

1. What are the key components of an Android application?

The key components of an Android app include:

- **Activities:** Represents a screen with a user interface.
- **Services:** Background tasks that run without a UI.
- **Broadcast Receivers:** Respond to system-wide broadcast announcements (e.g., network changes).
- **Content Providers:** Allow data sharing between applications.
- **Intents:** Used to communicate between components (e.g., open a new screen).

What is an Activity in Android? Can you explain its lifecycle?

- An **Activity** is a single screen in an Android app that provides a user interface. Each Activity interacts with the user through UI elements (buttons, text fields, etc.).
- **Activity Lifecycle:** The lifecycle methods include:
 - `onCreate()`: Called when the activity is first created.
 - `onStart()`: Called when the activity becomes visible.
 - `onResume()`: Called when the activity starts interacting with the user.
 - `onPause()`: Called when the activity is partially obscured but still visible.
 - `onStop()`: Called when the activity is no longer visible.
 - `onDestroy()`: Called when the activity is being destroyed.
 - `onRestart()`: Called when the activity is being restarted after being stopped

What is an Intent in Android? What are the different types of Intents?

- An **Intent** is a messaging object used to request an action from another component (e.g., Activity, Service).
- Types of Intents:
 - **Explicit Intent:** Specifies the component to be called by its class name (e.g., opening a specific activity).
 - **Implicit Intent:** Does not specify the component directly but allows Android to determine which component (app) can handle the action (e.g., opening a web page in a browser).

What is a Fragment, and how is it different from an Activity?

- A **Fragment** is a modular section of an Activity. It represents a part of the UI and can be reused within different Activities.
- **Differences:**

- An **Activity** is a complete UI component, while a **Fragment** represents a portion of the UI that is typically part of an Activity.
- A Fragment can be added, removed, or replaced dynamically at runtime, while Activities are generally static.
- Fragments can manage their own lifecycle, but they depend on the Activity for context.

What are Gradle?

- **Gradle** is the build automation tool used by Android Studio. It compiles, packages, and manages dependencies for Android projects.

What is the AndroidManifest.xml file, and what is its purpose?

- The **AndroidManifest.xml** file is a required component of every Android app. It provides essential information about the app to the Android system, including:
 - Declaring Activities, Services, and Broadcast Receivers.
 - Permissions required by the app (e.g., Internet access, location).
 - Defining app's minimum SDK version and features.

What is a Layout in Android?

A **Layout** in Android is a container that holds UI components (views) such as buttons, text fields, and images.

What are the different types of Layouts available in Android?

Android provides several types of layouts that allow you to organize views in different ways:

- **LinearLayout**: Arranges the child views either vertically or horizontally.
- **RelativeLayout**: Arranges child views relative to each other or to the parent layout.
- **ConstraintLayout**: A flexible and efficient layout for creating complex UIs with fewer nested views, using constraints between the views.
- **FrameLayout**: A simple layout that stacks its children on top of each other, with the first child being at the bottom.
- **GridLayout**: Places child views in a grid-like structure, with rows and columns.
- **TableLayout**: Arranges child views in rows and columns like a table.

How does Toast work in Android?

- A **Toast** is a simple popup message that displays at the bottom of the screen (by default), and you can customize the position, duration, and content.
- It is commonly used for showing quick messages, such as "Data saved", "Network error", or "Invalid input".

What are SharedPreferences in Android

SharedPreferences is a key-value storage mechanism provided by Android to store small amounts of primitive data (like user preferences, settings, or simple app state data) in a persistent way.

ArrayAdapter in Android

An **ArrayAdapter** in Android is a type of **Adapter** that binds a data source (usually an array or a list) to a **ListView**, **Spinner**, or other types of views that need to display a list of items.

Features of SQLite Database in Android

SQLite is a lightweight, serverless, self-contained relational database engine that is widely used in Android applications for local data storage. It is embedded directly into the application and provides an efficient way to store and retrieve structured data.

SQLite Database Operations in Android