**Ex. No. : 04 Date :**

**Register No. : 221701701 Name : VISHAL V P**



**Android Fragments**

**Aim**

Develop an android application to create two activities named as Student Basic Details (Register No., Name, Department) and Student Mark Details (SSLC, HSC, UG). Write an android code to combine these two activities in a single screen using an android fragment.

***Procedure:***

**Step 1 :** File → New Project  
 Provide the application name (e.g.,"AndroidFragments") and click “Next”.

**Step 2 :** Select the target Android devices  
 Select the minimum SDK to run the application. Click “Next”.

**Step 3 :** Choose the activity for the application  
 By default, choose “Blank Activity”. Click “Next”.

**Step 4 :** Enter activity name and click “Finish”.

**Step 5 :** Edit the program

Create multiple fragments and define their layouts and logic separately.

Manage fragment transactions in MainActivity.kt to switch between them.  
**Step 6 :** Run the application  
 Two ways to run the application:

1. Running through emulator  
  
 2. Running through mobile device

***AndroidManifest.xml***

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

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

**xmlns:tools="http://schemas.android.com/tools">**

**<application**

**android:allowBackup="true"**

**android:dataExtractionRules="@xml/data\_extraction\_rules"**

**android:fullBackupContent="@xml/backup\_rules"**

**android:icon="@mipmap/ic\_launcher"**

**android:label="@string/app\_name"**

**android:roundIcon="@mipmap/ic\_launcher\_round"**

**android:supportsRtl="true"**

**android:theme="@style/AndroidFragments"**

**tools:targetApi="31">**

**<activity**

**android:name=".MainActivity"**

**android:exported="true">**

**<intent-filter>**

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

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

**</intent-filter>**

**</activity>**

**</application>**

**</manifest>**

***Activity\_main.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:orientation="vertical"**

**tools:context=".MainActivity">**

**<!-- App Title Bar -->**

**<TextView**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:background="@color/purple\_500"**

**android:padding="16dp"**

**android:text="Android Fragments"**

**android:textColor="@android:color/white"**

**android:textSize="18sp"**

**android:textStyle="bold" />**

**<!-- Container for the Basic Details Fragment -->**

**<FrameLayout**

**android:id="@+id/fragment\_container\_basic\_details"**

**android:layout\_width="match\_parent"**

**android:layout\_height="0dp"**

**android:layout\_weight="1" />**

**<FrameLayout**

**android:id="@+id/fragment\_container\_mark\_details"**

**android:layout\_width="match\_parent"**

**android:layout\_height="0dp"**

**android:layout\_weight="1" />**

**</LinearLayout>**

***fragment\_basic\_details.xml***

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

***<LinearLayout***

***xmlns:android="http://schemas.android.com/apk/res/android"***

***android:layout\_width="match\_parent"***

***android:layout\_height="match\_parent"***

***android:orientation="vertical"***

***android:padding="16dp">***

***<!-- Section Title -->***

***<TextView***

***android:layout\_width="match\_parent"***

***android:layout\_height="wrap\_content"***

***android:text="Student Details"***

***android:textSize="20sp"***

***android:textStyle="bold"***

***android:gravity="center"***

***android:layout\_marginBottom="8dp" />***

***<TextView***

***android:layout\_width="match\_parent"***

***android:layout\_height="wrap\_content"***

***android:text="Basic Details"***

***android:textSize="18sp"***

***android:gravity="center"***

***android:layout\_marginBottom="16dp" />***

***<!-- Register Number -->***

***<LinearLayout***

***android:layout\_width="match\_parent"***

***android:layout\_height="wrap\_content"***

***android:orientation="horizontal"***

***android:layout\_marginBottom="8dp">***

***<TextView***

***android:layout\_width="100dp"***

***android:layout\_height="wrap\_content"***

***android:text="Register No."***

***android:textSize="14sp" />***

***<EditText***

***android:id="@+id/editTextRegisterNumber"***

***android:layout\_width="match\_parent"***

***android:layout\_height="48dp"***

***android:hint="Register Number"***

***android:inputType="text"***

***android:background="@null"***

***android:textSize="14sp"***

***android:minHeight="48dp"***

***android:paddingTop="8dp"***

***android:paddingBottom="8dp" />***

***</LinearLayout>***

***<View***

***android:layout\_width="match\_parent"***

***android:layout\_height="1dp"***

***android:background="#CCCCCC"***

***android:layout\_marginBottom="8dp" />***

***<!-- Name -->***

***<LinearLayout***

***android:layout\_width="match\_parent"***

***android:layout\_height="wrap\_content"***

***android:orientation="horizontal"***

***android:layout\_marginBottom="8dp">***

***<TextView***

***android:layout\_width="100dp"***

***android:layout\_height="wrap\_content"***

***android:text="Name"***

***android:textSize="14sp" />***

***<EditText***

***android:id="@+id/editTextName"***

***android:layout\_width="match\_parent"***

***android:layout\_height="48dp"***

***android:hint="Name"***

***android:inputType="textPersonName"***

***android:background="@null"***

***android:textSize="14sp"***

***android:minHeight="48dp"***

***android:paddingTop="8dp"***

***android:paddingBottom="8dp" />***

***</LinearLayout>***

***<View***

***android:layout\_width="match\_parent"***

***android:layout\_height="1dp"***

***android:background="#CCCCCC"***

***android:layout\_marginBottom="8dp" />***

***<!-- Department -->***

***<LinearLayout***

***android:layout\_width="match\_parent"***

***android:layout\_height="wrap\_content"***

***android:orientation="horizontal">***

***<TextView***

***android:layout\_width="100dp"***

***android:layout\_height="wrap\_content"***

***android:text="Department"***

***android:textSize="14sp" />***

***<EditText***

***android:id="@+id/editTextDepartment"***

***android:layout\_width="match\_parent"***

***android:layout\_height="48dp"***

***android:hint="Department"***

***android:inputType="text"***

***android:background="@null"***

***android:textSize="14sp"***

***android:minHeight="48dp"***

***android:paddingTop="8dp"***

***android:paddingBottom="8dp" />***

***</LinearLayout>***

***<View***

***android:layout\_width="match\_parent"***

***android:layout\_height="1dp"***

***android:background="#CCCCCC" />***

***</LinearLayout>***

***fragment\_mark\_details.xml***

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

**<LinearLayout**

**xmlns:android="http://schemas.android.com/apk/res/android"**

**android:layout\_width="match\_parent"**

**android:layout\_height="match\_parent"**

**android:orientation="vertical"**

**android:padding="16dp">**

**<!-- Section Title -->**

**<TextView**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:text="Mark Details"**

**android:textSize="20sp"**

**android:textStyle="bold"**

**android:gravity="center"**

**android:layout\_marginBottom="16dp" />**

**<!-- SSLC Mark -->**

**<LinearLayout**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:orientation="horizontal"**

**android:layout\_marginBottom="8dp">**

**<TextView**

**android:layout\_width="100dp"**

**android:layout\_height="wrap\_content"**

**android:text="S.S.L.C."**

**android:textSize="14sp" />**

**<EditText**

**android:id="@+id/editTextSSLCMark"**

**android:layout\_width="match\_parent"**

**android:layout\_height="48dp"**

**android:hint="S.S.L.C. Mark"**

**android:inputType="numberDecimal"**

**android:background="@null"**

**android:textSize="14sp"**

**android:minHeight="48dp"**

**android:paddingTop="8dp"**

**android:paddingBottom="8dp" />**

**</LinearLayout>**

**<View**

**android:layout\_width="match\_parent"**

**android:layout\_height="1dp"**

**android:background="#CCCCCC"**

**android:layout\_marginBottom="8dp" />**

**<!-- HSC Mark -->**

**<LinearLayout**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:orientation="horizontal"**

**android:layout\_marginBottom="8dp">**

**<TextView**

**android:layout\_width="100dp"**

**android:layout\_height="wrap\_content"**

**android:text="H.Sc."**

**android:textSize="14sp" />**

**<EditText**

**android:id="@+id/editTextHSCMark"**

**android:layout\_width="match\_parent"**

**android:layout\_height="48dp"**

**android:hint="H.Sc. Mark"**

**android:inputType="numberDecimal"**

**android:background="@null"**

**android:textSize="14sp"**

**android:minHeight="48dp"**

**android:paddingTop="8dp"**

**android:paddingBottom="8dp" />**

**</LinearLayout>**

**<View**

**android:layout\_width="match\_parent"**

**android:layout\_height="1dp"**

**android:background="#CCCCCC"**

**android:layout\_marginBottom="8dp" />**

**<!-- UG CGPA -->**

**<LinearLayout**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:orientation="horizontal">**

**<TextView**

**android:layout\_width="100dp"**

**android:layout\_height="wrap\_content"**

**android:text="U.G."**

**android:textSize="14sp" />**

**<EditText**

**android:id="@+id/editTextUGCGPA"**

**android:layout\_width="match\_parent"**

**android:layout\_height="48dp"**

**android:hint="U.G. CGPA"**

**android:inputType="numberDecimal"**

**android:background="@null"**

**android:textSize="14sp"**

**android:minHeight="48dp"**

**android:paddingTop="8dp"**

**android:paddingBottom="8dp" />**

**</LinearLayout>**

**<View**

**android:layout\_width="match\_parent"**

**android:layout\_height="1dp"**

**android:background="#CCCCCC" />**

**</LinearLayout>**

***MainActivity.kt***

**package com.example.android fragments**

**import android.appcompat.app.AppCompatActivity**

**import android.os.Bundle**

**class MainActivity : AppCompatActivity() {**

**override fun onCreate(savedInstanceState: Bundle?) {**

**super.onCreate(savedInstanceState)**

**setContentView(R.layout.*activity\_main*)**

***// Only load the fragments if this is the first creation of the activity***

**if (savedInstanceState == null) {**

***// Add the basic details fragment***

***supportFragmentManager*.beginTransaction()**

**.add(R.id.*fragment\_container\_basic\_details*, BasicDetailsFragment())**

**.commit()**

***// Add the mark details fragment***

***supportFragmentManager*.beginTransaction()**

**.add(R.id.*fragment\_container\_mark\_details*, MarkDetailsFragment())**

**.commit()**

**}**

**}**

**}**

***BasicDetailsFragment.kt***

**package com.example.android fragments**

**import android.os.Bundle**

**import android.view.LayoutInflater**

**import android.view.View**

**import android.view.ViewGroup**

**import android.widget.EditText**

**import android.fragment.app.Fragment**

**class BasicDetailsFragment : Fragment() {**

**private lateinit var registerNumberEditText: EditText**

**private lateinit var nameEditText: EditText**

**private lateinit var departmentEditText: EditText**

**override fun onCreateView(**

**inflater: LayoutInflater,**

**container: ViewGroup?,**

**savedInstanceState: Bundle?**

**): View? {**

***// Inflate the layout for this fragment***

**val view = inflater.inflate(R.layout.*fragment\_basic\_details*, container, false)**

***// Initialize the EditText fields***

**registerNumberEditText = view.findViewById(R.id.*editTextRegisterNumber*)**

**nameEditText = view.findViewById(R.id.*editTextName*)**

**departmentEditText = view.findViewById(R.id.*editTextDepartment*)**

**return view**

**}**

***// Method to get the entered register number***

**fun getRegisterNumber(): String {**

**return registerNumberEditText.*text*.toString()**

**}**

***// Method to get the entered name***

**fun getName(): String {**

**return nameEditText.*text*.toString()**

**}**

***// Method to get the entered department***

**fun getDepartment(): String {**

**return departmentEditText.*text*.toString()**

**}**

**}**

***MarkDetailsFragment.kt***

**package com.example.android fragments**

**import android.os.Bundle**

**import android.view.LayoutInflater**

**import android.view.View**

**import android.view.ViewGroup**

**import android.widget.EditText**

**import android.fragment.app.Fragment**

**class MarkDetailsFragment : Fragment() {**

**private lateinit var sslcMarkEditText: EditText**

**private lateinit var hscMarkEditText: EditText**

**private lateinit var ugcgpaEditText: EditText**

**override fun onCreateView(**

**inflater: LayoutInflater,**

**container: ViewGroup?,**

**savedInstanceState: Bundle?**

**): View? {**

***// Inflate the layout for this fragment***

**val view = inflater.inflate(R.layout.*fragment\_mark\_details*, container, false)**

***// Initialize the EditText fields***

**sslcMarkEditText = view.findViewById(R.id.*editTextSSLCMark*)**

**hscMarkEditText = view.findViewById(R.id.*editTextHSCMark*)**

**ugcgpaEditText = view.findViewById(R.id.*editTextUGCGPA*)**

**return view**

**}**

***// Method to get the entered SSLC mark***

**fun getSSLCMark(): String {**

**return sslcMarkEditText.*text*.toString()**

**}**

***// Method to get the entered HSC mark***

**fun getHSCMark(): String {**

**return hscMarkEditText.*text*.toString()**

**}**

***// Method to get the entered UG CGPA***

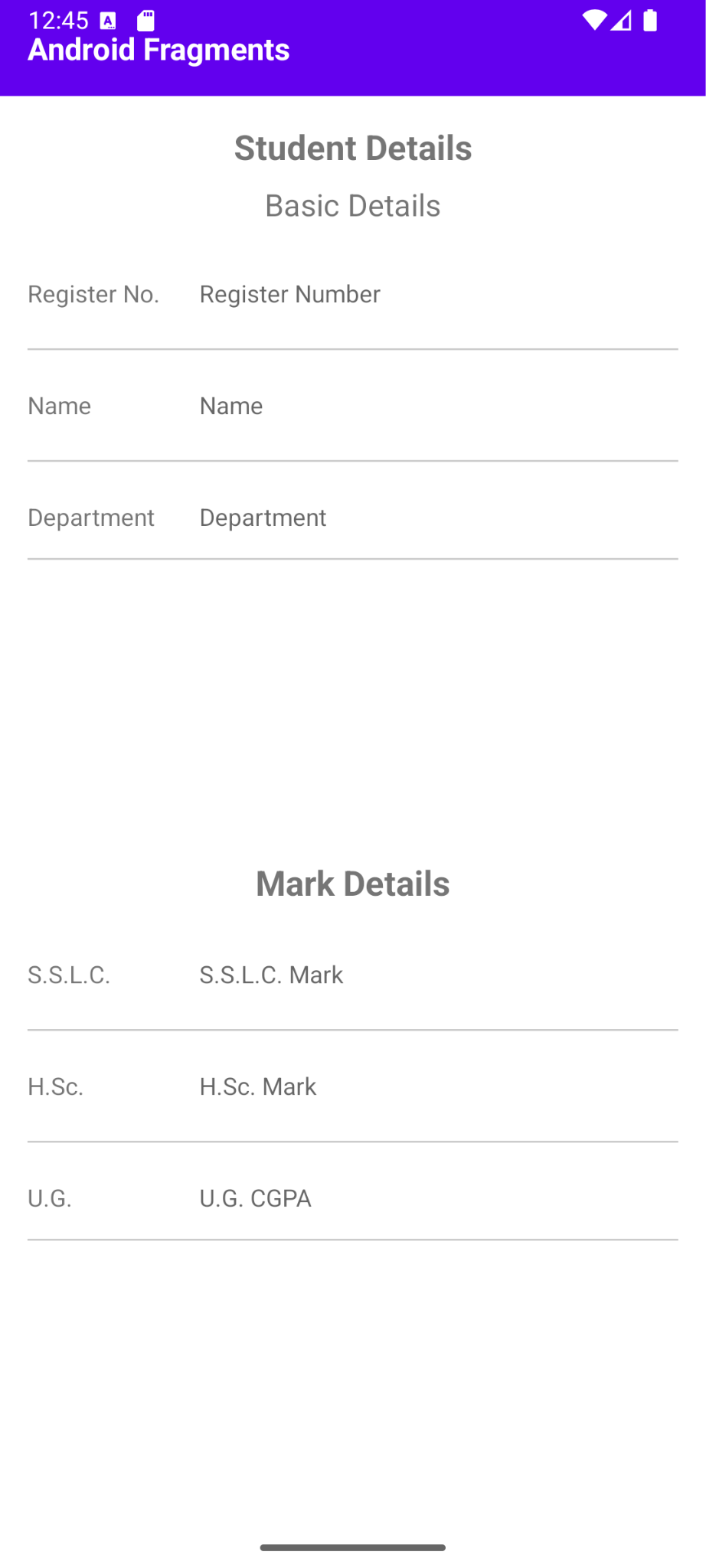
**fun getUGCGPA(): String {**

**return ugcgpaEditText.*text*.toString()**

**}**

**}**

***Output***

******

**Result:**

To design a Kotlin application that utilizes fragments to manage multiple UI components within a single activity.