

Experiment-3

Program: - Develop a native calculator application

Implementation:-

```
activity main.xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="20dp">

    <LinearLayout
        android:id="@+id/linearLayout1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp">

        <EditText
            android:id="@+id/editText1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:inputType="numberDecimal"
            android:textSize="20sp" />

        <EditText
            android:id="@+id/editText2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:inputType="numberDecimal"
            android:textSize="20sp" />

    </LinearLayout>

    <LinearLayout
        android:id="@+id/linearLayout2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp">

        <Button
            android:id="@+id/Add"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="+"
            android:textSize="30sp"/>

        <Button
            android:id="@+id/Sub"
            android:layout_width="match_parent"
```

```

        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="-"
        android:textSize="30sp"/>

<Button
    android:id="@+id/Mul"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="*"
    android:textSize="30sp"/>

<Button
    android:id="@+id/Div"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="/"
    android:textSize="30sp"/>

</LinearLayout>

<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:text="Answer is"
    android:textSize="30sp"
    android:gravity="center"/>

</LinearLayout>

```

MainActivity.java

```

package com.example.devang.exno3;

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.text.TextUtils;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements OnClickListener
{
    //Defining the Views
    EditText Num1;
    EditText Num2;
    Button Add;
    Button Sub;
    Button Mul;

```

```

Button Div;
TextView Result;

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

    //Referring the Views
    Num1 = (EditText) findViewById(R.id.editText1);
    Num2 = (EditText) findViewById(R.id.editText2);
    Add = (Button) findViewById(R.id.Add);
    Sub = (Button) findViewById(R.id.Sub);
    Mul = (Button) findViewById(R.id.Mul);
    Div = (Button) findViewById(R.id.Div);
    Result = (TextView) findViewById(R.id.textView);

    // set a listener
    Add.setOnClickListener(this);
    Sub.setOnClickListener(this);
    Mul.setOnClickListener(this);
    Div.setOnClickListener(this);
}

@Override
public void onClick (View v)
{
    float num1 = 0;
    float num2 = 0;
    float result = 0;
    String oper = "";

    // check if the fields are empty
    if (TextUtils.isEmpty(Num1.getText().toString()) ||
    TextUtils.isEmpty(Num2.getText().toString()))
        return;

    // read EditText and fill variables with numbers
    num1 = Float.parseFloat(Num1.getText().toString());
    num2 = Float.parseFloat(Num2.getText().toString());

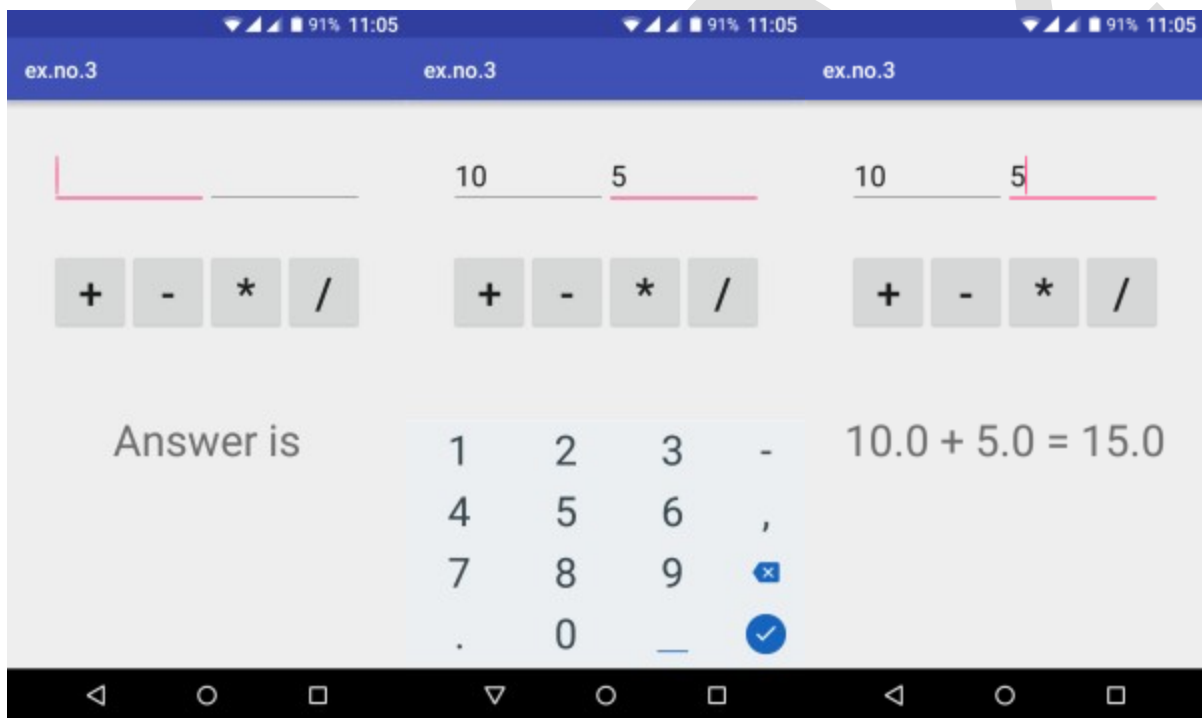
    // defines the button that has been clicked and performs the
    corresponding operation
    // write operation into oper, we will use it later for output
    switch (v.getId())
    {
        case R.id.Add:
            oper = "+";
            result = num1 + num2;
            break;
        case R.id.Sub:
            oper = "-";
            result = num1 - num2;
            break;
    }
}

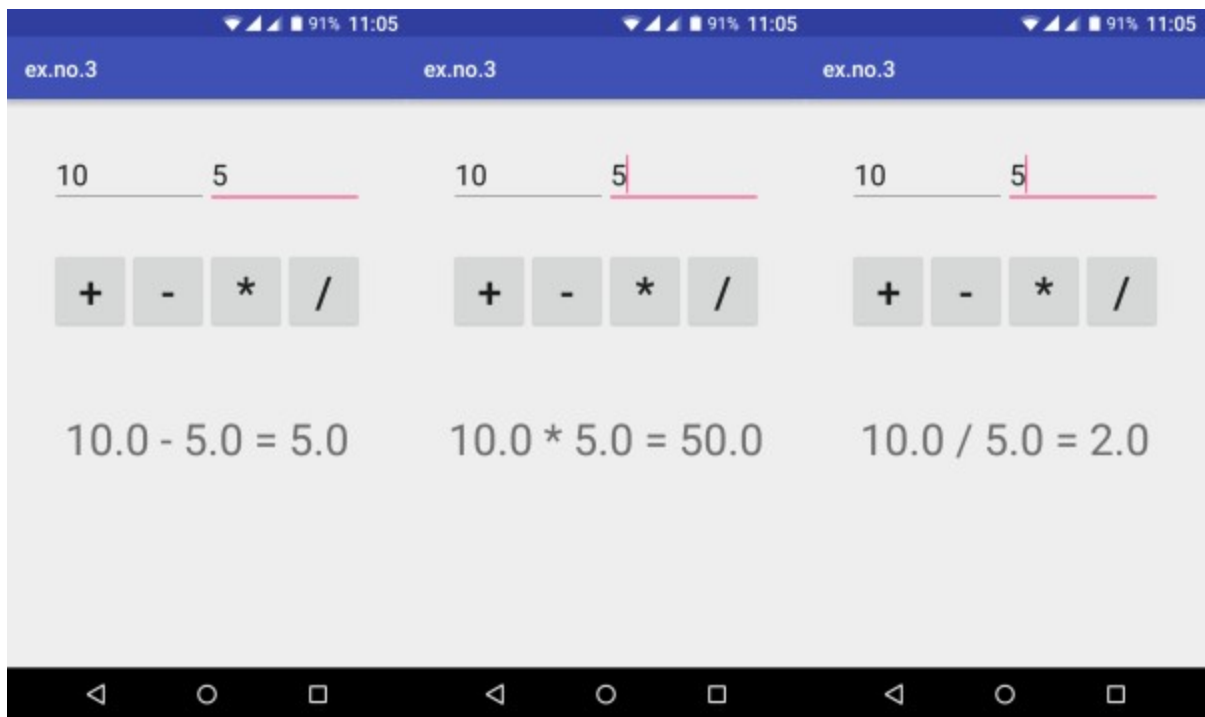
```

```

        case R.id.Mul:
            oper = "*";
            result = num1 * num2;
            break;
        case R.id.Div:
            oper = "/";
            result = num1 / num2;
            break;
        default:
            break;
    }
    // form the output line
    Result.setText(num1 + " " + oper + " " + num2 + " = " + result);
}
}

