

☐ 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.

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.

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.

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.

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.

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.

Firebase & Play Store

Q: How do you connect Firebase to Android?

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

Q: What is Firebase Authentication?

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

Q: What is Firebase Console?

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

Q: What is SHA Key in Firebase 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.

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."

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.