

**DEPARTMENT OF COMPUTER APPLICATION**  
**TKM COLLEGE OF ENGINEERING**  
**KOLLAM – 691005**



**20MCA243 – MOBILE APPLICATION**  
**DEVELOPMENT LAB**  
**PRACTICAL RECORD BOOK**  
Third Semester MCA  
2021-2023

**Submitted by:**  
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**DEPARTMENT OF COMPUTER APPLICATION**  
**TKM COLLEGE OF ENGINEERING**  
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**Certificate**

This is a bonafide record of the work done by **FATHIMA RINSHA R M** in the Third Semester in **MobileApplication Development Lab** Course(20MCA243) towards the partial fulfillment of the degree of Master of Computer Applications during the academic year 2021-2023

Staff Member in-charge

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Examiner

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**PROGRAM 1**

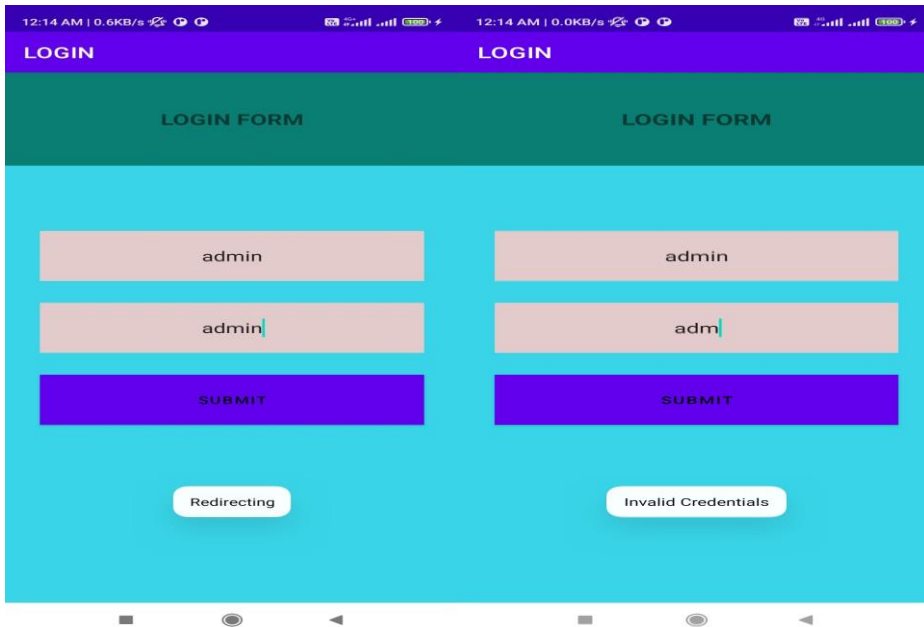
**AIM:** Design a Login Form with username and password using Linear Layout and toast valid credentials.

**PROGRAM CODE**

MainActivity.java	<pre>package com.example.linearlayoutregistration;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle; import android.view.View; import android.widget.EditText; import android.widget.Button; import android.widget.Toast;  import java.util.Objects;  public class MainActivity extends AppCompatActivity {     EditText name,password;     Button button;      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);         name=findViewById(R.id.name);         password=findViewById(R.id.passwd);         button=findViewById(R.id.button);         button.setOnClickListener(new View.OnClickListener() {             @Override             public void onClick(View v) {                 if(Objects.equals(name.getText().toString(),"admin") &amp;&amp; Objects.equals(password.getText().toString(),"admin")){                     Toast.makeText(MainActivity.this, "you have logged in successfully", Toast.LENGTH_SHORT).show();                 }                 else{                     Toast.makeText(MainActivity.this,"failed login",Toast.LENGTH_LONG).show();                 } } });}</pre>
-------------------	---

activity_main.xml	<pre>&lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;LinearLayout xmlns:android="http://schemas.android.com/apk/res/androi d" android:layout_width="match_parent" android:layout_height="match_parent" android:orientation="vertical" android:paddingLeft="16dp" android:paddingRight="16dp"&gt;  &lt;EditText android:id="@+id/usr" android:layout_width="match_parent" android:layout_height="wrap_content" android:hint="User Name" /&gt;  &lt;EditText android:id="@+id/pass" android:layout_width="match_parent" android:layout_height="59dp" android:ems="10" android:hint="password" android:inputType="textPassword"/&gt;  &lt;Button android:id="@+id/button" android:layout_width="match_parent" android:layout_height="wrap_content" android:text="LOGIN" /&gt; &lt;/LinearLayout&gt;</pre>
-------------------	---

## OUTPUT



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

## **PROGRAM 2**

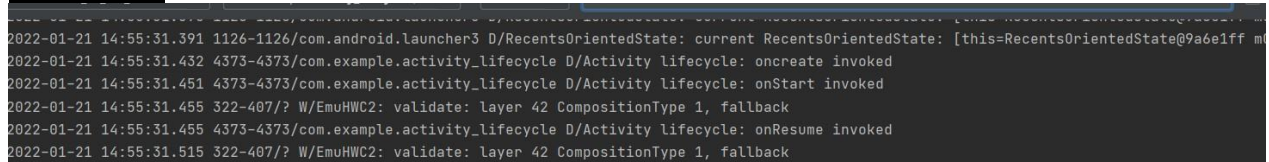
**AIM:** Write a program that demonstrates Activity Lifecycle.

### **PROGRAM CODE**

MainActivity.java	<pre>package com.example.activity;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle; import android.util.Log;  public class MainActivity extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);         Log.d("lifecycle","onCreate invoked");     }     protected void onStart(){         super.onStart();         Log.d("lifecycle","onStart invoked");     }      protected void onResume() {         super.onResume();         Log.d("lifecycle", "onResume invoked");     }     protected void onPause(){         super.onPause();         Log.d("lifecycle","onPause invoked");     }     protected void onStop(){         super.onStop();         Log.d("lifecycle","onStop invoked");     }     protected void onRestart(){         super.onRestart();         Log.d("lifecycle","onRestart invoked");     }     protected void onDestroy(){         super.onDestroy();         Log.d("lifecycle","onDestroy invoked"); }}</pre>
-------------------	--

activity_main.xml	<pre>&lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;TextView android:id="@+id/textView" android:layout_width="109dp" android:layout_height="57dp" android:text="Helloworld" android:textSize="16sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt;</pre>
-------------------	--

## OUTPUT



```
2022-01-21 14:55:31.391 1126-1126/com.android.launcher3 D/RecentsOrientedState: current RecentsOrientedState: [this=RecentsOrientedState@9a6e1ff m
2022-01-21 14:55:31.432 4373-4373/com.example.activity_lifecycle D/Activity lifecycle: onCreate invoked
2022-01-21 14:55:31.451 4373-4373/com.example.activity_lifecycle D/Activity lifecycle: onStart invoked
2022-01-21 14:55:31.455 322-407/? W/EmuHWC2: validate: Layer 42 CompositionType 1, fallback
2022-01-21 14:55:31.455 4373-4373/com.example.activity_lifecycle D/Activity lifecycle: onResume invoked
2022-01-21 14:55:31.515 322-407/? W/EmuHWC2: validate: Layer 42 CompositionType 1, fallback
```

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



**PROGRAM 3****AIM:** Implementing basic arithmetic operations of a simple calculator.**PROGRAM CODE**MainActivit  
y.j ava

```

package com.example.myapplication;

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    EditText e1, e2;
    TextView t1;
    int num1, num2;

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

    // a public method to get the input numbers
    public boolean getNumbers() {

        // defining the edit text 1 to e1
        e1 = (EditText) findViewById(R.id.num1);

        // defining the edit text 2 to e2
        e2 = (EditText) findViewById(R.id.num2);

        // defining the text view to t1
        t1 = (TextView) findViewById(R.id.result);

        // taking input from text box 1
        String s1 = e1.getText().toString();

        // taking input from text box 2
        String s2 = e2.getText().toString();

        // condition to check if box is not empty
        if ((s1.equals(null) && s2.equals(null))
            || (s1.equals("") && s2.equals(""))) {

```

```
String result = "Please enter a value";
t1.setText(result);

return false;
} else {
    // converting string to int.
    num1 = Integer.parseInt(s1);

    // converting string to int.
    num2 = Integer.parseInt(s2);
}

return true;
}

// a public method to perform addition
public void doSum(View v) {

    // get the input numbers
    if (getNumbers()) {
        int sum = num1 + num2;
        t1.setText(Integer.toString(sum));
    }
}

// a public method to perform power function

// a public method to perform subtraction
public void doSub(View v) {

    // get the input numbers
    if (getNumbers()) {
        int sum = num1 - num2;
        t1.setText(Integer.toString(sum));
    }
}

// a public method to perform multiplication
public void doMul(View v) {

    // get the input numbers
    if (getNumbers()) {
        int sum = num1 * num2;
        t1.setText(Integer.toString(sum));
    }
}

// a public method to perform Division
public void doDiv(View v) {
```

	<pre> // get the input numbers if (getNumbers()) {      // displaying the text in text view assigned as t1     double sum = num1 / (num2 * 1.0);     t1.setText(Double.toString(sum)); }  }  // a public method to perform modulus function  } </pre>
--	---

activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;EditText android:id="@+id/first" android:layout_width="160dp" android:layout_height="32dp" android:ems="10" android:hint="First number" android:inputType="textPersonName" android:textSize="12sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.43" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" </pre>
-------------------	--

```
app:layout_constraintVertical_bias="0.158" />

<EditText
    android:id="@+id/second"
    android:layout_width="180dp"
    android:layout_height="34dp"
    android:ems="10"
    android:hint="Second number"
    android:inputType="textPersonName"
    android:textSize="12sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.454"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.275" />

<EditText
    android:id="@+id/result"
    android:layout_width="182dp"
    android:layout_height="43dp"
    android:ems="10"
    android:hint="Result"
    android:inputType="textPersonName"
    android:textSize="12sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.471"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.376" />

<Button
    android:id="@+id/sum"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="SUM"
    android:onClick="sum"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.139"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

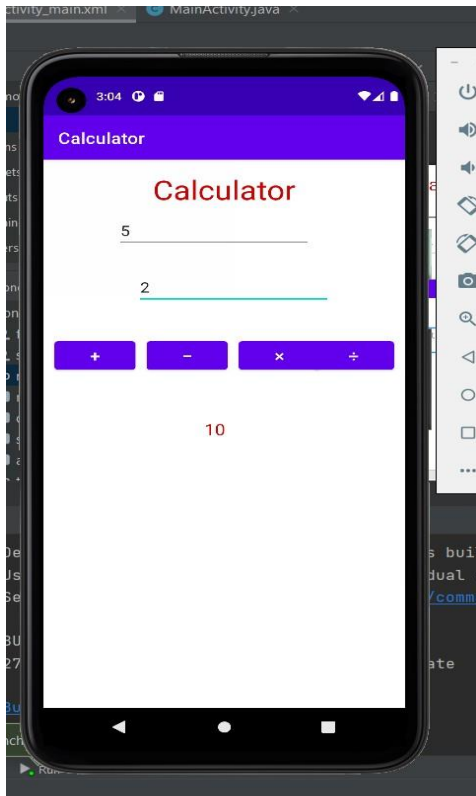
<Button
```

```
android:id="@+id/sub"
android:layout_width="90dp"
android:layout_height="43dp"
android:text="SUB"
android:onClick="sub"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.504" />

<Button
android:id="@+id/mul"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="MUL"
android:onClick="mul"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.88"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />

<Button
android:id="@+id/divide"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="DIVIDE"
android:onClick="div"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.492"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.631" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

## **OUTPUT**



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

**PROGRAM 4**

**AIM:** Implement validations on various UI controls.

**PROGRAM CODE:**

MainActivity.j av a	<pre>package com.example.formvalidation;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle; import android.widget.Button; import android.widget.EditText; import android.view.View; import android.widget.Toast;  import java.util.regex.Matcher; import java.util.regex.Pattern;  public class MainActivity extends AppCompatActivity {     EditText ed1,ed2,ed3,ed4,ed5;     Button bts1;     Pattern patterns;     Matcher matches;     String emailPattern="[a-zA-Z0-9._-]+@[a-z]+\.[a-z]+"; @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);         ed1=(EditText)findViewById(R.id.Name);         ed2=(EditText)findViewById(R.id.Address);         ed3=( EditText)findViewById(R.id.Email);         ed4=(EditText)findViewById(R.id.Password);         // String email=ed3.getText().toString().trim();         String emailPattern="[a-zA-Z0-9._-]+@[a-z]+\.[a-z]+"; //String         passPattern="[(?=.*\d)(?=.*![@#%\$^&amp;*])(?=.*[a-z])(?=.*[A Z]).{8,}]";         bts1=(Button)findViewById(R.id.bt1);         bts1.setOnClickListener(new View.OnClickListener() {             @Override</pre>
------------------------	--

```
public void onClick(View v) {
    login();
}
});
}

public void login() {
    String email = ed3.getText().toString().trim();
    String nam = ed1.getText().toString();
    //String email=ed3.getText().toString();
    if (ed1.getText().toString().length() == 0) {
        ed1.requestFocus();
        ed1.setError("Enter valid name");
        return;
    }
    String namePattern = "[0-9!@#$$%^&*]";
    if (ed1.getText().toString().matches(namePattern)) {
        ed1.requestFocus();
        ed1.setError("Enter valid name");
        return;
    }

    if (ed2.getText().toString().length() == 0) {
        ed2.requestFocus();
        ed2.setError("Enter valid address");
        return;
    }
    if (ed3.getText().toString().length() == 0) {
        Toast.makeText(getApplicationContext(), "Invalid Email Address",
        Toast.LENGTH_SHORT).show();
        ed3.requestFocus();
        ed3.setError("Enter valid email");
        return;
    }
    if (!email.matches(emailPattern)) {
        //Toast.makeText(getApplicationContext(),"Invalid
        Email Address",Toast.LENGTH_SHORT).show();
        ed3.requestFocus();
        ed3.setError("Invalid email");

    } else {
        Toast.makeText(getApplicationContext(), "valid Email Address",
        Toast.LENGTH_SHORT).show();
    }
}
```



	<pre> if (ed4.getText().toString().length() == 0) {     ed4.requestFocus();     ed4.setError("Enter valid password");     return; } if (ed4.getText().toString().length() &lt; 8) {     ed4.requestFocus();     ed4.setError("Enter minimum 8 digit password");     return; } } } </pre>
activity_main. xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/androi d" 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"&gt;      &lt;Button         android:id="@+id/bt1"         android:layout_width="114dp"         android:layout_height="56dp"         android:text="Submit"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.377"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.675" /&gt;      &lt;EditText         android:id="@+id/Name"         android:layout_width="225dp"         android:layout_height="38dp"         android:ems="10"         android:inputType="textPersonName"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent" </pre>

```
app:layout_constraintHorizontal_bias="0.896"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.139" />

<EditText
    android:id="@+id/Address"
    android:layout_width="215dp"
    android:layout_height="47dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.852"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.252" />

<EditText
    android:id="@+id/Email"
    android:layout_width="213dp"
    android:layout_height="51dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.858"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.376" />

<EditText
    android:id="@+id/Password"
    android:layout_width="219dp"
    android:layout_height="48dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.885"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
```

```
app:layout_constraintVertical_bias="0.532" />
```

```
<TextView  
    android:id="@+id/textView5"  
    android:layout_width="107dp"  
    android:layout_height="35dp"  
    android:text="Name"  
    android:textSize="16sp"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.082"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.137" />
```

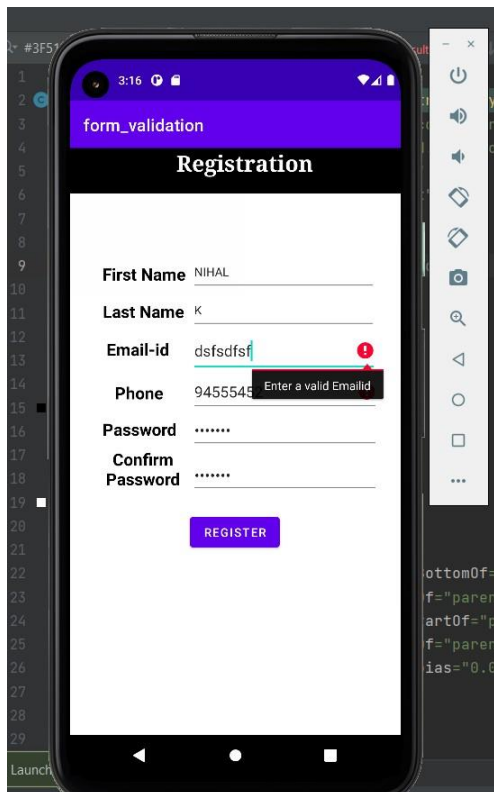
```
<TextView  
    android:id="@+id/textView6"  
    android:layout_width="112dp"  
    android:layout_height="38dp"  
    android:text="Address"  
    android:textSize="16sp"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.083"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.249" />
```

```
<TextView  
    android:id="@+id/textView8"  
    android:layout_width="124dp"  
    android:layout_height="34dp"  
    android:text="Email"  
    android:textSize="16sp"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.087"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.391" />
```

```
<TextView
    android:id="@+id/textView9"
    android:layout_width="121dp"
    android:layout_height="40dp"
    android:text="Password"
    android:textSize="16sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.086"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.536" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

## OUTPUT



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

**PROGRAM-5**

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

**PROGRAM CODE**

Main 2activity	<pre>package com.example.indent;  import androidx.appcompat.app.AppCompatActivity; import android.content.Intent; import android.content.SharedPreferences; import android.os.Bundle; import android.widget.Button; import android.view.View; import android.widget.EditText; import android.widget.TextView;  public class MainActivity extends AppCompatActivity {     Button mButton;     EditText send_text1;     EditText send_text2;     EditText send_text3;     TextView textView;     TextView textView1;     TextView textView2;      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);          mButton = (Button) findViewById(R.id.button);         send_text1=(EditText)findViewById(R.id.editText) ;         send_text2=(EditText)findViewById(R.id.editText4) ;         send_text3=(EditText)findViewById(R.id.editText5) ;         textView=(TextView)findViewById(R.id.textView7);</pre>
-------------------	---

	<pre> textView1=(TextView)findViewById(R.id.textView8); textView2=(TextView)findViewById(R.id.textView9);  mButton.setOnClickListener(new View.OnClickListener() {     @Override     public void onClick(View view) {          String str1 =send_text1.getText().toString();         String str2=send_text2.getText().toString();         String int3=send_text3.getText().toString();          //you can use anything in place of i         Intent i = new Intent(MainActivity.this, Main2Activity.class);         i.putExtra("name",str1);         i.putExtra("mail",str2);         i.putExtra("phone",int3);          startActivity(i);          SharedPreferences shp=getSharedPreferences("pref",MODE_PRIVATE);         SharedPreferences.Editor editor=shp.edit();         editor.putString("key",str1);         editor.apply();         SharedPreferences shp1=getSharedPreferences("pref1",MODE_PRIVATE);         SharedPreferences.Editor editor1=shp1.edit();         editor1.putString("key1",str2);         editor1.apply();         SharedPreferences shp2=getSharedPreferences("pref2",MODE_PRIVATE);         SharedPreferences.Editor editor2=shp2.edit();         editor2.putString("key2",int3);         editor2.apply();     } }); SharedPreferences getSharedValue=getSharedPreferences("pref",MODE_PRIVATE); String value=getSharedValue.getString("key","default value"); textView.setText(value); </pre>
--	--

	<pre>         SharedPreferences         getSharedValue1=getSharedPreferences("pref1",MODE_PRIVATE);         String value1=getSharedValue1.getString("key1","default         value");         textView1.setText(value1);         SharedPreferences         getSharedValue2=getSharedPreferences("pref2",MODE_PRIVATE);         String value2=getSharedValue2.getString("key2","default         value");         textView2.setText(value2);          }} </pre>
--	--

MainActivity.java	<pre> package com.example.indent;  import androidx.appcompat.app.AppCompatActivity; import android.content.Intent; import android.content.SharedPreferences; import android.os.Bundle; import android.widget.Button; import android.view.View; import android.widget.EditText; import android.widget.TextView;  public class MainActivity extends AppCompatActivity {     Button mButton;     EditText send_text1;     EditText send_text2;     EditText send_text3;     TextView textView;     TextView textView1;     TextView textView2;      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);          mButton = (Button) findViewById(R.id.button); </pre>
-------------------	---

