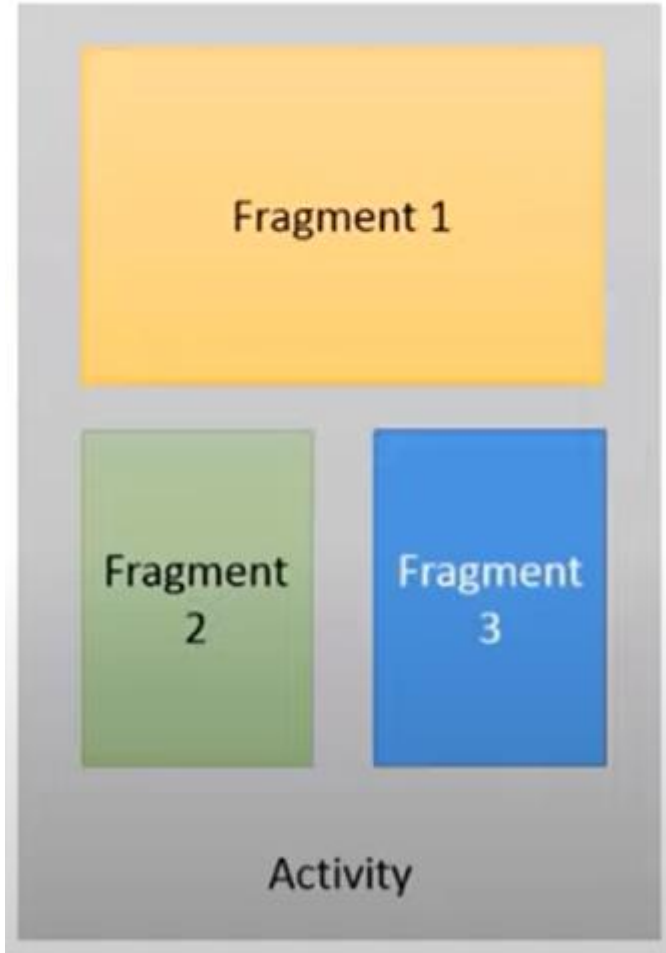# Fragment

What is fragment?

- Android Fragment is **the part of activity**, it is also known as sub-activity.
- There can be more than one fragment in an activity.
- Fragments represent multiple screen inside one activity.
- A Fragment represents a reusable portion of your app's UI.
- A fragment defines and manages its own layout, has its own lifecycle, and can handle its own input events.
- Fragments cannot live on their own--they must be *hosted* by an activity or another fragment.
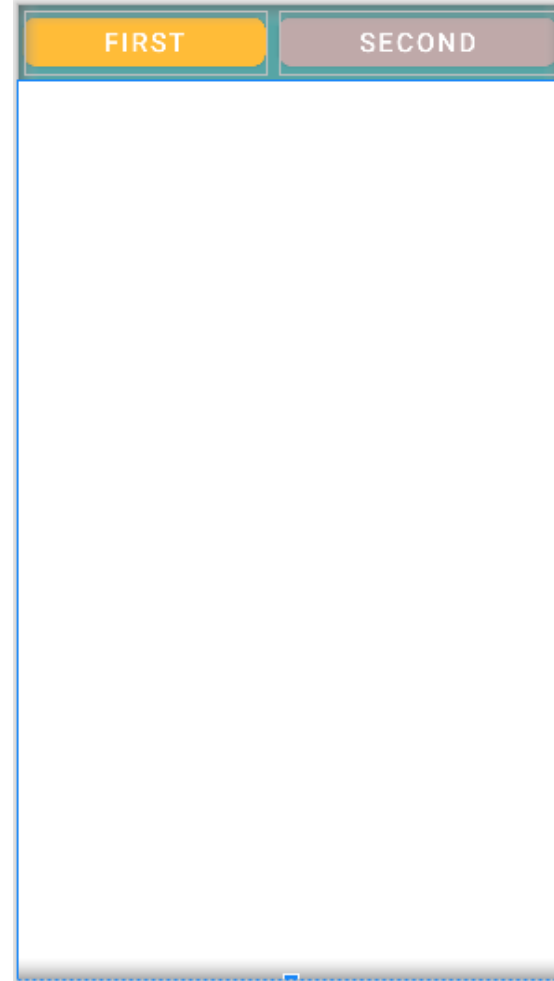
Fragment

Why do we need fragment?

- We can combine several fragments in one activity
- Reuse the same fragment across several activities, because fragments have their own layout which can be used across the many different activities
- Fragments make better use of larger screen space on the tablets
- Fragments support different layouts on portrait and landscape mode

Important Classes for Using Fragments

- Fragment
  - The base class androidx.fragment.app.Fragment.

- FragmentManager
  - The class for interacting with a fragment inside of an activity.

- FragmentTransaction
  - The class for performing fragment operations, such as adding a fragment, replacing a fragment or adding it to the back stack.

- Create an application which has two buttons. When the user clicks on the first button the first fragment will be displayed and when the user clicks on the second button the second fragment will be displayed.

colors.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>
    <color name="button1Color">#FFBC38</color>
    <color name=" button2Color ">#BFA9A9</color>
    <color name="fragmenttwocolor">#00BCD4</color>
</resources>
```

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="#57A5A5"
        android:orientation="horizontal">

        <Button
            android:id="@+id/btnFirst"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:layout_weight="1"
            android:backgroundTint="@color/button1Color"
            android:text="First"
            android:textSize="20dp"
            app:cornerRadius="10dp" />

        <Button
            android:id="@+id/btnSecond"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:layout_weight="1"
            android:backgroundTint="@color/button2Color"
            android:text="Second"
            android:textSize="20dp"
            app:cornerRadius="10dp" />

    </LinearLayout>

    <FrameLayout
        android:id="@+id/ll1"
        android:layout_width="match_parent"
        android:layout_height="match_parent">
    </FrameLayout>

</LinearLayout>
```

fragment_first.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".FirstFragment">

    <!-- TODO: Update blank fragment layout -->
    <ImageView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:src="@drawable/nature"
        android:scaleType="fitXY"/>
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="First Fragment"
        android:textSize="30dp"
        android:textColor="@color/white"
        android:layout_gravity="center_horizontal"/>

</FrameLayout>
```

fragment_second.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/fragmenttwocolor"
    tools:context=".FirstFragment">

    <!-- TODO: Update blank fragment layout -->

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Second Fragment"
        android:textSize="30dp"
        android:textColor="@color/teal_700"
        android:layout_gravity="center_horizontal"/>

</LinearLayout>
```

FirstFragment.java

```java
package com.example.fragment;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;


public class FirstFragment extends Fragment {

    public FirstFragment() {
        // Required empty public constructor
    }
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {
        // Inflate the layout  for this fragment
        return inflater.inflate(R.layout.fragment_first, container, false);


    }
}
```

SecondFragment.java

```java
package com.example.fragment;

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

import androidx.fragment.app.Fragment;


public class SecondFragment extends Fragment {

    public SecondFragment() {
        // Required empty public constructor
    }
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_second, container, false);
        }
}
```

MainActivity.java

```java
package com.example.fragment;

import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentTransaction;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.LinearLayout;

public class MainActivity extends AppCompatActivity {
Button btnFirst, btnSecond;
LinearLayout linearlayout;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btnFirst= findViewById(R.id.btnFirst);
        btnSecond=findViewById(R.id.btnSecond);
        btnFirst.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                FirstFragment firstFragment=new FirstFragment();
                FragmentTransaction
transaction=getSupportFragmentManager().beginTransaction();
                transaction.replace(R.id.ll1,firstFragment);
                transaction.commit();
            }
        });
```

MainActivity.java contd…

```java
btnSecond.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            SecondFragment secondFragment=new
SecondFragment();
            FragmentTransaction
transaction=getSupportFragmentManager().beginTransaction();
            transaction.replace(R.id.ll1,secondFragment);
            transaction.commit();
        }
    });

    }

}
```

To Use Multiple Fragments in One Activity(With multiple layouts)
visit

https://www.youtube.com/watch?v=iksjcQuxtt4