303105379 - Mobile App Development
Sample Questions
Unit-I to Unit-IV

Unit-I Android Operating System and Development Environment:

1. What is Android?
2. Who developed Android and what is OHA?
3. Expand OHA and explain its purpose.
4. What is Dalvik Virtual Machine (DVM)?
5. What is Android SDK?
6. Define Android Virtual Device (AVD).
7. What are the main features of Android OS?
8. What is the role of the Android Manifest file?
9. Name the layers of Android Architecture.
10. What are Android Development Tools (ADT)?
11. What is the purpose of the Android Emulator?
12. What is the difference between Android SDK and Android Studio?
13. Explain the history and evolution of Android versions.
14. Describe the Android Architecture with a neat diagram.
15. Explain the components of Android Architecture.
16. Discuss the features of Android Operating System.
17. Explain the role and importance of Dalvik Virtual Machine.
18. Describe the Android Development Environment setup process.
19. Explain the directory structure of an Android application.
20. Write a short note on Android SDK components.
21. Explain the importance of the Android Manifest file in detail.
22. Compare Dalvik VM and ART (Android Runtime).
23. Explain Android Architecture in detail with a labeled diagram.
24. Describe the process of installing and configuring the Android Development Environment.
25. Discuss different Android versions and their key features.
26. Explain the complete directory structure of an Android project with examples.

27. What is OHA? Explain its objectives and members.

28. Describe the working of Dalvik Virtual Machine in Android.

29. Explain the role of Android SDK, ADT, and AVD in application development.

30. Discuss the significance of the Android Manifest file and explain its major elements (e.g., activities, permissions, services, etc.).

Unit-II Android Components and Resource handling

1. Define Context in Android.
2. What is an Activity?
3. What is the purpose of an Intent in Android?
4. Differentiate between Explicit Intent and Implicit Intent.
5. What is a Service in Android?
6. Define Broadcast Receiver.
7. What are Android Resources?
8. What is the purpose of the strings.xml file?
9. What is a Drawable resource?
10. What is the difference between Style and Theme?
11. Explain the role of Context in Android with suitable examples.
12. Describe the Activity Lifecycle with a neat diagram.
13. Explain how data is passed between activities using Intent.
14. Discuss the types of Services in Android.
15. Explain how a Broadcast Receiver works with an example.
16. Describe different types of Drawable resources in Android.
17. Explain how to define and use Color resources in an Android application.
18. Discuss the importance of Styles and Themes in UI design.
19. Explain how to create and apply a custom theme in Android.
20. Describe the folder structure of the res directory in an Android project.
21. Explain all major Android Components (Activity, Service, Broadcast Receiver, Intent, Context) in detail with examples.
22. Write a program to demonstrate navigation between two activities using Explicit Intent.
23. Develop an example to demonstrate the use of an Implicit Intent to open a web page.
24. Explain the working of a Foreground Service with a suitable example.

25. How does Android handle system-wide events using Broadcast Receivers? Explain with example.
26. Explain Resource Management in Android and its advantages.
27. Describe the steps to implement Localization in an Android application.
28. Explain how to prepare an Android application for multi-language support.
29. Write the steps to create and use alternative resources for different screen sizes or orientations.
30. Design a simple Android application demonstrating the use of String, Color, Drawable, Style, and Theme resources together.

Unit-III Android User Interface Elements and Layouts:

1. efine Material Design. Explain its key principles.
2. Differentiate between UI (User Interface) and UX (User Experience).
3. Explain the importance of Material Design in Android application development.
4. Describe the core components of Material Design.
5. What are Material Theming and Material Components?
6. Explain the concept of responsive design in Material Design.
7. Write short notes on:
    - Elevation
    - Typography
    - Color system in Material Design
8. What is a Layout in Android? Why is it important?
9. Explain Linear Layout with its important attributes.
10. What is the difference between horizontal and vertical orientation in Linear Layout?
11. Describe Absolute Layout. Why is it deprecated?
12. Explain Frame Layout with a suitable example.
13. What is Relative Layout? List its commonly used attributes.
14. Differentiate between Relative Layout and Constraint Layout.
15. Explain Constraint Layout and its advantages over other layouts.
16. What are constraints in Constraint Layout? Explain different types of constraints.
17. Compare Linear Layout and Constraint Layout.
18. What is Dynamic Implementation of Layout in Android?
19. Write the steps to create a layout programmatically (dynamic layout).
20. Explain the advantages of dynamic layout over static XML layout.

21. What are UI widgets in Android? Give examples.
22. Explain the properties, events, and methods of:

- TextView
- EditText
- Button

23. Differentiate between Button and ImageButton.
24. Explain the working of CheckBox and RadioButton with example.
25. What is an event listener? Explain OnClickListener with example.
26. Write short notes on:

- Spinner
- ListView
- Toast

27. What is a Dialog Box? Explain different types of Dialogs in Android.
28. Explain AlertDialog with its components.
29. What is the difference between Option Menu and Context Menu?
30. Explain how to create:

- Option Menu
- Context Menu
  in an Android application.