	<pre> send_text1=(EditText)findViewById(R.id.editText) ; send_text2=(EditText)findViewById(R.id.editText4) ; send_text3=(EditText)findViewById(R.id.editText5) ; textView=(TextView)findViewById(R.id.textView7); textView1=(TextView)findViewById(R.id.textView8); textView2=(TextView)findViewById(R.id.textView9);  mButton.setOnClickListener(new View.OnClickListener() {     @Override     public void onClick(View view) {          String str1 =send_text1.getText().toString();         String str2=send_text2.getText().toString();         String int3=send_text3.getText().toString();          //you can use anything in place of i         Intent i = new Intent(MainActivity.this, Main2Activity.class);         i.putExtra("name",str1);         i.putExtra("mail",str2);         i.putExtra("phone",int3);          startActivity(i);          SharedPreferences shp=getSharedPreferences("pref",MODE_PRIVATE);         SharedPreferences.Editor editor=shp.edit();         editor.putString("key",str1);         editor.apply();         SharedPreferences shp1=getSharedPreferences("pref1",MODE_PRIVATE);         SharedPreferences.Editor editor1=shp1.edit();         editor1.putString("key1",str2);         editor1.apply();         SharedPreferences shp2=getSharedPreferences("pref2",MODE_PRIVATE);         SharedPreferences.Editor editor2=shp2.edit();         editor2.putString("key2",int3);         editor2.apply();     } }); </pre>
--	---



	<pre>         SharedPreferences         getSharedValue=getSharedPreferences("pref",MODE_PRIVATE);         String value=getSharedValue.getString("key","default value");         textView.setText(value);         SharedPreferences         getSharedValue1=getSharedPreferences("pref1",MODE_PRIVATE);         String         value1=getSharedValue1.getString("key1","default value");         textView1.setText(value1);         SharedPreferences         getSharedValue2=getSharedPreferences("pref2",MODE_PRIVATE);         String         value2=getSharedValue2.getString("key2","default value");         textView2.setText(value2);      }} </pre>
--	---

Activitymain.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;      &lt;TextView         android:layout_width="186dp"         android:layout_height="76dp"         android:text="WELCOME "         android:textColor="#E91E63"         android:textSize="36sp"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintHorizontal_bias="0.497"         app:layout_constraintLeft_toLeftOf="parent"         app:layout_constraintRight_toRightOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.058" /&gt; </pre>
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	<pre> &lt;Button     android:id="@+id/button"     android:layout_width="wrap_content"     android:layout_height="wrap_content"     android:background="#F3F5B0"     android:text="Button"     android:textColor="#E91E63"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.455"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.865" /&gt;  &lt;EditText     android:id="@+id/editText"     android:layout_width="wrap_content"     android:layout_height="wrap_content"     android:ems="10"     android:hint="Name"     android:inputType="textPersonName"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.406" /&gt;  &lt;EditText     android:id="@+id/editText4"     android:layout_width="wrap_content"     android:layout_height="wrap_content"     android:ems="10"     android:hint="emailaddress"     android:inputType="textEmailAddress"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.565" /&gt;  &lt;EditText     android:id="@+id/editText5"     android:layout_width="wrap_content" </pre>
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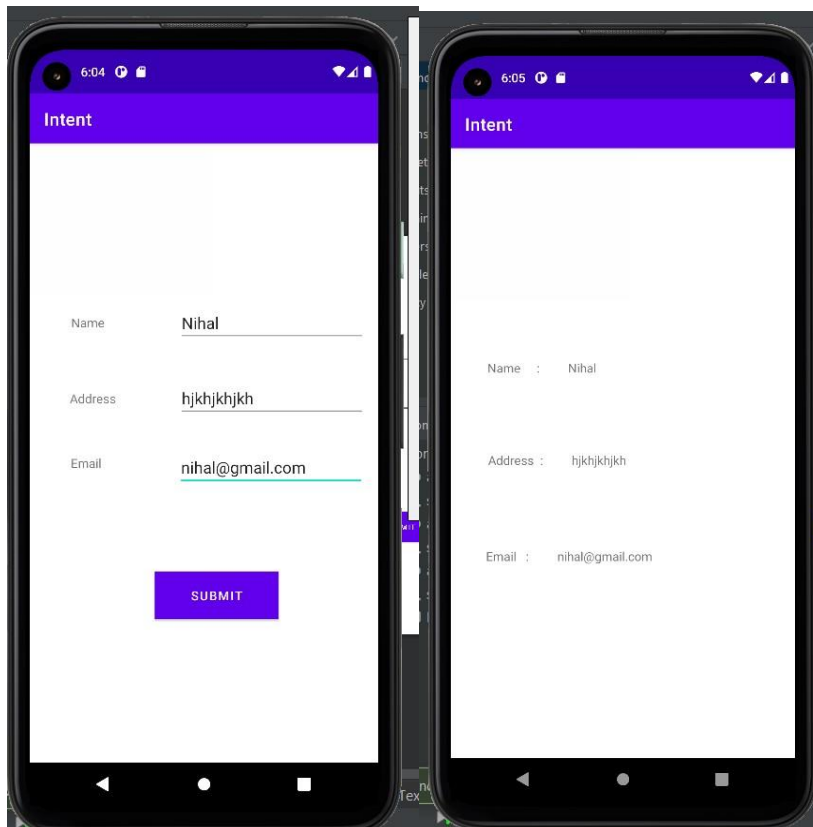
	<pre> android:layout_height="wrap_content" android:ems="10" android:hint="phone" android:inputType="phone" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.73" /&gt;  &lt;TextView     android:id="@+id/textView2"     android:layout_width="158dp"     android:layout_height="26dp"     android:text="REGISTRATION"     android:textColor="#E91E63"     android:textSize="18sp"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.498"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.188" /&gt;  &lt;TextView     android:id="@+id/textView7"     android:layout_width="159dp"     android:layout_height="39dp"     android:textColor="#666863"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.936"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.468" /&gt;  &lt;TextView     android:id="@+id/textView8"     android:layout_width="160dp"     android:layout_height="34dp"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.864" </pre>
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	<pre> app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.621" /&gt;  &lt;TextView     android:id="@+id/textView9"     android:layout_width="141dp"     android:layout_height="34dp"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.833"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.783" /&gt;  &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
Activitymain2.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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=".Main2Activity"&gt;      &lt;TextView         android:id="@+id/textView"         android:layout_width="334dp"         android:layout_height="125dp"         android:text="REGISTRATION FORM"         android:textColor="#208ADD"         android:textSize="30sp"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.792"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.074" /&gt;      &lt;TextView         android:id="@+id/textView4"         android:layout_width="345dp" </pre>

	<pre> android:layout_height="63dp" android:textColor="#161415" android:textSize="18sp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.757" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.312" /&gt;  &lt;TextView     android:id="@+id/textView3"     android:layout_width="335dp"     android:layout_height="74dp"     android:textColor="#141314"     android:textSize="18sp"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.657"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.455" /&gt;  &lt;TextView     android:id="@+id/textView5"     android:layout_width="319dp"     android:layout_height="69dp"     android:textColor="#1B1A1A"     android:textSize="18sp"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.543"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.619" /&gt;  &lt;TextView     android:id="@+id/textView6"     android:layout_width="152dp"     android:layout_height="65dp"     android:text="COMPLETED"     android:textColor="#03A9F4"     android:textSize="24sp" </pre>
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	<pre>app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.498" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.778" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt;</pre>
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## **OUTPUT**



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

## **PROGRAM 6**

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

### **PROGRAM CODE**

MainActivity.java	<pre>package com.example.calculator;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle; import android.view.View; import android.widget.EditText;  public class MainActivity extends AppCompatActivity {     EditText result;     String ans;     float num1,num2,calcu;     int flag=0;      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);         result=findViewById(R.id.editTextTextPersonName);     }     public void clear(View view){         result.setText("");     }     public void one(View view){         ans=result.getText().toString();         result.setText(ans+"1");     }     public void two(View view){         ans=result.getText().toString();         result.setText(ans+"2");     }     public void three(View view){         ans=result.getText().toString();         result.setText(ans+"3");     }     public void four(View view){</pre>
-------------------	---

```

        ans=result.getText().toString();
        result.setText(ans+"4");
    }
    public void five(View view){
        ans=result.getText().toString();
        result.setText(ans+"5");
    }
    public void six(View view){
        ans=result.getText().toString();
        result.setText(ans+"6");
    }
    public void seven(View view){
        ans=result.getText().toString();
        result.setText(ans+"7");
    }
    public void eight(View view){
        ans=result.getText().toString();
        result.setText(ans+"8");
    }

    public void nine(View view){
        ans=result.getText().toString();
        result.setText(ans+"9");
    }
    public void zero(View view){
        ans=result.getText().toString();
        result.setText(ans+"0");
    }
    public void add(View view){
        num1=Float.parseFloat(result.getText().toString());
        result.setText("+");
        flag=1;
    }
    public void sub(View view){
        num1=Float.parseFloat(result.getText().toString());
        result.setText("-");
        flag=2;
    }
    public void multiple(View view){
        num1=Float.parseFloat(result.getText().toString());
        result.setText("*");
        flag=3;
    }
}

```



	<pre> public void div(View view){     num1=Float.parseFloat(result.getText().toString());     result.setText("/");     flag=4; } public void equal(View view){     num2=Float.parseFloat(result.getText().toString());     switch(flag){         case 1:             calcul=num1+num2;             result.setText(String.valueOf(calcul));             break;         case 2:             calcul=num1-num2;             result.setText(String.valueOf(calcul));             break;         case 3:             calcul=num1*num2;             result.setText(String.valueOf(calcul));             break;         case 4:             calcul=num1/num2;             result.setText(String.valueOf(calcul));             break;      }  }  } </pre>
--	--

Activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;androidx.gridlayout.widget.GridLayout     android:layout_width="418dp"     android:layout_height="427dp"     app:layout_constraintBottom_toBottomOf="parent" </pre>
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	<pre>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"&gt;  &lt;LinearLayout     android:layout_width="96dp"     android:layout_height="match_parent"     android:orientation="vertical"     app:layout_column="0"     app:layout_row="0"&gt;      &lt;Button         android:id="@+id/button2"         android:layout_width="match_parent"         android:layout_height="77dp"         android:onClick="one"         android:text="1" /&gt;      &lt;Button         android:id="@+id/button3"         android:layout_width="match_parent"         android:layout_height="78dp"         android:onClick="four"         android:text="4" /&gt;      &lt;Button         android:id="@+id/button"         android:layout_width="match_parent"         android:layout_height="88dp"         android:onClick="seven"         android:text="7" /&gt;      &lt;Button         android:id="@+id/button4"         android:layout_width="match_parent"         android:layout_height="79dp"         android:onClick="clear"         android:text="C" /&gt;  &lt;/LinearLayout&gt;</pre>
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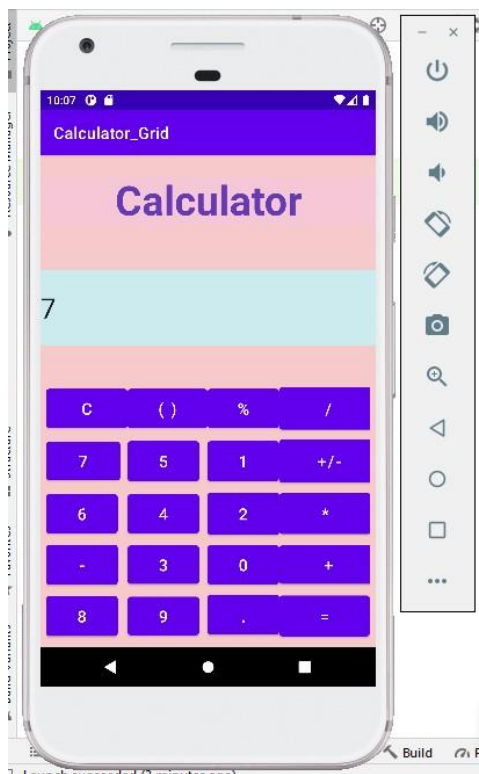
	<pre> &lt;LinearLayout     android:layout_width="107dp"     android:layout_height="match_parent"     android:orientation="vertical"     app:layout_column="1"     app:layout_row="0"&gt;      &lt;Button         android:id="@+id/button5"         android:layout_width="match_parent"         android:layout_height="75dp"         android:onClick="two"         android:text="2" /&gt;      &lt;Button         android:id="@+id/button6"         android:layout_width="match_parent"         android:layout_height="78dp"         android:onClick="five"         android:text="5" /&gt;      &lt;Button         android:id="@+id/button7"         android:layout_width="match_parent"         android:layout_height="87dp"         android:onClick="eight"         android:text="8" /&gt;      &lt;Button         android:id="@+id/button8"         android:layout_width="match_parent"         android:layout_height="79dp"         android:onClick="zero"         android:text="0" /&gt; &lt;/LinearLayout&gt;  &lt;LinearLayout     android:layout_width="107dp"     android:layout_height="match_parent"     android:orientation="vertical"     app:layout_column="2"     app:layout_row="0"&gt; </pre>
--	---

	<pre> &lt;Button     android:id="@+id/button9"     android:layout_width="match_parent"     android:layout_height="79dp"     android:onClick="three"     android:text="3" /&gt;  &lt;Button     android:id="@+id/button10"     android:layout_width="match_parent"     android:layout_height="74dp"     android:onClick="six"     android:text="6" /&gt;  &lt;Button     android:id="@+id/button12"     android:layout_width="match_parent"     android:layout_height="83dp"     android:onClick="nine"     android:text="9" /&gt;  &lt;Button     android:id="@+id/button11"     android:layout_width="match_parent"     android:layout_height="83dp"     android:onClick="equal"     android:text="=" /&gt; &lt;/LinearLayout&gt;  &lt;LinearLayout     android:layout_width="100dp"     android:layout_height="match_parent"     android:orientation="vertical"     app:layout_column="3"     app:layout_row="0"&gt;  &lt;Button     android:id="@+id/button16"     android:layout_width="match_parent"     android:layout_height="83dp"     android:onClick="add"     android:text="+" /&gt; </pre>
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	<pre> &lt;Button     android:id="@+id/button14"     android:layout_width="match_parent"     android:layout_height="70dp"     android:onClick="sub"     android:text="-" /&gt;  &lt;Button     android:id="@+id/button15"     android:layout_width="match_parent"     android:layout_height="83dp"     android:onClick="multiple"     android:text="*" /&gt;  &lt;Button     android:id="@+id/button13"     android:layout_width="match_parent"     android:layout_height="83dp"     android:onClick="div"     android:text="/" /&gt; &lt;/LinearLayout&gt;  &lt;/androidx.gridlayout.widget.GridLayout&gt;  &lt;EditText     android:id="@+id/editTextTextPersonName"     android:layout_width="413dp"     android:layout_height="85dp"     android:ems="10"     android:inputType="textPersonName"     android:text="0"     android:textColor="#282BEC"     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="0.164" /&gt;  &lt;TextView     android:id="@+id/textView"     android:layout_width="289dp"     android:layout_height="54dp" </pre>
--	--

	<pre>android:text="CALCULATOR" android:textColor="#3E4CCD" android:textSize="20sp" android:textStyle="bold" 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="0.023" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt;</pre>
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## **OUTPUT**



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

## **PROGRAM 7**

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

### **PROGRAM CODE**

MainActivity.java	<pre>package com.example.linearlayout;  import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle;  public class MainActivity extends AppCompatActivity {     @Override      protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);     } }</pre>
Activitymain.xml 1	<pre>&lt;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="#E4ECEA" android:backgroundTint="#E4ECEA" tools:context=".MainActivity"&gt; &lt;LinearLayout android:id="@+id/linearLayout" android:layout_width="404dp" android:layout_height="42dp" android:orientation="horizontal" app:layout_constraintBottom_toBottomOf="parent"</pre>

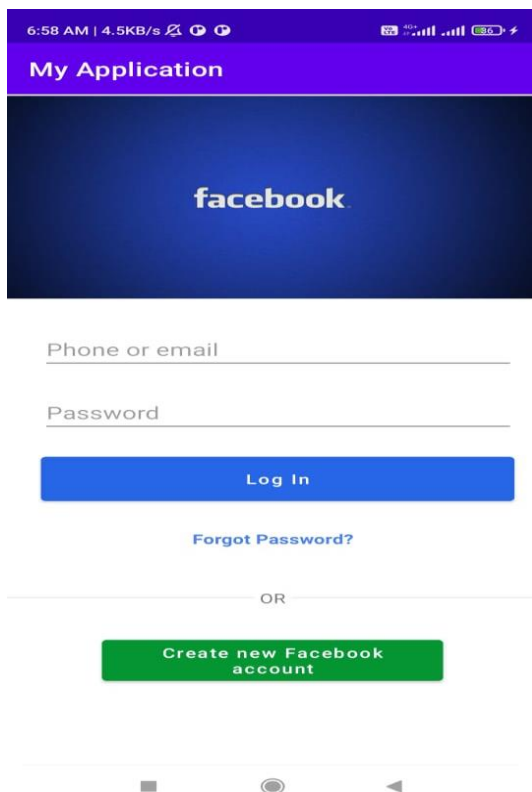
	<pre> app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="1.0" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.989"&gt; &lt;TextView android:id="@+id/textView" android:layout_width="match_parent" android:layout_height="49dp" android:text="CREATE NEW ACCOUNT"/&gt; &lt;/LinearLayout&gt; &lt;RelativeLayout android:id="@+id/relativeLayout" android:layout_width="413dp" android:layout_height="728dp" android:background="#3b5998" android:backgroundTint="#3b5998" app:layout_constraintBottom_toBottomOf="@+id/linearLayout" " app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.0" app:layout_constraintStart_toStartOf="parent"&gt; &lt;ImageView android:id="@+id/imageView5" android:layout_width="wrap_content" android:layout_height="68dp" android:layout_alignParentStart="true" android:layout_alignParentTop="true" android:layout_alignParentEnd="true" android:layout_alignParentBottom="true" android:layout_marginStart="138dp" android:layout_marginTop="141dp" android:layout_marginEnd="190dp" android:layout_marginBottom="519dp" app:srcCompat="@drawable/download"/&gt; &lt;EditText android:id="@+id/editTextTextPersonName4" android:layout_width="wrap_content" android:layout_height="58dp" android:layout_alignParentStart="true" android:layout_alignParentTop="true" android:layout_alignParentEnd="true" android:layout_alignParentBottom="true" android:layout_marginStart="78dp" android:layout_marginTop="248dp" android:layout_marginEnd="85dp" android:layout_marginBottom="422dp" android:background="#E4ECEA" android:backgroundTint="#FFFEFE" android:ems="10" </pre>
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	<pre> android:hint="emailid/phone number" android:inputType="textPersonName"/&gt; &lt;EditText android:id="@+id/editTextTextPassword2" android:layout_width="wrap_content" android:layout_height="58dp" android:layout_alignParentStart="true" android:layout_alignParentTop="true" android:layout_alignParentEnd="true" android:layout_alignParentBottom="true" android:layout_marginStart="80dp" android:layout_marginTop="316dp" android:layout_marginEnd="83dp" android:layout_marginBottom="354dp" android:background="#E4ECEA" android:backgroundTint="#E4ECEA" android:ems="10" android:hint="password" android:inputType="textPassword"/&gt; &lt;Button android:id="@+id/button" android:layout_width="312dp" android:layout_height="54dp" android:layout_alignParentStart="true" android:layout_alignParentTop="true" android:layout_alignParentEnd="true" android:layout_alignParentBottom="true" android:layout_marginStart="47dp" android:layout_marginTop="422dp" android:layout_marginEnd="51dp" android:layout_marginBottom="252dp" android:background="#2B59A8" android:text="Login "/&gt; &lt;Button android:id="@+id/button2" android:layout_width="314dp" android:layout_height="58dp" android:layout_alignParentStart="true" android:layout_alignParentTop="true" android:layout_alignParentEnd="true" android:layout_alignParentBottom="true" android:layout_marginStart="49dp" android:layout_marginTop="490dp" android:layout_marginEnd="49dp" android:layout_marginBottom="180dp" android:background="#2B59A8" android:text=" Login with browser"/&gt; &lt;TextView android:id="@+id/textView2" android:layout_width="wrap_content" android:layout_height="41dp" android:layout_alignParentStart="true" </pre>
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	<pre>android:layout_alignParentTop="true" android:layout_alignParentEnd="true" android:layout_alignParentBottom="true" android:layout_marginStart="125dp" android:layout_marginTop="590dp" android:layout_marginEnd="109dp" android:layout_marginBottom="97dp" android:text="create new account"/&gt; &lt;/RelativeLayout&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt;</pre>
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## **OUTPUT**



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

**PROGRAM 8**

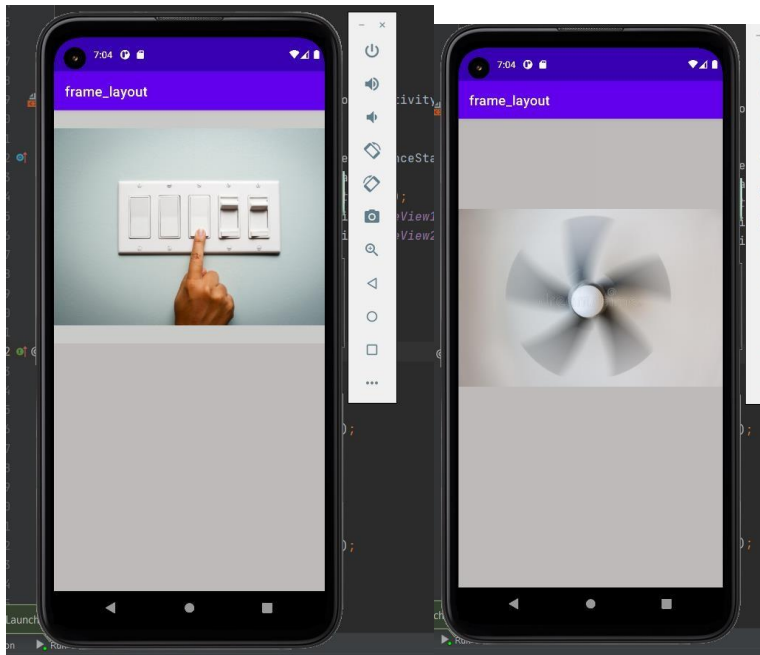
**AIM:** Develop an application that toggles image using FrameLayout.

