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Assignment -1 (MAD)

Q1 Based on your understanding identify a recent business trend that has influenced the android platform Explain how this trend impacts android App devlopment and business in the mobile app industry

Ans One significant trend in the android app industry was the increasing emphasis on User Privacy and data security

= Input on Android APP Developers.

(1) Enhanced Permissons and consent

→ Developers has be more transparent about that data that apps called and request explict User Content This ments redesigning Permission diagram and ensuring that user undrstood why certain data was being collected

(2) Limitations On Adverting

→ For apps relaying on Adrting revenue Changed in ad trucking and targeting to Privacy Concers affected their monetion there Chuny possibly exploring alternative monetization model

(3) Data Hunding and storage
-> Developers had to review how they hun and stored user data impluention stricter d protection measures This could lend to increment deutopment time costs.

-> Impacts on Business

1 Compilance costs

-> Businesses operating in the android app industry needs to allocate resuca For Compliance could include legal and technical measures to ensure data Prote

2. monetization challange

-> Bysiness relying hevily on user data for advertisny and personalized content Pu ced challange in mainy their reben strems They needs to find new ways to engage users and generzative incom

(3) Repution management.

-> Privacy breaches or mishuding of user data could result in revers reputational damage become even more critical

Q2 What is purpose of an Influ of layout in Andorid developmen and how does it fit into Arhitetu of Anroid the layout?

=> In anroid app Development think the inflate like a mange tool it help turny your desiny plans into actual buttons text boxes and other things you see on your phone's screen.

ns In android app Development think of the "Inflater" like a magic tool it helps turn your design plans into actual buttons text boxes and other thing you on your Phone's screen.

=> Purpose of layout Inflator

1) Dynamic UI inflation layout inflater is used to create instances or Anroid view object from xml layout resouse file at runtime.

② Reusability : It promotes the resubilitity of UI components by define their structure and appearce in xml layout files making them in different part of an app

[3] Separation of concerns: layout in flate helps maintain clear separtion ble the UI design and the code that manipulate and intructs with these UI elements

-> Auchitecture of Anroid layouts

[1] xml layout files Developers design the layout & structure of UI elemen

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layout resource file

[2] Activity / fragment in the Java or Kotlin code of an android activity or fragm developer the xml layout files creating a hierachy the xml layout file hierar - of view object This is typically - whin the oncrete method

(3) view Hierarchy: The result of inflat the layout xml is a hiararchy of view object with the root view being the

[4] Data Binding & Event Handling: Devel after bind data to these view using data binding libraries or handle user inter by attaching event listners.

(5) Rendering on the screen The androi system is responsible for this hierar of view on the device screen according to the layout specification defined in the xml file

Que 3 Explain the concept of custom Dialog Box in Android application provide examples to illystrate its use

Ans A custom Dialog Box in Anroid applic is a pop-up window that develop can design and customize to show specific information receive input from users perform actions without navigting to a new screen or activity custom Dailog Boxes are helpful for displayi messages alrts forms or any custom co ntents controlled and visually appealing manner

(2) Design flexibility : Custom Dialog Boxes allow develop to Create unique and tailored user interface

(3) Contextual Use They are typic used When you want to capture User input or Show information without the user different screen

- Example of custom Dialog Box User

1) Confirmation Dialog A common use case asking the user confionation beror Performing a critica ation

(2) login or Registration Dialog instead of navigation to seperate Dialog intead of Navigating to seperate screen for login or Registration a custom dialog box can pop-up Prompting the user, to enter their credlinous

(3) Error message When there on error such as network issues or invalid input a custom dailul correct the problem

(4) Data & time picker : you create custom dialog Box per Pilecting dates or time Providing a more tim

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Code

```
import android.appAlertDialog
import android.appcontent.DialogInterf
import android.os.Bundle
import android.appcompact.app.AppCompa

class .your.Activity : AppCompactActivity() {
  override fun create (saveInstanceState:
                       Bundle ?){
super.onCreate (saveInstance state
set contenview (R.Layout activity ma

val builder = AlertDialogProvider (this)
builder setTitle ("custom Dialog Example
                   dialog box ex")

builder set positiveButtion ("ok"){
                   dailog, which -> }

  val dailog = builder create()
   dialog .show()
  }
}
```

4 How do activities service the Android manifest file work together to make an Android APP? can you describe their main roles and provide a basic example How they coopirate to design a mobile app?

=> Activities service & the Android manifest files are essential components in the android app architecture each distict the that contribute to the funcationty and behaviours Contribute to the functionlity and or an app

(1) Activitys:

-> Role: Activities represent the user interface and screen of an Android they handle use interctions display UI element and manage the the UI flow

-> Example: Imagine a simple note taking app each screen or the app such as the note list note editing and setting can be implement as seperate activites

(2) Servies:

-> Role: Services run in the backgraund and Partform long runing or backgraund task whiout a user interface

Example In our note taking app you might have a service that periodically backs up notes to a cloud server while showing a user Interface

3 Android manifest file

→ Role The Android manifest file is a configulation file, providing essential information about the app to the Android system it declares the apps components permission, and other settings

Example In the manifest file you define which activities are part of your app, specify permissions & declares services your app user

⇒ How they coperate

① Activities

⇒ The App starts with an activity showing a list of notes

⇒ When n the user taps on a note another activity open to display and edit the note content

→ user can navigate between activities using buttons or gestures

Services

→ While the user is using the app a seavice runs in the background to periodically save the user's notes to cloud storage

This service doesn't have use interface but operates independently to ensure data is continuously backed up

(a) Android manifest file

→ in the manifest file you declare the activities and servies used in your app.

