COURSE OUTCOME-2

PROGRAM 1

AIM: Design a registration activity and store registration details in local memory of phone using Intents and SharedPreferences.

PROGRAM CODE

| JAVA CODE MainActivity.java | ```java
package com.example.admin.sharedpreference;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.content.SharedPreferences;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
    EditText edt1,edt2,edt3,edt4,edt5;
    Button bt;
    TextView t1,t2,t3,t4,t5,t6,t7,t8,t9,t10;

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

        edt1=(EditText) findViewById(R.id.editcheck);
        edt2=(EditText) findViewById(R.id.editText);
        edt3=(EditText) findViewById(R.id.editText2);
        edt4=(EditText) findViewById(R.id.editText3);
        edt5=(EditText) findViewById(R.id.editText4);
        bt=(Button) findViewById(R.id.button);
        t1=(TextView) findViewById(R.id.textView);
        t2=(TextView) findViewById(R.id.textView2);
        t3=(TextView) findViewById(R.id.textView3);
        t4=(TextView) findViewById(R.id.textView4);
        t5=(TextView) findViewById(R.id.textView5);
        t6=(TextView) findViewById(R.id.textView6);
        t7=(TextView) findViewById(R.id.textView7);
        t8=(TextView) findViewById(R.id.textView8);
``` |
|---|---|

	t9=(TextView) findViewById(R.id.*textView9*);
	t10=(TextView) findViewById(R.id.*textView10*);
	bt.setOnClickListener(new View.OnClickListener() {
	   @Override
	   public void onClick(View v) {
	      SharedPreferences
	sharedpref=getSharedPreferences("pref",*MODE_PRIVATE*);
	      SharedPreferences.Editor editor=sharedpref.edit();
	      editor.putString("key",edt1.getText().toString());
	      editor.putString("key1",edt2.getText().toString());
	      editor.putString("key2",edt3.getText().toString());
	      editor.putString("key3",edt4.getText().toString());
	      editor.putString("key4",edt5.getText().toString());
	      editor.apply();
	   }
	});
	SharedPreferences
	getsharedValue=getSharedPreferences("pref",*MODE_PRIVATE*);
	   String value=getsharedValue.getString("key","this is the default value for pref");
	   t6.setText(value);
	   String value1=getsharedValue.getString("key1","this is the default value for pref");
	   t7.setText(value1);
	   String value2=getsharedValue.getString("key2","this is the default value for pref");
	   t8.setText(value2);
	   String value3=getsharedValue.getString("key3","this is the default value for pref");
	   t9.setText(value3);
	   String value4=getsharedValue.getString("key4","this is the default value for pref");
	   t10.setText(value4);
	  }
	}

XML CODE
Activity_main.xml
	<?xml version="1.0" encoding="utf-8"?>
	<android.support.constraint.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/editcheck"
    android:layout_width="148dp"
    android:layout_height="43dp"
    android:layout_marginTop="8dp"
    android:layout_marginBottom="8dp"
    android:ems="10"
    android:hint="Enter username"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.822"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.07" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="158dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="159dp"
    android:layout_marginBottom="8dp"
    android:text="Save"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.615" />

<TextView
    android:id="@+id/textView6"
    android:layout_width="151dp"
    android:layout_height="20dp"
    android:layout_marginStart="165dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="189dp"
    android:layout_marginBottom="50dp"
    android:text="Do You Want to save this Username"
    app:layout_constraintBottom_toBottomOf="parent"
```

```xml
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.504"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintVertical_bias="0.773" />

    <TextView
            android:id="@+id/textView"
            android:layout_width="115dp"
            android:layout_height="33dp"
            android:layout_marginStart="8dp"
            android:layout_marginTop="8dp"
            android:layout_marginEnd="8dp"
            android:layout_marginBottom="8dp"
            android:text="Name"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.221"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintVertical_bias="0.069" />

    <TextView
            android:id="@+id/textView2"
            android:layout_width="64dp"
            android:layout_height="30dp"
            android:layout_marginStart="8dp"
            android:layout_marginTop="8dp"
            android:layout_marginEnd="8dp"
            android:layout_marginBottom="8dp"
            android:text="Age"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.207"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintVertical_bias="0.18" />

    <EditText
            android:id="@+id/editText"
            android:layout_width="142dp"
            android:layout_height="42dp"
            android:layout_marginStart="8dp"
            android:layout_marginTop="8dp"
```

```xml
        android:layout_marginEnd="8dp"
        android:layout_marginBottom="8dp"
        android:ems="10"
        android:hint="Enter age"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.849"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.182" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="71dp"
        android:layout_height="28dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginBottom="8dp"
        android:text="Mob no"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.212"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.289" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="136dp"
        android:layout_height="41dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginBottom="8dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Enter Mob no"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.827"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
```

```xml
    app:layout_constraintVertical_bias="0.297" />

<TextView
    android:id="@+id/textView4"
    android:layout_width="66dp"
    android:layout_height="25dp"
    android:layout_marginStart="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:layout_marginBottom="8dp"
    android:text="Email"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.208"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.391" />

<EditText
    android:id="@+id/editText3"
    android:layout_width="126dp"
    android:layout_height="37dp"
    android:layout_marginStart="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:ems="10"
    android:hint="Enter email"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.793"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.389" />

<TextView
    android:id="@+id/textView5"
    android:layout_width="wrap_content"
    android:layout_height="25dp"
    android:layout_marginStart="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:layout_marginBottom="8dp"
    android:text="Password"
```

```xml
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.205"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintVertical_bias="0.493" />

        <EditText
            android:id="@+id/editText4"
            android:layout_width="99dp"
            android:layout_height="39dp"
            android:layout_marginStart="8dp"
            android:layout_marginTop="8dp"
            android:layout_marginEnd="8dp"
            android:layout_marginBottom="8dp"
            android:ems="10"
            android:hint="Enter password"
            android:inputType="textPersonName"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.713"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent" />

        <TextView
            android:id="@+id/textView7"
            android:layout_width="149dp"
            android:layout_height="21dp"
            android:layout_marginStart="8dp"
            android:layout_marginTop="8dp"
            android:layout_marginEnd="8dp"
            android:layout_marginBottom="8dp"
            android:text="TextView"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.452"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintVertical_bias="0.772" />

        <TextView
            android:id="@+id/textView8"
            android:layout_width="172dp"
            android:layout_height="21dp"
```

```xml
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginBottom="8dp"
        android:text="TextView"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.841" />

    <TextView
        android:id="@+id/textView9"
        android:layout_width="149dp"
        android:layout_height="23dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginBottom="8dp"
        android:text="TextView"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.447"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.925" />

    <TextView
        android:id="@+id/textView10"
        android:layout_width="140dp"
        android:layout_height="26dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginBottom="8dp"
        android:text="TextView"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.429"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="1.0" />
</android.support.constraint.ConstraintLayout>
```