**PROGRAM CODE:**

MainActivity.java	<pre>package com.example.imagetoggle;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle; import android.view.View; import android.widget.ImageView;  public class MainActivity extends AppCompatActivity {     ImageView imag1,imag2;     @Override      protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);         imag1=(ImageView) findViewById(R.id.imageView);         imag2=(ImageView) findViewById(R.id.imageView3);         imag1.setOnClickListener(this::onClick);         imag2.setOnClickListener(this::onClick);     }     public void onClick(View v){         if(v.getId()==R.id.imageView)         {             imag1.setVisibility(v.GONE);             imag2.setVisibility(v.VISIBLE);         }         else{             imag2.setVisibility(v.GONE);             imag1.setVisibility(v.VISIBLE);         }     } }</pre>
-------------------	---

Activitymain.xml	<pre> &lt;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"&gt; &lt;FrameLayout android:layout_width="164dp" android:layout_height="137dp" app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.501"&gt; &lt;ImageView android:id="@+id/imageView" android:layout_width="match_parent" android:layout_height="match_parent" app:srcCompat="@drawable/flower"/&gt; &lt;ImageView android:id="@+id/imageView3" android:layout_width="wrap_content" android:layout_height="141dp" app:srcCompat="@drawable/wallp"/&gt; &lt;/FrameLayout&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
------------------	--

## **OUTPUT**



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

**PROGRAM 9**

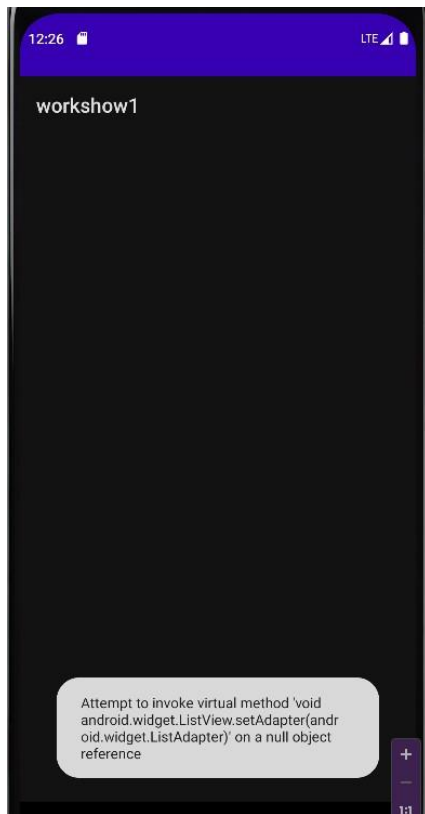
**AIM:** Implement Adapters and perform exception handling

**PROGRAM CODE**

MainActivity.java	<pre>package com.example.workshow1;  import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle; import android.widget.ArrayAdapter; import android.widget.ListView; import android.widget.TextView; import android.widget.Toast;  public class MainActivity extends AppCompatActivity {     ListView l1;     String [] nam = {"Shajahan","Tovino","Ragav","Bineesh"};     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);          try {             ArrayAdapter &lt;String&gt; adap = new ArrayAdapter&lt;&gt;(this,android.R.layout.simple_list_item_1,nam) ;             l1.setAdapter(adap);         }         catch (Exception e){             Toast.makeText(this, e.getMessage(), Toast.LENGTH_SHORT).show();         }     } }</pre>
-------------------	--

activity_main.xml	<pre>&lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;ListView     android:id="@+id/l1"     android:layout_width="411dp"     android:layout_height="335dp"     tools:layout_editor_absoluteX="1dp"     tools:layout_editor_absoluteY="1dp" /&gt;  &lt;TextView     android:id="@+id/t1"     android:layout_width="137dp"     android:layout_height="44dp"     android:textAlignment="center"     android:textStyle="bold"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.5"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toBottomOf="@+id/l1" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt;</pre>
-------------------	---

## **OUTPUT**



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



**PROGRAM 10****AIM:** Implement Intent to navigate between multiple activities**PROGRAM CODE**

MainActivity.java	<pre> package com.example.explicit;  import androidx.appcompat.app.AppCompatActivity;  import android.content.Intent; import android.os.Bundle; import android.text.TextUtils; import android.util.Patterns; import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.Toast; import java.util.Objects;  public class MainActivity extends AppCompatActivity {      EditText Name;     EditText address;     EditText email;     Button Submit;      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);          Name = findViewById(R.id.s1);         address = findViewById(R.id.s2);         email = findViewById(R.id.s3);         Submit = findViewById(R.id.b1);      }      public void callSecondActivity(View view) {         Intent i = new Intent(getApplicationContext(),         MainActivity2.class);         String str = "Name      :      "+ Name.getText().toString(); </pre>
-------------------	---

	<pre> i.putExtra("Value1", str); String str1 = "Address :      "+ address.getText().toString(); i.putExtra("Value2", str1); String str2 = "Email :      "+ email.getText().toString(); i.putExtra("Value3", str2);  startActivity(i); }  } </pre>
--	---

MainActivity2.java	<pre> package com.example.explicit;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle;  import androidx.appcompat.app.AppCompatActivity; import android.content.Intent;  import android.os.Bundle; import android.view.View; import android.widget.TextView; import android.widget.Toast;  public class MainActivity2 extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {          TextView t1;         TextView t2;         TextView t3;         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main2);          t1 = (TextView) findViewById(R.id.t1);         t2 = (TextView) findViewById(R.id.t2);         t3 = (TextView) findViewById(R.id.t3);         // create the get Intent object         Intent intent = getIntent();          // receive the value by getStringExtra() method </pre>
--------------------	---

	<pre>// and key must be same which is send by first activity String str = intent.getStringExtra("Value1"); String str1 = intent.getStringExtra("Value2"); String str2 = intent.getStringExtra("Value3");  // display the string into textView t1.setText(str); t2.setText(str1); t3.setText(str2);     } }</pre>
--	--

Activity_main.xml 1	<pre>&lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;TextView     android:id="@+id/r1"     android:layout_width="191dp"     android:layout_height="39dp"     android:background="#009688"     android:text="Registration Form"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.581"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.111" /&gt;  &lt;TextView     android:id="@+id/a1"     android:layout_width="113dp"     android:layout_height="33dp"     android:text="Name"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.167"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"</pre>
------------------------	---

```
app:layout_constraintVertical_bias="0.289" />
```

```
<EditText
    android:id="@+id/s1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.919"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.276" />
```

```
<TextView
    android:id="@+id/a2"
    android:layout_width="115dp"
    android:layout_height="32dp"
    android:text="Address"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.162"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.417" />
```

```
<EditText
    android:id="@+id/s2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.919"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.406" />
```

```
<TextView
    android:id="@+id/a3"
    android:layout_width="116dp"
    android:layout_height="30dp"
    android:text="Email"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.167"
    app:layout_constraintStart_toStartOf="parent"
```

	<pre> app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.525" /&gt;  &lt;EditText     android:id="@+id/s3"     android:layout_width="wrap_content"     android:layout_height="wrap_content"     android:ems="10"     android:inputType="textPersonName"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.915"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.525" /&gt;  &lt;Button     android:id="@+id/b1"     android:layout_width="140dp"     android:layout_height="54dp"     android:background="#009688"     android:onClick="callSecondActivity"     android:text="Submit"     android:textColorLink="#03A9F4"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.557"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.749" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
--	---

Activity_main2.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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=".MainActivity2"&gt;      &lt;TextView </pre>
--------------------	---

```

android:id="@+id/t1"
android:layout_width="312dp"
android:layout_height="73dp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.517"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.387" />

```

```

<TextView
    android:id="@+id/t2"
    android:layout_width="309dp"
    android:layout_height="77dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.509"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.559" />

```

```

<TextView
    android:id="@+id/t3"
    android:layout_width="313dp"
    android:layout_height="70dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.728" />

```

```

<TextView
    android:id="@+id/textView3"
    android:layout_width="391dp"
    android:layout_height="100dp"
    android:background="#009688"
    android:text="DETAILS"
    android:textSize="36sp"
    android:textAlignment="center"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.147" />

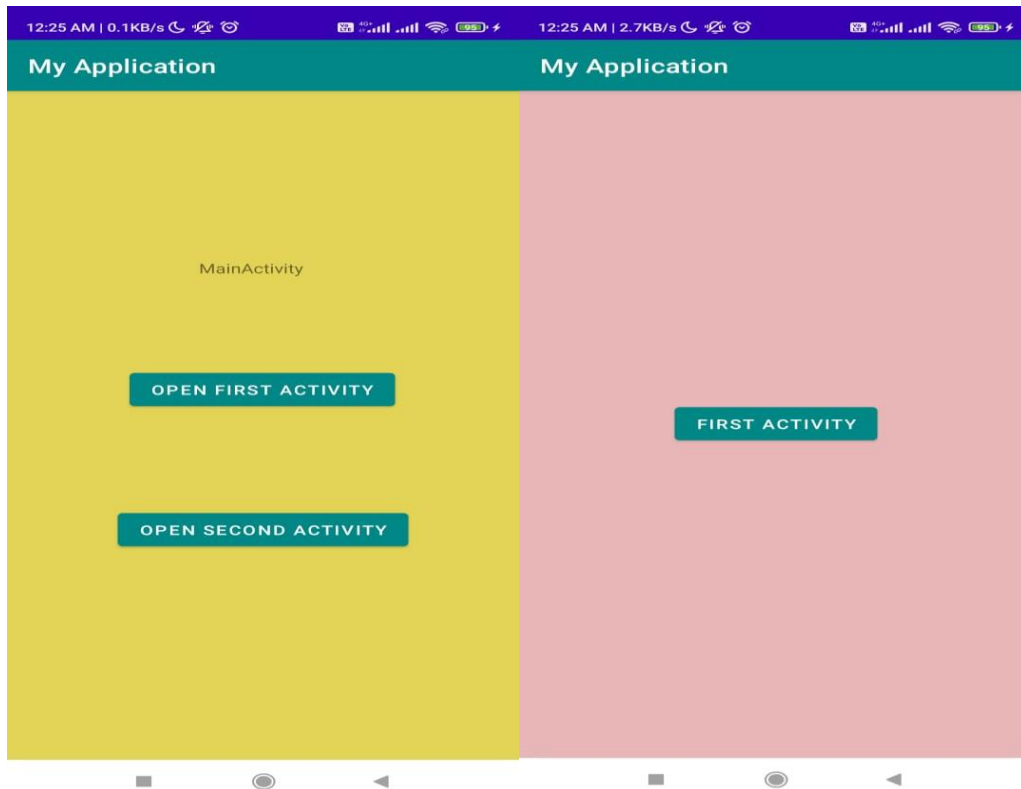
```

```

</androidx.constraintlayout.widget.ConstraintLayout>

