с какой версии пишете под Android? Какие были сложности с разницей версий? * Асинхронные механизмы загрузки в Android * В чем отличие AsyncTask от Thread? * Минусы AsyncTask * Опишите, что такое Activity * Чем Fagment отличается от Activity? * Разница между Service и IntentService. Пример использования Service. * Зачем нужен Headless fragment (без View и с setReatinInstance = true)? Приходилось ли использовать? * Какие новшества были в последней версии Android? * Как определяете, какой layout надо использовать для смартфона, а какой для планшета? * Как в коде определите: планшет это или смартфон? * Пример использования BroadcastReceiver * Опишите LifeCycle Activity * Отличия Serializable и Parcelable |

## **Android interview questions**

### **[1. What are few exceptions in Android?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled1)**

These are the following exceptions in Android:

* Inflate exception
* Surface.out of resource exception
* Surface holder bad surface type exception
* Window manager took exception.

### **[2. What is the importance of settings permission in app development?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled2)**

Permission allows certain restrictions to be imposed primarily to protect data and code. Without this, codes could be compromised, resulting in defects in the actual function.

### **[3. Explain sticky intent?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled3)**

Sticky intent sticks with the Android for future broadcast listeners. For instance, if Battery low event occurs then that intent will be stick with Android, so that if any future user requested for Battery – Low, it will be fired.

### **[4. What is sticky intent?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled4)**

It is broadcast from sendstickybroadcasr() method. This allows the intent to float even after the broadcast and allowing [others](https://www.onlineinterviewquestions.com/others/) to collect data from.

### **[5. What is a marshmallow in Android?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled5)**

In the latest update of Android version 6.0, the official Android code name is known as a marshmallow. It was launched in May 2015. This was the successor of the Android version 5.0 named as Lollipop. Google named this version as a marshmallow on 17th August 2015 for Nexus devices.

### **[6. What is meant by Google Android SDK?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled6)**

The Google Android SDK is a set of tools that are used by the developers to write the app on Android-enabled devices. It contains a graphical interface that emulates an Android-driven handheld environment and allows the developers to debug their codes as per the requirements.

### **[7. Describe intents?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled7)**

Intents help to display the notification message to the user from within the Android device. Users are made to response this alert.

### **[8. State the code names of Android along with the year when they were brought in?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled8)**

Following are the code names with year:

1. Astro
2. Blender
3. Cupcake (April 2009)
4. Doughnut (September 2009)
5. Eclair (October 2009)
6. Froyo (may 2010)
7. Gingerbread (December 2010)
8. Honeycomb (February 2011)
9. Ice Cream Sandwich (October 2011)
10. Jellybean (July 2012)
11. Kitkat (October 2013)
12. Lollipop (November 2014)
13. Marshmallow (since October 2015)

### **[9. What are the Android application components?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled9)**

Android application components are the building block essentially used in the Android application. The application manifest file named Android manifest.xml couples the components. This describes each component of the application and describes how they interact, and then the processing activity takes place.

There are four main components, which are:

* **Activities:** They show the UI and handle the interaction of the users in smartphone screen.
* **Services:** They take care of the processing associated with the application.
* **Broadcast Receivers:** They handle the communication process between Android OS and application.
* **Content Providers:** They handle issues with data and database management.

### **[10. State the importance of XML- based layouts?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled10)**

XML based layouts provide a consistent and standard means of setting GUI format. In general use, layout details are placed in XML files, and all other items are generally placed in a source files.

### **[11. State the advantages of Android?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled11)**

Advantages of Android are as follows:

* It is an Open source that requires no licensing
* It is Platform independent that supports Windows, Mac, and Linux platforms.
* Supports different technologies like camera, Bluetooth, wifi, speech, EDGE, etc.
* It is a highly optimized virtual machine.

### **[12. What is meant by activities?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled12)**

Activities are windows to an interface. Like a window is created with the aim to display the output and to know about input in the form of a dialogue box. In the same manner, activities play its role, may not always in the form of a user interface.

### **[13. what dialogue boxes are supported by the Android box?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled13)**

Dialogue box supported by Android are:

* Alert dialogue
* Process dialogue
* Data picker dialogue
* Time picker dialogue

### **[14. State the life cycle methods of Android activities?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled14)**

There are seven lifecycle methods of Android activities. They are:

* On create()
* On start()
* On resume()
* On pause()
* On stop()
* On restart()
* On destroy()

### **[15. Explain Orientation?](https://www.onlineinterviewquestions.com/android-interview-questions/" \l "collapseUnfiled15)**

Orientation is set using set orientation (), dictates whether the linear layout is represented as a row or else as a column. There the values are set as HORIZONTAL or VERTICAL.

## **Android interview questions**

### **[1. What are runnable in android?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled1)**

### **[2. What is the difference between Serializable and parseable?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled2)**

Serializable is a standard Java interface. It is not a part of the Android SDK. Its simplicity is its biggest beauty. Just by implementing this interface the POJO will be ready to jump from one particular activity to another. There is another interface known as parseable. It is a part of the Android SDK. Paracelable was specifically designed in a way that there is no reflection left while using.

### **[3. Give a brief idea about Android application architecture?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled3)**

The architecture of Android application has few components, which have their functions to perform:

* **Service:** It performs the background functions
* **Intent:** Performs the interconnection function between activities and data passing mechanism
* **Resource:** Externalization it is used to perform strings and graphics functions
* **Notification:** This shows the lights, sound, icon, notification, incoming chats messages dialogue box, etc.
* **Content providers:** It shares the data between applications.

### **[4. State the importance of having an emulator with the Android environment?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled4)**

The emulator lets the developers “play” all around the interface that gives the experience of an actual mobile device. It is for writing and testing codes, and debug too. Emulators are safe for testing codes especially if the user is in the early stage of design.

### **[5. Differentiate between activities and services.](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled5)**

Activities can be closed or can be terminated easily as and when the user wants to. Services are designed to run on the background or behind the scenes and can act independently. Most of the services run on a continuous basis regardless of their certain or no certain activities been executed.

### **[6. What is AAPT?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled6)**

AAPT is Android Asset packing tool. This provides developers with the ability to deal with zip-compatible archives, and it includes creating, extracting as well as viewing its content.

### **[7. What are the tools used to develop an Android app?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled7)**

Tools used to develop an Android app are as follows:

* JDK
* Eclipse +ADT Plugin
* SDK Tools

### **[8. What role has Dalvik played in Android development?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled8)**

Dalvik plays an important role in the development of Android. It acts as a virtual machine where the Android application runs. It is with the help of Dalvik only that devices can execute multiple virtual machines effectively along with better memory management.

### **[9. Is the latest Android operating system supported in all mobile phones?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled9)**

The supporting facility of Android new version depends on the capabilities and specs of the phone. There are few Android power phones that allow the user to update their version to the higher operating version. Few don’t allow getting the updated version work. Either the new feature will not be supported, or the performance of the operating device will slow down.

### **[10. What does Fragment mean?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled10)**

A fragment means behavior or the portion of user interface in a Fragment Activity. One can combine multiple fragments in a single activity to build a UI and can reuse the fragment in multiple activities. The fragment can be considered as a modular section of an activity. This has its life cycle, gets its input events, which can be added or removed accordingly. It is must host a fragment in an activity and fragments lifecycle is directly related by the host activity’s lifecycle.