OUTPUT

RESULT: The above program is successfully executed and obtained the output.

PROGRAM 2

AIM: Design a simple Calculator using GridLayout and Cascaded LinearLayout.

PROGRAM CODE

| JAVA CODE | package com.example.gridcalculator;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
  Button button0, button1, button2, button3, button4, button5,button6,button7, button8, button9, buttonAdd, buttonSub,buttonDivision,buttonMul, buttond, buttonC, buttonEqual,buttonperc;
  EditText cEditText;
  float mValueOne, mValueTwo;
  boolean cAddition, mSubtract, cMultiplication, cDivision,cperc;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    button0 = (Button) findViewById(R.id.button15);
    button1 = (Button) findViewById(R.id.button8);
    button2 = (Button) findViewById(R.id.button14);
    button3 = (Button) findViewById(R.id.button18);
    button4 = (Button) findViewById(R.id.button7);
    button5 = (Button) findViewById(R.id.button13);
    button6 = (Button) findViewById(R.id.button16);
    button7 = (Button) findViewById(R.id.button6);
    button8 = (Button) findViewById(R.id.button10);
    button9 = (Button) findViewById(R.id.button11);
    buttond = (Button) findViewById(R.id.button19);
    buttonAdd = (Button) findViewById(R.id.button20);
    buttonSub = (Button) findViewById(R.id.button17);
    buttonMul = (Button) findViewById(R.id.button12);
    buttonDivision = (Button) findViewById(R.id.button5);
    buttonC = (Button) findViewById(R.id.button2);
    buttonperc = (Button) findViewById(R.id.button4);
    buttonEqual = (Button) findViewById(R.id.button21); |

```java
cEditText = (EditText) findViewById(R.id.edt1);
button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        cEditText.setText(cEditText.getText() + "1");
    }
});
button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        cEditText.setText(cEditText.getText() + "2");
    }
});
button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        cEditText.setText(cEditText.getText() + "3");
    }
});
button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        cEditText.setText(cEditText.getText() + "4");
    }
});
button5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        cEditText.setText(cEditText.getText() + "5");
    }
});
button6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        cEditText.setText(cEditText.getText() + "6");
    }
});
button7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        cEditText.setText(cEditText.getText() + "7");
    }
});
button8.setOnClickListener(new View.OnClickListener() {
```

```java
            @Override
            public void onClick(View v) {
                cEditText.setText(cEditText.getText() + "8");
            }
        });
        button9.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                cEditText.setText(cEditText.getText() + "9");
            }
        });
        button0.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                cEditText.setText(cEditText.getText() + "0");
            }
        });
        buttonAdd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (cEditText == null) {
                    cEditText.setText("");
                } else {
                    mValueOne = Float.parseFloat(cEditText.getText() +
                        "");
                    cAddition = true;
                    cEditText.setText(null);
                }
            }
        });
        buttonSub.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                mValueOne = Float.parseFloat(cEditText.getText() +
                    "");
                mSubtract = true;
                cEditText.setText(null);
            }
        });
        buttonMul.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                mValueOne = Float.parseFloat(cEditText.getText() +
                    "");
```

```
                cMultiplication = true;
                cEditText.setText(null);
            }
        });
        buttonDivision.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                mValueOne = Float.parseFloat(cEditText.getText() +
                    "");
                cDivision = true;
                cEditText.setText(null);
            }
        });
        buttonperc.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                mValueOne = Float.parseFloat(cEditText.getText() +
                    "");
                cperc = true;
                cEditText.setText(null);
            }
        });
        buttonEqual.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                mValueTwo = Float.parseFloat(cEditText.getText() +
                    "");
                if (cAddition == true) {
                    cEditText.setText(mValueOne + mValueTwo + "");
                    cAddition = false;
                }
                if (mSubtract == true) {
                    cEditText.setText(mValueOne - mValueTwo + "");
                    mSubtract = false;
                }
                if (cMultiplication == true) {
                    cEditText.setText(mValueOne * mValueTwo + "");
                    cMultiplication = false;
                }
                if (cDivision == true) {
                    cEditText.setText(mValueOne / mValueTwo + "");
                    cDivision = false;
                }
                if (cperc == true) {
```

| | ```
                    cEditText.setText((mValueOne / mValueTwo)*100 +
                       "");
                    cperc = false;
                  }
                }
              });
           buttonC.setOnClickListener(new View.OnClickListener() {
              @Override
              public void onClick(View v) {
                 cEditText.setText("");
              }
           });
           buttond.setOnClickListener(new View.OnClickListener() {
              @Override
              public void onClick(View v) {
                 cEditText.setText(cEditText.getText() + ".");
              }
           });
        }
     }
``` |

| XML CODE | ```
 <?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"
   android:background="#F6CACA"
   tools:context=".MainActivity">
   <android.widget.GridLayout
      android:id="@+id/gridLayout"
      android:layout_width="398dp"
      android:layout_height="496dp"
      android:layout_marginStart="1dp"
      android:layout_marginTop="45dp"
      android:layout_marginEnd="1dp"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toBottomOf="@+id/edt1">
      <Button
         android:id="@+id/button2"
         android:layout_width="100dp"
``` |

```xml
        android:layout_height="60dp"
        android:text="C"
        android:textSize="20sp"
        app:layout_column="0"
        app:layout_row="0" />
    <Button
        android:id="@+id/button3"
        android:layout_width="98dp"
        android:layout_height="60dp"
        android:text="( )"
        android:textSize="20sp"
        app:layout_column="1"
        app:layout_row="0" />
    <Button
        android:id="@+id/button4"
        android:layout_width="wrap_content"
        android:layout_height="60dp"
        android:text="%"
        android:textSize="20sp"
        app:layout_column="2"
        app:layout_row="0" />
    <Button
        android:id="@+id/button5"
        android:layout_width="121dp"
        android:layout_height="64dp"
        android:layout_row="0"
        android:layout_column="3"
        android:text="/"
        android:textSize="20sp"
        app:layout_column="3"
        app:layout_row="0" />
    <Button
        android:id="@+id/button6"
        android:layout_width="91dp"
        android:layout_height="59dp"
        android:layout_row="1"
        android:layout_column="0"
        android:text="7"
        android:textSize="20sp"
        app:layout_column="0"
        app:layout_row="1" />
    <Button
        android:id="@+id/button7"
        android:layout_width="wrap_content"
```

```xml
        android:layout_height="60dp"
        android:layout_row="2"
        android:layout_column="1"
        android:text="4"
        android:textSize="20sp"
        app:layout_column="0"
        app:layout_row="2" />
    <Button
        android:id="@+id/button8"
        android:layout_width="wrap_content"
        android:layout_height="61dp"
        android:layout_row="1"
        android:layout_column="2"