```

## **OUTPUT**



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

**PROGRAM 11**

**AIM:** Develop application that works with explicit intents

**PROGRAM CODE**

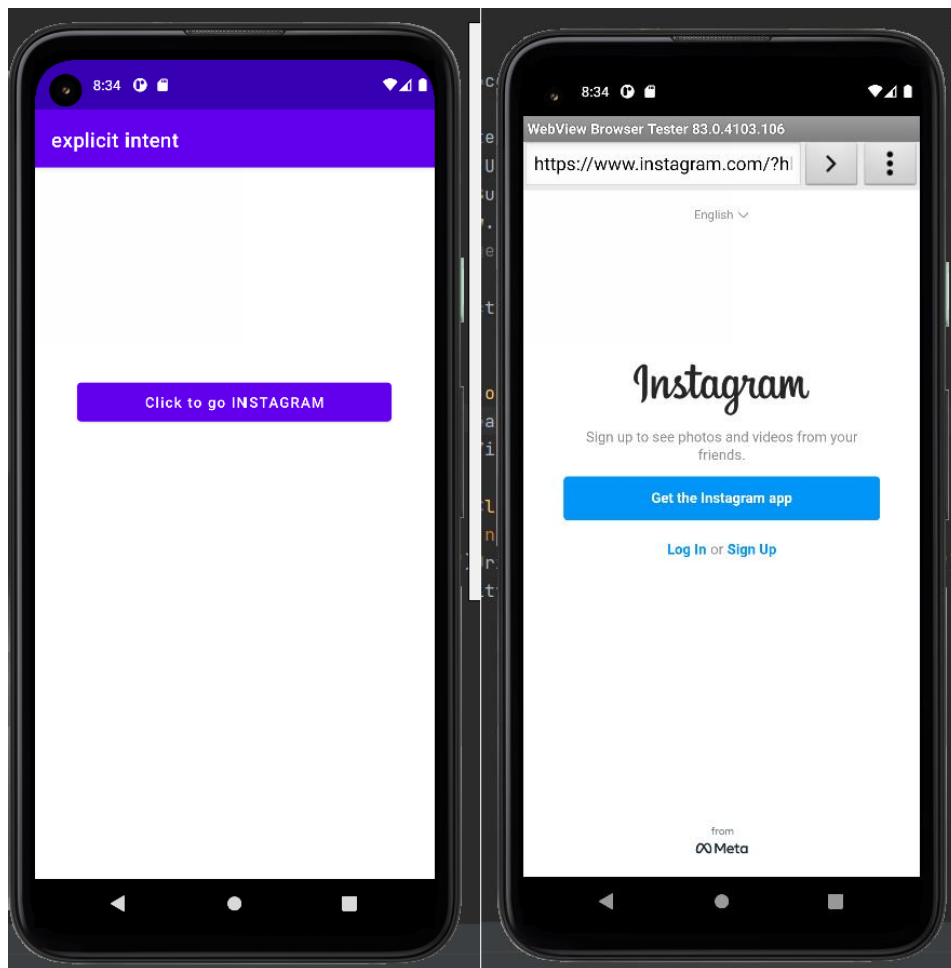
<b>APP1</b>  MainActivity.java	<pre>package com.example.explicitintent;  import androidx.appcompat.app.AppCompatActivity;  import android.content.Intent; import android.net.Uri; import android.os.Bundle; import android.view.View; import android.widget.Toast;  public class MainActivity extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);     }     public void onClick(View view) {         Intent i = new Intent(Intent.ACTION_VIEW);         i.setData(Uri.parse("https://www.instagram.com/?hl=en"));         startActivity(i);     } }</pre>
--------------------------------------	--



activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;Button     android:id="@+id/button"     android:layout_width="308dp"     android:layout_height="50dp"     android:onClick="onClick"     android:text="Click to go INSTAGRAM"     android:textAllCaps="false"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.495"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.317" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
-------------------	---

<b>APP2</b>	
MainActivity.java	<pre> package com.example.explicitintent2;  import androidx.appcompat.app.AppCompatActivity;  import android.content.Intent; import android.net.Uri; import android.os.Bundle; import android.webkit.WebView; import android.webkit.WebViewClient; import android.widget.Toast;  import java.net.URL;  public class MainActivity extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);         Intent i = getIntent();         Uri uri = i.getData();         URL pageurl = null; </pre>

activity_main.xml	<pre>         if(uri !=null){             try{                 pageurl = new URL(uri.getScheme(),uri.getHost(),uri.getPath());             }             catch ( Exception e) {  Toast.makeText(getApplicationContext(),"Error",Toast.LENGTH_LO NG).show();             }         }         WebView wb =(WebView) findViewById(R.id.webvi);         wb.setWebViewClient(new WebViewClient());         wb.loadUrl(String.valueOf(pageurl));     } } </pre> <pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;WebView     android:id="@+id/webvi"     android:layout_width="409dp"     android:layout_height="729dp"     android:layout_marginStart="1dp"     android:layout_marginTop="1dp"     android:layout_marginEnd="1dp"     android:layout_marginBottom="1dp"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
-------------------	--

**OUTPUT**

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

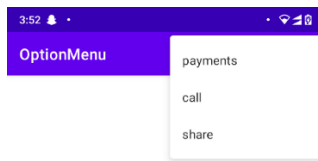
**PROGRAM 12****AIM:** Implement Options Menu to navigate to activities**PROGRAM CODE**

MainActivity.java	<pre>package com.example.optionmenu;  import androidx.annotation.NonNull; import androidx.appcompat.app.AppCompatActivity;  import android.content.Intent; import android.os.Bundle; import android.view.Menu; import android.view.MenuInflater; import android.view.MenuItem;  public class MainActivity extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);     }      @Override     public boolean onCreateOptionsMenu(Menu menu) {         MenuInflater inflater=getMenuInflater();         inflater.inflate(R.menu.menu_option,menu);         return true;     }      @Override     public boolean onOptionsItemSelected(@NonNull MenuItem item) {         int id=item.getItemId();         if(id==R.id.action_settings)         {             Intent i=new Intent(MainActivity.this,settings.class);             startActivity(i);         }         if(id==R.id.action_call)         {             Intent i=new Intent(MainActivity.this,call.class);             startActivity(i);         }     } }</pre>
-------------------	--

Settings.java	<pre>     }     return super.onOptionsItemSelected(item);      }  }  package com.example.optionmenu;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle;  public class settings extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_settings);     } } </pre>
Call.java	<pre> package com.example.optionmenu;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle;  public class call extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_call);     } } </pre>
activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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" </pre>

Activity_settings.xml	<pre> android:layout_width="match_parent" android:layout_height="match_parent" tools:context=".MainActivity"/&gt;  &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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=".call"&gt;  &lt;TextView     android:id="@+id/textView2"     android:layout_width="184dp"     android:layout_height="62dp"     android:text="You just clicked call menu"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
Activity_call.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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=".settings"&gt;  &lt;TextView     android:id="@+id/textView"     android:layout_width="226dp"     android:layout_height="72dp"     android:text="Settings"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>

## **OUTPUT**



You just clicked call menu



Settings



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

**PROGRAM 13**

**AIM:** Develop an application that uses ArrayAdapter with ListView.

**PROGRAM CODE**

MainActivity.java

```
package com.example.arrayadapter;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

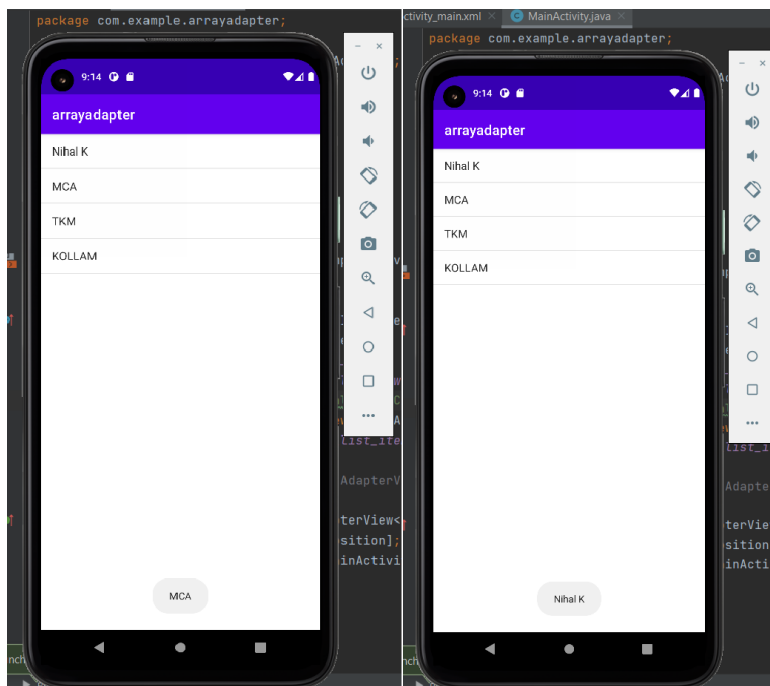
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ListView list=findViewById(R.id.listview);
        String[] item=new String[]{"Nihal
K","MCA","TKM","KOLLAM"};
        ArrayAdapter<String> adapter=new
ArrayAdapter<String>(MainActivity.this,
        android.R.layout.simple_list_item_1,item);
        list.setAdapter(adapter);
        list.setOnItemClickListener(new
AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> adapterView, View
view, int position, long id) {
                String item_name=item[position];

                Toast.makeText(MainActivity.this,item_name,Toast.LENGTH_LONG
).show();
            }
        });
    }
}
```



Activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;ListView     android:id="@+id/listview"     android:layout_width="403dp"     android:layout_height="770dp"     tools:layout_editor_absoluteX="1dp"     tools:layout_editor_absoluteY="1dp" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
-------------------	---

