Program

Aim: Program to implementing basic arithmetic operations of a simple calculator

XML Code:

```
<?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">

    <TextView
        android:id="@+id/txt1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="2 X 5 + 10"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:padding="20dp"/>

    <TextView
        android:id="@+id/txt2"
        android:layout_width="match_parent"
       android:layout_height="wrap_content"
       android:text="20"
       app:layout_constraintStart_toStartOf="parent"
```

```
    android:gravity="end"
    app:layout_constraintBottom_toTopOf="@+id/grid"
    android:layout_marginTop="60dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txt1"
    android:padding="20dp"/>

<GridLayout
    android:id="@+id/grid"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    android:rowCount="3"
    android:columnCount="4"
    app:layout_constraintBottom_toBottomOf="parent">

    <Button
        android:layout_height="80dp"
        android:layout_width="wrap_content"
        android:layout_margin="7dp"
        android:text="C"/>
    <Button
        android:layout_height="80dp"
        android:layout_width="wrap_content"
        android:layout_margin="7dp"
        android:text="Back"/>
    <Button
        android:layout_height="80dp"
```

```
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:text="%"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:text="/"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="7"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:background="@drawable/button_number"
    android:text="8"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:background="@drawable/button_number"
    android:text="9"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
```

```
    android:layout_margin="7dp"
    android:text="X"/>

<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="4"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="5"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="6"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:text="-"/>

<Button
    android:layout_height="80dp"
```

```
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="1"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="2"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:background="@drawable/button_number"
    android:layout_margin="7dp"
    android:text="3"/>
<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:text="+"/>

<Button
    android:layout_height="80dp"
    android:layout_width="wrap_content"
    android:layout_margin="7dp"
    android:text="--"/>
<Button
    android:layout_height="80dp"
```

```
        android:layout_width="wrap_content"
        android:background="@drawable/button_number"
        android:layout_margin="7dp"
        android:text="0"/>
    <Button
        android:layout_height="80dp"
        android:layout_width="wrap_content"
        android:layout_margin="7dp"
        android:text="."/>
    <Button
        android:layout_height="80dp"
        android:layout_width="wrap_content"
        android:layout_margin="7dp"
        android:text="="/>
  </GridLayout>

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

Java Code:

```
package com.example.calculator;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {

  double input1 = 0, input2 = 0;
  TextView edt1;
```

```
    boolean Addition, Subtract, Multiplication, Division, mRemainder, decimal;
    Button button0, button1, button2, button3, button4, button5, button6, button7, button8,
button9, buttonAdd, buttonSub,
            buttonMul, buttonDivision, buttonEqual, buttonDel, buttonDot, Remainder;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        button0 = (Button) findViewById(R.id.button0);
        button1 = (Button) findViewById(R.id.button1);
        button2 = (Button) findViewById(R.id.button2);
        button3 = (Button) findViewById(R.id.button3);
        button4 = (Button) findViewById(R.id.button4);
        button5 = (Button) findViewById(R.id.button5);
        button6 = (Button) findViewById(R.id.button6);
        button7 = (Button) findViewById(R.id.button7);
        button8 = (Button) findViewById(R.id.button8);
        button9 = (Button) findViewById(R.id.button9);
        buttonDot = (Button) findViewById(R.id.buttonDot);
        buttonAdd = (Button) findViewById(R.id.buttonadd);
        buttonSub = (Button) findViewById(R.id.buttonsub);
        buttonMul = (Button) findViewById(R.id.buttonmul);
        buttonDivision = (Button) findViewById(R.id.buttondiv);
        Remainder = (Button) findViewById(R.id.Remainder);
        buttonDel = (Button) findViewById(R.id.buttonDel);
        buttonEqual = (Button) findViewById(R.id.buttoneql);

        edt1 = (TextView) findViewById(R.id.display);
```

```
button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "1");
    }
});

button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "2");
    }
});

button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "3");
    }
});

button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "4");
    }
});
```

```
button5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "5");
    }
});

button6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "6");
    }
});

button7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "7");
    }
});

button8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "8");
    }
});

button9.setOnClickListener(new View.OnClickListener() {
```

```
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "9");
    }
});

button0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText() + "0");
    }
});

buttonAdd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (edt1.getText().length() != 0) {
            input1 = Float.parseFloat(edt1.getText() + "");
            Addition = true;
            decimal = false;
            edt1.setText(null);
        }
    }
});

buttonSub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (edt1.getText().length() != 0) {
```

```
            input1 = Float.parseFloat(edt1.getText() + "");
            Subtract = true;
            decimal = false;
            edt1.setText(null);
        }
    }
});


buttonMul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (edt1.getText().length() != 0) {
            input1 = Float.parseFloat(edt1.getText() + "");
            Multiplication = true;
            decimal = false;
            edt1.setText(null);
        }
    }
});

buttonDivision.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (edt1.getText().length() != 0) {
            input1 = Float.parseFloat(edt1.getText() + "");
            Division = true;
            decimal = false;
            edt1.setText(null);
        }
```

```
    }
});

Remainder.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (edt1.getText().length() != 0) {
            input1 = Float.parseFloat(edt1.getText() + "");
            mRemainder = true;
            decimal = false;
            edt1.setText(null);
        }
    }
});

buttonEqual.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (Addition || Subtract || Multiplication || Division || mRemainder) {
            input2 = Float.parseFloat(edt1.getText() + "");
        }

        if (Addition) {

            edt1.setText(input1 + input2 + "");
            Addition = false;
        }

        if (Subtract) {
```

```
            edt1.setText(input1 - input2 + "");
            Subtract = false;
        }

        if (Multiplication) {
            edt1.setText(input1 * input2 + "");
            Multiplication = false;
        }
        if (Division) {
            edt1.setText(input1 / input2 + "");
            Division = false;
        }
        if (mRemainder) {
            edt1.setText(input1 % input2 + "");
            mRemainder = false;
        }
    }
});
buttonDel.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText("");
        input1 = 0.0;
        input2 = 0.0;
    }
});
buttonDot.setOnClickListener(new View.OnClickListener() {
    @Override
```

```
        public void onClick(View v) {if
            (decimal) {
                //do nothing or you can show the error
            } else {
                edt1.setText(edt1.getText() + ".");
                decimal = true;
            }


          }
        });
    }
    public void onClick(View view) {
    }
}
```

Output:


cal
2 X 5 + 10
20
C
BACK
%
/
7
8
9
X
4
5
6
-
1
2
3
+
--
0
.
=