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Views & ViewGroups:Basic Calculator App

activity_main.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:orientation="vertical"
    android:background="@color/white">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="60dp"
        android:id="@+id/label"
        android:text="CALCULATOR"
        android:textSize="30dp"
        android:textColor="@color/black"
        android:gravity="center"/>

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="30dp"
        android:hint="0"
        android:gravity="end"
        android:textSize="20dp"
        android:id="@+id/res"
    />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_marginLeft="20dp"
        android:layout_marginRight="20dp"
        android:layout_marginBottom="20dp">
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="9"
            android:textSize="20dp"
            android:id="@+id/nine"
            android:background="@color/white"
            android:layout_weight="0.25"
        />

        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="8"
            android:textSize="20dp"
            android:background="@color/white"
            android:id="@+id/eight"
```

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        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="7"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/seven"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="C"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/clear"
        android:layout_weight="0.25"
    />
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_marginLeft="20dp"
    android:layout_marginRight="20dp"
    android:layout_marginBottom="20dp">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="6"
        android:textSize="20dp"
        android:id="@+id/six"
        android:background="@color/white"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="5"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/five"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="4"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/four"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="+"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/plus"

```

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        android:layout_weight="0.25"
    />
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_marginLeft="20dp"
    android:layout_marginRight="20dp"
    android:layout_marginBottom="20dp">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="3"
        android:textSize="20dp"
        android:id="@+id/three"
        android:background="@color/white"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="2"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/two"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="1"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/one"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="-"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/minus"
        android:layout_weight="0.25"
    />
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_marginLeft="20dp"
    android:layout_marginRight="20dp"
    android:layout_marginBottom="20dp">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="/"
        android:textSize="20dp"
        android:id="@+id/divide"
        android:background="@color/white"
        android:layout_weight="0.25"

```

```
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="0"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/zero"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="*"
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/multiply"
        android:layout_weight="0.25"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="="
        android:textSize="20dp"
        android:background="@color/white"
        android:id="@+id/equal"
        android:layout_weight="0.25"
    />
</LinearLayout>
</LinearLayout>
```

MainActivity.java file:

```

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;

public class MainActivity extends AppCompatActivity implements View.OnClickListener{
    Button one, two, three, four, five, six, seven, eight, nine, zero;
    Button plus, minus, div, mul, clear, equals;
    EditText result;
    String operatorPressed = " ";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        result = findViewById(R.id.res); //EditText
        one = findViewById(R.id.one) ;
        two = findViewById(R.id.two) ;
        three = findViewById(R.id.three) ;
        four = findViewById(R.id.four) ;
        five = findViewById(R.id.five) ;
        six = findViewById(R.id.six) ;
        seven = findViewById(R.id.seven) ;
        eight = findViewById(R.id.eight) ;
        nine = findViewById(R.id.nine) ;
        zero = findViewById(R.id.zero) ;
        plus = findViewById(R.id.plus) ;
        minus = findViewById(R.id.minus) ;
        mul = findViewById(R.id.multiply) ;
        div = findViewById(R.id.divide) ;
        equals = findViewById(R.id.equal) ;
        clear = findViewById(R.id.clear) ;

        one.setOnClickListener(this);
        two.setOnClickListener(this);
        three.setOnClickListener(this);
        four.setOnClickListener(this);
        five.setOnClickListener(this);
        six.setOnClickListener(this);
        seven.setOnClickListener(this);
        eight.setOnClickListener(this);
        nine.setOnClickListener(this);
        // operators
        plus.setOnClickListener(this);
        minus.setOnClickListener(this);
        mul.setOnClickListener(this);
        div.setOnClickListener(this);
        equals.setOnClickListener(this);
        clear.setOnClickListener(this);
    }

    @Override
    public void onClick(View view) {
        double finalResult = 0.0;
        switch(view.getId())
        {
            case R.id.one: result.append("1");

```

```

        break;
    case R.id.two: result.append("2");
        break;
    case R.id.three: result.append("3");
        break;
    case R.id.four: result.append("4");
        break;
    case R.id.five: result.append("5");
        break;
    case R.id.six: result.append("6");
        break;
    case R.id.seven: result.append("7");
        break;
    case R.id.eight: result.append("8");
        break;
    case R.id.nine: result.append("9");
        break;
    case R.id.zero: result.append("0");
        break;
    case R.id.plus: result.append("+");
        operatorPressed="+";
        break;
    case R.id.minus: result.append("-");
        operatorPressed="-";
        break;
    case R.id.multiply: result.append("*");
        operatorPressed="*";
        break;
    case R.id.divide: result.append("/");
        operatorPressed="/";
        break;
    case R.id.clear: result.setText("");
        break;
    case R.id.equal: finalResult=
        evaluateExpression(result.getText().toString(),operatorPressed);
        result.setText(String.valueOf(finalResult));
        break;

