

MC Lab 4 Design a simple Calculator using Android

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XML Code:

(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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/e1"
        android:layout_width="343dp"
        android:layout_height="47dp"
        android:layout_marginTop="100dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:textAlignment="textEnd"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
```

```
<Button
    android:id="@+id/b5"
    android:layout_width="64dp"
    android:layout_height="42dp"
    android:layout_marginTop="270dp"
    android:text="5"
    app:layout_constraintEnd_toStartOf="@+id/b6"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toEndOf="@+id/b4"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<Button
    android:id="@+id/clear"
    android:layout_width="64dp"
    android:layout_height="42dp"
    android:layout_marginTop="460dp"
    android:text="C"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<Button
    android:id="@+id/b4"
    android:layout_width="64dp"
    android:layout_height="42dp"
    android:layout_marginTop="270dp"
    android:text="4"
    app:layout_constraintEnd_toStartOf="@+id/b5"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

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

```
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="385dp"
android:text="+"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/equ"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/div"
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="208dp"
android:text="/"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/b9"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/b9"
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="208dp"
android:text="9"
app:layout_constraintEnd_toStartOf="@+id/div"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/b8"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/b7"
android:layout_width="64dp"
android:layout_height="42dp"
```

```
android:layout_marginTop="208dp"
android:text="7"
app:layout_constraintEnd_toStartOf="@+id/b8"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/b8"
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="208dp"
android:text="8"
app:layout_constraintEnd_toStartOf="@+id/b9"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/b7"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/dot"
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="384dp"
android:text="."
app:layout_constraintEnd_toStartOf="@+id/b0"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/b6"
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="270dp"
android:text="6"
```

```
app:layout_constraintEnd_toStartOf="@+id/multi"  
    app:layout_constraintHorizontal_bias="0.5"  
    app:layout_constraintStart_toEndOf="@+id/b5"  
    app:layout_constraintTop_toTopOf="parent" />
```

```
<Button  
    android:id="@+id/sub"  
    android:layout_width="64dp"  
    android:layout_height="42dp"  
    android:layout_marginTop="326dp"  
    android:text="-"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.5"  
    app:layout_constraintStart_toEndOf="@+id/b3"  
    app:layout_constraintTop_toTopOf="parent" />
```

```
<Button  
    android:id="@+id/b3"  
    android:layout_width="64dp"  
    android:layout_height="42dp"  
    android:layout_marginTop="326dp"  
    android:text="3"  
    app:layout_constraintEnd_toStartOf="@+id/sub"  
    app:layout_constraintHorizontal_bias="0.5"  
    app:layout_constraintStart_toEndOf="@+id/b2"  
    app:layout_constraintTop_toTopOf="parent" />
```

```
<Button  
    android:id="@+id/multi"  
    android:layout_width="64dp"  
    android:layout_height="42dp"  
    android:layout_marginTop="270dp"  
    android:text="*"  
    app:layout_constraintEnd_toEndOf="parent"
```

```
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/b6"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/b1"
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="326dp"
android:text="1"
app:layout_constraintEnd_toStartOf="@+id/b2"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/b0"
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="385dp"
android:text="0"
app:layout_constraintEnd_toStartOf="@+id/equ"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/dot"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/equ"
android:layout_width="64dp"
android:layout_height="42dp"
android:layout_marginTop="385dp"
android:text="="
app:layout_constraintEnd_toStartOf="@+id/add"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/b0"
```

```
app:layout_constraintTop_toTopOf="parent" />
```

```
<Button
```

```
    android:id="@+id/b2"
```

```
    android:layout_width="64dp"
```

```
    android:layout_height="42dp"
```

```
    android:layout_marginTop="326dp"
```

```
    android:text="2"
```

```
    app:layout_constraintEnd_toStartOf="@+id/b3"
```

```
    app:layout_constraintHorizontal_bias="0.5"
```

```
    app:layout_constraintStart_toEndOf="@+id/b1"
```

```
    app:layout_constraintTop_toTopOf="parent" />
```

```
<TextView
```

```
    android:id="@+id/t1"
```

```
    android:layout_width="349dp"
```

```
    android:layout_height="32dp"
```

```
    android:layout_marginTop="162dp"
```

```
    android:textAlignment="textEnd"
```

```
    android:textSize="20sp"
```

```
    android:textStyle="bold"
```

```
    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toTopOf="parent" />
```

