

Lab Program: 2 Simple Calculator

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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">

    <Button
        android:id="@+id/c1r"
        android:layout_width="65dp"
        android:layout_height="55dp"
        android:text="@string/c"
        android:textSize="14sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.858"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.747" />

    <Button
        android:id="@+id/div"
```

```
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/divide"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.851"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.602" />
```

<Button

```
android:id="@+id/mul"
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/multi"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.851"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.506" />
```

<Button

```
android:id="@+id/sub"
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/minus"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.851"
```

```
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toTopOf="parent"  
app:layout_constraintVertical_bias="0.41" />
```

```
<Button
```

```
    android:id="@+id/add"  
    android:layout_width="62dp"  
    android:layout_height="64dp"  
    android:text="@string/plus"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.851"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.314" />
```

```
<Button
```

```
    android:id="@+id/dec"  
    android:layout_width="62dp"  
    android:layout_height="64dp"  
    android:text="@string/decimal"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.146"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.602" />
```

```
<Button
```

```
    android:id="@+id/eql"
```

```
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/eq1"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.564"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.602" />
```

<Button

```
android:id="@+id/num0"
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/_0"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.352"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.602" />
```

<Button

```
android:id="@+id/num9"
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/_9"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.564"
```

```
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toTopOf="parent"  
app:layout_constraintVertical_bias="0.506" />
```

```
<Button
```

```
    android:id="@+id/num8"  
    android:layout_width="62dp"  
    android:layout_height="64dp"  
    android:text="@string/_8"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.352"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.506" />
```

```
<Button
```

```
    android:id="@+id/num7"  
    android:layout_width="62dp"  
    android:layout_height="64dp"  
    android:text="@string/_7"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.146"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.506" />
```

```
<Button
```

```
    android:id="@+id/num6"
```

```
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/_6"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.564"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.41" />
```

<Button

```
android:id="@+id/num5"
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/_5"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.352"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.41" />
```

<Button

```
android:id="@+id/num4"
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/_4"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.146"
```

```
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toTopOf="parent"  
app:layout_constraintVertical_bias="0.41" />
```

```
<Button
```

```
    android:id="@+id/num3"  
    android:layout_width="62dp"  
    android:layout_height="64dp"  
    android:text="@string/_3"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.564"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.314" />
```

```
<Button
```

```
    android:id="@+id/num2"  
    android:layout_width="62dp"  
    android:layout_height="64dp"  
    android:text="@string/_2"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.352"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.314" />
```

```
<EditText
```

```
    android:id="@+id/inp"
```

```
android:layout_width="308dp"
android:layout_height="51dp"
android:ems="10"
android:hint="@string/enter_number"
android:importantForAutofill="no"
android:inputType="numberDecimal"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.495"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.055" />
```

<Button

```
android:id="@+id/num1"
android:layout_width="62dp"
android:layout_height="64dp"
android:text="@string/_1"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.146"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.314" />
```

<TextView

```
android:id="@+id/res"
android:layout_width="309dp"
android:layout_height="41dp"
app:layout_constraintBottom_toBottomOf="parent"
```



```
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.495"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.146" />

</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.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    Button btn0, btn1, btn2, btn3, btn4, btn5, btn6,
    btn7, btn8, btn9;
    Button btnadd, btnsub, btnmul, btndiv, btndec,
    btneql, btncclr;

    EditText input;
    TextView output;
```

```
float val1, val2;

boolean add, sub, mul, div;

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

    btn0=(Button)findViewById(R.id.num0);
    btn1=(Button)findViewById(R.id.num1);
    btn2=(Button)findViewById(R.id.num2);
    btn3=(Button)findViewById(R.id.num3);
    btn4=(Button)findViewById(R.id.num4);
    btn5=(Button)findViewById(R.id.num5);
    btn6=(Button)findViewById(R.id.num6);
    btn7=(Button)findViewById(R.id.num7);
    btn8=(Button)findViewById(R.id.num8);
    btn9=(Button)findViewById(R.id.num9);

    btndec=(Button)findViewById(R.id.dec);
    btnadd=(Button)findViewById(R.id.add);
    btnsub=(Button)findViewById(R.id.sub);
    btnmul=(Button)findViewById(R.id.mul);
    btndiv=(Button)findViewById(R.id.div);
    btneql=(Button)findViewById(R.id.eql);
    btnclr=(Button)findViewById(R.id.clr);

    input=(EditText)findViewById(R.id.inp);
```

```
        output=(TextView) findViewById(R.id.res);

        btn0.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                input.setText(input.getText()+"0");
            }
        });

        btn1.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                input.setText(input.getText()+"1");
            }
        });

        btn2.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                input.setText(input.getText()+"2");
            }
        });
```

```
        btn3.setOnClickListener(new  
View.OnClickListener() {  
        @Override  
        public void onClick(View v) {  
            input.setText(input.getText()+"3");  
        }  
    });
```

```
        btn4.setOnClickListener(new  
View.OnClickListener() {  
        @Override  
        public void onClick(View v) {  
            input.setText(input.getText()+"4");  
        }  
    });
```

```
        btn5.setOnClickListener(new  
View.OnClickListener() {  
        @Override  
        public void onClick(View v) {  
            input.setText(input.getText()+"5");  
        }  
    });
```

```
        btn6.setOnClickListener(new  
View.OnClickListener() {  
        @Override  
        public void onClick(View v) {  
            input.setText(input.getText()+"6");  
        }  
    });
```

```
    }

    });

    btn7.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        input.setText(input.getText()+"7");
    }
    });

    btn8.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        input.setText(input.getText()+"8");
    }
    });

    btn9.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        input.setText(input.getText()+"9");
    }
    });

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

```

        @Override
        public void onClick(View v) {
            if(input==null)
            {
                input.setText("");
            }
            else
            {
                val1=Float.parseFloat(input.getText()+"");
                add=true;
                input.setText(null);
            }
        }
    });

    btnsub.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
            val1=Float.parseFloat(input.getText()+"");
            sub=true;
            input.setText(null);
        }
    });

    btnmul.setOnClickListener(new
View.OnClickListener() {
        @Override

```

```

        public void onClick(View v) {

val1=Float.parseFloat(input.getText()+"");

        mul=true;
        input.setText(null);
    }
});

    btndiv.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {

val1=Float.parseFloat(input.getText()+"");

        div=true;
        input.setText(null);
    }
});

    btneql.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {

val2=Float.parseFloat(input.getText()+"");

        if (add)
        {
            output.setText(val1+val2 + "");
        }
    }
});

```

```
        add=false;
    }

    if(sub)
    {
        output.setText(val1-val2+"");
        sub=false;
    }

    if(mul)
    {
        output.setText(val1*val2+"");
        mul=false;
    }

    if(div)
    {
        output.setText(val1/val2+"");
        div=false;
    }
}

});
```

```
    btnclr.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        input.setText("");
        output.setText("");
    }
});
```



```
        }

    });

    btndec.setOnClickListener(new
View.OnClickListener() {

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

    });
}

}
```

calculator

9

15.0