### **[11. What is AIDL?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled11)**

AIDL is Android Interface Definition Language. This IDL allows the user to define the programming interface; both the clients and service agree upon to communicate with each other using inter-process communication (IPC). On Android platform, it becomes difficult for one processor to access the memory of another process. They need to decompose their objects into primitive that the operating system can manage, and marshal the objects across. The code to perform that marshaling is tedious to write therefore Android handles this for the users with the help of AIDL

### **[12. Explain the steps in creating a bounded service through AIDL.](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled12)**

Follow the below steps to create a bounded service through AIDL

* Step 1. Create the .aidl file that defines the programming interface.
* Step 2. Implement the interface, by extending the inner abstract stub class and imparting its methods.
* Step 3. Expose the interface by implementing the service to the users.

### **[13. What is DDMS?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled13)**

DDMS is Dalvik Debug Monitor Server.This gives a wide array of debugging features of which are

* Port forwarding services
* Screen capture
* Thread and heap information
* Network traffic tracking
* Location data
* spoofing

### **[14. What is Android?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled14)**

Android is an open-sourced operating system by Linux that is primarily used in mobile devices like cell phones and tablets. This Linux kernel based system is equipped with high and advanced components that allow developers to create and run apps. Therefore performs the basic as well as the advanced functions.

### **[15. What are services in Android and what is its type?](https://www.onlineinterviewquestions.com/android-interview-questions/page/2/" \l "collapseUnfiled15)**

Services here is an application component that can perform long-duration operations in the background. It doesn’t provide a user interface. Other application components can start a service and can continue to perform/ run in the background when the users switch to some other application. There are three different types of services:

* **Foreground:** The activity of performing the operation in foreground service is noticeable to the users. A notification is displayed for the same.
* **Background:** Generally, a background service performs its operations, which is directed not noticed by the users on their screen. Example if an app uses service to compact its storage this will be considered as background service.
* **Bound:** A service is bound when an application component binds to it by calling it as bind service. A bound service runs only as long as another application component is bound to it.

### **[1. What are the four essential states of an activity?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled1)**

The four initial stages of the activity are as followed:

* **Active:** If the activity is in the foreground that means it is running on the device.
* **Paused:** When the activity is at the background and is still visible on the screen.
* **Stopped:** when the activity is not visible and is actually hidden by another activity that is running on the device.
* **Destroyed:** when the activation process is killed or is terminated, it’s considered to be completely destroyed.

### **[2. State the importance of default resources.](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled2)**

Default resources contain the default string and files. If this resource is not present the error will keep occurring, and the app will not be able to run. Resources are placed in subdirectories under the project res/ directory. Moreover, therefore helps the app to function in the desired conditions.

### **[3. What are containers?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled3)**

In a general term, the container means some object that can be used to hold or to procure. In a similar manner here, containers are used to hold objects and the widgets altogether.It depends on which specific item is it required and what kind of arrangement is needed. It can be used to hold labels, fields or buttons.

### **[4. What are the other languages that Android supports other than JAVA?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled4)**

Android supports C++, C. The app can be developed in C or C++ using Android NDK (Native development kit). This makes system works faster.

### **[5. List few items, which you think may be important in every Android project?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled5)**

The important items for Android projects are:

* AndroidManifest.xml
* Build.xml
* Bin/
* Src/
* Res/assets/

### **[6. What is the use of Android manifest.xml?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled6)**

Every application should have an Androidmanifest.xml file at the root of the project source set. This file describes the essential information required by the user for the app to the Android build tools. Apart from this, it is required for the following reasons:

* To give permission that the application requires to ensure the access is protected.
* To provide with the hardware and software features, which the app requires when installing from Google play etc.

### **[7. State the difference between a regular bitmap and nine- patch image?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled7)**

A nine- patch image allows the resizing of the image that can be used as background or other image size requirements for the target device. The nine- patch refers to the way one can resize the image. It can be done in the in the following manners

* 4-image corner unscaled one.
* Four edges, scaled in 1 axis
* The last middle one that can be scaled into both the axes.

### **[8. Explain fragment.](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled8)**

Fragments are reusable in nature and is a portion of an activity. In other words, it is modular that can be combined or is movable in an activity.

### **[9. State few disadvantages of Android in the mobile market.](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled9)**

Few of the disadvantages of Android in the mobile market are as follows:

* Developers can write and register apps that will only run under the Android environment.
* With the growing popularity and demand for the Android mobile devices, developers can easily take advantage of this trend by uploading the app on the market for the distribution purpose, and people can download it.

### **[10. What are launch modes?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled10)**

It is an instruction for Android OS that specifies how the activity should be launched or performed. The activities are performed into two areas, which are:

* **Tasks:** It’s a collection of activities, with which the users interact when they perform certain jobs. An application contains a number of activities.
* **Back Stack:** Back stack in a back stack the activities are arranged with the order in which each is opened. This maintained stack called back stack.

### **[11. When is it desirable to kill the foreground activity?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled11)**

Terminating or killing the foreground activity is the last and final savior. It is generally desirable or is the best time to kill this activity when it is consuming too much of memory. When the memory paging state is reached by the activity, it is killed so that the interface can sustain the responsiveness of the user of the application.

### **[12. What options do the users get to save data in Android?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled12)**

Android provides some options to save or store the app data. Here the choice depends on the specific needs and requirement of space by the users.

Few of the data storage options available on Android are as follows:

* **Internal file storage:** stores the private file on the device file system.
* **External file storage:** stores the file on the shared external file system.
* **Shared preferences:** stores the private primitive data in key-value pairs.
* **Databases:** stores the structured data in a private database.

To expose one app’s data to other apps, the content provider can be used.

### **[13. What is portable Wi-Fi hotspot?](https://www.onlineinterviewquestions.com/android-interview-questions/page/3/" \l "collapseUnfiled13)**

Portable Wi-Fi hotspot allows the users to share a mobile Internet connection with another device. Using an Android powered phone as a Wi-Fi hotspot user can use their laptop to connect to the Internet using the same access point.

1. **Question 1. What Is Android?**

**Answer :**

Android is a stack of software for mobile devices which has Operating System, middleware and some key applications. The application executes within its own process and its own instance of Dalvik Virtual Machine. Many Virtual Machines run efficiently by a DVM device. DVM executes Java languages byte code which later transforms into .dex format files.

1. **Question 2. Explain About The Exceptions Of Android?**

**Answer :**

The following are the exceptions that are supported by Android  
\* InflateException : When an error conditions are occurred, this exception is thrown  
\* Surface.OutOfResourceException: When a surface is not created or resized, this exception is thrown  
\* SurfaceHolder.BadSurfaceTypeException: This exception is thrown from the lockCanvas() method, when invoked on a Surface whose is SURFACE\_TYPE\_PUSH\_BUFFERS  
\* WindowManager.BadTokenException: This exception is thrown at the time of trying to add view an invalid WindowManager.LayoutParamstoken.

1. **Question 3. Why To Use Android?**

**Answer :**

Android is useful because:  
\*It is simple and powerful SDK  
\*Licensing, Distribution or Development fee is not required  
\*Easy to Import third party Java library  
\*Supporting platforms are ? Linux, Mac Os, Windows

1. **Question 4. Describe Android Application Architecture?**

**Answer :**

Android Application Architecture has the following components:  
\* Services - like Network Operation  
\* Intent - To perform inter-communication between activities or services  
\* Resource Externalization - such as strings and graphics  
\* Notification signaling users - light, sound, icon, notification, dialog etc.  
\* Content Providers - They share data between applications

1. **Question 5. What Are The Features Of Android?**

**Answer :**

\*Components can be reused and replaced by the application framework.  
\*Optimized DVM for mobile devices  
\*SQLite enables to store the data in a structured manner.  
\*Supports GSM telephone and Bluetooth, WiFi, 3G and EDGE technologies  
\*The development is a combination of a device emulator, debugging tools, memory profiling and plug-in for Eclipse IDE.

1. **Question 6. Are The Android Releases Available In A Rom?**

**Answer :**

No, Android is not yet available in a ROM format. Currently Android is installed by using a clean SD Card, and booted from there. It is booted by running a special application called 'Haret.exe' residing on your SD Card which will terminate the Windows kernel and boot into Linux/Android. It can't easily be run from ROM because a) it's too experimental to risk putting in ROM and then killing a device and b) WinMo does some hardware initialisation that isn't documented, but is needed before Android can run.

1. **Question 7. Can You Play Android 2.1 Games On Android 2.2?**

**Answer :**

no.as i have a 2.2 android phone, its very hard to find games for it. The 2.2 android will not be able to support that type of game.

1. **Question 8. What Is Android Runtime?**

**Answer :**

Android includes a set of core libraries that provides most of the functionality available in the corelibraries of the Java programming language. Every Android application runs in its own process, with its own instance of the Dalvik virtual machine. Dalvik has been written so that a device can run multiple VMs efficiently. The Dalvik VM executes files in the Dalvik Executable (.dex) format which is optimized for minimal memory footprint. The VM is register-based, and runs classes compiled by a Java language compiler that have been transformed into the .dex format by the included ?dx? tool.

1. **Question 9. Creating An Android Application Using The Eclipse Plugin?**

**Answer :**

Using the Android Eclipse plugin is the fastest and easiest way to start creating a new Androidapplication. The plugin automatically generates the correct project structure for your application, and keeps the resources compiled for you automatically.

It is still a good idea to know what is going on though. Take a look at Overview of an AndroidApplication to understand the basics of how an Android application works.

It is also recommended that you take a look at the ApiDemos application and the other sample applications in the samples/ folder in the SDK.

Finally, a great way to started with Android development in Eclipse is to follow both the Hello Android and Notepad code tutorials. In particular, the start of the Hello Android tutorial is an excellent introduction to creating a new Android application in Eclipse.

1. **Question 10. Can I Write Code For Android Using C/c++?**

**Answer :**

Android applications are written using the Java programming language.Android includes a set of core libraries that provides most of the functionality available in the core libraries of the Java programming language.Every Android application runs in its own process, with its own instance of the Dalvik virtual machine. Dalvik has been written so that a device can run multiple VMs efficiently. The Dalvik VM executes files in the Dalvik Executable (.dex) format which is optimized for minimal memory footprint. The VM is register-based, and runs classes compiled by a Java language compiler that have been transformed into the .dex format by the included ?dx? tool.Android only supports applications written using the Java programming language at this time.

1. **Question 11. What Is The Ttl (time To Live)? Why Is It Required?**

**Answer :**

TTL is a value in data packet of Internet Protocol. It communicates to the network router whether or not the packet should be in the network for too long or discarded. Usually, data packets might not be transmitted to their intended destination within a stipulated period of time. The TTL value is set by a system default value which is an 8-bit binary digit field in the header of the packet. The purpose of TTL is, it would specify certain time limit in seconds, for transmitting the packet header. When the time is exhausted, the packet would be discarded. Each router receives the subtracts count, when the packet is discarded, and when it becomes zero, the router detects the discardedpackets and sends a message, Internet Control Message Protocol message back to the originating host.

TTL(time to live) apart from determining the life time of a packet in a network also helps in avoiding the wastage of bandwith

1. **Question 12. How Is Nine-patch Image Different From A Regular Bitmap?**

**Answer :**

It is a resizable bitmap resource that can be used for backgrounds or other images on the device. The NinePatch class permits drawing a bitmap in nine sections. The four corners are unscaled; the four edges are scaled in one axis, and the middle is scaled in both axes.

1. **Question 13. Explain Ip Datagram, Fragmentation And Mtu ?**

**Answer :**

IP datagram can be used to describe a portion of IP data. Each IP datagram has set of fields arranged in an order. The order is specific which helps to decode and read the stream easily. IP datagram has fields like Version, header length, Type of service, Total length, checksum, flag, protocol, Time to live, Identification, source and destination ip address, padding, options and payload.

MTU:- Maximum Transmission Unit is the size of the largest packet that a communication protocol can pass. The size can be fixed by some standard or decided at the time ofconnection

Fragmentation is a process of breaking the IP packets into smaller pieces. Fragmentation is needed when the datagram is larger than the MTU. Each fragment becomes a datagram in itself and transmitted independently from source. When received by destination they are reassembled.

1. **Question 14. What Is Sticky Intent?**

**Answer :**

Is there anyway to determine if an Intent passed into a BroadcastReceiver's onReceive is the result of a sticky Boradcast Intent, or if it was just sent.

1. **Question 15. User-generated Content: Report Abuse Which Is The Better Phone - The Iphone Or The Droid?**

**Answer :**

The iphone 4 is better than any other phone. for one it is made out of the same material they use in helicopter and train windows.(atleas from what i haerd)another thing is that the iphone has a better app market. with over 300,000 apps it is far better than the droids 70,000. Also it comes with more accesories and has an antenna to provide better signal while the droid doesn't. People say it has a bad connection but i think not since i have already used it. And last but not leats better resolution. it may have a smaller screen but still its graphics are better.so it all depends on you each one has its ups and its downs but i would go with iphone 4 over any phone especially the "all new droid x"

1. **Question 16. How Long Does It Take To Build An App?**

**Answer :**

Depending on the complexity and how quickly you respond to us you could have an app built in about a month.

1. **Question 17. How Much Does Mobile Application Development Cost? That Is A Bit Like Asking: How Much Does A Truck Cost?**

**Answer :**

The answer is that it depends on the truck. Your needs are unique and your app needs to meet only those needs. A small Toyota will cost a lot less than a huge semi tractor trailer. A tractor trailer is great if you want to haul goods across the country but dont try to take it on a Saturday night date. We help you to avoid creating too much - or too little app. This keeps costs low.

Having us create a custom smartphone app is surprisingly affordable. Many businesses find their app costs less than even a small radio or newspaper campaign. Unlike a radio campaign, the app?s usefulness does not end with the last commercial. Once it is created an app can add to your bottom line for a very long time. Our goal is to connect your audience with your cash register no matter where they are. With a smartphone app you give your customers access to you at the exact moment their buying decision is the strongest.

1. **Question 18. Describe The Apk Format.**

**Answer :**

The APK file is compressed the AndroidManifest.xml file, application code (.dex files), resource files, and other files. A project is compiled into a single .apk file.

