1. What is Android?

Ans: It is an open-sourced operating system that is used primarily on mobile devices, such as cell phones and tablets. It is a Linux kernel-based system equipped with rich that's been components that allows developers to create and run apps · that can perform both basic and advanced functions.

2. What is the Android Architecture ?

Ans: Android Architecture is made of 4 key components:

a). Linux kernel

b). Libraries

c). Android Framework

d. Android Applications up

3. What are the features of Android architecture?

Ans: Android architecture refers to the various layers in the Android stack. It consists of operating systems, middleware, and applications. Each layer in the Android architecture gives different services to the layer just above it. The five layers present in the Android stack are:

a). Linux kernel - It is responsible for device drivers, device management, memory management, power management, and resource access.

b). Libraries - There are a set of libraries having open-source Web browser engine webkit, well known library libc, libraries to play and record audio and video, SQLite database for sharing of application data and storage, SSL libraries for internet security, etc.

c). Android Runtime - There are core libraries along with DVM (Dalvik Virtual Machine) or ART(Android RunTime) as runtime which is helpful for running an Android application. DVM is optimized for mobile devices. DVM provides fast performance and consumes less memory. Replacing DVM, ART(Android RunTime) virtual machine was introduced to execute android apps from Android lollipop 5.0 version (API level 21).

d. Android Framework - It consists of Android APIs like UI (User Interface), resources, content providers (data), locations, telephony, and package managers. It provides interfaces and classes for the development of Android applications.

e). Android Applications - Applications like home, games, contacts, settings, browsers, etc. uses the Android framework that will make use of Android runtime and libraries.

4.What is an activity?

Ans: Activity in java is a single screen that represents GUI(Graphical User Interface) with which users can interact in order to do something like dial the phone, view email, etc. For example, the Facebook start page where you enter your email/phone number and password to log in acts as an activity.

5.What is a service in Android?

Ans: Service is an application component that facilitates an application to run in the background in order to perform long-running operations without user interaction. A service can run continuously in the background even if the application is closed or even after the user switches to another application.

6. What are the Android Development Tools?

Ans: the Top 5 Android Development tools currently trending in the market.

a). Android SDK

b). Native Development Kit (NDK)

c). Titanium Mobile SDK

d. Hypernext Android Creator

e). ADOBE AIR

1.what is an Adapter in Android?

Ans: An adapter in Android acts as a bridge between an AdapterView and the underlying data for that view. The adapter holds the data and sends the data to the adapter view, the view can take the data from the adapter view and shows the data on different views like a spinner, list view, grid view, etc.

2. What is AAPT?

Ans: AAPT stands for Android Asset Packaging Tool. It is a build tool that gives the ability to developers to view, create, and update ZIP-compatible archives (zip, jar, and apk). It parses, indexes, and compiles the resources into a binary format that is optimized for the platform of Android.

3. What is AndroidManifest.xml file and why do you need this?

Ans:The AndroidManifest.xml file contains information regarding the application that the Android system must know before the codes can be executed.

• This file is essential in every Android application.

• It is declared in the rootdirectory.

• This file performs several tasks such as:

Providing a unique name to the java package. Describing various components of the application such as activity, services, and many more. Defining the classes which will implement these components.

4.what is the use of an activity Creator?

Ans: An activity Creator is the first step towards the creation of a new Android project. It is made up of a shell script that will be used to create new file system structure necessary for writing codes within the Android IDE.

5.Explain Activity Lifecycle briefly.

Ans: 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.

6.what is meant by Activities?

Ans: Activities are the mobile app part of the 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.

7.what is fundamental UI design in Android?

Ans: User interface (UI) design,

User experience (UX), human computer interaction (HCI), and usability are huge topics that aren't covered in great depth in this book. Nonetheless, it's important that you get. them right when creating your user interfaces. Android introduces some terminology for familiar programming metaphors that will be explored in detail in the following sections:

Views: Views are the base class for all visual interface elements (commonly known as controls or widgets). All UI controls, including the layout classes, are derived from view.

