PROGRAM 3

AIM : Implementing basic arithmetic operations of a simple calculator.

PROGRAM CODE :

JAVA

```java
package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    int num1, num2;
    TextView txt;
    Button btn1, btn2, btn3, btn4;
    EditText edt1, edt2;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        edt1 = (EditText) findViewById(R.id.editText);
        edt2 = (EditText) findViewById(R.id.editText2);
        txt = (TextView) findViewById(R.id.textView);
        btn1 = (Button) findViewById(R.id.button);
        btn2 = (Button) findViewById(R.id.button2);
        btn3 = (Button) findViewById(R.id.button3);
        btn4 = (Button) findViewById(R.id.button4);
// Addition
        btn1.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
```

```java
                double oper1 = Double.parseDouble(edt1.getText().toString());
                double oper2 = Double.parseDouble(edt2.getText().toString());
                double result = oper1 + oper2;
                txt.setText(Double.toString(result));
            } else {
                Toast toast = Toast.makeText(MainActivity.this, "Enter The Required Numbers",
Toast.LENGTH_LONG);
                toast.show();
            }
        }
    });
    //Subtraction
    btn2.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
                double oper1 = Double.parseDouble(edt1.getText().toString());
                double oper2 = Double.parseDouble(edt2.getText().toString());
                double result = oper1 - oper2;
                txt.setText(Double.toString(result));
            } else {
                Toast toast = Toast.makeText(MainActivity.this, "Enter The Required Numbers",
Toast.LENGTH_LONG);
                toast.show();
            }

        }
    });
    // Multiplication
    btn3.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
                double oper1 = Double.parseDouble(edt1.getText().toString());
                double oper2 = Double.parseDouble(edt2.getText().toString());
                double result = oper1 * oper2;
                txt.setText(Double.toString(result));
            } else {
                Toast toast = Toast.makeText(MainActivity.this, "Enter The Required Numbers",
Toast.LENGTH_LONG);
```

```java
                    toast.show();
                }
            }
        });
        // Division
        btn4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
                    double oper1 = Double.parseDouble(edt1.getText().toString());
                    double oper2 = Double.parseDouble(edt2.getText().toString());
                    double result = oper1 / oper2;
                    txt.setText(Double.toString(result));
                } else {
                    Toast toast = Toast.makeText(MainActivity.this, "Enter The Required Numbers",
Toast.LENGTH_LONG);
                    toast.show();
                }
            }
        });


    }
}
```

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=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="200dp"
```

```xml
        android:layout_height="50dp"
        android:ems="10"
        android:hint="answer"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintVertical_bias="0.376" />

    <EditText
        android:id="@+id/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text=""
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.113" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text=""
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.228" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
```

```xml
        android:layout_height="wrap_content"
        android:text="+"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.105"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.585" />

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="-"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.585" />

    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="*"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.882"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.585" />

    <Button
        android:id="@+id/button4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="/"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```
app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.734" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

RESULT : Program has been succesfully executed and output is obtained.