

# **MC Lab 4 Design a simple Calculator using Android**

Name: Ashutosh Mathore

Roll no.: 202010013

## **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:**