→ you specify permission like "INTERNET" to allow the app to access the internet for clould back up'.

```
<manifest xmlns:android='http://schemas
        android.com/apk/res/cmd
    package="com.example.mynotesapp">
  <application>
    <activity android:name="mainActivity"
    <intent-filter>
    <action android:name='android.intent.acti
            man" />
    category android:name="android.intent
            category.LAUNCHAR
```

Que 5 How does the Android manifest file impact the deployment of an android application? Provides an example to demonstrate its significance

→ The android manifest file impact app development by

(1) Component Declaration: Declaring component to define the app's structure

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ex = <activity android.name = "main Activity"

(2) App. Permissions : specifying permission accessing device resources

ex: <user - permission android name: "android permission. CAMERA" />

(3) Intent filters : Defining how the app responds to external action or requ

ex : Registering to open PDF files when tapped

<activity android:name = "PdfviewerActivity">
<intent - filter >
<action android name: "android.intent. action view" />
<category android name: "anroid.intenel category DEFAULT />"

<data android: name type : "application / pdf">
< /intent - filter>
</activity >

Que 6 What is the role of resouse in Andoriod developont Desuss the various types of resource and their significance in creting well Strutured applic provid example to clarity your points

→ Resources in Android development are essential components that helps you create well structure application provide example clarity your points

(1) layout Resource

xml layouts: These defini structure and apparance of your apps user interface They help keep the UI Separate from code logic making it easiey to maintain of updat. Example A layout text tield are drawn on the screen

(2) Drawable Resources

Image and icons Drawable resource store image icons. and other graphics use yours app Diff versions can be provided for diff screen densities

: you might have ic - launcher png for the icon 3 separate version for low medium & high density screen

(3) String Resources

Text and Strings String text in resource file allow for asy locatization and update without modifiy code

Example: A String resource (APP Name) Containg the app's name which can be Change for different language

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[4] Color Resoures

• Colors: By defining colors in resource you can maintain a consiten color sc across your and esily switch themes

Example A Color resurce (primary color define the primary color used in app UI element

(5) Style Resouces
Them and style: styles define the appe of UI element makinmy it simplec to apply Consistent styiny across app

Example you can create custom style define founts color and othe

(6) Dimension Resources
size and Dimensions: Style define font colors and other visued celth inthe for diffnt screen size butt and orinthations

Example A dimension resource (mamin small) define a consistent size for element

(7) Raw Resouces:
Raw data: you can store complided resources like audio vidio or text files in the rest raw dirctory
Example storing a Json file n the raw folder for configuration data

e 7 How does an Android service contribute to be functionlity of a mobile application Describe thes process of developing on android service write in simple language and module main points.

ns An anroid Serivice plays a crulual role in the functiondiny of nobile application by allowing tasks to run in the background even when the app is not activity in use

- Contribution of Android service.

[1] Background Processing : Service run task in the background ensuring the essuta function like music playback location tracking or data runcing can contine without distrupimy the user interface

(2) long Running operation : service are ideal for opesdens that take a lony time to complete such as downlonding large files or Performing complex calculations without causing the app to freeze

(3) foreground Service Some can run in foreground displaying persistent notice

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keep the user aware ok anyo
task like navigation or thul. applic

(4) Inter compont communication : service can communication with. Other app components activities fragment through inteface allowing data extehunge and coordination

-> Developing an Android service

create a service class
-> Extend the service class or one its subclass like Intent service or Job service

-> Imelement the service s function writt the oncreate & onstrest
-> Register your servies in the Android maintuntion Other Componets

(3) service lifecycle
-> understand the service lifecycle method Concrete onstast command oBind onDest and overside then as needs

-> service can run in threse method choose the foregroup background lond choose

(4) start and stop the service
-> start a service using start service or bind it using bind service connection int)

-> step a service when its no cogen me ussing stoservice

(5) Fore ground services
-> To create a fore ground service provid a notication that informati the use abount ongoing task,
-> use sport forground () to start a service in the foresound mode

(6) Thread management
-> Which performing threds or Asum Task to prevent blocking the main UI thred

(7) Communications:
-> use intet exitras broaducast reciver or intfaces app componets

(8) clenup and Resorce managment
-> ensure that release resoure and stop the resiviled it no losis& needs to prevent unneccessary battary dzain

(9) Testing
-> thoroghly test your service ensur it works expands includiny scanars like app background task intrrugtion and restarks.