## OUTPUT



**PROGRAM 14**

**AIM:** Develop an application that use GridView with images and display Alert box on selection

**PROGRAM CODE**

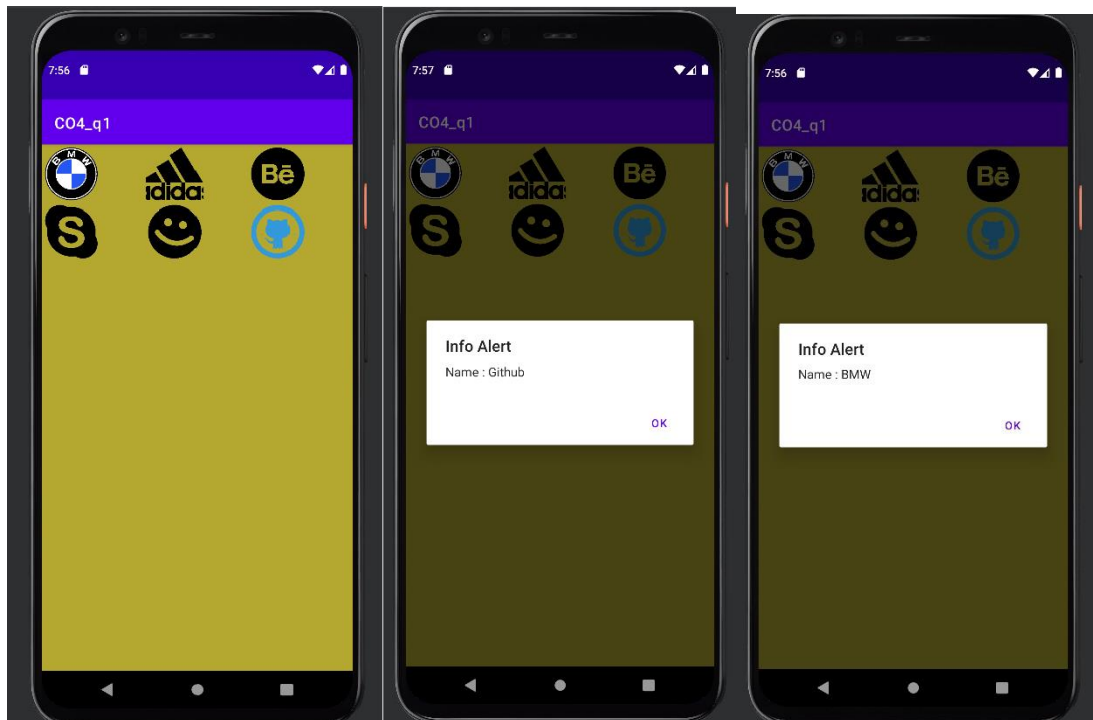
MainActivity.java	<pre>package com.example.co4_q1;  import androidx.appcompat.app.AlertDialog; import androidx.appcompat.app.AppCompatActivity;  import android.app.Dialog; import android.content.Context; import android.content.DialogInterface; import android.content.Intent; import android.os.Bundle; import android.view.View; import android.widget.AdapterView; import android.widget.AdapterView.OnItemClickListener; import android.widget.ArrayAdapter; import android.widget.GridView; import android.widget.ListAdapter; import android.widget.SimpleAdapter; import android.widget.Toast;  public class MainActivity extends AppCompatActivity {     GridView gd;     int logos[] = {R.drawable.cl1, R.drawable.cl2, R.drawable.cl3, R.drawable.cl4};     String[] names     ={"BMW","addidas","Be","S","Smile","Github",};     final Context context = this;     AlertDialog.Builder builder;      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);         GridView gv = (GridView) findViewById(R.id.gridView);         gv.setAdapter(new ImageAdapter(this));         builder = new AlertDialog.Builder(this);          gv.setOnItemClickListener(new AdapterView.OnItemClickListener() {             public void onItemClick(AdapterView&lt;?&gt; parent, View v, int position, long id) {</pre>
-------------------	---

<p>ImageAdapter.java</p>	<pre>         builder.setMessage("Name : "+String.valueOf(names[position]))         .setCancelable(false)         .setPositiveButton("Ok", new DialogInterface.OnClickListener() {             public void onClick(DialogInterface dialog, int id) {                 }             });          AlertDialog alert = builder.create();          alert.setTitle("Info Alert");         alert.show();     }  }); } }  package com.example.co4_q1; import android.content.Context; import android.view.View; import android.view.ViewGroup; import android.widget.BaseAdapter; import android.widget.GridView; import android.widget.ImageView;  public class ImageAdapter extends BaseAdapter {     private Context mContext;     public ImageAdapter(Context c) {         mContext = c;     }     public int getCount() {         return thumbImages.length;     }     public Object getItem(int position) {         return null;     }     public long getItemId(int position) {         return 0;     }     public View getView(int position, View convertView, </pre>
--------------------------	--

	<pre> ViewGroup parent) {     ImageView imageView = new ImageView(mContext);     imageView.setLayoutParams(new GridView.LayoutParams(200, 200));  imageView.setScaleType(ImageView.ScaleType.CENTER_CR OP);     imageView.setPadding(8, 8, 8, 8);     imageView.setImageResource(thumbImages[position]);     return imageView; }  public Integer[] thumbImages = {     R.drawable.cl1,     R.drawable.cl2,     R.drawable.cl3,     R.drawable.cl4,     R.drawable.cl5,     R.drawable.cl6 }; } </pre>
--	---

activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;LinearLayout 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="#B5A830" tools:context=".MainActivity"&gt;  &lt;GridView     android:id="@+id/gridView"     android:layout_width="fill_parent"     android:layout_height="wrap_content"     android:footerDividersEnabled="false"     android:numColumns="3"     android:padding="1dp" /&gt; &lt;/LinearLa </pre>
-------------------	--

## **OUTPUT**



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

**PROGRAM 15**

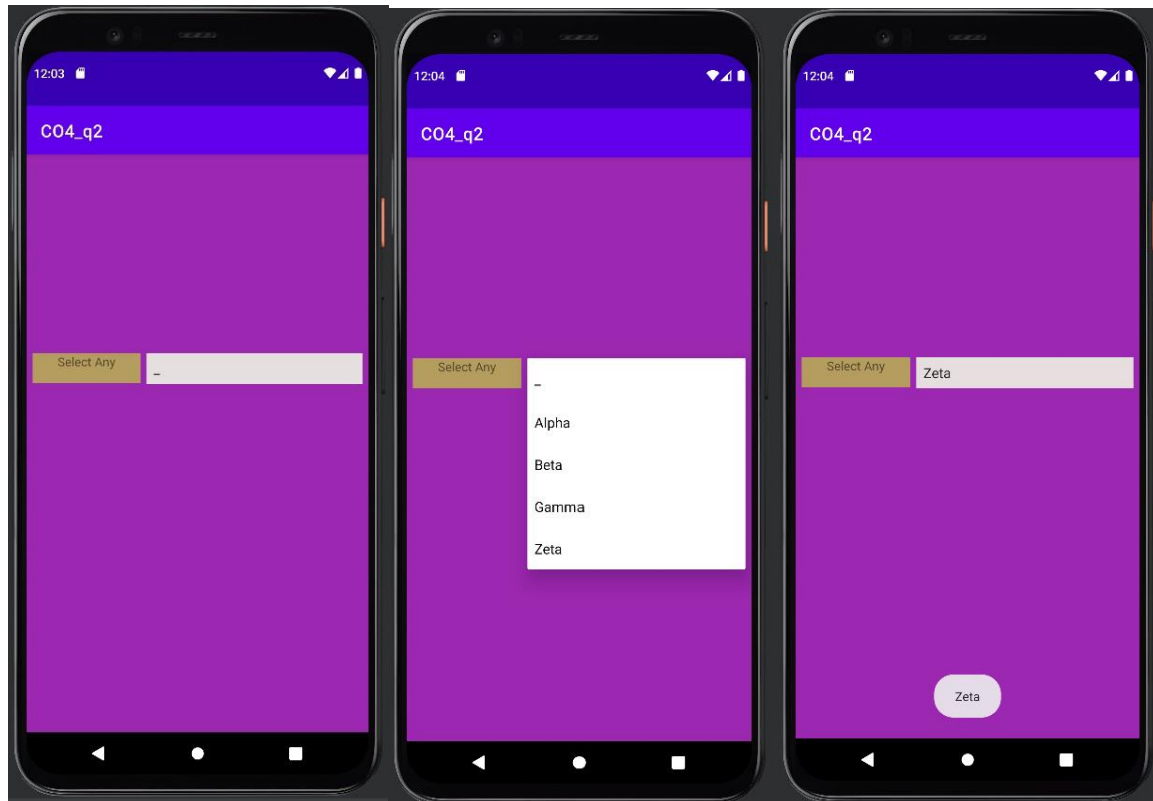
**AIM:** Develop an application that implements Spinner component and perform event handling

**PROGRAM CODE**

MainActivity.java	<pre>package com.example.co4_q2;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle; import android.view.View; import android.widget.AdapterView; import android.widget.AdapterView.OnItemClickListener; import android.widget.ArrayAdapter; import android.widget.Spinner; import android.widget.Toast;  public class MainActivity extends AppCompatActivity implements OnItemSelectedListener {      String[] names = {"_", "Alpha", "Beta", "Gamma", "Zeta"};      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);         Spinner sp = (Spinner) findViewById(R.id.spinner);         sp.setOnItemSelectedListener(this);          ArrayAdapter ar = new         ArrayAdapter(this, android.R.layout.simple_spinner_item, names);          ar.setDropDownViewResource(android.R.layout.simple_spinner_dropd own_item);         sp.setAdapter(ar);     }      @Override     public void onItemClick(AdapterView&lt;?&gt; adapterView, View view, int i, long l) {         Toast.makeText(this, names[i], Toast.LENGTH_SHORT).show();     } }</pre>
-------------------	--

Activity_main.xml	<pre>     }      @Override     public void onNothingSelected(AdapterView&lt;?&gt; adapterView) {      } }  &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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="#9C27B0" tools:context=".MainActivity"&gt;      &lt;Spinner         android:id="@+id/spinner"         android:layout_width="248dp"         android:layout_height="35dp"         android:background="#D7E268"         android:backgroundTint="#E6DFDF"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.5"         app:layout_constraintStart_toEndOf="@+id/textView"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.363" /&gt;      &lt;TextView         android:id="@+id/textView"         android:layout_width="124dp"         android:layout_height="34dp"         android:background="#B59D60"         android:text="Select Any"         android:textAlignment="center"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toStartOf="@+id/spinner"         app:layout_constraintHorizontal_bias="0.5"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.362" /&gt;  &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
-------------------	---

