CGPI Activity

Here, we have implemented two activities as-

1) **CGPIActivity1.java**

In this activity we have asked user to give input as no. of semesters. We will then pass this no of semesters to next activity for further actions.

For this make following changes in **activity_cgpi1.xml-**

```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=".CGPIActivity1">

    <EditText
        android:id="@+id/editText"
        android:layout_width="235dp"
        android:layout_height="68dp"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginRight="8dp"
        android:layout_marginBottom="8dp"
        android:ems="10"
        android:hint="No. of Semesters"
        android:inputType="number"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.32" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginRight="8dp"
        android:layout_marginBottom="8dp"
        android:background="#FFFFFF"
        android:onClick="noOfSemesters"
        android:text="Next"
        android:textColor="#009688"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText"
        app:layout_constraintVertical_bias="0.369" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Also, make changes in **CGPIActivity1.java** as follows-

```
package com.professionaljk.cgpisgpicalculator;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

public class CGPIActivity1 extends AppCompatActivity {
    EditText et;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_cgpi1);
        et=findViewById(R.id.editText);
    }
    public void noOfSemesters(View view){
        if (et.getText().toString().equals("")) {
            Toast.makeText(this, "Enter No. of Semesters",
Toast.LENGTH_SHORT).show();
        } else {
            int no_of_semesters = Integer.valueOf(et.getText().toString());
            if (no_of_semesters >= 1 && no_of_semesters <= 8) {
                Intent intent = new Intent(this, CGPIActivity2.class);
                intent.putExtra("semesters_count",
String.valueOf(no_of_semesters));
                startActivity(intent);
                this.finish();
            } else {
                Toast.makeText(this, "Invalid No. of Semesters",
Toast.LENGTH_SHORT).show();
            }
        }
    }
}
```

2) **CGPIActivity2.java**

In this activity we will receive no of semesters sent from previous activity. On the basis of no of semesters, we will decide, how many fields to be allowed. Through these fields we will take user pointers. We will then calculate the average CGPI. Also, we will display corresponding percentage.

For these make following changes in **activity_cgpi2.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=".CGPIActivity2">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="97dp"
        android:layout_height="40dp"
        android:gravity="center|left"
        android:text="SEM I"
        android:textSize="18sp"
        app:fontFamily="serif"
        app:layout_constraintBottom_toBottomOf="parent"
```

```xml
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.05"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.063" />
<EditText
        android:id="@+id/editText1"
        android:layout_width="239dp"
        android:layout_height="40dp"
        android:ems="10"
        android:enabled="false"
        android:inputType="numberDecimal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.347"
        app:layout_constraintStart_toEndOf="@+id/textView1"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.063" />
<TextView
        android:id="@+id/textView2"
        android:layout_width="97dp"
        android:layout_height="40dp"
        android:gravity="center|left"
        android:text="SEM II"
        android:textSize="18sp"
        app:fontFamily="serif"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.05"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView1"
        app:layout_constraintVertical_bias="0.022" />
<EditText
        android:id="@+id/editText2"
        android:layout_width="239dp"
        android:layout_height="40dp"
        android:ems="10"
        android:enabled="false"
        android:inputType="numberDecimal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.355"
        app:layout_constraintStart_toEndOf="@+id/textView2"
        app:layout_constraintTop_toBottomOf="@+id/editText1"
        app:layout_constraintVertical_bias="0.022" />
<TextView
        android:id="@+id/textView3"
        android:layout_width="97dp"
        android:layout_height="40dp"
        android:gravity="center|left"
        android:text="SEM III"
        android:textSize="18sp"
        app:fontFamily="serif"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.05"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView2"
        app:layout_constraintVertical_bias="0.02" />
<EditText
        android:id="@+id/editText3"
        android:layout_width="239dp"
        android:layout_height="40dp"
        android:ems="10"
        android:enabled="false"
        android:inputType="numberDecimal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```xml
            app:layout_constraintHorizontal_bias="0.355"
            app:layout_constraintStart_toEndOf="@+id/textView3"
            app:layout_constraintTop_toBottomOf="@+id/editText2"
            app:layout_constraintVertical_bias="0.02" />
    <TextView
            android:id="@+id/textView4"
            android:layout_width="97dp"
            android:layout_height="40dp"
            android:gravity="center|left"
            android:text="SEM IV"
            android:textSize="18sp"
            app:fontFamily="serif"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.05"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toBottomOf="@+id/textView3"
            app:layout_constraintVertical_bias="0.025" />
    <EditText
            android:id="@+id/editText4"
            android:layout_width="239dp"
            android:layout_height="40dp"
            android:ems="10"
            android:enabled="false"
            android:inputType="numberDecimal"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.355"
            app:layout_constraintStart_toEndOf="@+id/textView4"
            app:layout_constraintTop_toBottomOf="@+id/editText3"
            app:layout_constraintVertical_bias="0.025" />
    <TextView
            android:id="@+id/textView5"
            android:layout_width="97dp"
            android:layout_height="40dp"
            android:gravity="center|left"
            android:text="SEM V"
            android:textSize="18sp"
            app:fontFamily="serif"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.05"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toBottomOf="@+id/textView4"
            app:layout_constraintVertical_bias="0.038" />
    <EditText
            android:id="@+id/editText5"
            android:layout_width="239dp"
            android:layout_height="40dp"
            android:ems="10"
            android:enabled="false"
            android:inputType="numberDecimal"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.355"
            app:layout_constraintStart_toEndOf="@+id/textView5"
            app:layout_constraintTop_toBottomOf="@+id/editText4"
            app:layout_constraintVertical_bias="0.038" />
    <TextView
            android:id="@+id/textView6"
            android:layout_width="97dp"
            android:layout_height="40dp"
            android:gravity="center|left"
            android:text="SEM VI"
            android:textSize="18sp"
            app:fontFamily="serif"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
```

```xml
        app:layout_constraintHorizontal_bias="0.05"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView5"
        app:layout_constraintVertical_bias="0.052" />
<EditText
        android:id="@+id/editText6"
        android:layout_width="239dp"
        android:layout_height="40dp"
        android:ems="10"
        android:enabled="false"
        android:inputType="numberDecimal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.355"
        app:layout_constraintStart_toEndOf="@+id/textView6"
        app:layout_constraintTop_toBottomOf="@+id/editText5"
        app:layout_constraintVertical_bias="0.052" />
<TextView
        android:id="@+id/textView7"
        android:layout_width="97dp"
        android:layout_height="37dp"
        android:gravity="center|left"
        android:text="SEM VII"
        android:textSize="18sp"
        app:fontFamily="serif"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.05"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView6"
        app:layout_constraintVertical_bias="0.074" />
<EditText
        android:id="@+id/editText7"
        android:layout_width="239dp"
        android:layout_height="40dp"
        android:gravity="center|left"
        android:ems="10"
        android:enabled="false"
        android:inputType="numberDecimal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.355"
        app:layout_constraintStart_toEndOf="@+id/textView7"
        app:layout_constraintTop_toBottomOf="@+id/editText6"
        app:layout_constraintVertical_bias="0.075" />
<TextView
        android:id="@+id/textView8"
        android:layout_width="97dp"
        android:layout_height="37dp"
        android:gravity="center|left"
        android:text="SEM VIII"
        android:textSize="18sp"
        app:fontFamily="serif"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.05"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView7"
        app:layout_constraintVertical_bias="0.055" />
<EditText
        android:id="@+id/editText8"
        android:layout_width="239dp"
        android:layout_height="40dp"
        android:ems="10"
        android:enabled="false"
        android:inputType="numberDecimal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```
        app:layout_constraintHorizontal_bias="0.355"
        app:layout_constraintStart_toEndOf="@+id/textView8"
        app:layout_constraintTop_toBottomOf="@+id/editText7"
        app:layout_constraintVertical_bias="0.04" />

    <Button
        android:id="@+id/calculateButton"
        android:layout_width="125dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:background="#FFFFFF"
        android:foregroundGravity="center"
        android:gravity="center"
        android:onClick="calculateCGPI"
        android:text="Calculate"
        android:textColor="#009688"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText8"
        app:layout_constraintVertical_bias="0.0" />

    <TextView
        android:id="@+id/resultMessage"
        android:layout_width="307dp"
        android:layout_height="67dp"
        android:gravity="center"
        android:textColor="@android:color/holo_blue_dark"
        android:textSize="20sp"
        app:fontFamily="cursive"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/calculateButton" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Also, make changes in **CGPIActivity2.java** as follows-

```
package com.professionaljk.cgpisgpicalculator;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

public class CGPIActivity2 extends AppCompatActivity {
    EditText e1,e2,e3,e4,e5,e6,e7,e8;
    TextView result;
    int n;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_cgpi2);
        e1=findViewById(R.id.editText1);
        e2=findViewById(R.id.editText2);
        e3=findViewById(R.id.editText3);
        e4=findViewById(R.id.editText4);
        e5=findViewById(R.id.editText5);
        e6=findViewById(R.id.editText6);
        e7=findViewById(R.id.editText7);
```

```java
        e8=findViewById(R.id.editText8);
        result=findViewById(R.id.resultMessage);
        Intent intent=getIntent();
        n=Integer.valueOf(intent.getStringExtra("semesters_count"));
        switch(n) {
            case 1:
                e1.setFocusable(true);
                e1.setEnabled(true);
                break;
            case 2:
                e1.setFocusable(true);
                e1.setEnabled(true);
                e2.setEnabled(true);
                break;
            case 3:
                e1.setFocusable(true);
                e1.setEnabled(true);
                e2.setEnabled(true);
                e3.setEnabled(true);
                break;
            case 4:
                e1.setFocusable(true);
                e1.setEnabled(true);
                e2.setEnabled(true);
                e3.setEnabled(true);
                e4.setEnabled(true);
                break;
            case 5:
                e1.setFocusable(true);
                e1.setEnabled(true);
                e2.setEnabled(true);
                e3.setEnabled(true);
                e4.setEnabled(true);
                e4.setEnabled(true);
                e5.setEnabled(true);
                break;
            case 6:
                e1.setFocusable(true);
                e1.setEnabled(true);
                e2.setEnabled(true);
                e3.setEnabled(true);
                e4.setEnabled(true);
                e5.setEnabled(true);
                e6.setEnabled(true);
                break;
            case 7:
                e1.setFocusable(true);
                e1.setEnabled(true);
                e2.setEnabled(true);
                e3.setEnabled(true);
                e4.setEnabled(true);
                e5.setEnabled(true);
                e6.setEnabled(true);
                e7.setEnabled(true);
                break;
            case 8:
                e1.setFocusable(true);
                e1.setEnabled(true);
                e2.setEnabled(true);
                e3.setEnabled(true);
                e4.setEnabled(true);
                e5.setEnabled(true);
                e6.setEnabled(true);
                e7.setEnabled(true);
                e8.setEnabled(true);
                break;
            default:
                break;
```

```java
            }
        }

    public boolean checkEmptyField() {
        switch (n) {
            case 1:
                if (e1.getText().toString().equals("")) {
                    Toast.makeText(this, "Enter correct pointer",
Toast.LENGTH_SHORT).show();
                    return false;
                }
                break;
            case 2:
                if (e1.getText().toString().equals("") ||
e2.getText().toString().equals("")) {
                    Toast.makeText(this, "Enter correct pointers",
Toast.LENGTH_SHORT).show();
                    return false;
                }
                break;
            case 3:
                if (e1.getText().toString().equals("") ||
e2.getText().toString().equals("") || e3.getText().toString().equals("")) {
                    Toast.makeText(this, "Enter correct pointers",
Toast.LENGTH_SHORT).show();
                    return false;
                }
                break;
            case 4:
                if (e1.getText().toString().equals("") ||
e2.getText().toString().equals("") || e3.getText().toString().equals("") ||
e4.getText().toString().equals("")) {
                    Toast.makeText(this, "Enter correct pointers",
Toast.LENGTH_SHORT).show();
                    return false;
                }
                break;
            case 5:
                if (e1.getText().toString().equals("") ||
e2.getText().toString().equals("") || e3.getText().toString().equals("") ||
e4.getText().toString().equals("") || e5.getText().toString().equals("")) {
                    Toast.makeText(this, "Enter correct pointers",
Toast.LENGTH_SHORT).show();
                    return false;
                }
                break;
            case 6:
                if (e1.getText().toString().equals("") ||
e2.getText().toString().equals("") || e3.getText().toString().equals("") ||
e4.getText().toString().equals("") || e5.getText().toString().equals("") ||
e6.getText().toString().equals("")) {
                    Toast.makeText(this, "Enter correct pointers",
Toast.LENGTH_SHORT).show();
                    return false;
                }
                break;
            case 7:
                if (e1.getText().toString().equals("") ||
e2.getText().toString().equals("") || e3.getText().toString().equals("") ||
e4.getText().toString().equals("") || e5.getText().toString().equals("") ||
e6.getText().toString().equals("") || e7.getText().toString().equals("")) {
                    Toast.makeText(this, "Enter correct pointers",
Toast.LENGTH_SHORT).show();
                    return false;
                }
                break;
            case 8:
                if (e1.getText().toString().equals("") ||
```

```java
e2.getText().toString().equals("") || e3.getText().toString().equals("") ||
e4.getText().toString().equals("") || e5.getText().toString().equals("") ||
e6.getText().toString().equals("") || e7.getText().toString().equals("") ||
e8.getText().toString().equals("")) {
                    Toast.makeText(this, "Enter correct pointers",
Toast.LENGTH_SHORT).show();
                    return false;
                }
                break;
            default:
                break;
        }
        return true;
    }
    public void calculateCGPI(View view){
        double n1, n2, n3, n4, n5, n6, n7, n8, cgpi = 0, percentage = 0;
        if (checkEmptyField()) {
            switch (n) {
                case 1:
                    n1 = Double.valueOf(e1.getText().toString());
                    cgpi = n1;
                    break;
                case 2:
                    n1 = Double.valueOf(e1.getText().toString());
                    n2 = Double.valueOf(e2.getText().toString());
                    cgpi = (n1 + n2) / 2;
                    break;
                case 3:
                    n1 = Double.valueOf(e1.getText().toString());
                    n2 = Double.valueOf(e2.getText().toString());
                    n3 = Double.valueOf(e3.getText().toString());
                    cgpi = (n1 + n2 + n3) / 3;
                    break;
                case 4:
                    n1 = Double.valueOf(e1.getText().toString());
                    n2 = Double.valueOf(e2.getText().toString());
                    n3 = Double.valueOf(e3.getText().toString());
                    n4 = Double.valueOf(e4.getText().toString());
                    cgpi = (n1 + n2 + n3 + n4) / 4;
                    break;
                case 5:
                    n1 = Double.valueOf(e1.getText().toString());
                    n2 = Double.valueOf(e2.getText().toString());
                    n3 = Double.valueOf(e3.getText().toString());
                    n4 = Double.valueOf(e4.getText().toString());
                    n5 = Double.valueOf(e5.getText().toString());
                    cgpi = (n1 + n2 + n3 + n4 + n5) / 5;
                    break;
                case 6:
                    n1 = Double.valueOf(e1.getText().toString());
                    n2 = Double.valueOf(e2.getText().toString());
                    n3 = Double.valueOf(e3.getText().toString());
                    n4 = Double.valueOf(e4.getText().toString());
                    n5 = Double.valueOf(e5.getText().toString());
                    n6 = Double.valueOf(e6.getText().toString());
                    cgpi = (n1 + n2 + n3 + n4 + n5 + n6) / 6;
                    break;
                case 7:
                    n1 = Double.valueOf(e1.getText().toString());
                    n2 = Double.valueOf(e2.getText().toString());
                    n3 = Double.valueOf(e3.getText().toString());
                    n4 = Double.valueOf(e4.getText().toString());
                    n5 = Double.valueOf(e5.getText().toString());
                    n6 = Double.valueOf(e6.getText().toString());
                    n7 = Double.valueOf(e7.getText().toString());
                    cgpi = (n1 + n2 + n3 + n4 + n5 + n6 + n7) / 7;
                    break;
                case 8:
```
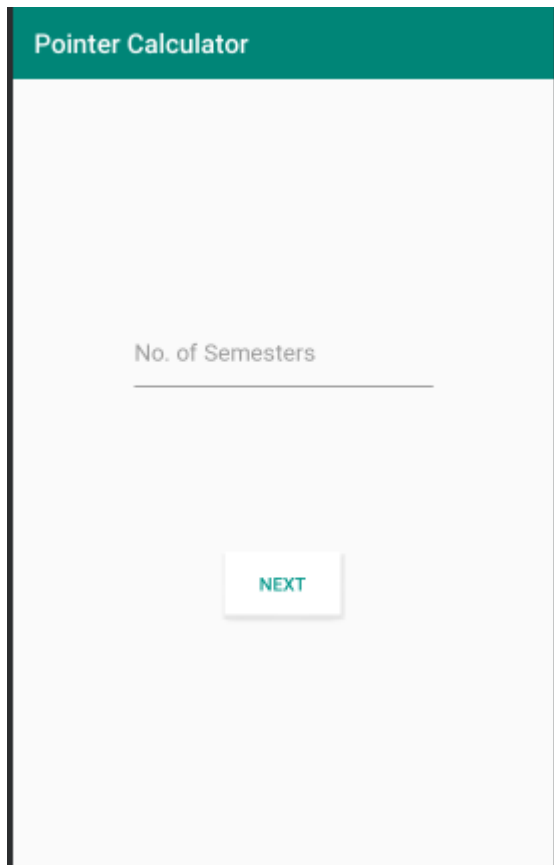
```java
                    n1 = Double.valueOf(e1.getText().toString());
                    n2 = Double.valueOf(e2.getText().toString());
                    n3 = Double.valueOf(e3.getText().toString());
                    n4 = Double.valueOf(e4.getText().toString());
                    n5 = Double.valueOf(e5.getText().toString());
                    n6 = Double.valueOf(e6.getText().toString());
                    n7 = Double.valueOf(e7.getText().toString());
                    n8 = Double.valueOf(e8.getText().toString());
                    cgpi = (n1 + n2 + n3 + n4 + n5 + n6 + n7 + n8) / 8;
                    break;
                default:
                    break;
            }
            cgpi = Math.round(cgpi * 100.0) / 100.0;
            if (cgpi >= 4.0 && cgpi <= 6.74) {
                percentage = cgpi * 8 + 5;
                percentage = Math.round(percentage * 100.0) / 100.0;
            } else if (cgpi >= 6.75 && cgpi <= 7.24) {
                percentage = cgpi * 8 + 6;
                percentage = Math.round(percentage * 100.0) / 100.0;
            } else if (cgpi >= 7.25 && cgpi <= 7.74) {
                percentage = cgpi * 8 + 7;
                percentage = Math.round(percentage * 100.0) / 100.0;
            } else if (cgpi >= 7.75 && cgpi <= 8.24) {
                percentage = cgpi * 8 + 8;
                percentage = Math.round(percentage * 100.0) / 100.0;
            } else if (cgpi >= 8.25) {
                percentage = cgpi * 8 + 9;
                percentage = Math.round(percentage * 100.0) / 100.0;
            }
            result.setText("CGPI: " + cgpi + "\n" + "Percentage: " + percentage);
        }
    }
}
```
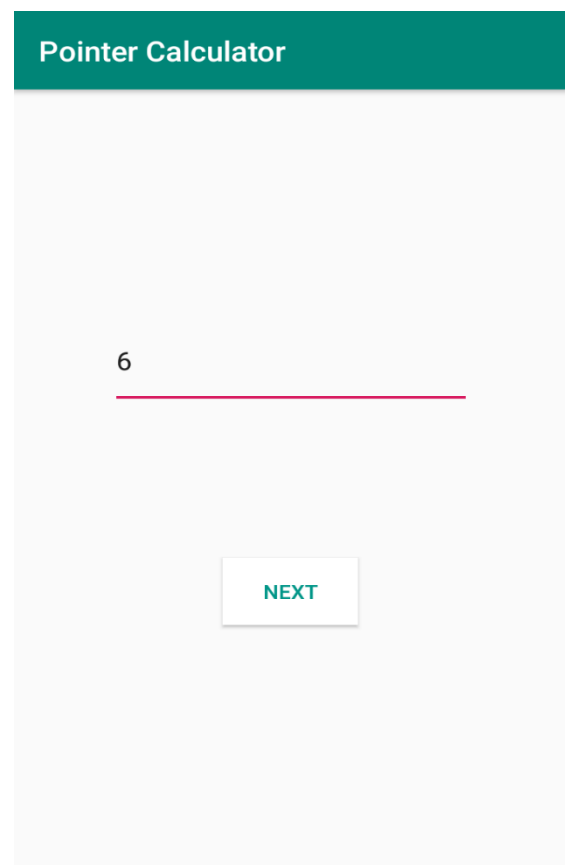
OUTPUT:

Fig. CGPIActivity1 (Before user input)

Fig. CGPIActivity2 (After user input)

Fig. CGPIActivity2 (Before user input)

Fig. CGPIActivity2 (After user input)