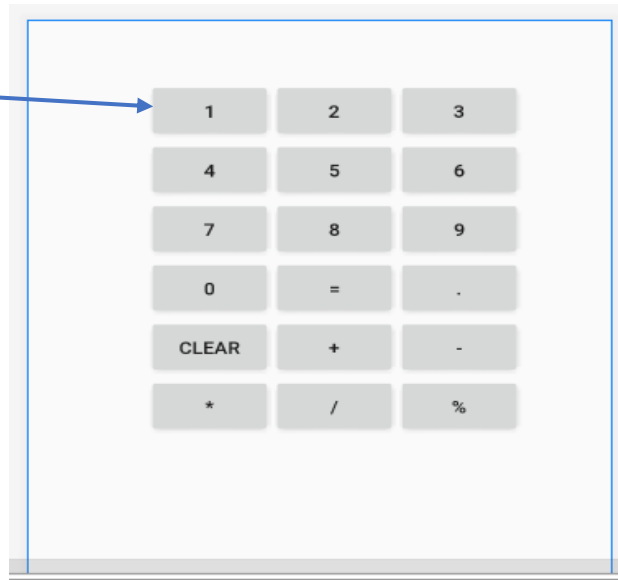


Assignment No: 02

Create an android Calculator app with Interactive User Interface using appropriate layouts.

bbutton



Layout used:

1. LinearLayout
2. RelativeLayout

Code: -

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical">
    <RelativeLayout
        android:id="@+id/relativeLayout1"
        android:layout_width="312dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center">
```

```
android:layout_marginLeft="35dp">
```

```
<Button  
    android:id="@+id/button1"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignParentLeft="true"  
    android:layout_marginTop="150dp"  
    android:padding="20px"  
    android:text="1"></Button>
```

```
<Button  
    android:id="@+id/button2"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignTop="@+id/button1"  
    android:layout_alignParentLeft="true"  
    android:layout_marginLeft="89dp"  
    android:layout_marginTop="0dp"  
    android:layout_toRightOf="@+id/button1"  
    android:padding="20px"  
    android:text="2"></Button>
```

```
<Button  
    android:id="@+id/button3"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignTop="@+id/button2"  
    android:layout_marginLeft="2dp"  
    android:layout_marginTop="0dp"  
    android:layout_toRightOf="@+id/button2"  
    android:padding="20px"  
    android:text="3"></Button>
```

