

# ▯ Android & Flutter Quick Revision Notes

## Module 1: Android Basics & UI Components

### **Q: What is Android?**

A: Android is an open-source mobile operating system developed by Google. It is mainly used to build mobile apps.

### **Q: What is an Activity in Android?**

A: An Activity is a single screen in an app. It works like a page or window.

### **Q: What is AndroidManifest.xml?**

A: It is a configuration file of an Android app. It contains permissions, activities, and app details.

### **Q: What is a Layout in Android?**

A: Layout defines how UI components are arranged on the screen.

### **Q: Difference between ConstraintLayout and LinearLayout?**

A: LinearLayout arranges items in a straight line (vertical or horizontal). ConstraintLayout gives more flexible placement using constraints.

### **Q: What is a View in Android?**

A: A View is a UI element like Button, TextView, or EditText.

### **Q: What is TextView?**

A: TextView is used to display text to the user.

### **Q: What is EditText?**

A: EditText is used to take input from the user.

### **Q: What is a Button click listener?**

A: It is code that runs when the user clicks a button.

### **Q: What is a RadioButton?**

A: RadioButton allows selecting only one option from multiple.

### **Q: What is Checkbox used for?**

A: Checkbox allows selecting multiple options.

### **Q: What is Spinner?**

A: Spinner is a dropdown menu for selecting one value.

### **Q: What is Toast? Give example.**

A: Toast is a small message popup.

Example: `Toast.makeText(context, "Saved", Toast.LENGTH_SHORT).show()`

### **Q: What is ProgressBar?**

A: ProgressBar shows loading or progress status.

**Q: What is AlertDialog?**

A: AlertDialog shows a message with buttons such as OK or Cancel.

**Q: What is a Switch control?**

A: Switch is used to turn something ON or OFF like a toggle.

**Q: What are Intents?**

A: Intent is used to move between screens or to perform actions.

**Q: Difference between Explicit and Implicit Intent.**

A: Explicit Intent opens a specific activity. Implicit Intent opens external apps like camera or browser.

**Q: What is Bundle in Intent?**

A: Bundle is used to pass data between activities.

**Q: What is Activity Lifecycle?**

A: Key methods: onCreate(), onStart(), onResume(), onPause(), onStop(), onDestroy().

**Q: What is Context in Android?**

A: Context gives access to system services like files, activities, etc.

**Q: What is APK?**

A: APK is the installable file of an Android app.

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## Module 2: Data Storage & Database

**Q: What is Data Persistence?**

A: Data persistence means storing data permanently.

**Q: What is Internal Storage?**

A: Internal storage is private app storage inside device memory.

**Q: What is External Storage?**

A: External storage is storage like SD card or shared/user-accessible storage.

**Q: What is SharedPreferences?**

A: SharedPreferences stores small key-value data like login or settings.

**Q: How to store and retrieve key-value pair using SharedPreferences?**

A: Use putString() to store and getString() to retrieve values.

**Q: What is SQLite?**

A: SQLite is a lightweight database built inside Android.

**Q: What is CRUD?**

A: CRUD means Create, Read, Update, and Delete operations.

**Q: How to create a table in SQLite?**

A: Use SQL:

```
CREATE TABLE users(id INTEGER PRIMARY KEY, name TEXT);
```

**Q: What is SQLiteOpenHelper class?**

A: It helps to create and manage SQLite database.

**Q: What is Content Provider?**

A: It is used to share data between apps.

**Q: What is Firebase?**

A: Firebase is a cloud platform by Google for backend services.

**Q: What is Firebase Realtime Database?**

A: It is a NoSQL cloud database that stores and syncs data in real-time.

**Q: Difference between SQLite and Firebase.**

A: SQLite is an offline database; Firebase is an online realtime database.

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## Module 3: Animation, Multimedia & Location

**Q: What is Animation in Android?**

A: Animation adds motion effects to UI elements.

**Q: Types of animation in Android?**

A: Fade, Scale, Rotate, Translate, and Frame Animation.

**Q: What is Alpha animation?**

A: Alpha animation is used for fade-in or fade-out effect.

**Q: How to play audio in Android?**

A: Use the MediaPlayer class and start() method.

**Q: How to play a video in Android?**

A: Use VideoView and set the video URL or file path.

**Q: What is MediaPlayer?**

A: MediaPlayer is used to play audio and video.

**Q: What is Location-Based Service?**

A: A service that uses device location to provide information.

**Q: What is GPS?**

A: GPS is Global Positioning System to get exact location.

**Q: What is Geocoding?**

A: Converting location latitude/longitude to an address.

**Q: What is Reverse Geocoding?**

A: Converting address to latitude/longitude.

**Q: What permissions are needed for GPS?**

A: ACCESS\_FINE\_LOCATION and ACCESS\_COARSE\_LOCATION.

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## Module 4: REST API & JSON Parsing

**Q: What is API?**

A: API allows apps to communicate with servers or other apps.

**Q: What is REST API?**

A: REST API uses HTTP to send and receive data.

**Q: What is JSON?**

A: JSON is a lightweight format to store and transfer data.

**Q: How to parse JSON in Android?**

A: Use JSONObject, Retrofit, or Gson library.

**Q: What is Retrofit?**

A: Retrofit is a library used to call REST API easily.

**Q: What is Volley?**

A: Volley is a networking library for API calls.

**Q: What is OkHttp?**

A: OkHttp is a low-level HTTP client for network calls.

**Q: Difference between GET and POST request.**

A: GET fetches data; POST sends or uploads data.

**Q: What is HTTP?**

A: HTTP is a protocol used for communication on the web.

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## Module 5: Dart & Flutter Basics

**Q: What is Flutter?**

A: Flutter is a framework used to build mobile apps.

**Q: What is Dart?**

A: Dart is the programming language used in Flutter.

**Q: Why Flutter uses Dart?**

A: Dart is fast and supports UI building and hot reload.

**Q: What is Widget in Flutter?**

A: Widgets are building blocks of UI in Flutter.

**Q: Difference between StatelessWidget and StatefulWidget.**

A: StatelessWidget does not change UI, StatefulWidget updates UI.

**Q: What is MaterialApp?**

A: MaterialApp is the root widget for Material Design.

**Q: What is Scaffold?**

A: Scaffold provides basic UI structure such as AppBar and body.

**Q: What is Hot Reload?**

A: Hot Reload updates UI instantly without restarting the app.

**Q: What is Container widget?**

A: Container is used for styling, margin, padding, and layout.

**Q: What is TextField widget?**

A: TextField allows user to input text.

**Q: What is ElevatedButton?**

A: ElevatedButton is a clickable button widget.

**Q: What is ListView?**

A: ListView is used to display scrollable list items.

**Q: What is Navigation in Flutter?**

A: Navigation is moving between screens.

**Q: What is Route?**

A: Route is a screen or page in Flutter.

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## Module 6: Flutter Database & Networking

**Q: What is sqflite?**

A: sqflite is SQLite database plugin for Flutter.

**Q: What is CRUD in Flutter?**

A: CRUD means create, read, update, delete data.

**Q: What is async and await in Dart?**

A: Async and await allow running long tasks without freezing UI.

**Q: What is the http package?**

A: It is used to call REST APIs in Flutter.

**Q: How to fetch data from REST API in Flutter?**

A: Use http.get() and decode JSON response.

**Q: Difference between JSON Encoding and Decoding.**

A: Encoding converts data to JSON; decoding converts JSON to data.

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## Firestore & Play Store

**Q: How do you connect Firestore to Android?**

A: Add Firestore in Android Studio using Firestore Assistant and add google-services.json.

**Q: What is Firestore Authentication?**

A: It provides login methods like Google, Email, OTP, etc.

**Q: What is Firestore Console?**

A: It is a web dashboard to manage Firestore services.

**Q: What is SHA Key in Firestore setup?**

A: SHA key is used to enable authentication features.

**Q: How to upload an app to Google Play Store?**

A: Build signed APK/AAB, upload to Play Console, add details, and publish.

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## General Questions

**Q: What is SDK?**

A: SDK is a software development kit used for building apps.

**Q: What is Android Studio?**

A: Android Studio is the official IDE for Android development.

**Q: What is Emulator?**

A: Emulator is a virtual mobile device for testing apps.

**Q: What is Gradle?**

A: Gradle manages app build process and dependencies.

**Q: What is Manifest Permissions?**

A: Permissions allow access to system features like camera or location.

**Q: What is Debug Mode and Release Mode?**

A: Debug is for testing with logs; Release is final version for users.

**Q: What version of Android/Flutter/IDE did you use?**

A: (Answer what you used, e.g., Android 12, Flutter 3.24, Android Studio Flamingo.)

**Q: Explain your mini project in 1 minute.**

A: "My project is \_\_\_\_\_. It includes login, database, CRUD, and UI features."

**Q: Which storage approach did you use and why?**

A: Example: "I used SQLite because it is lightweight, offline, and fast."

**Q: What challenges did you face during development?**

A: Example: "Firebase setup and API integration were challenging but I solved them using documentation and testing."

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## Practical Based Questions

**Q: Explain your registration form code.**

A: I used XML for UI and Java/Kotlin for logic with input validations.

**Q: How did you handle form validation?**

A: I checked if fields are empty and showed error messages.

**Q: How did you pass data between activities?**

A: I used Intent with putExtra() and received with getStringExtra().

**Q: Show how you inserted data in SQLite.**

A: I used SQLiteOpenHelper with insert() method.

**Q: How did you fetch data from Firebase?**

A: I used Firebase database reference and added a listener.

**Q: How did you implement REST API?**

A: I used Retrofit/Volley and parsed JSON response.

**Q: Show how you used widgets in Flutter.**

A: I used TextField, Button, Container, ListView, etc.

**Q: How did you perform CRUD in Flutter?**

A: I used sqflite package for insert, read, update, and delete.

**Q: Show API response JSON example.**

A: Example: { "id": 1, "name": "Shubham" }

**Q: How did you test your app?**

A: I tested using emulator and real device.