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

Java Code:

(MainActivity.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;

public class MainActivity extends AppCompatActivity {

    Button
    b0,b1,b2,b3,b4,b5,b6,b7,b8,b9,add,sub,multi, div,
    clear, equ, dot;
    EditText que;
    TextView ans;

    boolean addOp, subOp, multiOp, divOp;

    float value1, value2;

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

        b0 = (Button) findViewById(R.id.b0);
        b1 = (Button) findViewById(R.id.b1);
        b2 = (Button) findViewById(R.id.b2);
        b3 = (Button) findViewById(R.id.b3);
        b4 = (Button) findViewById(R.id.b4);
        b5 = (Button) findViewById(R.id.b5);
        b6 = (Button) findViewById(R.id.b6);
```



```

b7 = (Button) findViewById(R.id.b7);
b8 = (Button) findViewById(R.id.b8);
b9 = (Button) findViewById(R.id.b9);
add = (Button) findViewById(R.id.add);
sub = (Button) findViewById(R.id.sub);
div = (Button) findViewById(R.id.div);
multi = (Button) findViewById(R.id.multi);
clear = (Button) findViewById(R.id.clear);
equ = (Button) findViewById(R.id.equ);
dot = (Button) findViewById(R.id.dot);

ans = (TextView) findViewById(R.id.t1);

que = (EditText) findViewById(R.id.e1);

clear.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        que.setText("");
        ans.setText("");
    }
});

b0.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        que.setText(que.getText().toString()
+ "0");
    }
});

b1.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        que.setText(que.getText().toString()
+ "1");
    }
});

```

```

        });

        b2.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                que.setText(que.getText().toString()
+ "2");
            }
        });

        b3.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                que.setText(que.getText().toString()
+ "3");
            }
        });

        b4.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                que.setText(que.getText().toString()
+ "4");
            }
        });

        b5.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                que.setText(que.getText().toString()
+ "5");
            }
        });

        b6.setOnClickListener(new
View.OnClickListener() {

```

```

        @Override
        public void onClick(View v) {
            que.setText(que.getText().toString()
+ "6");
        }
    });

    b7.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
            que.setText(que.getText().toString()
+ "7");
        }
    });

    b8.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
            que.setText(que.getText().toString()
+ "8");
        }
    });

    b9.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
            que.setText(que.getText().toString()
+ "9");
        }
    });

    dot.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
            que.setText(que.getText().toString()
+ ".");
    }
});

```

```

        }
    });

    add.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        value1 =
Float.parseFloat(que.getText().toString());
        addOp = true;
        que.setText("");
    }
});

    sub.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        value1 =
Float.parseFloat(que.getText().toString());
        subOp = true;
        que.setText("");
    }
});

    div.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        value1 =
Float.parseFloat(que.getText().toString());
        divOp = true;
        que.setText("");
    }
});

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

```

```

        value1 =
Float.parseFloat(que.getText().toString());
        multiOp = true;
        que.setText("");
    }
});

equ.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if (addOp == true)
        {
            value2 =
Float.parseFloat(que.getText().toString());
            ans.setText("Ans: " + (value1 +
value2) + "");
            addOp = false;
        }

        if (subOp == true)
        {
            value2 =
Float.parseFloat(que.getText().toString());
            ans.setText("Ans: " + (value1 -
value2) + "");
            subOp = false;
        }

        if (multiOp == true)
        {
            value2 =
Float.parseFloat(que.getText().toString());
            ans.setText("Ans: " + (value1 *
value2) + "");
            multiOp = false;
        }

        if (divOp == true)
        {

```

```
                                value2 =
Float.parseFloat(que.getText().toString());
                                ans.setText("Ans: " + (value1 /
value2) + "");
                                divOp = false;
                                }
                                }
                                });
                                }
}
```

Output:

