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

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

→ Impact on app developers :-

→ 1) Enhanced Privacy measures :-
Android introduced stricter privacy controls and policies, affecting how apps collect and handle user data.

→ 2) User consent and permissions :-
developer must ensure their apps request permissions in the transparent manner and only collect necessary data with user consent this impacts user experience.

→ 3) data minimization :-
Developers are encouraged to minimize data collection, storage and retention, which can reduce the complexity of their app but might require adjustments to existing features.

→ impact on Business:-

→ 1) compliance costs:-

Ensuring compliance with wolving privacy regulations can be costly for business they may need to invest in updates, audits and legal consultation to avoid fines and reputational damage.

→ 2) consumer trust:-

To strict privacy practicies can build trust with user, leading to increased loyalty and a competitive advantages.

→ 3) monetization challenges:-

Business relying on user data for the ~~user~~ advertising services may face challenges due to restricted access to user information

Q-2 what is the purpose of an Inflater of layout in Android development, and how does it fit into the Architecture of Android layouts?

→ The purpose of ~~an~~ inflater in Android development is to convert an XML layout file into corresponding view objects in memory.

→ 1) XML layout files:-

In Android, you define UI layouts using XML files, these files describe the structure and appearance of your UI elements.

→ 2) view Hierarchy :-

The created view object form a hierarchy that represents your UI this hierarchy include various UI elements like buttons, text view and more.

→ 3) Activity / Fragment :-

The view hierarchy is typically associated with an Activity, which are parts of your apps UI.

→ 4) User Interaction :-

UI with your apps UI, and you can programming modify to the UI elements as needed.

3) Explain the concept of a custom DialogBox in android app Provide examples to illustrate its use

→ In Android, A dialog is a small window that prompts the user to make a desicion, provide some additional information and 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.

→ Example :-

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

```
Val showDialogBtn = findViewById<Button>(R.id.showDialog_btn)

showDialogButton.setOnClickListener {
        showCustomDialog(this)
    }
}

fun showCustomDialog(context: Context) {

    val dialogView = LayoutInflater.from(context) in Flyte
                        (R.layout.customdialog, null)

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

val alertDialog = alertDialogBuilder.create()

dialogView.dialog_button.setOnClickListener {
    // val userInput = dialogView.dialog_input.text.toString()
        alertDialog.dismiss()
    }
    alertDialog.show()
}
}
```

4 How do Activities, services, and the Android manifest firework together to make an android app? Can you describe their main roles and provide a basic example of how they cooperate to design a mobile app?

→ 1) Activities :-

Activities are the UI components of an Android app they represent the screen or UI elements that the user interact with.

→ Main Role :-

Activities are responsible for presenting the UI and handling UI with app

→ Example :-

In messaging app, you might have different activities for composing a new msg, viewing a list of conversation or reading a specific msg thread.

2) Services :-

→ main Role :-

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

→ Example :- music streaming app.

3) Android manifest :-

→ Main Role :- provide essential information to the Android system about apps components and requirments.

→ Example :- You might declare multiple activities for different scree and a service for handling notifications.

→ 2) service :-
Services are background components that perform tasks without a UI.

→ 3) Android manifest file :-
It provides essential information about app to the Android OS.

→ Activities are declared in the manifest using tags. This tells 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.

→ Ex:- Weather app.

→ you have two activity (i) main Activity (ii) settings Activies and "weather update service". Which periodically fetches weather data from an online API.

5 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 essentials information about the app and its components, influencing various aspects of development and app behaviour.

→ 1) Permissions:-

The manifest file specifies the permissions your app needs to access certain device features, like, camera, location or contacts.

→ 2) Activities:-

define the apps activities in the manifest Each Activity must be declared with an intent filter to specify how it responds to action.

→ 3) Services and Broadcast Receivers:-

They are declared in the manifest to specify how they interact with the system and other components.

→ 4) App metadata:-

You can include app metadata about the app, such as the apps name, icon, version.

→ 5) App configuration:-

You can set various configuration options 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.LAUNCHER" />
    </intent-filter>
</activity>
```

What is the role of resources in Android development discuss the various types of resources and their significance in creating well structured application. Provide example to clarify your points.

→ Resources in android development are essential components that helps you create well structured and flexible applications they serves several purposes such as seperating code from content.

1) Layout Resources:-

→ XML Layout:-
These define the structure an upperearance and upperearance of your apps user interface they help keep the UI separate from code logic making it easier to maintain or adapt.

→ Example:- A layout xml file specifies how element like buttons and text folds are arranged on the screen.

2) Drawable Resources:-
Drawable Resources store images icons and other graphics used in your app different version can be provided for difference screen densities.

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

3) String Resources:-

String text in the resources files allows for easy localization and updates without modifying code.

→ Example:-

A string resource ('app_name') contains the app's name, which can be changed for different languages.

4) Color Resources:-

By defining colors in resources, you can maintain a consistent color scheme across your and easily switch themes.

→ Example:- A color resource define the primary color used in the app UI elements.

5) Dimension Resources:-

Storing size and margins in resource file makes it easy to adjust layout for different screen size and orientations.

→ Example:- A dimension resource defines a consistent margin size for elements.

6) Raw Resources:-

You can store non-compiled resources like audio, radio or text, files in the 'res/raw' directory.

→ Example:-

A dimensions resources storing Json file in the 'raw' folder for configration data.

7) How does any android service contribute to the functionality of a mobile application? describe the process of developing an android service. write in simple language and include main point.

→ An android service plays a crucial role in the functionality of a mobile application by allowing tasks to run in the background even when the app is not acting in use.

→ Contribution of android service :-

1) Background processing :-
services run tasks in the background ensuring the essential function like music playground, location tracking, or data can continue without disintrupting the user interface.

2) Long - running operations :-
services are ideal for operations that take long time to complete such as downloading large files or performing complex calculations without causing the app to freeze.

fore-ground services :-
Some services can run in displaying a notification to keep the user aware of ongoing tasks like navigation or chat applications.

→ Developing an Android service :-

1] Create a service class :-

Extend the 'service' class or one of its subclass like 'intent service' or 'Job service'.

2] Declare in the manifest :-

Register your service in the Android manifest.xml file to make it accessible to the system and other components.

3] Start and stop the service :-

Start a service using 'start service' or find to it using 'find service'. Stop a service when it's no longer needed using 'stop service' or 'stop self()'.

4] foreground - services :-

To create a foreground service provide a notification that intentions the user about ongoing tasks.

5] Thread Management :-

When performing time-consuming operations consider using worker threads or to prevent blocking the main UI thread.

6] communications :-

Use intent extras broadcast services or interfaces to enable communication b/w services and other app components

8] Cleanup and Resource Management:-

Ensure that you release resource and stop the resource when it's no longer needed to prevent unnecessary battery drain.

9] Testing:-

Throughly test your service to ensure it works or expected including scenarios like app ~~backing~~. backgrounding, task interruptions, and restarts.

6/10/23