Unit-IV Working with Views and Fragment:

1. What is a View in Android?

Answer:
A View is the basic building block of Android UI components. It represents a rectangular area on the screen and is responsible for drawing and event handling.

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2. What is ViewGroup?

Answer:
ViewGroup is a subclass of View that acts as a container for other Views (e.g., LinearLayout, RelativeLayout).

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3. What is GridView?

Answer:
GridView is a ViewGroup that displays items in a two-dimensional scrolling grid.

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4. What is the use of Adapter in GridView?

Answer:
An Adapter connects data source (array/database) to GridView and converts data into View objects.

---

5. What is ListView?

Answer:
ListView is a ViewGroup that displays items in a vertically scrollable single column list.

---

6. What is RecyclerView?

Answer:
RecyclerView is an advanced and flexible version of ListView used to display large datasets efficiently using ViewHolder pattern.

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7. Why is RecyclerView better than ListView?

Answer:
RecyclerView improves performance using ViewHolder pattern, supports different layouts, animations and better memory management.

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8. What is CardView?

Answer:
CardView is a UI component that provides a card-like layout with rounded corners and shadow effects.

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9. What is WebView?

Answer:
WebView is a View that allows displaying web pages inside an Android application.

---

10. How do you load a website in WebView?

Answer:

```
WebView webView = findViewById(R.id.webview);

webView.loadUrl("https://www.google.com");
```

---

11. What is ScrollView?

Answer:
ScrollView is a layout that allows vertical scrolling of its child view.

---

12. What is the limitation of ScrollView?

Answer:
ScrollView can have only one direct child.

---

13. What is a Fragment in Android?

Answer:
A Fragment is a reusable portion of UI in an Activity with its own lifecycle.

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14. Why do we use Fragments?

Answer:
Fragments help in creating dynamic and flexible UI, especially for tablets and multi-pane layouts.

---

15. Can a Fragment exist without an Activity?

Answer:
No, a Fragment must be hosted inside an Activity.

---

16. Explain the lifecycle of Fragment.

Answer:
Fragment lifecycle methods include:

- onAttach()
- onCreate()
- onCreateView()
- onStart()
- onResume()
- onPause()
- onStop()
- onDestroyView()
- onDestroy()
- onDetach()

---

17. What is onCreateView() in Fragment?

Answer: It is used to inflate the layout of the Fragment.

```
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup container,
                         Bundle savedInstanceState) {
   return inflater.inflate(R.layout.fragment_layout, container, false);
}
```

---

18. What is Adapter in ListView?

Answer:
Adapter bridges data source and ListView to display list items.

---

19. What is ViewHolder pattern?

Answer:
It is a design pattern used to improve performance by avoiding repeated findViewById() calls.

---

20. What LayoutManagers are available in RecyclerView?

Answer:

- LinearLayoutManager
- GridLayoutManager
- StaggeredGridLayoutManager

---

21. Difference between ListView and RecyclerView?

Answer:

ListView	RecyclerView
Simple	Advanced
Fixed layout	Multiple layout support
No ViewHolder mandatory	ViewHolder mandatory

---

22. How to enable JavaScript in WebView?

Answer:

webView.getSettings().setJavaScriptEnabled(true);

---

23. What is FragmentManager?

Answer:
FragmentManager is used to add, remove, replace, and manage fragments in an Activity.

---

24. How do you add a Fragment dynamically?

Answer:

```
FragmentManager fm = getSupportFragmentManager();

FragmentTransaction ft = fm.beginTransaction();

ft.add(R.id.container, new MyFragment());

ft.commit();
```

---

25. What is back stack in Fragment?

Answer:
Back stack allows users to return to previous fragment state when pressing back button.

---

26. Explain implementation steps of RecyclerView.

Answer:

1. Add dependency
2. Add RecyclerView in XML
3. Create item layout
4. Create Adapter class
5. Create ViewHolder
6. Set LayoutManager
7. Attach Adapter

---

27. Explain GridView with example.

Answer:
GridView displays items in grid form using Adapter.

```
GridView gridView = findViewById(R.id.gridView);

ArrayAdapter<String> adapter = new ArrayAdapter<>(this,

    android.R.layout.simple_list_item_1, data);

gridView.setAdapter(adapter);
```

---

28. Explain CardView usage.

Answer:
CardView is used to display information inside a card-like container.

```
<androidx.cardview.widget.CardView
  app:cardCornerRadius="8dp"
  app:cardElevation="4dp">
</androidx.cardview.widget.CardView>
```

---

29. Explain ScrollView with example.

Answer:
ScrollView allows vertical scrolling.

```
<ScrollView>
  <LinearLayout
    android:orientation="vertical">
    <!-- Multiple Views -->
  </LinearLayout>
</ScrollView>
```

---

30. Explain complete Fragment implementation steps.

Answer:

1. Create Fragment class
2. Override onCreateView()
3. Create XML layout
4. Add Fragment to Activity (static or dynamic)
5. Manage using FragmentManager

Example:

```
public class MyFragment extends Fragment {
  @Override
  public View onCreateView(LayoutInflater inflater,
      ViewGroup container, Bundle savedInstanceState) {
    return inflater.inflate(R.layout.fragment_layout, container, false);
  }
}
```