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## **EXPERIMENT 4 – DESIGN SIMPLE APPLICATIONS USING LAYOUTS**

**AIM :** To design application using layouts.

### **ASSIGNMENT**

Design a simple calculator with following operations.

- Addition
- Subtraction
- Multiplication
- Division

### **CODE:**

#### **activity.main.xml**

```
<?xml version="1.0" encoding="utf-8"?>

<RelativeLayout
    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">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Simple Calculator"
        android:textStyle="bold"
        android:textSize="30sp"
        android:layout_centerHorizontal="true"
        android:id="@+id/textView1"
        android:layout_marginTop="30dp"
    />
    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Num 1"
        android:textStyle="bold"
        android:textSize="30sp"
        android:layout_below="@+id/textView1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="30dp"
        android:id="@+id/edit1"
```

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```
    />
    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Num 2"
        android:textStyle="bold"
        android:textSize="30sp"
        android:layout_below="@+id/edit1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="30dp"
        android:id="@+id/edit2"
    />
    <TextView
        android:layout_width="130dp"
        android:layout_height="wrap_content"
        android:layout_below="@+id/edit2"
        android:layout_centerHorizontal="true"
        android:textSize="30sp"
        android:textStyle="bold"
        android:id="@+id/textView2"
        android:layout_marginTop="30dp"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="ADD"
        android:textSize="25dp"
        android:textStyle="bold"
        android:layout_below="@+id/textView2"
        android:layout_marginLeft="60dp"
        android:id="@+id/btn1"
        android:layout_marginTop="30dp"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SUB"
        android:textSize="25dp"
        android:textStyle="bold"
        android:layout_below="@+id/textView2"
        android:layout_marginLeft="75dp"
        android:id="@+id/btn2"
        android:layout_toRightOf="@+id/btn1"
        android:layout_marginTop="30dp"
    />
```

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```
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="MUL"
    android:onClick="Mul"
    android:textSize="25dp"
    android:textStyle="bold"
    android:layout_below="@+id/btn1"
    android:layout_marginLeft="60dp"
    android:id="@+id/btn3"
    android:layout_marginTop="30dp"
/>
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="DIV"
    android:textSize="25dp"
    android:onClick="Div"
    android:textStyle="bold"
    android:layout_below="@+id/btn2"
    android:layout_marginLeft="75dp"
    android:id="@+id/btn4"
    android:layout_toRightOf="@+id/btn3"
    android:layout_marginTop="30dp"
/>
</RelativeLayout>
```

## MainActivity.java

```
package com.example.mca1634.simplecalculator;

import android.support.v7.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 btn1,btn2,btn3,btn4;
    EditText edit1,edit2;
    TextView textView1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btn1=(Button) findViewById(R.id.btn1);
        btn2=(Button) findViewById(R.id.btn2);
```

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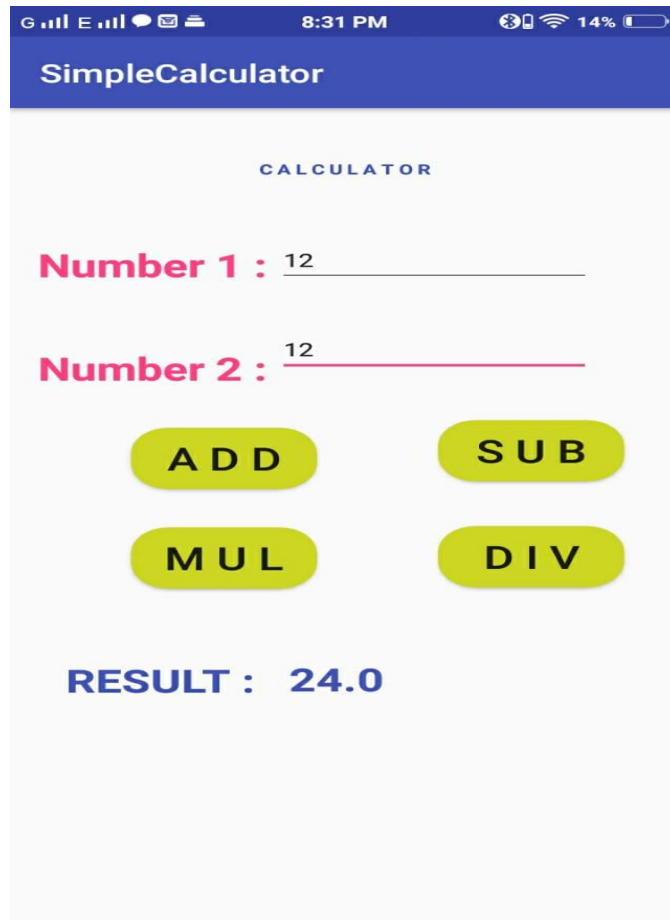
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```
        btn3=(Button)findViewById(R.id.btn3);
        btn4=(Button)findViewById(R.id.btn4);
        edit1=(EditText)findViewById(R.id.edit1);
        edit2=(EditText)findViewById(R.id.edit2);
        textView1=(TextView)findViewById(R.id.textView2);
        btn1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                double
                a1=Double.parseDouble(edit1.getText().toString());
                double
                a2=Double.parseDouble(edit2.getText().toString());
                double a3;
                a3=a1+a2;
                textView1.setText(Double.toString(a3));
            }
        });
        btn2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                double a1 = Double.parseDouble(edit1.getText().toString());
                double a2 = Double.parseDouble(edit2.getText().toString());
                Double a3;
                a3 = a1-a2;
                textView1.setText(Double.toString(a3));
            }
        });
    }
    public void Mul(View view) {
        double a1= Double.valueOf(edit1.getText().toString());
        double a2= Double.valueOf(edit2.getText().toString());
        double a3;
        a3 = a1*a2;
        textView1.setText(String.valueOf(a3));
    }
    public void Div(View view) {
        double a1=Double.valueOf(edit1.getText().toString());
        double a2=Double.valueOf(edit2.getText().toString());
        double a3;
        a3 = a1/a2;
        textView1.setText(String.valueOf(a3));
    }
}
```

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**OUTPUT:**



The image shows a mobile application interface for a 'Simple Calculator'. At the top, there is a blue header bar with the text 'SimpleCalculator' in white. Below the header, the word 'CALCULATOR' is centered in a small, blue, all-caps font. The interface features two input fields for numbers, both labeled in pink. 'Number 1' is followed by a pink underline containing the value '12'. 'Number 2' is followed by a pink underline also containing the value '12'. Below these inputs are four yellow, rounded rectangular buttons with black text: 'ADD', 'SUB', 'MUL', and 'DIV'. At the bottom, the text 'RESULT : 24.0' is displayed in a bold, blue font. The top of the screen shows a status bar with various icons and the time '8:31 PM'.

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**AIM :** Design an application for unit conversion.

**CODE:**

**activity.main.xml**

```
<?xml version="1.0" encoding="utf-8"?>

<RelativeLayout 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">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="UNIT CONVERSION"
        android:textSize="30dp"
        android:textStyle="bold"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="10dp"
        android:id="@+id/textV1"
    />
    <EditText
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:id="@+id/edit1"
        android:layout_below="@+id/textV1"
        android:hint="    value"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="25dp"
        android:textSize="40sp"
        android:textStyle="bold"
    />
    <RadioGroup
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/RD1"
        android:layout_below="@+id/edit1"
        android:layout_marginLeft="20dp"
    >
        <RadioButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Celsius 2 Fahrenheit"
            android:textSize="20sp"
            android:textStyle="bold"
            android:layout_below="@+id/edit1"
```

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```
        android:id="@+id/rb1"
        android:layout_marginTop="10dp"
    />
    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fahrenheit 2 Celsius"
        android:textSize="20sp"
        android:textStyle="bold"
        android:layout_below="@+id/edit1"
        android:id="@+id/rb2"
        android:layout_marginTop="10dp"
    />
    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Centimeter 2 Meter"
        android:textSize="20sp"
        android:textStyle="bold"
        android:layout_below="@+id/edit1"
        android:id="@+id/rb3"
        android:layout_marginTop="10dp"
    />
    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Meter 2 Centimeter"
        android:textSize="20sp"
        android:textStyle="bold"
        android:layout_below="@+id/edit1"
        android:id="@+id/rb4"
        android:layout_marginTop="10dp"
    />
    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Rupees 2 Dollar"
        android:textSize="20sp"
        android:textStyle="bold"
        android:layout_below="@+id/edit1"
        android:id="@+id/rb5"
        android:layout_marginTop="10dp"
    />
    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Dollar 2 Rupees"
        android:textSize="20sp"
        android:textStyle="bold"
```

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```
        android:layout_below="@+id/edit1"
        android:id="@+id/rb6"
        android:layout_marginTop="10dp"
    />
</RadioGroup>
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Convert"
    android:textSize="20sp"
    android:textStyle="bold"
    android:layout_centerHorizontal="true"
    android:layout_below="@+id/RD1"
    android:id="@+id/b1"
    android:layout_marginTop="20dp"
/>
</RelativeLayout>
```

### MainActivity.java

```
package com.example.mca1634.unitconversion;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
public class MainActivity extends AppCompatActivity {

    Button b1;
    EditText edit1;
    RadioButton rb1, rb2, rb3, rb4, rb5, rb6;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=(Button) findViewById(R.id.b1);
        edit1=(EditText) findViewById(R.id.edit1);
        rb1=(RadioButton) findViewById(R.id.rb1);
        rb2=(RadioButton) findViewById(R.id.rb2);
        rb3=(RadioButton) findViewById(R.id.rb3);
        rb4=(RadioButton) findViewById(R.id.rb4);
        rb5=(RadioButton) findViewById(R.id.rb5);
        rb6=(RadioButton) findViewById(R.id.rb6);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if(rb1.isChecked())
                {
                    double num,res;
```



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```
        num=Double.parseDouble(edit1.getText().toString());
        res = (num*9/5)+32 ;
        edit1.setText(Double.toString(res));
    }
    else if(rb2.isChecked())
    {
        double num,res;
        num=Double.parseDouble(edit1.getText().toString());
        res = (num-32)*5/9;
        edit1.setText(Double.toString(res));
    }
    else if(rb3.isChecked())
    {
        double num,res;
        num=Double.parseDouble(edit1.getText().toString());
        res = num/100;
        edit1.setText(Double.toString(res));
    }
    else if(rb4.isChecked())
    {
        double num,res;
        num=Double.parseDouble(edit1.getText().toString());
        res = num*100;
        edit1.setText(Double.toString(res));
    }
    else if(rb5.isChecked())
    {
        double num,res;
        num=Double.parseDouble(edit1.getText().toString());
        res = num*0.14;
        edit1.setText(Double.toString(res));
    }
    else
    {
        double num,res;
        num=Double.parseDouble(edit1.getText().toString());
        res = num*70.08;
        edit1.setText(Double.toString(res));
    }
}

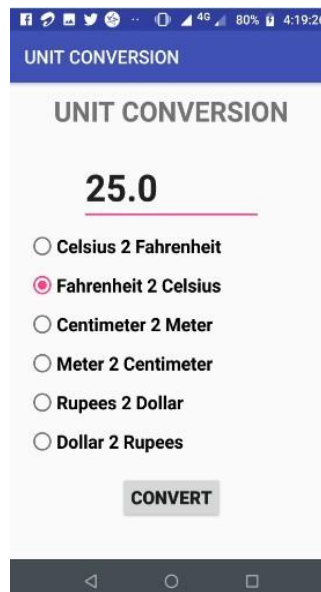
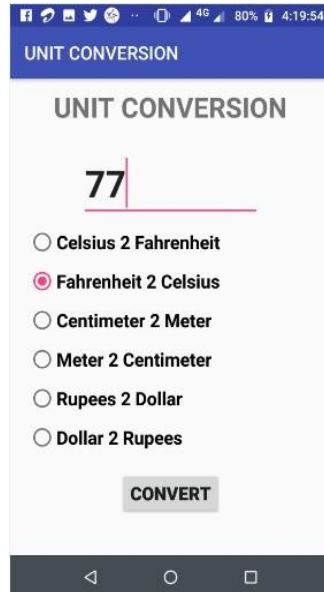
});
}

}
```

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### **OUTPUT:**



**CONCLUSION:** Successfully Executed simple calculator & unit conversion.