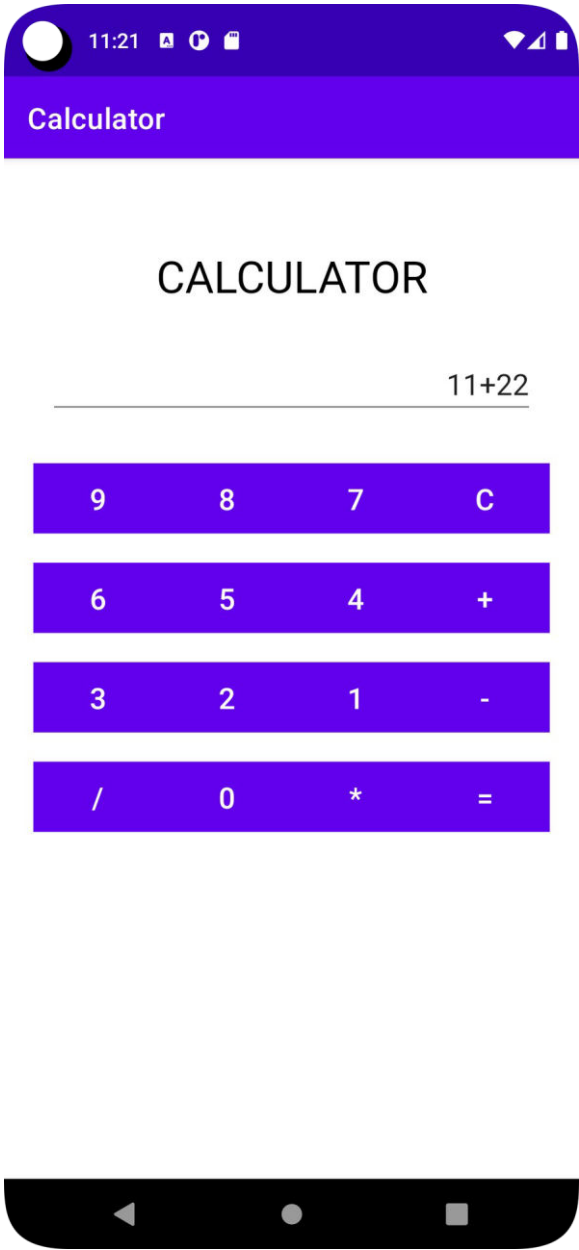
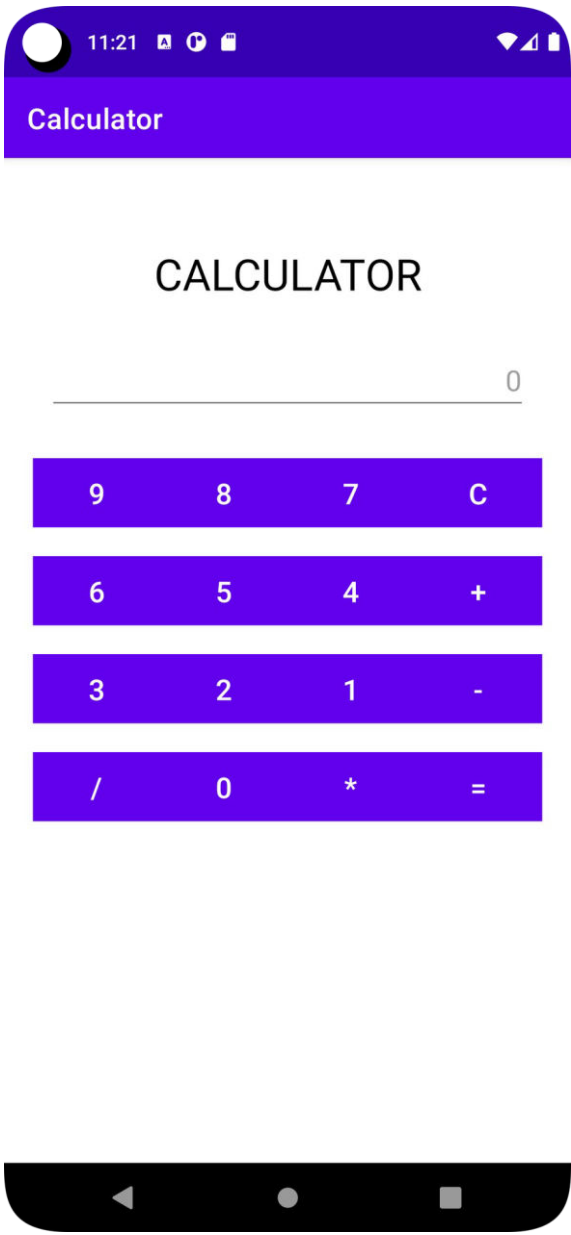
    default: return;
}

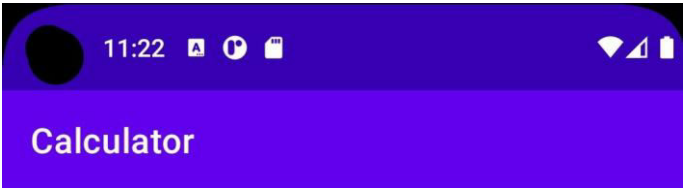
}

private double evaluateExpression(String res, String operatorPressed)
{
    String[] tokens = res.split("\\+|-|\\*|\\/"); // split for +, -, *, / operator
    // After split tokens[0] = first half of the string, tokens[1] = second hal of the string
    double firstOperand = Double.parseDouble(tokens[0]); //convert string to double
    double secondOperand = Double.parseDouble(tokens[1]);
    switch(operatorPressed) // Switch the operator, compute and returs the result back to
onlick that sets the editeext object to the result
    {
        case "+": return firstOperand + secondOperand;
        case "-": return firstOperand - secondOperand;
        case "*": return firstOperand * secondOperand;
        case "/": return firstOperand / secondOperand;
        default: return 0;
    }
}
}
}

```

Screenshots:





CALCULATOR

33.0

9	8	7	C
6	5	4	+
3	2	1	-
/	C	*	=