```
<Button  
    android:id="@+id/button4"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignParentLeft="true"  
    android:layout_below="@+id/button1"  
    android:padding="20px"  
    android:text="4"></Button>
```

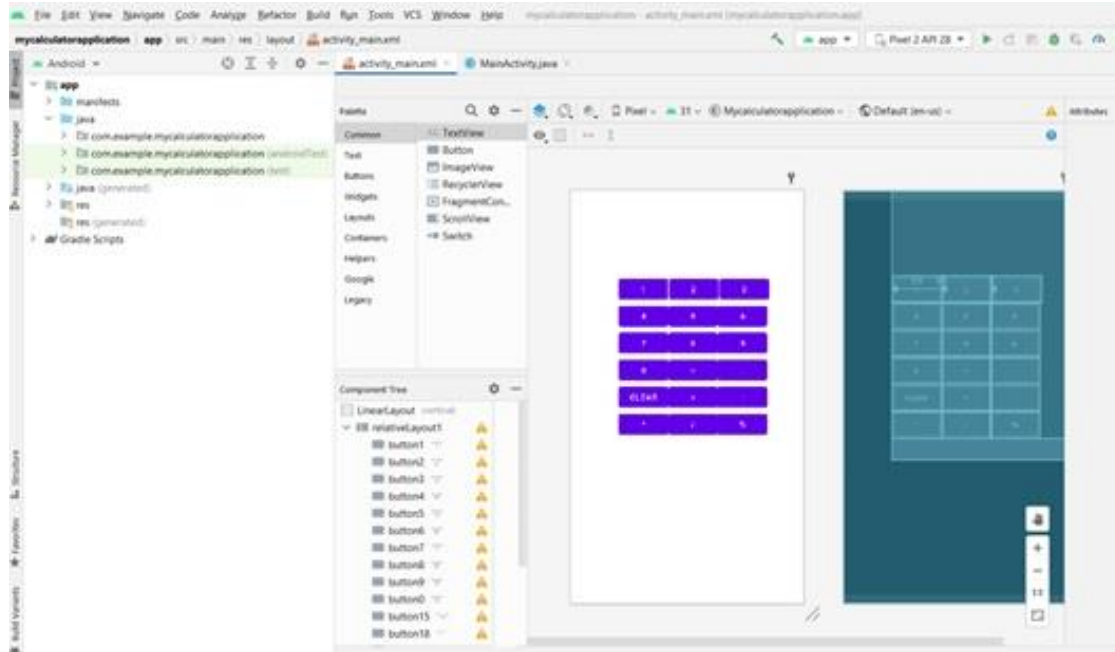
```
<Button  
    android:id="@+id/button5"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignTop="@+id/button4"
        android:layout_toRightOf="@+id/button4"
        android:padding="20px"
        android:text="5"></Button>
<Button
    android:id="@+id/button6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button4"
    android:layout_toRightOf="@+id/button5"
    android:padding="20px"
    android:text="6"></Button>
<Button
    android:id="@+id/button7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentLeft="true"
    android:layout_below="@+id/button4"
    android:padding="20px"
    android:text="7"></Button>
<Button
    android:id="@+id/button8"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button7"
    android:layout_toRightOf="@+id/button7"
    android:padding="20px"
    android:text="8"></Button>
<Button
    android:id="@+id/button9"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button7"
    android:layout_toRightOf="@+id/button8"
    android:padding="20px"
    android:text="9"></Button>
<Button
    android:id="@+id/button0"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentLeft="true"
    android:layout_below="@+id/button7"
```

```
        android:padding="20px"
        android:text="0"></Button>
<Button
    android:id="@+id/button15"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button0"
    android:layout_toRightOf="@+id/button0"
    android:padding="20px"
    android:text=""></Button>
<Button
    android:id="@+id/button18"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button0"
    android:layout_toRightOf="@+id/button15"
    android:padding="20px"
    android:text="."></Button>
<Button
    android:id="@+id/button16"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentLeft="true"
    android:layout_below="@+id/button0"
    android:padding="20px"
    android:text="clear"></Button>
<Button
    android:id="@+id/button11"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button16"
    android:layout_toRightOf="@+id/button16"
    android:padding="20px"
    android:text="+"></Button>
<Button
    android:id="@+id/button12"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button16"
    android:layout_toRightOf="@+id/button11"
    android:padding="20px"
    android:text="-"></Button>
<Button
    android:id="@+id/button13"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_below="@+id/button16"
        android:padding="20px"
        android:text="*"></Button>
<Button
    android:id="@+id/button14"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button13"
    android:layout_toRightOf="@+id/button13"
    android:padding="20px"
    android:text="/"></Button>
<Button
    android:id="@+id/button17"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/button13"
    android:layout_toRightOf="@+id/button14"
    android:padding="20px"
    android:text="% "></Button>
<TextView
    android:id="@+id/TextView1"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button13"
    android:fontFamily="serif"
    android:textSize="30dp"></TextView>

</RelativeLayout>
</LinearLayout>
```



MainActivity.java:

```
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.Button;
```

```
import android.widget.TextView;
```

```
import android.widget.Toast;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    TextView tv1;
```

```
    Integer c,d,r,b;
```

```
    String a = "0", aa;
```

```
    Button b1,b2,b3,b4,b5,b6,b7,b8,b9,b10,b11,b12,b13,b14,b15,b16,b17,b18;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
```

```
        tv1 = (TextView) findViewById(R.id.TextView1);
```

```
b1 = (Button) findViewById(R.id.button1);
b2 = (Button) findViewById(R.id.button2);
b3 = (Button) findViewById(R.id.button3);
b4 = (Button) findViewById(R.id.button4);
b5 = (Button) findViewById(R.id.button5);
b6 = (Button) findViewById(R.id.button6);
b7 = (Button) findViewById(R.id.button7);
b8 = (Button) findViewById(R.id.button8);
b9 = (Button) findViewById(R.id.button9);
b10 = (Button) findViewById(R.id.button0);
b11 = (Button) findViewById(R.id.button11);
b12 = (Button) findViewById(R.id.button12);
b13 = (Button) findViewById(R.id.button13);
b14 = (Button) findViewById(R.id.button14);
b15 = (Button) findViewById(R.id.button15);
b16 = (Button) findViewById(R.id.button16);
b17 = (Button) findViewById(R.id.button17);
b18 = (Button) findViewById(R.id.button18);

b1.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        a = tv1.getText().toString();
        a = a + "1";
        tv1.setText(a);
    }
});
b2.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        a = tv1.getText().toString();
        a = a + "2";
        tv1.setText(a);
    }
});
b3.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        a = tv1.getText().toString();
        a = a + "3";
        tv1.setText(a);
    }
});
b4.setOnClickListener(new View.OnClickListener() {
```

```
        public void onClick(View v) {
            a = tv1.getText().toString();
            a = a + "4";
            tv1.setText(a);
        }
    });
    b5.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            a = tv1.getText().toString();
            a = a + "5";
            tv1.setText(a);
        }
    });
    b6.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            a = tv1.getText().toString();
            a = a + "6";
            tv1.setText(a);
        }
    });
    b7.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            a = tv1.getText().toString();
            a = a + "7";
            tv1.setText(a);
        }
    });
    b8.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            a = tv1.getText().toString();
            a = a + "8";
            tv1.setText(a);
        }
    });
    b9.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            a = tv1.getText().toString();
            a = a + "9";
            tv1.setText(a);
        }
    });
});
```



```
b10.setOnClickListener(new View.OnClickListener() {  
    public void onClick(View v) {  
        a = tv1.getText().toString();  
        a = a + "0";  
        tv1.setText(a);  
    }  
});  
b11.setOnClickListener(new View.OnClickListener() {  
    public void onClick(View v) {  
        aa = a;  
        b = 1;  
        a = "";  
        //tv1.setText(+);  
        tv1.setText("");  
    }  
});  
b12.setOnClickListener(new View.OnClickListener() {  
    public void onClick(View v) {  
        aa = a;  
        b = 2;  
        a = "";  
        //tv1.setText(a);  
        tv1.setText("-");  
        tv1.setText("");  
    }  
});  
b13.setOnClickListener(new View.OnClickListener() {  
    public void onClick(View v) {  
        aa = a;  
        b = 3;  
        a = "";  
        //tv1.setText(a);  
        tv1.setText("*");  
        tv1.setText("");  
    }  
});  
b14.setOnClickListener(new View.OnClickListener() {  
    public void onClick(View v) {  
        aa = a;  
        b = 4;  
        a = "";
```

```
//tv1.setText(a);
tv1.setText("/");
tv1.setText("");
}
});
//OnClick event handling for =
b15.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        if (b == 1){
            c = Integer.parseInt(aa);
            d = Integer.parseInt(a);
            r = c + d;
        } else if (b == 4){
            c = Integer.parseInt(aa);
            d = Integer.parseInt(a);
            r = c/d;
        } else if (b == 2){
            c = Integer.parseInt(aa);
            d = Integer.parseInt(a);
            r = c - d;
        } else if (b == 3) {
            c = Integer.parseInt(aa);
            d = Integer.parseInt(a);
            r = c * d;
        }
        String op = "";
        switch (b) {
            case 1: op = " + ";
                    break;
            case 2: op = " - ";
                    break;
            case 3: op = " * ";
                    break;
            case 4: op = " / ";
        }
        tv1.setText(c + op + d + " = " + r);
        String ans=c + op + d + " = " + r;
        Toast.makeText(MainActivity.this, ans, Toast.LENGTH_LONG).show();
    }
});
```

```
b16.setOnClickListener(new View.OnClickListener() {  
    public void onClick(View v) {  
        tv1.setText("");  
    }  
});  
  
}  
  
}
```

Output:

