

**Ex. No. : 04**

**Date :**

**Register No. : 221701032**

**Name : LINGESH VK**

---

## **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>

```

## 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()

            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? {
        val view = inflater.inflate(R.layout.fragment_basic_details, container, false)
        registerNumberEditText = view.findViewById(R.id.editTextRegisterNumber)
        nameEditText = view.findViewById(R.id.editTextName)
        departmentEditText = view.findViewById(R.id.editTextDepartment)

        return view
    }

    fun getRegisterNumber(): String {
        return registerNumberEditText.text.toString()
    }

    fun getName(): String {
        return nameEditText.text.toString()
    }

    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? {
        val view = inflater.inflate(R.layout.fragment_mark_details, container, false)
        sslcMarkEditText = view.findViewById(R.id.editTextSSLCMark)
        hscMarkEditText = view.findViewById(R.id.editTextHSCMark)
        ugcgpaEditText = view.findViewById(R.id.editTextUGCGPA)
        return view
    }
    fun getSSLCMark(): String {
        return sslcMarkEditText.text.toString()
    }
    fun getHSCMark(): String {
        return hscMarkEditText.text.toString()
    }
    fun getUGCGPA(): String {
        return ugcgpaEditText.text.toString()
    }
}

```

## Output:

The screenshot shows an Android application interface with a purple header bar containing the time '12:45', a battery icon, and the text 'Android Fragments'. The main content area is divided into two sections. The first section, titled 'Student Details', contains a sub-header 'Basic Details' and three input fields: 'Register No.' with a placeholder 'Register Number', 'Name' with a placeholder 'Name', and 'Department' with a placeholder 'Department'. The second section, titled 'Mark Details', contains three input fields: 'S.S.L.C.' with a placeholder 'S.S.L.C. Mark', 'H.Sc.' with a placeholder 'H.Sc. Mark', and 'U.G.' with a placeholder 'U.G. CGPA'. A horizontal line is visible at the bottom of the screen.

## Result:

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