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| **Ex No: 8** | SWIPE VIEW IN TAB USING VIEW PAGES |
| **Date:** |  |

**AIM:**

To develop an application with Swipe view in tab with the help of View Page using Android Studio.

**DESCRIPTION:**

The Swipe View in Tab Using View Pager application in Android Studio offers an intuitive navigation experience. It employs the ViewPager component to enable users to smoothly swipe between various content or pages within distinct tabs. This user-friendly interface combines ViewPager and TabLayout to organize and display content, with each tab representing a different fragment or page. The seamless integration of fragments, an adapter, and a page change listener ensures efficient navigation, making it easy for users to access diverse types of content through horizontal swiping within tabs.

Key Components:

1. ViewPager: ViewPager is a critical component in Android development for creating swipeable interfaces. It allows users to transition between different pages or fragments with a smooth horizontal swipe gesture. In this application, ViewPager is used to manage and display content within tabs.

2. TabLayout: TabLayout is used in conjunction with ViewPager to create tabbed navigation at the top or bottom of the screen, making it easy for users to select the content they want to view. Each tab corresponds to a different fragment or page.

3. Fragments: The application uses fragments to represent the individual content pages that can be swiped between. Each fragment can contain different types of content, such as text, images, or interactive elements.

4. Adapter: An adapter, often a FragmentPagerAdapter or FragmentStatePagerAdapter, is used to manage the fragments displayed within the ViewPager. It provides the necessary data and behavior to efficiently switch between fragments as users swipe through the tabs.

5. Page Change Listener: To respond to user interactions, a page change listener can be implemented to detect when the user swipes to a different tab. This listener allows for custom actions or updates

**PROGRAM:**

MainActivity.java:

package com.example.madex8;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import androidx.fragment.app.Fragment;

import androidx.viewpager2.widget.ViewPager2;

import android.os.Bundle;

import com.google.android.material.tabs.TabLayout;

import com.google.android.material.tabs.TabLayoutMediator;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity implements TabLayoutMediator.TabConfigurationStrategy{

ViewPager2 viewPager2;

TabLayout tabLayout;

ArrayList<String> tabTitles;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

viewPager2 = findViewById(R.id.viewPagerId);

tabLayout = findViewById(R.id.tabLayout);

ViewPager2Adapter viewPager2Adapter = new ViewPager2Adapter(this);

ArrayList<Fragment> fragments = new ArrayList<>();

fragments.add(new FirstFragment());

fragments.add(new SecondFragment());

fragments.add(new ThirdFragment());

viewPager2Adapter.setFragments(fragments);

viewPager2.setAdapter(viewPager2Adapter);

tabTitles = new ArrayList<>();

tabTitles.add("First");

tabTitles.add("Second");

tabTitles.add("Third");

new TabLayoutMediator(tabLayout, viewPager2, this).attach();

}

public void onConfigureTab(@NonNull TabLayout.Tab tab, int position){

tab.setText(tabTitles.get(position));

}

}

FirstFragment.java:

package com.example.madex8;

import androidx.fragment.app.Fragment;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

public class FirstFragment extends Fragment {

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {

return inflater.inflate(R.layout.fragment\_first, container, false);

}

}

SecondFragment.java:

package com.example.madex8;

import androidx.fragment.app.Fragment;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

public class SecondFragment extends Fragment {

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {

return inflater.inflate(R.layout.fragment\_second, container, false);

}

}

ThirdFragment.java:

package com.example.madex8;

import androidx.fragment.app.Fragment;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

public class ThirdFragment extends Fragment {

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {

return inflater.inflate(R.layout.fragment\_third, container, false);

}

}

ViewPager2Adapter.java:

package com.example.madex8;

import androidx.annotation.NonNull;

import androidx.fragment.app.Fragment;

import androidx.fragment.app.FragmentActivity;

import androidx.viewpager2.adapter.FragmentStateAdapter;

import java.util.ArrayList;

public class ViewPager2Adapter extends FragmentStateAdapter {

private ArrayList<Fragment> fragments;

public void setFragments(ArrayList<Fragment> fragments){this.fragments = fragments;}

public ViewPager2Adapter(@NonNull FragmentActivity fragmentActivity){

super(fragmentActivity);

}

@NonNull

@Override

public androidx.fragment.app.Fragment createFragment(int position) {return fragments.get(position);}

public int getItemCount(){return fragments.size();}

}

activity\_main.xml:

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout 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"

tools:context=".MainActivity">

<com.google.android.material.tabs.TabLayout

android:id="@+id/tabLayout"

android:layout\_width="409dp"

android:layout\_height="wrap\_content"

android:layout\_marginStart="1dp"

android:layout\_marginTop="2dp"

android:layout\_marginEnd="1dp"

android:layout\_marginBottom="681dp"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent"/>

<androidx.viewpager2.widget.ViewPager2

android:id="@+id/viewPagerId"

android:layout\_width="409dp"

android:layout\_height="679dp"

android:layout\_marginStart="1dp"

android:layout\_marginTop="1dp"

android:layout\_marginEnd="1dp"

android:layout\_marginBottom="1dp"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@+id/tabLayout" />

</androidx.constraintlayout.widget.ConstraintLayout>

fragment\_first.xml:

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout

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"

tools:context=".FirstFragment">

<TextView

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:text="@string/firstfragment"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

fragment\_second.xml:

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout

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"

tools:context=".SecondFragment">

<TextView

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:text="@string/secondfragment"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

fragment\_third.xml:

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout

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"

tools:context=".ThirdFragment">

<androidx.recyclerview.widget.RecyclerView

android:id="@+id/recyclerView"

android:layout\_width="409dp"

android:layout\_height="729dp"

android:layout\_marginStart="1dp"

android:layout\_marginTop="1dp"

android:layout\_marginEnd="1dp"

android:layout\_marginBottom="1dp"

app:layout\_constraintBottom\_toBottomOf="parent"

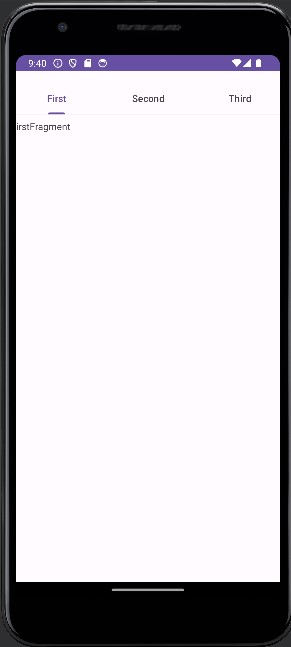
app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

**OUTPUT:**

 A black rectangular frame with a white screen

Description automatically generated

A black rectangular frame with a white screen

Description automatically generated

**RESULT:**

Thus, the application with swipe view in tab using view pages with the help of Android studio has been executed successfully and the output has been verified.