        android:text="1"
        android:textSize="20sp"
        app:layout_column="0"
        app:layout_row="3" />
    <Button
        android:id="@+id/button9"
        android:layout_width="123dp"
        android:layout_height="65dp"
        android:text="+/-"
        android:textSize="20sp"
        app:layout_column="0"
        app:layout_row="4" />
    <Button
        android:id="@+id/button10"
        android:layout_width="wrap_content"
        android:layout_height="61dp"
        android:layout_row="4"
        android:layout_column="0"
        android:text="8"
        android:textSize="20sp"
        app:layout_column="1"
        app:layout_row="1" />
    <Button
        android:id="@+id/button11"
        android:layout_width="wrap_content"
        android:layout_height="59dp"
        android:layout_row="4"
        android:layout_column="1"
        android:text="9"
        android:textSize="20sp"
        app:layout_column="2"
```

```
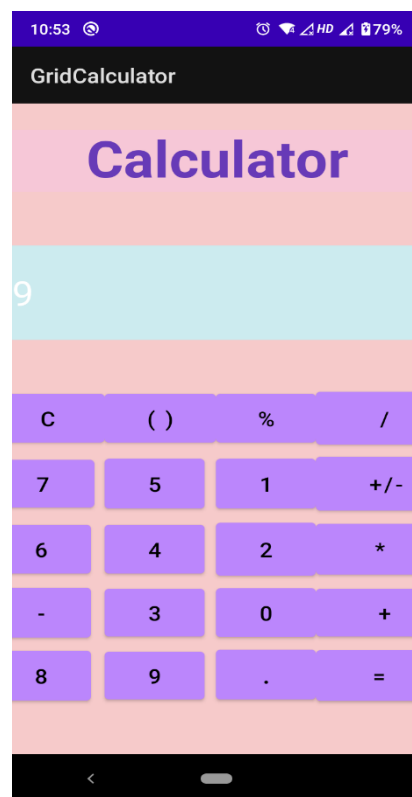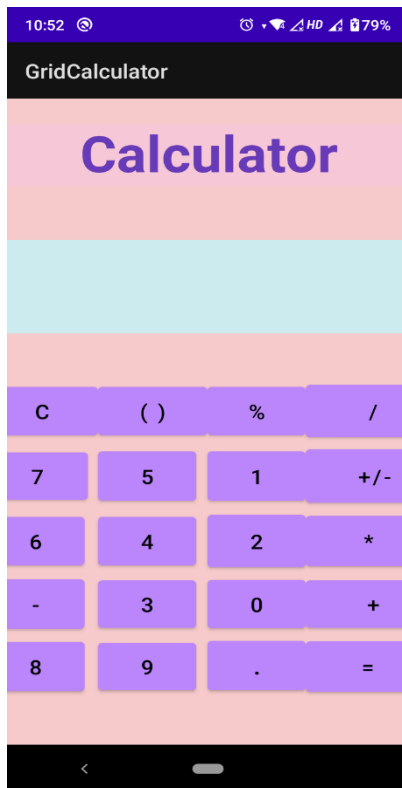          app:layout_row="1" />
       <Button
          android:id="@+id/button12"
          android:layout_width="113dp"
          android:layout_height="62dp"
          android:layout_row="2"
          android:layout_column="3"
          android:text="*"
          android:textSize="20sp"
          app:layout_column="3"
          app:layout_row="1" />
       <Button
          android:id="@+id/button13"
          android:layout_width="wrap_content"
          android:layout_height="61dp"
          android:layout_row="1"
          android:layout_column="1"
          android:text="5"
          android:textSize="20sp"
          app:layout_column="1"
          app:layout_row="2" />
       <Button
          android:id="@+id/button14"
          android:layout_width="wrap_content"
          android:layout_height="64dp"
          android:layout_row="2"
          android:layout_column="2"
          android:text="2"
          android:textSize="20sp"
          app:layout_column="1"
          app:layout_row="3" />
       <Button
          android:id="@+id/button15"
          android:layout_width="wrap_content"
          android:layout_height="60dp"
          android:layout_row="3"
          android:layout_column="2"
          android:text="0"
          android:textSize="20sp"
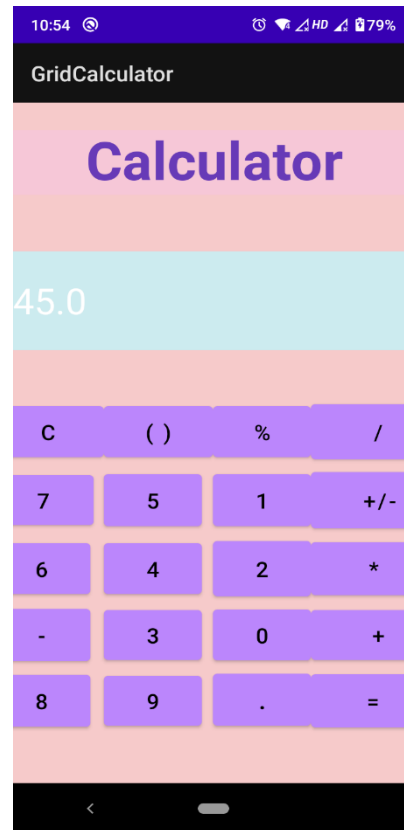          app:layout_column="1"
          app:layout_row="4" />
       <Button
          android:id="@+id/button16"
          android:layout_width="wrap_content"
```

```
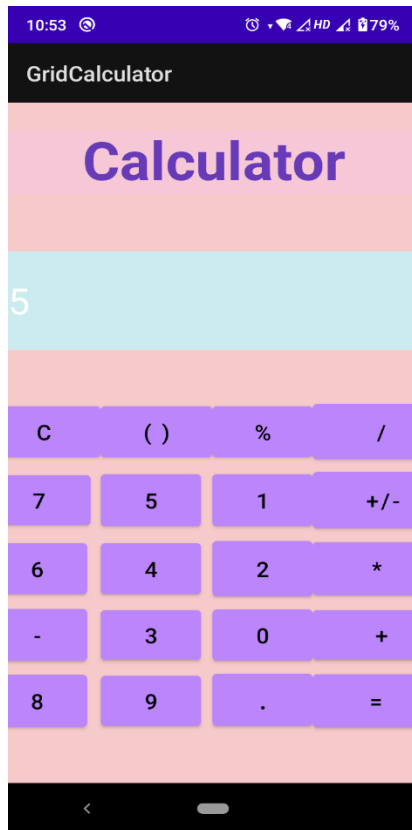                    android:layout_height="60dp"
                    android:layout_row="2"
                    android:layout_column="0"
                    android:text="6"
                    android:textSize="20sp"
                    app:layout_column="2"
                    app:layout_row="2" />
                <Button
                    android:id="@+id/button17"
                    android:layout_width="wrap_content"
                    android:layout_height="61dp"
                    android:layout_row="3"
                    android:layout_column="0"
                    android:text="-"
                    android:textSize="20sp"
                    app:layout_column="3"
                    app:layout_row="2" />
                <Button
                    android:id="@+id/button18"
                    android:layout_width="wrap_content"
                    android:layout_height="59dp"
                    android:text="3"
                    android:textSize="20sp"
                    app:layout_column="2"
                    app:layout_row="3" />
                <Button
                    android:id="@+id/button19"
                    android:layout_width="wrap_content"
                    android:layout_height="61dp"
                    android:layout_row="4"
                    android:layout_column="2"
                    android:text="."
                    android:textSize="24sp"
                    app:layout_column="2"
                    app:layout_row="4" />
                <Button
                    android:id="@+id/button20"
                    android:layout_width="121dp"
                    android:layout_height="59dp"
                    android:layout_row="3"
                    android:layout_column="3"
                    android:text="+"
                    android:textSize="20sp"
                    app:layout_column="3"
```

```
                app:layout_row="3" />
        <Button
            android:id="@+id/button21"
            android:layout_width="111dp"
            android:layout_height="62dp"
            android:layout_row="4"
            android:layout_column="3"
            android:text="="
            android:textSize="20sp"
            app:layout_column="3"
            app:layout_row="4" />
    </android.widget.GridLayout>
    <EditText
        android:id="@+id/edt1"
        android:layout_width="423dp"
        android:layout_height="93dp"
        android:layout_marginTop="140dp"
        android:layout_marginBottom="95dp"
        android:background="#A3D4DA"
        android:backgroundTint="#CCEBEF"
        android:textSize="34sp"
        app:layout_constraintBottom_toTopOf="@+id/gridLayout"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="1.0"
        tools:ignore="MissingConstraints" />
    <EditText
        android:id="@+id/editTextTextPersonName2"
        android:layout_width="406dp"
        android:layout_height="61dp"
        android:layout_marginStart="1dp"
        android:layout_marginTop="15dp"
        android:layout_marginBottom="42dp"
        android:background="#F6C7D7"
        android:ems="10"
        android:foregroundGravity="center"
        android:gravity="center"
        android:inputType="textPersonName"
        android:text="Calculator"
        android:textColor="#673AB7"
        android:textSize="50sp"
        android:textStyle="bold"
```

	app:layout_constraintBottom_toTopOf="@+id/edt1" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" android:layout_marginLeft="1dp" /> </androidx.constraintlayout.widget.ConstraintLayout>

OUTPUT

RESULT: The above program is successfully executed and obtained the output.

PROGRAM 3

AIM: Create a Facebook page using RelativeLayout; set properties using .xml file.

PROGRAM CODE

| XML CODE | ```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">


    <ImageView
        android:id="@+id/imageView3"
        android:layout_width="309dp"
        android:layout_height="130dp"
        android:layout_centerHorizontal="true"
        app:srcCompat="@drawable/fb_logo" />

    <ImageView
        android:id="@+id/imageView7"
        android:layout_width="110dp"
        android:layout_height="wrap_content"
        android:layout_below="@+id/imageView3"
        android:layout_alignParentLeft="false"
        android:layout_marginTop="23dp"
        app:srcCompat="@drawable/flower" />

    <TextView
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@id/imageView7"
        android:layout_alignBottom="@id/imageView7"
        android:layout_alignParentBottom="false"
        android:layout_marginLeft="134dp"
        android:layout_marginBottom="11dp"
        android:layout_toRightOf="@id/imageView7"
        android:ems="10"
``` |
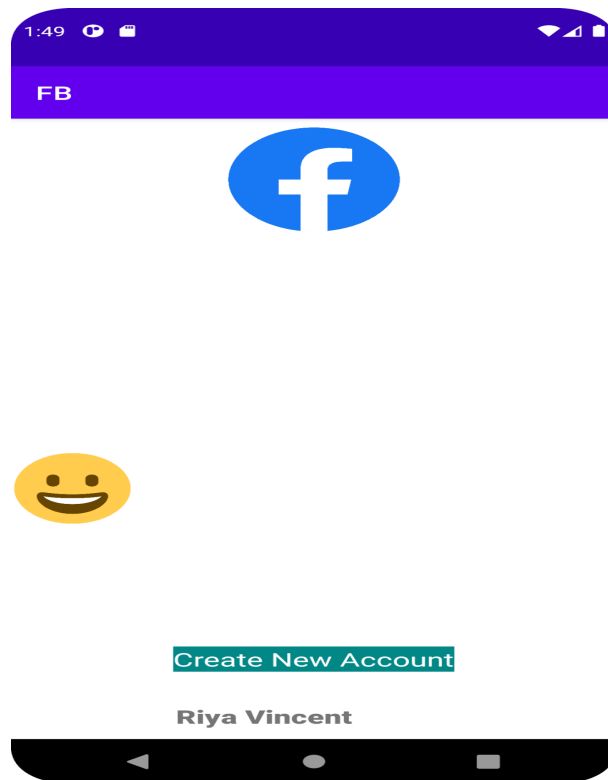
```xml
            android:fontFamily="sans-serif-black"
            android:inputType="textPersonName"
            android:text="Shaina"
            android:textSize="20dp" />

        <CheckBox
            android:id="@+id/check1"
            android:layout_width="217dp"
            android:layout_height="26dp"
            android:layout_below="@id/imageView7"
            android:layout_marginTop="63dp"
            android:layout_marginBottom="56dp"
            android:text="Log in to another account" />

        <CheckBox
            android:layout_width="217dp"
            android:layout_height="26dp"
            android:layout_alignTop="@+id/check1"
            android:layout_marginTop="60dp"
            android:layout_marginBottom="56dp"
            android:text="Find your account" />

        <EditText
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignParentBottom="true"
            android:layout_centerInParent="true"
            android:layout_centerVertical="true"
            android:layout_marginBottom="72dp"
            android:background="@color/teal_700"
            android:text="Create new Facebook account"
            android:textColor="@color/white"
            android:textSize="20dp" />
</RelativeLayout>
```

OUTPUT

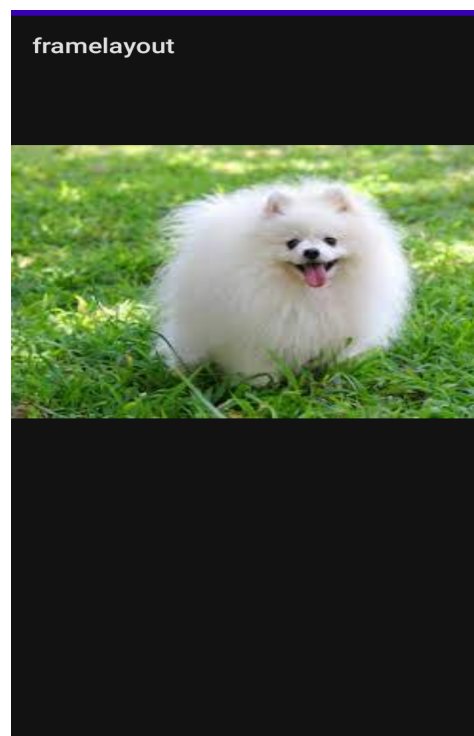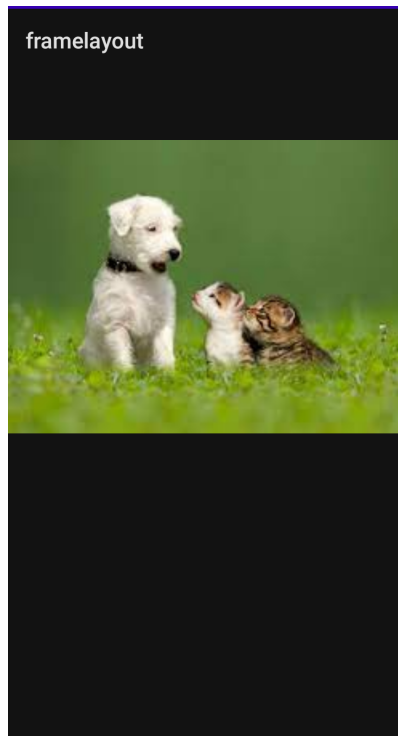**RESULT:** The above program is successfully executed and obtained the output.

PROGRAM 4

AIM: Develop an application that toggles image using FrameLayout.

PROGRAM CODE:

JAVA CODE	
| JAVA CODE | ```java
package com.example.framelayout;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;

  public class MainActivity extends AppCompatActivity implements
View.OnClickListener {
    ImageView i1,i2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      i1=(ImageView) findViewById(R.id.imageView1);
      i2=(ImageView) findViewById(R.id.imageView2);
      i1.setOnClickListener(this);
      i2.setOnClickListener(this);
    }
    @Override
    public void onClick(View v) {
      if(v.getId()==R.id.imageView1)
      {
        i1.setVisibility(v.GONE);
        i2.setVisibility(v.VISIBLE);
      }
      else
      {

        i2.setVisibility(v.GONE);
        i1.setVisibility(v.VISIBLE);
      }
    }
  }
``` |

| XML CODE | ```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
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">


    <ImageView
        android:id="@+id/imageView1"
        android:layout_width="400dp"
        android:layout_height="392dp"
        app:srcCompat="@drawable/puppyy"
        android:layout_gravity="left|top"/>

    <ImageView
        android:id="@+id/imageView2"
        android:layout_width="396dp"
        android:layout_height="400dp"
        app:srcCompat="@drawable/puppy"
        android:layout_gravity="left|top"
        android:visibility="gone"/>

    <FrameLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent">

    </FrameLayout>
</FrameLayout>
``` |

OUTPUT

RESULT: The above program is successfully executed and obtained the output.