

Assignment 1

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Title: Basic Calculator in Android

activity_main.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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:background="#ECEFF1"
    >

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="monospace"
        android:lineSpacingExtra="10sp"
        android:text="Calculator"
        android:textSize="60sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.673"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.102" />

    <EditText
        android:id="@+id/editTextText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="numberDecimal"
        android:hint="Number 1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.288"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.279" />

    <EditText
```

```
android:id="@+id/editTextText3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:ems="10"
android:inputType="numberDecimal"
android:hint="Number 2"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.288"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.361" />
```

<Button

```
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:backgroundTint="#4CAF50"
android:minWidth="120dp"
android:minHeight="48dp"
android:text="Addition"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.199"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.499"
```

/>

<Button

```
android:id="@+id/button2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Subtraction"
android:minWidth="120dp"
android:minHeight="48dp"
android:backgroundTint="#FF9800"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.833"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.499" />
```

<Button

```
android:id="@+id/button3"
android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
    android:text="Multiplication"
    android:minWidth="120dp"
    android:minHeight="48dp"
    android:backgroundTint="#9C27B0"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.181"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.606" />
```

<Button

```
    android:id="@+id/button4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:backgroundTint="#F44336"
    android:minWidth="120dp"
    android:minHeight="48dp"
    android:text="Division"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.838"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.606" />
```

<TextView

```
    android:id="@+id/textView2"
    android:layout_width="215dp"
    android:layout_height="50dp"
    android:fontFamily="monospace"
    android:text="Answer: "
    android:textSize="16sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.765" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

```
package com.example.calculator5;

import android.os.Bundle;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {

    EditText num1, num2;
    TextView ans;
    Button addbtn, subbtn, mulbtn, divbtn;

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

        num1 = findViewById(R.id.editTextText2);
        num2 = findViewById(R.id.editTextText3);
        ans = findViewById(R.id.textView2);

        //Addition Operation
        addbtn = findViewById(R.id.button);
        addbtn.setOnClickListener(v ->{
            //Take Input
            String n1 = num1.getText().toString();
            String n2 = num2.getText().toString();

            if(!n1.isEmpty() && !n2.isEmpty()){

                double a = Double.parseDouble(n1);
                double b = Double.parseDouble(n2);
```

```

        ans.setText("Answer: " + (double) (a + b));

    }

});

//Subtraction Operation

subbtn = findViewById(R.id.button2);
subbtn.setOnClickListener(v ->{
    //Take Input
    String n1 = num1.getText().toString();
    String n2 = num2.getText().toString();

    if(!n1.isEmpty() && !n2.isEmpty()){
        double a = Double.parseDouble(n1);
        double b = Double.parseDouble(n2);
        ans.setText("Answer: "+(a-b));
    }
});

//Multiplication Operation

mulbtn = findViewById(R.id.button3);
mulbtn.setOnClickListener( v ->{
    String n1 = num1.getText().toString();
    String n2 = num2.getText().toString();
    if(!n1.isEmpty() && !n2.isEmpty()){
        double a = Double.parseDouble(n1);
        double b = Double.parseDouble(n2);
        ans.setText("Answer: "+(a*b));
    }
});

//Division Operation

divbtn = findViewById(R.id.button4);
divbtn.setOnClickListener( v ->{
    String n1 = num1.getText().toString();
    String n2 = num2.getText().toString();
    if(!n1.isEmpty() && !n2.isEmpty()){
        double a = Double.parseDouble(n1);
        double b = Double.parseDouble(n2);
        if(b==0){
            ans.setText("Divide by Zero Error");
        }
        else{
            double result = (double) a/b;

```

```

        ans.setText("Answer: "+result);
    }

    });

    ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) -> {
        Insets systemBars =
insets.getInsets(WindowInsetsCompat.Type.systemBars());
        v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom);
        return insets;
    });
}
}

```

Output:

