

ASSIGNMENT 1

① Based on your understand, identify a recent-business trend that has influenced the Android-platform. Explain how this trend impacts Android app developers & business in the mobile App industry.

→ One significant trend that was influencing the Android platform was growing emphasis on privacy & data security

Impact on app developers:-

① Enhanced privacy measures:-

-Android introduced stricter privacy control and policies , affecting how app collect and handle user data , developers need to adhere to these - guidelines which might require change to their app data collection and usage practice

② User consent & permission

-Develop must ensure their app request permission in a transparent manner and only collect necessary data with user consent this impact user experience & app functionality , as user are becoming more cautious about granting permission

③ data minimization

advertisers are encouraged to minimize data-collection, storage & retention, which can reduce the complexity of their app but might require adjustment to existing features

Impact on Businesses in the app industry

① Compliance costs:

- Ensuring compliance with evolving privacy regulation can be costly for business, they may need to invest in update audits & legal consultation to avoid fines and reputational damage

② Consumer Trust:

- Adhering to strict privacy practices can build trust with user, leading to increase loyalty & a competitive advantage

③ Monetization challenges

- Business relying on user data for advertising services may face challenge due to restricted access to user information

④ Market opportunity

- privacy focused app & services can capitalize on the growing demand for secure & private digital experiences

adjoint

Q2

What is purpose of an inflator of layout in Android development, & how does it fit in Architecture of A android layout?

→ The purpose of an interface in Android development is to convert an XML layout file into corresonding views object in memory. its essential component for dynamically creating & managing user interface element

(1)

XML layout files

In Android , you define UI layout XML file these files describe structure & appearance of your UI element

(2)

View Hierarchy

The created view object form a hierarchy that represented your UI this hierarchy can include various UI element like button , text views , & more each with its attributes define in the XML layout file

(3)

Activity / Fragments

The View hierarchy is typically associated with an Activity , which are parts of your app UI

(4)

User Interaction : UI with your app UI & you can programmatically modify to the UI element as needed

Q3

Explain the concept of custom DialogBox in android app
Provide example to illustrate its use

- In android, A dialog is a small window that prompts user to make a decision, provide some additional information, inform the user about some particular task
- Purpose of dialog
 - to warn the user about any Activity
 - to inform the user about any Activity
 - to tell user whether it is an error or not

```
Class MainActivity : AppCompatActivity () {  
    override fun onCreate (savedInstanceState : Bundle ?) {  
        super.onCreate (savedInstanceState)  
        setContentView (R.layout.activity_main)
```

```
    val showDialogBtn = findViewById<Button>(R.id.show_dialog_btn)
```

```
    showDialogBtn.setOnClickListener {  
        showCustomDialog (this)}
```

fun showCustomDialog (context : Context) {

val dialogView = LayoutInflater.from (context).inflate
(R.layout.custom_dialog, null)

val alertDialogBuilder = AlertDialog.Builder (context)
.setView (dialogView)

val alertDialog = alertDialogBuilder.create()

dialogView . dialogButton .setOnClickListener {

val userInput = dialogView . dialogInput .text
toString ()

alertDialog . dismiss ()

y

alertDialog . show ()

y

y

Q4

How do Activities, services and the Android Manifest file work together to make one Android app? • Can you describe their main role & provide a basic example of how they cooperate to design a mobile app?

→

Activities : Activities are the UI component of an Android app. They represent the screen or UI element that the user interacts with.

① Activities

Main Role: Activities are responsible for presentation the UI & handling UI with app

Example: in messaging app, you might have - different Activities for composing a new message, viewing a list of conversation or reading a specific msg thread.

- Each of these Activities manage a different screen or UI

② Services: Main Role

perform background task without UI. They handle operation that should continue even when the app is not in the foreground

Ex: Music streaming app

③ Android Manifest

Main Role: It provide essential information to the Android system about app component

Requirement

Ex: you might declare multiple Activities for different screens & a service for handling notification.

④

Service: Service are background component that perform task without a UI

⑤

Android manifest file

- it provide essential informational about app to the android os.

- Activities are declared in the manifest file using <Activity> tags. This informs the android system about the available activity in app.
- Services are similarly declared in the manifest file using <service> tags. This informs the system about the services your app provides.
- Manifest file also specifies how different Activities & service are related & how they interact with each other through the use of <intent-filter> & <action>.
- When user interacts with app, the android system starts & manages the Activity based on user action. Service can be started & stopped programmatically by Activities or other services & they can run independently of the UI component. Permission required for specific Action or component are declared in the manifest file to ensure proper security & access control.

Ex- Weather app

Q8
How does Android manifest file impact the development of an Android application? Provide an example to demonstrate its significance

- The Android Manifest file plays a crucial role in Android app development. It contains essential information

influencing various aspect of development & app behaviour

① Permission

- The manifest file specifies the permission your app needs to access certain device features, like camera, location & contact. Example, if app requires access to the camera, you would declare the permission like <uses-permission android:name="android.permission.CAMERA" />.

② Activities

- define the app activities in the manifest. Each activity must be declared with an intent filter to specify how the responds to actions.

③ Service & Broadcast Receiver

- are declared in the manifest to specify how they interact with the system & other component

④ App Metadata:

- you can include app metadata about the app, such as the app name, icon, version

⑤ App Configuration

- You can set various configuration option for your app in the manifest, like screen orientation, supported screen sizes.

Ex Activity

<Activity android: name = "MainActivity">

<intent-filter>

<Action android: name = "android.intent.

Action.MAIN"/>

<category android: name = "android.intent.

category.LAUNCH"/>

</intent-filter>

</activity>

Q6

What is role of resources in Android development

Discuss the various types of resources & their significant in creating well-structured application
Provide example to clarify your point.

→ Resource in Android development are essential component that help you to create well-structured & flexible application they serve several purpose such as separating code from content, adapting different device & simplifying localization. Here are the main type of resources and their significant

1 Layout Resources

XML Layout : - These define the structure and appearance of your app user interface. They help keep the UI separate from code logic, making it easier to maintain & adapt

Example :- A layout XML file specifies how element like button and text field are arranged on the screen

(1) Drawable Resources

- Image & icon :- Drawable resource - store image, icon & other graphics used in your app. Diff version can be provided for diff screen densities.

Example :- You might have ic_launcher.png for the app icon at separate version for low, medium & high density screen.

(2) String Resources:

Text & string :- Storing text, it resources file allowed for easy localization & update without modify code.

example: A string resources ("app-name") contain the app name which can be changed for different language.

(3) Color Resources

Code :- By defining color resources you can maintain consistent color scheme across your app & easily switch themes.

Example: A color resources (primary_color) define the primary color

Q5

Style Resources

- type: style defined in XML file under 'res/values'

'significant': define reusable style for UI components

- Example: 'res/values/style.xml' define style

<style name = "myPatternstyle">

<item name = "android:background" > @drawable/
my-button2 </item>

<item name = "android: textColor" > @color/priimary_color
</item>
</style>

Q7

How does an Android service contribute to functionality of mobile application? Describe the process of development.

→

An service is a component that runs in background to perform platform long-running operation to provide functionality for other application.

→

Service can perform:-

- Playing music in background
- Syncing Data
- Downloading files
- performing background processing

process of developing an Android service following method to be implemented:-

- OnStartCommand()
 - This method is called when service is started.
 - It should contain the code that you want your service to execute
- onBind()
 - It should return an IBinder object that client can use to interact with service.
- OnUnbind()
 - You can implement other method in service subclass
- startService():
 - To start your service
- bindService():
 - To bind to your service.