View Groups : View Groups are extensions of the view class that can contain multiple child Views. Extend the ViewGroup class to create compound controls made up of interconnected child Views. The ViewGroup class is also extended to provide the layout managers that help you lay out controls within your Activities. Activities Activities, described in detail in the previous chapter, represent the window, or screen, being displayed. Activities are the Android equivalent of Forms. To display a user interface you assign a View (usually a layout) to an Activity.

8. What is a widget and what does it do ?

Ans: A widget is an element of a graphical user interface (GUI) that displays information or provides a specific way for a user to interact with the operating system or an application. widget also means the small program that is written in order to describe what a perticular widget looks like how it behaves and how it responds to user actions. Most operating systems include a set of ready-to-tailor widgets that a programmer can incorporate in an application, specifying how it is to behave.

1. What is a broadcast receiver in Android?

Ans: Broadcast receiver is an Android component which allows send or receive Android you to system or application events. All the registered application are notified by the Android runtime once event happens. It works similar to the publish subscribe design pattern and used for asynchronous inter process communication. For example, applications can register for various system events like boot complete or battery low, and Android system sends broadcast when specific event occur. Any application can also create its own custom broadcasts.

2.Differentiate between LinearLayout, RelativeLayout, AbsoluteLayout ?

Ans: A LinearLayout arranges i its children in a single row or single column one after the other. A RelativeLayout arranges it's children in positions relative to each other or relative to parent depending upon · the Layout Params defined for each view. AbsoluteLayout needs the exact positions of the x and y coordinates of the view to position it. Though this is deprecated now.

3.What's the difference between a FrameLayout and a TableLayout ?

Ans: A FrameLayout stack up child views above each other with the last view added on the Though we can control the position of the children inside the FrameLayout using the layout_gravity attribute. When the width and height of the FrameLayout are set to wrap_content, the size of the FrameLayout equals the size of the largest child (plus padding). A TableLayout consists of TableRows. The children are arranged in the form of rows and columns. top.

4.How we can use Internet resources in Android?

Ans: Bandwidth Static resources like images, layouts, and sounds can be expensive data consumers on devices with limited and often expensive bandwidth restraints. By creating a native application, you can limit the bandwidth requirements to only data updates. Caching Mobile Internet access has not yet reached the point of ubiquity. With a browserbased solution, a patchy Internet connection can result in intermittent application availability. A native application can cache data to provide as much functionality

possible without as a live connection. Native Features Android devices are more than a simple platform for running a browser: they include location-based services, camera hardware, and accelerometers. By creating a native application, you can combine the data available online with the hardware features available on the device to provide a richer user experience. Modern mobile devices offer various alternatives for accessing the Internet. Looked at broadly, Android provides three connection techniques for Internet connectivity. Each is offered transparently to the application layer. GPRS, EDGE, and 36 Mobile Internet access is available through carriers that offer mobile data plans. Wi-Fi Wi-Fi receivers and mobile hotspots are becoming increasingly more common.

5.How Transfer data without draining the battery?

Ans: the best practices for scheduling and executing downloads using techniques such as caching, polling, and prefetching. You will learn how the power-use profile of the wireless radio can affect your choices on when, what, and how to transfer data in order to minimize impact on battery life.

6.What does an intent filter do?

Ans: An Intent is a messaging object you can use to request an action from another app component. Although intents facilitate communication between components in several ways, there are three fundamental use cases: • Starting an activity An Activity represents a single screen in an app. You can start a new instance of an Activity by passing an intent to startActivity. The Intent describes the activity to start and carries any necessary data. • Starting. a service A Service is a component that performs. operations in the background without a user interface. With Android 5.0 (API level 21) and later, you can start a service with Jobscheduler. For more information about Jobscheduler, see its API-reference documentation.

• Delivering a broadcast A broadcast is a message that any app can receive. The system delivers various broadcasts for system events, such as when the system up or the device starts boots charging. You can deliver a broadcast to other apps by passing an Intent to sendBroadcast or sendorderedBroadcast(). Props (short for properties) are used to pass to child or by data from parent the component itself. They are immutable and thus will not be changed. State is used for mutable data, or data that will change. This is particularly useful for user input. Props are a Component's configuration. Props are how components talk to each other. They are received from above component and immutable as far as the Component receiving them is concerned. A Component cannot change its props, but it is responsible for putting together the props of its child Components. Props do not have to just be data - callback functions may be passed in as props.

7.what are the Inten types ?

Ans: There are two types of intents: • Explicit intents specify which application will satisfy the intent, by supplying either the target app's package name or a fully-qualified component class name. You'll typically Use an explicit intent to start a component in your own app, because you know the class name of the activity or service you want to start. For example, you might start a new activity within your app

response to a user action, or start a service to download a file in the background. •Implicit intents do not name a specific component, but instead declare a general action to perform, which allows a component from another app to handle it. For example, if you want to show the user a location on a map, you can use an implicit intent to request that another capable app show a specified location on a map.

1 What is SQLite?

Ans: SQLite is a relational database management system which is self-contained, server-less and need zero configuration. SQLite is free to use for any purpose commercial or private. In other words, "SQLite is an open source, zero-configuration, self-contained, stand alone, transaction relational database engine designed to be embedded into an application". SQLite is different from other SQL databases because unlike most other SQL databases, SQLite does not have a separate server process. It reads and writes directly to ordinary disk files. A complete SQL database with multiple tables, indices, triggers, and views, is contained in a single disk file.

2.How would you create a database in SQLite?

Ans: In SQLite, the sqlite3 command is used to create a new database.

Syntax: sqlite3 DatabaseName.db

3.what are the most important features of SQLite?

Ans: a list of features which makes

SQLite popular among lightweight databases: other SQLite is totally free: SQLite is open-source. So, no license is required to work with it. SQLite is serverless: SQLite doesn't require a different server process or system to operate. SQLite is very flexible: It facilitates you to work on multiple databases on the same session on the same time. Configuration Not Required: SQLite doesn't require configuration. No setup or administration required. SQLite is a cross-platform DBMS: You don't need a large range of different platforms like Windows, Mac OS, Linux, and Unix. It can also be used on a lot of embedded operating systems like symbian, and Windows CE. Storing data is easy: SQLite provides an efficient way to store data.

4.What do you understand by PL/SQL cursors?

Ans: PL/SQL requires a special capability to retrieve and process more than one row and that resource is known as Cursors. A cursor is a pointer to the context area, which is an area of memory containing SQL statements and information for processing the statements. PL/SQL Cursor is basically a mechanism under which multiple rows of the data from the database are selected and then each row is individually processed inside a program.

5.Explain cursor types.

Ans: There are two types of cursors.

They are explained as follows: a) Explicit Cursors: For queries that return more than one row, an explicit cursor is declared and named by a programmer. In order to use explicit cursor in PL/SQL, 4 steps are followed Declare the cursors Syntax: CURSOR <cursor_name> is SELECT statement; Here, cursor_name> is the name assigned to the cursor and SELECT statement is the query that returns rows to the cursor active set.

Open the cursor

Syntax: OPEN cursor_nam>; where, cursor_name> is the name of the previously defined cursor.

Fetch rows from the cursor

Syntax: FETCH < cursor_name> INTO <record_list>;

Here, cursor_name> refers to the name of the previously defined cursor from which rows are being fetche < record_list> represents list of variables that will the receive the data being fetched.

closing the cursor Syntax: CLOSE<cursor_name>;

Here, cursor_name> is the name of the cursor being closed.

b) Implicit, cursors: when any SQL statement is executed, PL/SQL automatically creates a cursor without defining such cursors are known as implicit cursors.

For the following statements, PL/SQL employs implicit cursors

UPDATE

INSERT

DELETE

SELECT (queries that return exactly one row)

6.What is Parsing JSON data in android?

Ans: Android provides four different classes to manipulate JSON data. These classes are JSONArray, JSONObject, JSONStringer and JSON Tokenizer. For parsing a JSON object, we will create an object of class JSONObject and specify a string containing JSON data to it. Its syntax is String in:

JSONObject reader = new JSONObject(in);

7.what are the content Providers ?

Ans: 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.

8.How to Add Search to Your Application ?

Ans: Android's built-in search features offer apps an easy way to provide a consistent search experience for all users. There are two ways to implement search in your app depending on the version of Android that is running on the device. This class covers how to add search with SearchView, which was introduced in Android 3.0, while maintaining backward compatibility with older versions of Android by using the default search dialog provided by the system.

1.What is Android geocoding?

Ans: Geocoding is the process of transforming a street address or other description of a location into a clatitude, longitude) coordinate. Reverse geocoding is the process of transforming a clatitude, longitude) coordinate into a (partial) address. The location of a device is passed in either of the following two ways, which are:

• Longitude and latitude

• Human-readable address

To understand better, consider the address #267, southeast, Thane, Maharashtra. Did you understand this? Could you understand it if it were, latitude-37.65824 and longitude-122.58742. The answer is no, right? So, Geocoder does the task of translating a location from long/lat to an address. And geocoding is the method of transforming a location in Longitude and Latitude to a descriptive address.

2.What is Manipulating Raw Audio ?

Ans: The MediaRecorder/MediaPlayer framework is useful for most audio uses, but to manipulate raw audio straight from the microphone, process it without saving to a file, and/or play back raw audio, use AudioRecord/Audio Track instead. First, set the permission in the AndroidManifest XML file: <uses-permission android:name="android.permissio n.RECORD_AUDIO" />

3.How to Record Video with an Android Phone?

Ans: To capture moving pictures, or video, with your Android phone, switch the camera mode in the Camera app to video recording. The same icon is used to switch between still and moving images. When video mode is active, the Camera app's screen changes subtly: The shutter icon becomes a Record icon. Touch that icon to start recording video.

4.What are the location based services in Android ?

Ans: Location-Based Services in Android provides us with this feature to help us in various ways. It enables us to create an application that is capable of detecting the current location of our devices. Android makes use of information from GPS and WiFi networks to get the location of the device on this Earth.

5.How to access media files from shared storage.

Ans: a more enriched user experience, many apps. allow users to contribute and access media that's available on an external storage volume. The framework provides an optimized index into media collections, called the media store, that allows for retrieving and updating these media files more easily. Even after your app is uninstalled, these files remain on the user's device.

Request necessary permissions: Before performing operations on media files, make sure your app has declared the permissions that it needs to access these files. Keep in mind, however, that your app shouldn't declare permissions that it doesn't need or use.

Provides online repositories for node.js packages/modules, which are searchable on search.nodejs.org Provides command-line utility to install Node.js packages and also manages Node.js versions and dependencies.

1.How to Secure and Deploy an Android App ?

Ans: The Android operating system has lots of built-in security features, such as application sandboxing, protection against buffer and integer overflow attacks, and segregated memory areas for program instructions and data. As a result, simple Android apps that don't perform any file system or •networking operations can often be considered secure by default.

2.How to Publish an Android App on Play Store Google?

Ans: Step 1: Create a Google Developer account

Step 2: Add a Merchant Account

Step 3: Prepare the Documents

Step 4: Study Google Developer Policies

Step 5: Technical Requirements

Step 6: Creating the App on the Google Console

Step 7: Store Listing

Step 8: Content Rating

Step 9: Pricing the Application

Step 10: Upload APK and Send for Review

3.What is Android manifest permission ?

Ans: The Android manifest file helps to declare the permissions that an app must have to access data from other apps. The Android manifest file also specifies the app's package name that helps the Android SDK while building the app. The Android manifest file provides information such as activities, services, broadcast receivers, and content providers of an android application.

4. What are the Types of Android Attacks?

Ans: Types of Android Attacks Untrusted APK's: Attackers lure users to download applications from untrusted sources. These APK's may contain malicious software inside them, giving the attacker remote access to the mobile device when the APK is installed by the user. SMS:

The user may come across a suspicious SMS giving them big bounty's. When the users click that particular link in the message, they may be redirected to a malicious website giving away their sensitive information or may lead to financial loss.

Email: Phishing emails may redirect the users to malicious websites compromising the user's details. SPAM emails may steal information from the users.

Spying: Some applications may spy on the mobile users and report to the remote attackers.

App sandboxing issues: Sandboxing is the process of testing an App in a limited resource environment against various threats and attacks. If sandboxing has issues, it means that malicious applications can bypass this mechanism.

Rooting: Rooting is done for increasing speed and performance of an android device. This is not a recommended solution by the android authorities. When a phone is rooted, it loses its warranty and may open the door for various malware and allows the attacker to take control of the device remotely.