Assignment - 1

1] Based on understanding, identify a recent business trend that has influenced the Android platform. Explain this trend impacts Android app developers.

→ "On-Demand Application"

→ Apps like Uber & Zomato have changed how we do things everyday. They make it easy for us to get different services just by tapping on our phone

→Impact:

- For Android App Developers:

→ More Specialization: Developers who are experts in creating on-demand apps are in high demand.

→ Tech Upgrades: Developers need to keep up with the latest mobile app technologies

→ Varied Work: Developers have opportunities to work on different types of on-demand app

- For Business:

→ New Income: Business can earn money from these apps through commission or ads

→ Data Insights: App provides data that businesses can use to understand customers & make smarter decisions.

- Examples of these Apps:
  - → Zomato
  - → Uber
  - → UrbanClap
  - → Flipkart
  - → Amazon India
  - → Swiggy

2. What is the purpose of an Inflator of layout in Android development, & how does it fit into architecture of Android layouts?

→ The purpose of an Infater is to convert layout files into view objects, such as buttons, text, & image views, by parsing the file & setting their attributes like size, position, and text.

→ The Inflater is a crucial part of Android's layout architecture, responsible for creating the view hierarchy that defines the structure of all objects in an app.
It is commonly used to:
1. Create the intial layout of an activity or fragment
2. Generate dialog boxes & pop-up windows
3. Dynamically inflate new layout views.

In Android's layout architecture:

- Layout Files: Stored in res/layout directory
- Activity: It uses an Inflator to convert the layout file into View object
- Inflator: LayoutInflater class
- View Hierarchy: Inflator turns the design into a family tree of view objects.
- User Interface: This View hierarchy acts as the blueprint for the app's appearance & behaviour.

3. Explain the concept of a CustomDialogBox in Android App. Provide examples to illustrate its use.

→ A customDialogBox in Android is a tailored dialog box that developers can create with their own design, layout, and functionality. It's used for various purposes, such as displaying custom messages, gathering user input, offering choices, or showing complex layouts like forms & maps.

→ One common way to implement it is by using AlertDialog class.

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

     val dialog = MyCustomAlertDialog(this)
     dialog.setTitle("My Custom Alert Dialog")
     dialog.setMessage("This is a custom dialg")
     dialog.setPositiveButton("OK"){ dialog, _ ->
         dialog.dismiss()
     }
    dialog.show()
    }
}
→ class MyCustomAlertDialog(context: Context): AlertDialog
                                                (context){
    private val titleView: TextView
    private val messageView: TextView

    init {
    val layout = LayoutInflator.from(context).inflate
                 (R.layout.custom_dialog_layout, null)

     titleView = layout.findViewById(R.id.title_view)
     messageView = layout.findViewById(R.id.message_view)
     setContentView(layout)
    }
    fun setTitle(title: String){
     titleView.text = title
    }
    fun setMessage(message: String){
     messageView.text = message
    }
}
```

h. How do activities, services, and the Android Manifest file work together to make an Android App? Can you describe their main roles & provide a basic example of how they cooperate to design a mobile app?

→ Activities, services and Manifest files are three pillars of app development.

- Activities: These handle what you see on your screen & your interactions. They are like different page of book.

→ Services: Task like downloading files or playing music without needing a visible interface.

→ Manifest File: It's like an app's ID card, telling Android what the app contains and its permission.

→ Example of weather app:

When you open it, the main screen (activity) shows today's weather, if you want more details, another screen (another activity) appers.
Meanwhile, a "service" keeps the weather info up-to-date in the background.

DEEP XEROX

5. How does Android Manifest file impact the development of an Android app?

→ The Android Manifest file is crucial in Android app development. It informs the Android system about your app's components, permissions, hardware/software needs, and metadata. Without it, your app won't function.

→ Example of Permission for Internet and minimum SDK version check:

```
<manifest ns:android="http://schemas.android.com/apk/res/android">
<application android:name=".MyApp">
<activity android:name=".MainActivity"
 <intent-filter>
 <action android:name="android.intent.action.MAIN" />
 <category android:name="android.intent.category.LAUNCHER" />
 </intent-filter>
</activity>
 <uses-permission android:name="android.permission.INTERNET" />
 <uses-sdk android:minSdkVersion="21" android:targetSdkVersion="33" />
 </application>
 </manifest>
```

Significance:

→ The Android Manifest file's importance lies in its ability to control how apps interact with Android system & other apps. It ensures security, compatibility, & performance.

6 What is the role of resources in Android development? Discuss the various types of resources & their significance in creating well-structured applications. Provide example to clarify your points.

→ Role of Resources :

- Resources in Android development are vital for separating code & data, adapting to diverse device configurations, and supporting multilingual apps.

→ Types of resources :

1. Drawable: Image & UI graphics
2. Layouts: Screen structure
3. Strings: Text content for UI
4. Styles: UI appearance
5. Colors: Color Schemes
6. Menus: Menu Structure
7. Animations: Animation instruction
8. Raw Resources: Unprocessed binary data

→ Resource - Strings Example :

* String :

```
<string name = "greeting_morning"> Good Morning </string>
<string name = "greeting_afternoon"> Good Afternoon </string>
<string name = "greeting_evening"> Good Evening </string>
```

* activity_main :

→ <TextView
android:id = "@+id/textView"
android:layout_width = "wrap_content"
android:layout_height = "wrap_content"
android:text = "@string/greeting" >

* MainActivity.kt :

→ class MainActivity : AppCompatActivity() {
private lateinit var textView : TextView

```
override fun onCreate(savedInstanceState: Bundle?) {
    super.onCreate(savedInstanceState)
    setContentView(R.layout.activity_main)
    textView = findViewById(R.id.textView)

    val hourOfDay = Calendar.getInstance().get(Calendar.HOUR_OF_DAY)
    val greeting = when {
        hourOfDay < 12 -> getString(R.string.greeting_morning)
        hourOfDay < 18 -> getString(R.string.greeting_afternoon)
        else -> getString(R.string.greeting_evening)
    }
    textView.text = greeting
}
}
```

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

→ An service is a componet that runs in background to perform long-running operations or to provide functionality for other applications.

→ Services can
- Playing music in background
- Syncing Data
- Downloading files
- Performing background processing

• Process of Developing an Android Service following methods 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 ~~Service~~ method in service subclass

→ StartService():
To start your service.

→ bind Service():
To bind to your service.