1. **Question 19. Is Sim Pin Code Working?**

**Answer :**

It's supposed to be working, yes, but if you have ANY troubles please DISABLE SIM PIN in WinMo (SIM PIN works on the SIM, but you need WinMo UI to disable it)

1. **Question 20. What Is The Future Scope Of Mobile Application Developers?**

**Answer :**

Future of the mobile application development is bright

1. **Question 21. What Is The Mobile Application Development All About?**

**Answer :**

In the last two years, a lot of innovation has come in the mobile computing world. Apple has launched very innovative mobile phone, iphone and ipad along with app store. Google launched Android in Nov 2007. Blackberry released SDK and app world. Microsoft has come up with phone 7 framework. Almost every type of mobile can be programmed using J2ME. Making applications for all these devices is Mobile application development.

1. **Question 22. What Is The Demand Of Mobile Application Developers?**

**Answer :**

Desktop based IT application is present but the mobile is future. All the applications that were madeto work only on desk top are being ported to mobile. In the coming 10 years, desktops will be replaced completely with mobile, and then all the applications will be designed mainly for mobile. The demand for mobile based trained engineers are increasing every year. Now after the launch of ipad by Apple, it will be even more. Therefore; the gextgen technology will be nothing else than mobile. The demand is expected to grow 70 folds in the coming 4 years.

1. **Question 23. What Is The Risk In Blocking The Main Thread When Performing A Lengthyoperation Such As Web Access Or Heavy Computation?**

**Answer :**

Application\_Not\_Responding exception will be thrown which will crash and restart the application.

1. **Question 24. What Is A Dalvik ?**

**Answer :**

The name of Androids virtual machine. The Dalvik VM is an interpreter-only virtual machine that executes files in the Dalvik Executable (.dex) format, a format that is optimized for efficient storage and memory-mappable execution. The virtual machine is register-based, and it can run classes compiled by a Java language compiler that have been transformed into its native format using the included ?dx? tool. The VM runs on top of Posix-compliant operating systems, which it relies on for underlying functionality (such as threading and low level memory management). The Dalvik core class library is intended to provide a familiar development base for those used to programming with Java Standard Edition, but it is geared specifically to the needs of a small mobile device.

1. **Question 25. What Features Are In A Release?**

**Answer :**

Generally, it's very difficult to detail them, unless there is a significant new feature (in which case, that will be very well advertised!). Usually it's minor speed improvements, bug fixes etc... and sometimes, new bugs are introduced (so bear that in mind)

1. **Question 26. When Will It Be Available In A Rom?**

**Answer :**

No time soon. Folks are working on it, but you'll need a lot of patience before it (if ever) arrives.

1. **Question 27. I Keep Hearing 'popping/clicking' Sounds From The Speaker?**

**Answer :**

This is a known annoyance on some devices, believed to be related to power management switching the speaker on and off (not confirmed), it actually seems worse in silent mode (ironically). If you experience this, you're not alone... most users do. When a fix is ready, it will be announced here.

1. **Question 28. How Much Revenue Share Does The Developer Get?**

**Answer :**

The developer gets 70% revenue generated from each Android application purchase while the rest is used for settlement charges. Google doesn't take a dime out of this.

1. **Question 29. Explain Seapine Software?**

**Answer :**

Seapine's software development and testing tools streamline your development process, saving you significant time and money. Enjoy feature-rich tools that are flexible enough to work in any software development environment. With Seapine integrated tools, every step in the developmentprocess feeds critical information into the next step, letting you focus on developing high quality software in less time.

1. **Question 30. Why Is List View Not Recommended To Have Active Components?**

**Answer :**

Clicking on the active text box will pop up the software keyboard but this will resize the list, removing focus from the clicked element.

1. **Question 31. Why Is Open Platform Good For The Mobile Operators?**

**Answer :**

An open platform would foster faster innovation, multiple software versions, better customisation options, lower costs, which would bring down the overall service and handset costs while boostingsales.

1. **Question 32. Describe A Real Time Scenario Where Android Can Be Used?**

**Answer :**

Imagine a situation that you are in a country where no one understands the language you speak and you can not read or write. However, you have mobile phone with you.

With a mobile phone with android, the Google translator translates the data of one language into another language by using XMPP to transmit data. You can type the message in English and select the language which is understood by the citizens of the country in order to reach the message to the citizens.

1. **Question 33. Why Is Open Platform Good For Developers?**

**Answer :**

Developers will be able innovate rapidly because they will have comprehensive API access tohandset capabilities that are web-ready. They will experience increased productivity because they will have comprehensive and easy-to-use developer tools. And because open source offers a deeper understanding of the underlying mobile platform, they can better optimise their applications. Finally, the distribution and commercialisation of mobile apps will be less expensive and easier.

1. **Question 34. How Will You Record A Phone Call In Android? How To Get A Handle On Audiostream For A Call In Android?**

**Answer :**

Permissions.PROCESS\_OUTGOING\_CALLS: Allows an application to monitor, modify, or abort outgoingcalls.

1. **Question 35. What Is An Ddms?**

**Answer :**

Dalvik Debug Monitor Service, a GUI debugging application shipped with the SDK. It provides screen capture, log dump, and process examination capabilities.

1. **Question 36. What Are The Advantages Of Android?**

**Answer :**

The following are the advantages of Android:  
\* The customer will be benefited from wide range of mobile applications to choose, since themonopoly of wireless carriers like AT&T and Orange will be broken by Google Android.  
\* Features like weather details, live RSS feeds, opening screen, icon on the opening screen can be customized  
\* Innovative products like the location-aware services, location of a nearby convenience store etc., are some of the additive facilities in Android.

1. **Question 37. Does Android Support The Bluetooth Serial Port Profile?**

**Answer :**

Yes.

1. **Question 38. What Is The Android G1 Phone?**

**Answer :**

The Android T-Mobile G1 phone is the world's first Android-powered mobile phone developed by HTC and T-Mobile.

1. **Question 39. Which Is The Virtual Machine Used To Run The Android Apps?**

**Answer :**

The VM used is called Dalvik, so named after the ancestral roots of its creator, as the story goes.

1. **Question 40. Are The Android Apps First Scrutinised By Google?**

**Answer :**

No the Android applications can be directly posted on the Android Market once you are registered as a developer after paying the $25 application fee.

1. **Question 41. What Is An Intent Receiver?**

**Answer :**

An application class that listens for messages broadcast by calling Context.broadcastIntent

1. **Question 42. What's The Difference Between File, Class And Activity In Android?**

**Answer :**

File - It is a block of arbitrary information, or resource for storing information. It can be of any type.  
Class - Its a compiled form of .Java file . Android finally used this .class files to produce an executable apk.  
Activity - An activity is the equivalent of a Frame/Window in GUI toolkits. It is not a file or a file type it is just a class that can be extended in Android for loading UI elements on view.

1. **Question 43. How To Select More Than One Option From List In Android Xml File? Give An Example.**

**Answer :**

Specify android id, layout height and width as depicted in the following example.

<ListView android:id="@+id/ListView01"   
android:layout\_height="wrap\_content"   
android:layout\_width="fill\_parent"></ListView>

1. **Question 44. What Languages Does Android Support For Application Development?**

**Answer :**

Android applications are written using the Java programming language.

1. **Question 45. What Are The Dialog Boxes That Are Supported In Android? Explain.**

**Answer :**

Android supports 4 dialog boxes:  
AlertDialog : An alert dialog box supports 0 to 3 buttons and a list of selectable elements, including check boxes and radio buttons. Among the other dialog boxes, the most suggested dialog box is the alert dialog box.

ProgressDialog: This dialog box displays a progress wheel or a progress bar. It is an extension of AlertDialog and supports adding buttons.

DatePickerDialog: This dialog box is used for selecting a date by the user.

TimePickerDialog: This dialog box is used for selecting time by the user.

1. **Question 46. What Virtual Machine Android Runs On?**

**Answer :**

Dalvik virtual machine

1. **Question 47. What Are The Differences Between A Domain And A Workgroup?**

**Answer :**

In a domain, one or more computer can be a server to manage the network. On the other hand in aworkgroup all computers are peers having no control on each other. In a domain, user doesn?t needan account to logon on a specific computer if an account is available on the domain. In a work group user needs to have an account for every computer. In a domain, Computers can be on different local networks. In a work group all computers needs to be a part of the same local network.

1. **Question 48. How To Remove Desktop Icons And Widgets?**

**Answer :**

Press and Hold the icon or widget. The phone will vibrate and on the bottom of the phone you will see anoption to remove. While still holding the icon or widget drag it to the remove button. Once remove turns red drop the item and it is gone.

1. **Question 49. What Is .apk Extension?**

**Answer :**

The extension for an Android package file, which typically contains all of the files related to a single Android application. The file itself is a compressed collection of an AndroidManifest.xml file,application code (.dex files), resource files, and other files. A project is compiled into a single .apk file.

1. **Question 50. What Is A Layout Resource?**

**Answer :**

An XML file that describes the layout of an Activity screen.

1. **Question 51. What Is A Manifest ?**

**Answer :**

An XML file associated with each Application that describes the various activies, intent filters, services, and other items that it exposes.

1. **Question 52. What Is A Theme ?**

**Answer :**

A set of properties (text size, background color, and so on) bundled together to define various default display settings. Android provides a few standard themes, listed in R.style (starting with ?Theme\_?).

1. **Question 53. What Is An Uris?**

**Answer :**

Android uses URI strings both for requesting data (e.g., a list of contacts) and for requesting actions (e.g., opening a Web page in a browser). Both are valid URI strings, but have different values. All requests for data must start with the string ?content://?. Action strings are valid URIs that can be handled appropriately by applications on the device; for example, a URI starting with ?http://? will be handled by the browser.

1. **Question 54. Can An Application Be Started On Powerup?**

**Answer :**

Yes.

1. **Question 55. What Is An Action?**

**Answer :**

A description of something that an Intent sender desires.

1. **Question 56. What Is Activity?**

**Answer :**

A single screen in an application, with supporting Java code.

1. **Question 57. What Is Intent?**

**Answer :**

A class (Intent) describes what a caller desires to do. The caller sends this intent to Android's intent resolver, which finds the most suitable activity for the intent.

1. **Question 58. What Is A Resource?**

**Answer :**

A user-supplied XML, bitmap, or other file, injected into the application build process, which can later be loaded from code.

1. **Question 59. What Is A Sticky Intent?**

**Answer :**

sendStickyBroadcast() performs a sendBroadcast (Intent) that is "sticky," i.e. the Intent you are sending stays around after the broadcast is complete, so that others can quickly retrieve that data through the return value of registerReceiver (BroadcastReceiver, IntentFilter). In all other ways, this behaves the same as sendBroadcast (Intent).  
One example of a sticky broadcast sent via the operating system is ACTION\_BATTERY\_CHANGED. When you call registerReceiver () for that action -- even with a null BroadcastReceiver -- you get the Intent that was last broadcast for that action. Hence, you can use this to find the state of the battery without necessarily registering for all future state changes in the battery.

1. **Question 60. What Is The Open Handset Alliance?**

**Answer :**

The OHA is a consortium of 30 technology and mobile companies that have joined hands to accelerate innovation in mobile technology and at the same time offer the end users a better, costeffective and richer mobile experience.

1. **Question 61. What Innovations The Oha Members Strive To Achieve?**

**Answer :**

The OHA members have endeavored to develop Android, the open source mobile platform consisting of an OS, web browser and key applications. Different companies have different contributions to make and roles to play. For instance, the software companies like Google are developing the requisite software, the hardware companies the chipsets and the mobile companies are ensuring compatible handsets for Android.

1. **Question 62. Why An Open Source Platform Would Be Beneficial To Consumers?**

**Answer :**

Open source platform will ensure cheaper mobile handsets and services coupled with richer user experience in the form of a friendlier interface, cool applications and an enhanced browsing experience.

1. **Question 63. How Will Apps Change With Android 2.2?**

**Answer :**

The answer is that with Froyo, Google's giving us a bunch of new ways to take advantage of apps from the Android Market and beyond. The highlights:SD card installations:  you'll finally be able to install apps on your SD card, smashing the space limitations of Android versions past. You'll be able to select where you want each app to be installed - SD card or internal storage - and even toggle it back and forth with a couple of clicks later.

### Question 1: What is Android?

Most of the Android job interviews that you’ll attend are bound to have this as their very first question. In answering, you not only demonstrate that you know what Android is (and you’re not just a random person off the street), but also show your ability to form your own definitions.

Quite simply, **Android** is a mobile operating service. As I’ve mentioned in the beginning, it was created and developed by the team at Google. Its code is based on the open-source Linux kernel, and it (Android) was designed to primarily be used on touchscreen devices, thus eventually becoming the biggest rival to iOS.

### Question 2: What is ‘application’?

===== Hidden Content. Only Registered users can view. Please [Sign Up](https://www.bitdegree.org/register) , it's FREE! =====

The **Application** class can be considered as the baseline of Android – it is the key class that contains all of the other important elements for other actions and services that Android performs. Probably needless to say, but this class is initialized before anything else in Android once the program is launched.

### Question 3: What is the place where the GUI of Android is stored called?

First of all, let’s establish what a ‘**GUI**’ is.

**GUI** literally means Graphical User Interface. It is a tool that helps the developers to simulate certain specific scenarios and see them in the way that a user of the app would see it.

Android’s GUI is stored within what is called an “**Android SDK**”. For an easy comparison of what that is, imagine that you were planning to go and work in the garden. What would you need to do that? That’s right – tools. Where are the tools usually stored? That’s right – the shed. The Android SDK is the equivalent of a shed – it stores all of the essential and necessary tools for the developer’s easy access.

It’s quite an extended answer, but remember – the more Android interview questions that you expand on, the more knowledgeable you will look in front of your potential employer.

### Question 4: Define ‘implicit’ and ‘explicit’ intents.

In addition to definitions, you might also encounter a lot of comparison-based Android developer interview questions during your job interview. When it comes to the basic part, these would usually require you to compare some very fundamental Android variables. The same applies in this case.

When you imply an **implicit intent**, the Android interface checks the system for settings that might help you perform your task. **The explicit intent**, on the other hand, is when you specify the components that your system should use while performing the task. To oversimplify, you basically just order the system to do as you say and leave little room for agility.

### Question 5: Name the four Java sensor classes.

Android uses four specific Java classes that are based on sensors. These are as follows: **Sensor**, **SensorEvent**, **SensorEventListener** and **SensorManager**.

### Question 6: Can you run Java on Android using the standard bytecode?

===== Hidden Content. Only Registered users can view. Please [Sign Up](https://www.bitdegree.org/register) , it's FREE! =====

No, no you can’t. If this is one of the Android interview questions that your employers will ask a follow-up question (in this case it would most likely be “why?”), you can just say that Android is based on and uses a different, specific type of bytecode.

### Question 7: Name a few pros of the Android system.

Sometimes, you might get this type of Android interview questions – the opinion-based ones. This is actually pretty cool because you are completely free to tell your opinion on the matter, but (at least in this case) can be sure that it’s completely subjective.

Why do employers even ask such questions, then? Well, that’s pretty easy – to see what you value and prioritize the most when it comes to Android. It’s a nice “trick question” for the employers to check if you’re going to go on a rant that you memorized on the internet, or if you’re actually thinking about it.

Since it’s quite subjective, there is no one true or false answer. However, just to give you a few examples of what a lot of other people proclaim to be the best features: Android being open-source, being supported by a wide variety of hardware developers, being based on Java and so on.

### Question 8: What does ‘ContentProvider’ do?

This command is used to access specific types of organized and structured sets of data. You can view it as a sort of a medium – it connects strings of code with other, different strings of code.

### Question 9: What is the bytecode that Android uses?

If you remember one of the previous Android interview questions and answers in this tutorial (namely, **Question 6**), you probably know that Android cannot use the Java bytecode because it has one of its own. This bytecode is called Dalvik Virtual Machine (**DVS**).

### Question 10: What is the use of an Adapter?

In the Android system, **adapters** are used to connect the **AdapterView** (whatever that might be; it depends on the specific scenario in which it is used) with an external source of data.

## Android Interview Questions – Advanced

Now we can transition to the advanced part of the tutorial. However, there is one more thing that you should know before continuing on – and it has to do with the term “advanced”.

===== Hidden Content. Only Registered users can view. Please [Sign Up](https://www.bitdegree.org/register) , it's FREE! =====

If you’ve never been to a job interview where you would have to answer Android interview questions, it might get pretty confusing. You might think that the term “advanced Android developer interview questions” means something grandiose – that you’ll have to write a five hundred page-long essay on why Android is the best or something. I’m here to tell you not to worry about it.



In the context of this tutorial, the phrase “advanced Android interview questions” simply means that your potential employers are going to want you to show a bit more of the in-depth knowledge that you have about Android. Whether it be to expand on certain answers or to answer some technical questions – relax!

Now that that’s out of the way, let’s get straight back into the Android questions.

### Question 1: What are the two main methods of storing data in Android?

These methods are **Shared Preferences** and **Internal Storage**. Shared Preferences are mainly used to store key-value pairs, which can sometimes be a limitation. Internal Storage, on the other hand, stores all of the developer’s private data and information within the device’s inner memory.

### Question 2: How can you use ‘intent’?

When it comes to advanced Android interview questions and answers, they are most likely to have more than one answer (at least in most cases). This question is no exception.

There are **three** common situations where you would use ‘**intent**’: to start the device, to start a specific activity and to start a broadcast.

### Question 3: What is ‘activity’?

A clear example of trick Android interview questions. In truth, this is actually a very simple and straightforward question with an even simpler answer – **activity is the container in the user interface**. Why is this placed in the “advanced” category, then?

===== Hidden Content. Only Registered users can view. Please [Sign Up](https://www.bitdegree.org/register) , it's FREE! =====

As I’ve mentioned earlier, you are bound to get some trick Android interview questions in your job interview. Your potential employer might want to throw you off balance with sneaking in an actual super-easy question. Furthermore, you would be surprised at how many people actually do have a hard time defining Android ‘activities’.

### Question 4: What are the core components of the Android OS?

In total, there are **five** main components essential to Android – **Activity**, **Content Provider**, **Fragment**, **Intents,**and **Services**.

### Question 5: What’s the use of ‘handlers’?

In Android, **handlers** are most commonly used to pass communication between different threads. This is especially true in the scenario where you would use a handler to pass an action from a background thread to the main one.

### Question 6: What is the best database for Android applications?

This is considered to be one of the more advanced Android interview questions mostly because you either know it, or you don’t.

The best open-source database for [Android apps](https://www.bitdegree.org/course/how-to-make-android-apps) is **SQLite**.

### Question 7: Can two different Android apps share the same Linux ID?

Yes, as a matter of fact, they can. However, needless to say, it doesn’t happen just like that.

In order for the two apps to hold a shared Linux ID, they would both have to have signed with the same **certificate**. In addition to that, they would then also share the same VP.

### Question 8: What’s DDMS?

**DDMS** literally abbreviates to the Dalvik Debug Monitor Server. It is a bug monitoring server that comes together with the Android OS itself. It’s responsible for tracking errors, incoming call, SMS, location data spoofing and – naturally – debugging.

### Question 9: What is ‘ANR’?

===== Hidden Content. Only Registered users can view. Please [Sign Up](https://www.bitdegree.org/register) , it's FREE! =====

**Application Not Responding**. It is a pop-up that the developer would receive if he or she had initiated too many processes at the same time. It’s basically Android’s way of telling you that you’ve crashed the system.

### Question 10: What’s the difference between an ‘AsyncTask’ and a ‘Thread’?

**AsyncTasks** are used to work with short-running processes (up to 5 seconds), while **threads** handle longer ones.

#### Q1. Why do you find yourself fit for the position of an android developer? Or why should we hire you.?

**Answer:**  
One of the prominent questions that are most likely to be asked. Be prepared to talk about yourself and why you should be the best candidate to be hired. This is one way the interviewer wants to know you to evaluate. One good approach will be to talk about the interesting one has in the [field of Android development](https://www.educba.com/careers-in-android-development/). Brief about yourself and how you have achieved your career growth so far, brief your current position, skills, and passion and then finish by touching the goal of the future. A bonus will be to identify the position you are applying, and future envision.

#### Q2. Highlights and brief about some of your professional strength?

**Answer:**  
Be accurate and relevant is the key to this answer. Relate your experience with real scenarios and what you learned from this. These Android developer Interview questions are also intended to analyze the candidate’s interest and learning attitude. First and foremost, thing – behavior that one share in the office environment should be quoted by the candidate. Apart from these the below mentioned can be of great importance –

* Learning attitude
* Creative thinking
* Solution approach
* Team player

Note – The candidate must relate by citing real-life scenario and how this behavior has helped him/her in achieving the technical efficiency and boosted professionally. No irrelevant strength that will add no value to the job.

Let us move to the next Android developer Interview Questions.

#### Q3. Explain ****Platform Architecture**** of android?

**Answer:**  
Android is an open source, [LINUX based software pack](https://www.educba.com/careers-in-linux/). It mainly comprises of Linux Kernel, Hardware Abstraction Layer, Native libraries, Android Runtime, Java API and System Apps. Talking from bottom to top, the Linux kernel provides drivers for connecting to hardware. The driver’s list contains – Audio, Binder, Display, Keypad, Bluetooth, Camera, USB, Wi-Fi and power management. The Hardware Abstraction Layer (HAL) provides a standard that interacts with Kernel drivers to access these hardware features to the users. ART (Android Runtime) is there to help when multiple virtual machines (VM’s) are run on low memory devices with the execution of DEX files. Native [C or C++](https://www.educba.com/c-vs-c-plus-plus/) is needed to build the native code. Android provides Java API’s to use functionalities of native libraries to the apps. Java API forms the building blocks on a need to create Android apps by providing the components and services. Android comes with a set of core apps for emails, SMS messaging, calendars, internet browsing, contacts and more.

|  |  |
| --- | --- |
| System Apps | |
| Java Framework  API | |
| Native Libraries  C/C++ | Android  Runtime |
| Hardware Abstraction Layer (HAL)  Interfaces | |
| Linux Kernel  Drivers | |

#### Q4. Can you explain the Android activity lifecycle?

**Answer:**  
This is the basic Android developer Interview Questions asked in an interview. After a user navigates within the app, then the activity instances transit through different stages in their lifecycle. These activity classes provide a number of actions called as “callbacks” that gives information of the changed states the system creates, resumes or stops while resuming the activity. The activity life cycle has 4 states –

* **Active or running** – If the activity is in the foreground of the screen it is called as active.
* **Paused** – If the activity has lost focus but is still visible (like in the case of dialog comes top), then it is reoffered as paused.
* **Stopped** – If an activity is completely obscured by another activity, it’s called as stopped. It still retains all states and the information of member components.
* **Finish** – If an activity is paused or stopped, the system can drop the activity from memory by either asking it to finish or simply killing the process.

#### Q5. What is service in Android and what are their types?

**Answer:**  
A service is an application component that can perform long-running operations in the background, and it does not provide a user interface. There are 3 types of services available

* **Scheduled**: A service is scheduled when an API such as JobScheduler launches the service.
* **Started:**A service is started when an application component (means activity) calls startservice(). After service started it can run in the background indefinitely, even if the components that started it are destroyed. It is stopped by stopService() method. The service can stop itself by calling the stopSelf() method.
* **Bound:**A service is bound when an application component binds to it by calling the bindservice(). A bound service offers a client-server interface that allows components to interact with the service, send requests, receive a request. The client can unbind the service by calling the unbindservice() method. The service cannot be stopped until all the clients unbind the service.

### Part 2 – Android developer Interview Questions (Advanced)

Let us now have a look at the advanced Android developer Interview Questions.

#### Q6. What are the different ways to define the service’s IBinder interface and how the client receive it and make a connection?

**Answer:**  
The different ways to define service’s IBinder interface and pass it to the client (just like activities) are:

* Extending the Binder class
* Using a Messenger
* Android Interface Definition Language (AIDL)

For extending the Binder class – here if the services are private to the applications and run in the same process as the client then interface be created by extending the Binder class and returning an instance of it from onBind(). The client receives the Binder and can use it to directly access public method available in either the Binder implementation or the Service.

#### Q7. What is Intent and brief about it types as well?

**Answer:**  
The intent is messaging objects. If a developer is trying to pass the data from one screen to another screen they will be using the Intent. Talking of the types there are of 2 types:

* **Implicit:** These calls the system components.
* **Explicit:** These invoke the activity class.

Let us move to the next Android developer Interview Questions.

#### Q8. Coin as many Android OS version that you remember?

**Answer:**

|  |  |
| --- | --- |
| **VERSION** | **NAME** |
| Android 8.0 | Oreo |
| Android 7.0 – 7.1.2 | Nougat |
| Android 6 – 6.0.1 | Marshmallow |
| Android 5 – 5.1.1 | Lollipop |
| Android 4.4 – 4.4.4 | KitKat |
| Android 4.1 – 4.3 | Jelly Bean |
| Android 4.0-4.0.4 | Ice Cream Sandwich |

#### Q9. Briefly explain the components/requirements for any Android development projects?

**Answer:**  
This is the most popular Android developer Interview Questions asked in an interview. The below-listed components are needful for successful completion:

* **Build:** contains the build output.
* **Src:** holds the code and resource file.
* **Res:** holds the bitmap images, UI, XML layouts.
* **Assets:** holds the file which can be combined into a .apk file.
* **Manifest:** holds the XML file.

#### Q10. What do you mean by AIDL? What are the data types supported in AIDL?

**Answer:**  
AIDL stands for Android Interface Definition Language. These are there to facilitate the communication between the client and service. The list of data types supported in AIDL are:

* Strings
* List
* Map
* charSequence
* Java data types

### Recommended Articles

This has been a guide to the list of Android developer Interview Questions and Answers so that the candidate can crackdown these Android developer Interview Questions easily. Here in this post, we have studied top Android developer Interview Questions which are often asked in interviews. You may also look at the following articles to learn more –

1. [Android Interview Questions](https://www.educba.com/android-interview-questions/)
2. [iOS Interview Questions](https://www.educba.com/ios-interview-questions/)
3. [Structure of an Android Operating System](https://www.educba.com/structure-of-an-android-operating-system/)
4. [Android Developers for Beginners | Useful Guide And Tools](https://www.educba.com/android-developers-for-beginners/)

## Android Interview Questions And Answers

With the world becoming closer and smaller and all things coming on mobile, Android has taken over all other languages for mobile application development. Android provides a complete set of a toolkit for app development. Following questions can be asked in an interview for Android.

So you have finally found your dream job in Android but are wondering how to crack the Android Interview and what could be the probable 2019 Android Interview Questions. Every interview is different and the scope of a job is different too. Keeping this in mind we have designed the most common Android Interview Questions and Answers to help you get success in your interview.

Below is the list of 2019 Android Interview Questions and Answers, which can be asked during an interview. These top interview questions are divided into two parts:

### Part 1 – Android Interview Questions (Basic)

This first part covers basic Android interview questions and answers

#### 1. What is Android? Explain the main components and what is Google Android SDK?

**Answer:**  
Android is an open source operating system that enables the user to develop applications on mobile devices and tablets. It is a [Linux based operating system](https://www.educba.com/linux-tools-for-system-administrators/) which allows the user to create and run applications on mobile with the rich high-end components it has. A user can perform all basic and advanced operations and create apps. The main components of Android are:

1)Linux Kernel  
2)Android framework  
3)Android applications  
4)Libraries

These components enable the developer to creating high-end applications which provide all the facilities in a single application with amazing look and feel.  
Google SDK is a development toolkit that is used by developers to write programs for mobile devices. It provides a graphical user interface simulating Android driven environment and enabling the developer to test and debug their codes.

#### 2. What are the important items in Android and explain the importance of XML based layouts?

**Answer:**  
The must required items in an Android project when a project is created are as below:  
a)Androidmanifest.xml  
b)Build.xml  
c)bin/  
d)src/  
e)res/  
f)assets/

Here we have two XML files which help in providing a consistent layout. It helps in giving the developer a standard graphical definition format. Usually, all layout details are placed in these XML files and the other items are placed in source files.

Let us move to the next Android Interview Questions.

#### 3. Explain in brief the files and folder which are created when an Android project is created.

**Answer:**  
The new project should have following files in the package in eclipse.

* **src-** This file contains [java source files](https://www.educba.com/careers-in-javascript/) for the newly created project. The code for the application is to be written in this file. It should be made available under the name of a project.
* **Assets-** This is a folder which will contain all information regarding HTML files, text files, and databases.
* **gen-** This folder must have the R.java file. It is a file generated by the compiler and it references the resources that are found in the project. This file should not be modified as it is generated by the compiler.
* **Android library-** This folder contains an android.jar file which has all libraries needed for creating an Android application.
* **bin-** It contains the .apk file that is created by ADT during the code build process. This file is the application binary file. When a developer runs his code this file has everything required to run a code.
* **res-** This is a folder that contains all resource files used by the application. It has subfolders like drawable, menu, layout, and values etc.

#### 4. What is ANR? What are the precautions to be taken to avoid ANR in an application?

**Answer:**  
This is the basic Android interview questions asked in an interview. ANR is a dialog which Android shows when an application is not responding. It stands for Application Not Responding. Usually, this state is encountered when an application is performing many tasks on the main thread and it has been unresponsive for a long period of time.  
Following things can be taken into mind to avoid ANR:

1)Be careful that there are no infinite loops encountered when complex calculations are involved.  
2)When a server is not responding for a long time and can result in ANR. In order to avoid this developer should define HTTP timeout for all web service and API calls.  
3)A developer should use IntentService when there are many background tasks. They should be taken off the main UI thread.  
4)All database and long-running network operations should be run on a different thread.

#### 5. Write a code for a Toast that will display the message “Hello, this is a Toast”.

**Answer:**  
Toast.makeText(getApplicationContext(), “Hello, this is a Toast”,  
Toast.LENGTH\_LONG).show();

### Part 2 – Android Interview Questions (Advanced)

Let us now have a look at the advanced Android Interview Questions.

#### 6. Write a code to generate a button dynamically.

**Answer:**  
protected void onCreate(Bundle newInstanceState) {

super.onCreate(newInstanceState);

Button button = new Button(this);

button.setText(“Button”);

setContentView(button);

});

#### 7.What is AIDL? What are the different data types supported by AIDL?

**Answer:**  
AIDL stands for Android Interface Definition Language. It acts as an interface between client and service and enables communication between them. It handles interface requirements between both of them and handles communication through interprocess communication or IPC. This involves breaking the objects into smaller parts so that Android can understand those objects. This happens because a process cannot access memory of other processes that are running. The different data types supported by AIDL are:

* String
* Map
* List
* charSequence
* all Java data types like int, long, char, Boolean.

Let us move to the next Android Interview Questions.

#### 8. How to handle multiple resolution screens in Android?

**Answer**:  
Below five properties help in handling multiple screen resolutions in Android:

1)Screen size can be divided into four generalized categories like small, normal, large and extra large  
2)Similarly, screen density can also be categorized into low, medium, high and extra high.  
3)When a user rotates the screen the screen orientation device should also get changed.  
4)The resolution defines the physical pixels on a screen.  
5)Independent pixel provides the developer a density-independent way to define the various layouts as per the requirement. The layouts can be customized and used accordingly.

#### 9. Explain the process to launch an activity on an application.

**Answer:**  
This is the advanced Android Interview Questions asked in an interview. To launch an activity developer needs to explicitly define intent. It specifies the activity that we wish to start. The following code will help you understand that activity which is sent in the second parameter in the new activity class.startActivity(). The first parameter is the Intent constructor in the current activity context.  
Intent intent1= new Intent(this, SecondActivity.class);  
startActivity(intent1);

If the user wishes to start activity from a particular fragment then below can be tried:  
Intent intent1= new Intent(getActivity(), SecondActivity.class);  
getActivity(),startActivity(intent1);

#### 10.What are the states of an activity?

**Answer:**  
There are four states of an activity. They are:  
**Active-** When the activity is active in the foreground  
**Paused-** When activity is in the background and still visible.  
**Stopped-** When activity is not visible.  
**Destroyed-** When activity is killed or terminated.

## XML Interview Questions and Answers – Introduction

XML stands for Extensible Markup Language. It is a text-based markup language derived from Standard Generalized Markup Language (SGML). The basic building block of an XML document is an element, defined by tags. An element has a beginning and an ending tag. XML data is known as self-describing or self-defining, meaning that the structure of the data is embedded with the data, thus when the data arrives there is no need to rebuild the structure to store the data, it is dynamically understood within the XML.  
The [XML format can be used by any individual](https://www.educba.com/xml-commands/) or group of individuals or companies that want to share information in a consistent way.  
XML is actually a simpler and easier-to-use subset of the Standard Generalized Markup Language (SGML), which is the standard to create a document structure.I am sure you want to know the most common XML Interview Questions and Answers that will help you crack the interview with ease.

Below are the most common feature of XML Interview Questions, that can give you a great foundation into the language.

### 1.What is XML?

**Answer:**  
XML is called Extensible Markup Language which is designed to carry or transport and store data.  
XML tags identify the data and are used to store and organize the data, rather than specifying how to display it like HTML tags, which are used to display the data.  
XML is mostly used to transfer data from one system to another e.g. between client and server in enterprise applications. XML technology facilitates you to create your own markup language.

### 2.What is a markup language?

**Answer:**  
Markup [languages](https://www.educba.com/best-programming-languages-for-algorithms/) are designed for presentation of text in different formats, and  
it can also be used for transporting and storing data.  
This markup language specifies the code for formatting, layout, and style of data.This markup code is called Tag.  
XML is a simple and flexible markup language in the [text format](https://www.educba.com/course/using-text-in-microsoft-word-2013/).

### 3.How XML is different from HTML?

**Answer:**  
Below is the point that explains the difference between [XML](https://www.educba.com/course/xml-and-java-application-training/) and [HTML](https://www.educba.com/course/creating-web-app-using-html-css-javascript/):  
•XML is a software and hardware independent tool used to transport and store data while HTML is used to display data and focuses on how data looks  
•XML is for data representation while HTML is for displaying purpose  
•XML supports user-defined tags while HTML provides pre-defined tags  
•XML is a case-sensitive language while HTML language is not case-sensitive  
•In XML, you make up your own tags while HTML uses a fixed, unchangeable set of tags  
•In XML, all tags must be closed while in HTML, it is not necessary to close each tag  
•XML provides a[framework](https://www.educba.com/course/php-development-laravel-framework-master-laravel/) to define markup languages while HTML is a markup language itself  
•XML is content driven while HTML is format driven

### 4.What are the features of XML?

**Answer:**  
The features of XML are:  
•Very easy to learn and implement  
•Does not require an editor because XML files are a text file  
•Both human-readable and machine-readable  
•Minimal and a limited number of syntax rules in XML  
•It is extensible, and it specifies that structural rules of tags  
•Has a free open standard

### 8.Where is XML used?

**Answer:**  
It is used to exchange the information between two applications. Information can also be exchanged between two different applications which are running on a different server or same server. It is used in [Web Application](https://www.educba.com/course/basic-owasp-application-security-training/), Mobile Application ([IOS](https://www.educba.com/course/ios-mobile-app-testing/), [Android](https://www.educba.com/free-android-emulators-for-pc/), [iPhone](https://www.educba.com/all-you-need-to-know-about-iphone-se/), [window Phone](https://www.educba.com/top-best-2016-windows-phone-apps/)) for providing the API. It is also used AS installer in a web application; you can set the application configuration in an XML file.

### 10.What is XML parser?

**Answer:**  
[XML parser](https://www.educba.com/course/web-development-for-xml-module-2-xml-parser/) is a piece of software which will check for well-formedness and validate the document. It also allows us to read, create and modify existing XML document.

### 11.What is an XML namespace?

**Answer:**  
An XML namespace is a collection of element type and attributes names.