```





Experiment 4

Write an application that draws basic graphical primitives on the screen.

Code for activity_main.xml

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <ImageView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:id="@+id/imageView" />

</RelativeLayout>
```

Code for MainActivity.java

```
package com.example.exp4;

import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.drawable.BitmapDrawable;
import android.os.Bundle;
import android.widget.ImageView;

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

```
public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        //Creating a Bitmap

        Bitmap bg = Bitmap.createBitmap(720, 1280, Bitmap.Config.ARGB_8888);

        //Setting the Bitmap as background for the ImageView

        ImageView i = (ImageView) findViewById(R.id.imageView);

        i.setBackgroundDrawable(new BitmapDrawable(bg));

        //Creating the Canvas Object

        Canvas canvas = new Canvas(bg);

        //Creating the Paint Object and set its color & TextSize

        Paint p1 = new Paint();

        Paint p2= new Paint();

        Paint p3=new Paint();

        p1.setColor(Color.rgb(300,200,200));

        p2.setColor(Color.WHITE);

        p3.setColor(Color.BLACK);

        p3.setTextSize(80);

        canvas.drawRect(150, 250, 550, 650,p1);

        canvas.drawRect(250, 525, 450,550 ,p2);

        canvas.drawCircle(275, 350, 50, p2);

        canvas.drawCircle(425, 350, 50, p2);

    }

}
```

```
        canvas.drawLine(225, 275, 325, 300, p3);  
        canvas.drawLine(375, 300, 475, 275, p3);  
        canvas.drawText("Hi !! I'm ROBO", 120, 800, p3);  
    }  
}
```

