



Shri U. V. Patel College of Engineering

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+ Developers who want to create AI powered mobile apps, need to have expertise in AI and machine learning. This can be challenging for those who don't have expertise.

+ There is growing number of AI powered mobile apps available on the App store. This means developers need to find ways to differentiate their apps from the competition.

For businesses in mobile app industry:

- AI powered apps allow businesses to easily reach and engage with customers. Businesses can use it to provide customers with personalized recommendations, customer support, tasks and provide customers with real-time assistance.

+ Businesses that want to develop AI powered apps need to invest in resources such as talent, computing power and AI expertise. This can be expensive and time consuming investment.





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- Intent is the purpose of an inflation layout in Android app development and can also be integrated into the characteristics of Android layout.

- The purpose of an inflation of layout in Android development is to create a new view object from our usual file that defines a layout. It is a class that can take our usual file as input and build the view object from it.

- It fits into the characteristics of android layouts by allowing development in reuse existing layouts or create custom ones without writing java code for each component.

- An inflation of layout can be used in diff scenarios such as:

- When creating a custom view class that extends an existing view class, such as TextView or ImageView and inflating a layout xml file in constructor.

- when creating a custom adapter class that populates a list view or grid view with data, and inflating a layout xml file for each item in grid view respectively.

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- When creating a fragment class that displays a part of the user interface and indicating a layout XML file in the `onCreateView` method.
- An inflation layout can be obtained from different sources such as:
- The `getSystemService` method of the context class, which returns an instance of `LayoutInflater` that can be used to inflate any layout resources.
- The `getLayoutInflater` method of the activity class, which returns an instance of `LayoutInflater` that can be used to inflate any resources within the scope methods.
- An `LayoutInflater` layout can also be customized by extending a `LayoutInflatorFactory` or `LayoutInflater.Factory`, which allows developer to create their own views or modify existing ones during Inflation process.



Explain the concept of a customDialogBox in Angular application. Provide example in illustrate.

- A customDialogBox is type of dialog that allows you to create a custom layout and appearance for your dialog. You can use a customDialogBox to display any kind of content that you want such as images, texts, buttons, list etc.

- It is useful when you want to provide some options or information to the user that standard dialog can offer.

- customDialog.html

```
Custom version='1.0' encoding="utf-8">?
<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto; border-radius: 10px; background-color: #f0f0f0; height: fit-content; display: flex; align-items: center; justify-content: center; flex-direction: column; font-family: sans-serif; font-size: 14px; color: black; text-align: center; position: relative; z-index: 1; >
  <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 2; >
    <div style="background-color: #e0e0e0; border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 3; >
      <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 4; >
        <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 5; >
          <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 6; >
            <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 7; >
              <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 8; >
                <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 9; >
                  <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 10; >
                    <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 11; >
                      <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 12; >
                        <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 13; >
                          <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 14; >
                            <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 15; >
                              <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 16; >
                                <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 17; >
                                  <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 18; >
                                    <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 19; >
                                      <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 20; >
                                        <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 21; >
                                          <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 22; >
                                            <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 23; >
                                              <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 24; >
                                                <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 25; >
                                                  <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 26; >
                                                    <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 27; >
                                                      <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 28; >
                                                        <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 29; >
                                                          <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 30; >
                                                            <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 31; >
                                                              <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 32; >
                                                                <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 33; >
                                                                  <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 34; >
                                                                    <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 35; >
                                                                      <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 36; >
                                                                        <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 37; >
                                                                          <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 38; >
                                                                            <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 39; >
                                                                              <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 40; >
                                                                                <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 41; >
                                                                                  <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 42; >
                                                                                    <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 43; >
                                                                                      <div style="border: 1px solid black; padding: 5px; border-radius: 5px; width: fit-content; height: fit-content; position: relative; z-index: 44; >
                        </div>
                      </div>
                    </div>
                  </div>
                </div>
              </div>
            </div>
          </div>
        </div>
      </div>
    </div>
  </div>
</div>
```





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< TextView

attr: id = "@+id/_text"

attr: layout_width = "match_parent"

attr: layout_height = "wrap_content"

attr: text = "Custom Dictionary" />

< EditText

attr: id = "@+id/_input"

attr: layout_width = "match_parent"

attr: layout_height = "wrap_content" />

< Button

attr: id = "@+id/_button"

attr: layout_width = "match_parent"

attr: layout_height = "wrap_content"

attr: text = "OK" />

< LinearLayout

- customDictionarySet

import android.widget.LinearLayout

import android.content.Context,

import android.os.Bundle,

import android.view.View,

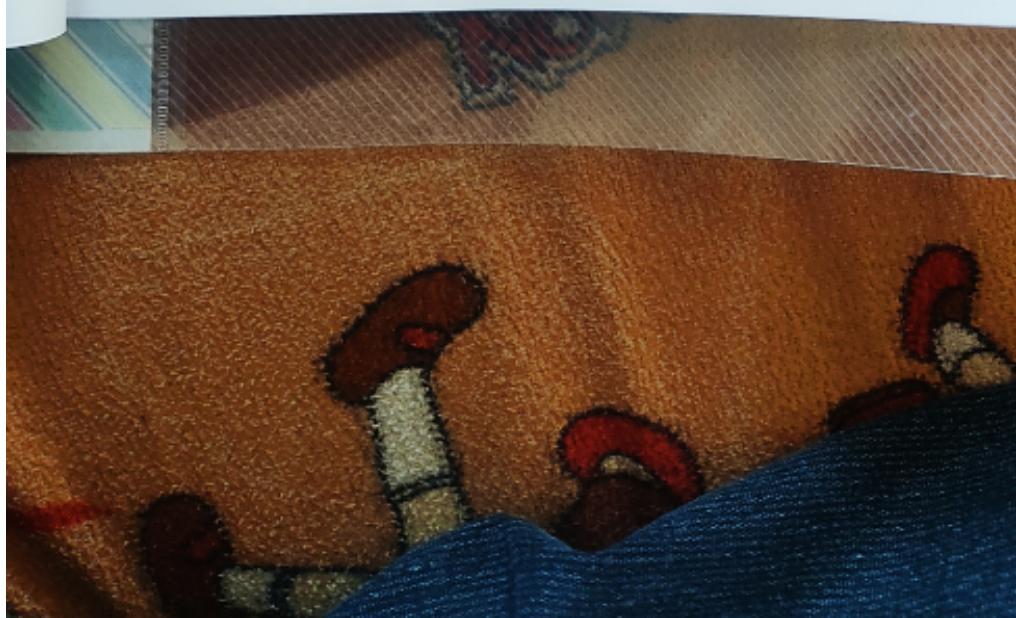
import android.widget.EditText

AM

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()

TOPPER LEARNING





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```
class CustomDialog extends Dialog {  
    public CustomDialog(Context context) {  
        super(context);  
        setContentView(R.layout.dialog);  
        setCancelable(true);  
        setCanceledOnTouchOutside(true);  
        setTitle("Custom Dialog Title");  
        final EditText edit = findViewById(R.id.editText);  
        edit.setText("Hello World");  
        edit.setOnEditorActionListener(new  
            OnEditorActionListener() {  
                @Override  
                public boolean onEditorAction(EditText v,  
                    int actionId, KeyEvent event) {  
                    if (actionId == EditorInfo.IME_ACTION_DONE) {  
                        String text = edit.getText().  
                            toString();  
                        edit.dismiss();  
                        return true;  
                    }  
                    return false;  
                }  
            });  
    }  
}
```

- MainActivity, cat

```
import android.app.ActionBar;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;
```

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class MainActivity : AppCompatActivity {

 override fun onCreate(savedInstanceState: Bundle?) {

 super.onCreate(savedInstanceState)

 setContentView(R.layout.activity_main)

 val button: Button = findViewById(R.id.button)

 button.setOnClickListener { view ->

 val customDialog = CustomDialog(this)

 customDialog.show()

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How do activities, services and background work together to make an android app?
Can you describe their working and provide basic example of how they cooperate to design an android app.

- Activities services and background work like and extensional components of Android app. They work together to define app's structure, behaviour and requirements.

- Activities:

Activities represent the user interface and the screens of your android app. Activities handle user interactions such as button clicks, input forms, and displaying information.

- Services:

Services are background components that perform tasks without a user interface. They can meet long-running operations such as playing music, downloading files etc.

- Services can continue running even after app's UI is not in the foreground.

Absolute Manifesto!

It is a configuration file, about your app to the Android system. It defines components in your app including activities and services with their properties and permissions. It also declares app's entry point and any required permissions i.e. Let's say you are creating a music player.

Activities! You would have created various screens like the main screen, scanning music library, or screen for playing music and settings. Each activity handles the user interactions and displays the corresponding UI.

Services! You'd use a service to play music in background, when the user selects a song and steps 'Play', the music activity can start a music-playing service. The service handles the audio playback, even if the user navigates to another activity or minimizing the app.

Android Manifest File To the manifest file, you declare all your activities and services specifying their properties. You declare the media activity which is the entry point of your app. If your app needs permissions to access the device storage or contact media, you declare this permission in the manifest as well.

i.e:

<manifest xmlns:android="http://schemas.android.com/apk/res/android">

 <package name="com.example.musicplayer">

<Application>

 <activity android:name=".MainActivity" >

 <intent-filter>

 <action android:name="android.intent.action.MAIN" />

 <category android:name="android.intent.category.LAUNCHER" />

 </intent-filter>

<Activity>

 <activity android:name=".MusicPlayerActivity" />

 <service android:name=".MusicPlayerServices" />



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C1 -- Permission -->

User-permission ~~example~~ = "external permission
READ+EXTERNAL STORAGE" />

User-permission ~~example~~ = "external permission
INTERNET" />

C1 application >

C1 manifest >

How does the 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 the development of an Android app as it serves as a blueprint of the android system to understand and manage your app.

- **Component Declaration!** The manifest file declares all the components of your app, including activities, broadcast receivers and content providers. This declaration enables the Android system to know what needs up your app.
- **Entry Points!** It specifies the main activity and the launch screen the app opens.
- **Permissions!** You declare required permissions in the manifest file. This is crucial for security and access to device resources.
- **Intent Filters!** You define intent filters for activities, services, broadcast receivers. These filters specify how your components can respond to implicit intent from other apps on system.
- **Application Metadata!** You can include metadata about your app, its name, icon, version, theme. These help user and system to identify your app.



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ie!

University readers "android: " http://stevewozniak.com/coolcoolcool
apkLaunch android: " package="com.example.wcattlapp" >

application

icon=" @drawable/icon_launcher"
label=" @string/app_name"
theme=" @style/AppTheme" >

activity

name=" MainActivity "
label=" @string/app_name" >

<intent-filter>

action=" android.intent.action.MAIN" >
category=" android.intent.category.LAUNCHER" />

<intent-filter>

<activity>

name=" com.example.UpdateService "
exported=" true" />

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User-permission ~~canReadFileFromExternalStorage~~ "canReadFile permission
INTERNET" />

User-permission ~~canReadFileFromExternalStorage~~ "canReadFile permission ACCESS_FINE_LOCATION" />

Give-Keystore ~~canReadFileFromExternalStorage~~ "canReadFile permission ACCESS_FILE_DESCRIPTOR" />

getApplicationId >

getApplicationInfo >

-Without this required file, the android system
would not know how to launch your app, what
permissions it need or how to interact with
the components.

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What is the role of resources in Android development? Discuss the various types of resources and their significance in creating well structured apps. Provide example to clearly justify your points.

- Resources in android development are essential assets and codes that are external to your app code. They play crucial role in which creating well structured, maintainable android apps.
- Resources are kept in separate context from code, making it easier to manage and customize an app's appearance, behaviors and content.

Layout Resources

Type: `xml` file in the '`res/layout`' directory

Significance: Layout resources define the structure and appearance of user interface components such as views and view groups. They maintain a clear separation between the app's UI and its design functionality.



ip:

<linearlayout width="matchparent" height="wrap_content" android:content
cyle="nest_scrollview">
matchparent! layout_width="wrap_content"
matchparent! layout_height="wrap_content">

<Button

android: id="@+id/btn"
matchparent! layout_width="wrap_content"
matchparent! layout_height="wrap_content"
android: text="Click me" />

</linearlayout>

- Drawable Resources:

type? Images, icons, and other graphic
assets in the 'res/drawable' directory

significance? Drawable resources are used for
displaying images, icons and background for your
app.



↳ An image resource serves as app's logo/icon.

String Resources

Type: String values in the 'res/values' directory stored in xml files.

Significance: String resources store text content including app labels, error messages and even indentation text.

Resources

(String name="app_name">My App (String)
(Resources)

Color Resources

Type: Color values in the 'res/values' directory stored in xml files.

Significance: Color resources define color patterns for your app's UI elements. Controlling the color resources provides consistency and makes it simple to switch themes.

<!-- Resources -->

- <!-- Color name = "pColor" --> #FFE722 <(Color)>
<!-- Resources -->

Style Resources!

type 1 and files in the 'res/values' directory
typically stored in 'style.xml'

significance: Style resources define reusable themes
and styles for UI components. They
help maintain a consistent design.

<!-- Resources -->

- <!-- style name = "AppTheme" parent = "Theme.AppCompat.
Light.DarkActionBar" -->

<item name = "colorP"> @+color/pColor </item>

<item name = "colorPrimaryLight">@+color/pColor</item>
<item name = "colorPrimary">@+color/pColor</item>

<!-- style -->

<!-- Resources -->

How does an android service contribute to the functionality of mobile application? Describe the process of developing android services.

An android service is a component that can perform a long running operation in background without a user interface. It can enhance the functionality of mobile application by allowing it to handle tasks that are not directly related to user interaction such as download files, playing music. A service can also communicate with other components of application or even with other app. using interprocess communication.

The process of developing Android service involve several steps:

- 1) Create a service class: Start by creating a new class that extends the service class you will need to override methods like 'onCreate()', and start etc as per your service requirements.

a) Define the service in manifest! Declare your service in the app's AndroidManifest file. This step is essential to register the service with android system.

i.e. Service :

```
        <service>  
            <action>YourService</action>  
            <exported>true</exported>  
            <export>true</export>
```

- Start or bind services from another component at your app such as an activity or broadcast receiver. You can use startService() and bind to start service object runs in the background until it stops itself or is stopped by another component.

- You can use bindService() method to bind a service that provides a client-service that provide a client-server interface for ipc and will only do so long as another component bound to it.

Stop or unbind the service when it is no longer needed. You can use the stopService() method to stop a service that was started by another component.

You can use the unbindService() method to unbind a service that was bound by another component. You can also use the stopSelf() method to stop a service with itself.

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