## **OUTPUT**



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



**PROGRAM 16**

**AIM:** Apply themes via code and manifest file

**PROGRAM CODE**

MainActivity.java	<pre>package com.example.theme;  import androidx.appcompat.app.AppCompatActivity;  import android.content.Intent; import android.os.Bundle; import android.view.View;  public class MainActivity extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);     }     public void click(View view)     {         Intent i=new Intent(getApplicationContext(),MainActivity2.class);         startActivity(i);     } }</pre>
MainActivity2.java	<pre>package com.example.theme;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle;  public class MainActivity2 extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main2);     } }</pre>

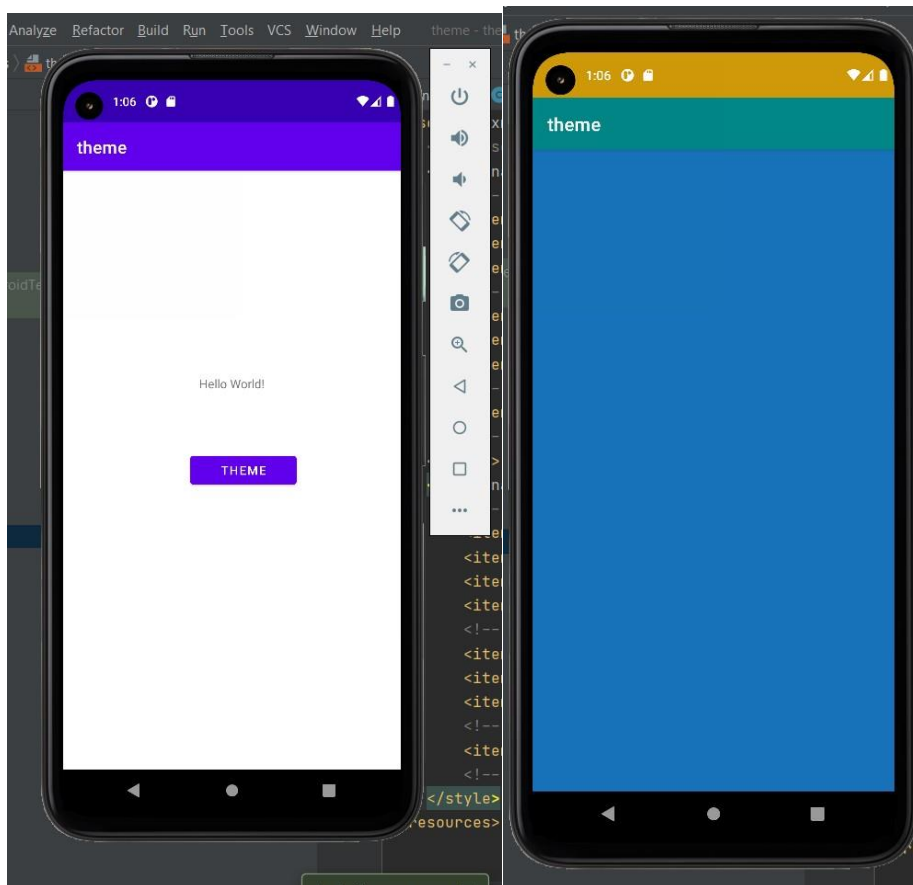
--	--

activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;      &lt;TextView         android:layout_width="wrap_content"         android:layout_height="wrap_content"         android:text="Hello World!"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintLeft_toLeftOf="parent"         app:layout_constraintRight_toRightOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.351" /&gt;      &lt;Button         android:id="@+id/button"         android:layout_width="124dp"         android:layout_height="45dp"         android:onClick="click"         android:text="theme"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.55"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent" /&gt;  &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
-------------------	--

activity_main2.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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=".MainActivity2"&gt;  &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
AndroidManifest.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;manifest xmlns:android="http://schemas.android.com/apk/res/android" package="com.example.theme"&gt;  &lt;application     android:allowBackup="true"     android:icon="@mipmap/ic_launcher"     android:label="@string/app_name"     android:roundIcon="@mipmap/ic_launcher_round"     android:supportRtl="true"     android:theme="@style/Theme.Theme"&gt;     &lt;activity         android:name=".MainActivity2"         android:exported="false"         android:theme="@style/Theme.Theme.manifest1"/&gt;     &lt;activity         android:name=".MainActivity"         android:exported="true"&gt;         &lt;intent-filter&gt;             &lt;action android:name="android.intent.action.MAIN" /&gt;              &lt;category android:name="android.intent.category.LAUNCHER" /&gt;         &lt;/intent-filter&gt;         &lt;/activity&gt;     &lt;/application&gt;  &lt;/manifest&gt; </pre>

Themes.xml	<pre> &lt;resources xmlns:tools="http://schemas.android.com/tools"&gt;   &lt;!-- Base application theme. --&gt;   &lt;style name="Theme.Theme" parent="Theme.MaterialComponents.DayNight.DarkActionBar"&gt;     &lt;!-- Primary brand color. --&gt;     &lt;item name="colorPrimary"&gt;@color/purple_500&lt;/item&gt;     &lt;item name="colorPrimaryVariant"&gt;@color/purple_700&lt;/item&gt;     &lt;item name="colorOnPrimary"&gt;@color/white&lt;/item&gt;     &lt;!-- Secondary brand color. --&gt;     &lt;item name="colorSecondary"&gt;@color/teal_200&lt;/item&gt;     &lt;item name="colorSecondaryVariant"&gt;@color/teal_700&lt;/item&gt;     &lt;item name="colorOnSecondary"&gt;@color/black&lt;/item&gt;     &lt;!-- Status bar color. --&gt;     &lt;item name="android:statusBarColor" tools:targetApi="1"&gt;?attr/colorPrimaryVariant&lt;/item&gt;     &lt;!-- Customize your theme here. --&gt;   &lt;/style&gt;   &lt;style name="Theme.Theme.manifest1" parent="Theme.MaterialComponents.DayNight.DarkActionBar"&gt;     &lt;!-- Primary brand color. --&gt;     &lt;item name="colorPrimary"&gt;@color/teal_700&lt;/item&gt;     &lt;item name="android:windowBackground"&gt;#1772B9&lt;/item&gt;     &lt;item name="colorPrimaryVariant"&gt;#D09909&lt;/item&gt;     &lt;item name="colorOnPrimary"&gt;@color/white&lt;/item&gt;     &lt;!-- Secondary brand color. --&gt;     &lt;item name="colorSecondary"&gt;@color/teal_200&lt;/item&gt;     &lt;item name="colorSecondaryVariant"&gt;@color/purple_200&lt;/item&gt;     &lt;item name="colorOnSecondary"&gt;#D54444&lt;/item&gt;     &lt;!-- Status bar color. --&gt;     &lt;item name="android:statusBarColor" tools:targetApi="1"&gt;?attr/colorPrimaryVariant&lt;/item&gt;     &lt;!-- Customize your theme here. --&gt;   &lt;/style&gt; &lt;/resources&gt; </pre>
------------	---

## OUTPUT



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

**PROGRAM 17****AIM:** Develop application using Fragments**PROGRAM CODE**

MainActivity.java	<pre>//Develop application using Fragments package com.example.co4_q4;  import androidx.appcompat.app.AppCompatActivity; import androidx.fragment.app.Fragment; import androidx.fragment.app.FragmentManager; import androidx.fragment.app.FragmentTransaction;  import android.os.Bundle; import android.view.View; import android.widget.Toast;  public class MainActivity extends AppCompatActivity {      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);     }      public void fragement1Start(View view){         replaceFragement(new Fragment1());     }      public void fragement2Start(View view){         replaceFragement(new Fragment2());     }      public void replaceFragement(Fragment pragment){         FragmentManager fm = getSupportFragmentManager();         FragmentTransaction ft = fm.beginTransaction();         ft.replace(R.id.fra,pragment);         ft.commit();     }  }</pre>
-------------------	---

Fragment1.java	<pre>package com.example.co4_q4;  import android.os.Bundle;  import androidx.fragment.app.Fragment;  import android.view.LayoutInflater; import android.view.View; import android.view.ViewGroup;  public class Fragment1 extends Fragment {      @Override     public View onCreateView(LayoutInflater inflater, ViewGroup container,                              Bundle savedInstanceState) {         // Inflate the layout for this fragment         return inflater.inflate(R.layout.fragment_1, container, false);     } }</pre>
Fragment2.java	<pre>package com.example.co4_q4;  import android.os.Bundle;  import androidx.fragment.app.Fragment;  import android.view.LayoutInflater; import android.view.View; import android.view.ViewGroup;  public class Fragment2 extends Fragment {      @Override     public View onCreateView(LayoutInflater inflater, ViewGroup container,                              Bundle savedInstanceState) {         // Inflate the layout for this fragment         return inflater.inflate(R.layout.fragment_2, container, false);     } }</pre>

Activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;  &lt;Button     android:id="@+id/f2"     android:layout_width="wrap_content"     android:layout_height="wrap_content"     android:layout_marginStart="32dp"     android:layout_marginTop="100dp"     android:onClick="fragment2Start"     android:text="Fragment 2"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.5"     app:layout_constraintStart_toEndOf="@+id/f1"     app:layout_constraintTop_toTopOf="parent" /&gt;  &lt;Button     android:id="@+id/f1"     android:layout_width="wrap_content"     android:layout_height="wrap_content"     android:layout_marginTop="100dp"     android:onClick="fragment1Start"     android:text="Fragment 1"     app:layout_constraintEnd_toStartOf="@+id/f2"     app:layout_constraintHorizontal_bias="0.5"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent" /&gt;  &lt;FrameLayout     android:id="@+id/fra"     android:layout_width="409dp"     android:layout_height="581dp"     tools:layout_editor_absoluteX="2dp"     tools:layout_editor_absoluteY="148dp"&gt;  &lt;/FrameLayout&gt; </pre>
-------------------	--



Fragment1.xml	<pre> &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt;  &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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:id="@+id/frameLayout2"     android:layout_width="match_parent"     android:layout_height="match_parent"     android:background="#77C67A"     tools:context=".Fragment1"&gt;      &lt;TextView         android:id="@+id/textView2"         android:layout_width="154dp"         android:layout_height="46dp"         android:text="Fragment 1"         android:textAlignment="center"         android:textColor="#3F51B5"         android:textSize="24sp"         android:textStyle="bold italic"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.498"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.499" /&gt; &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt; </pre>
Fragment2.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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:id="@+id/frameLayout"     android:layout_width="match_parent"     android:layout_height="match_parent" </pre>

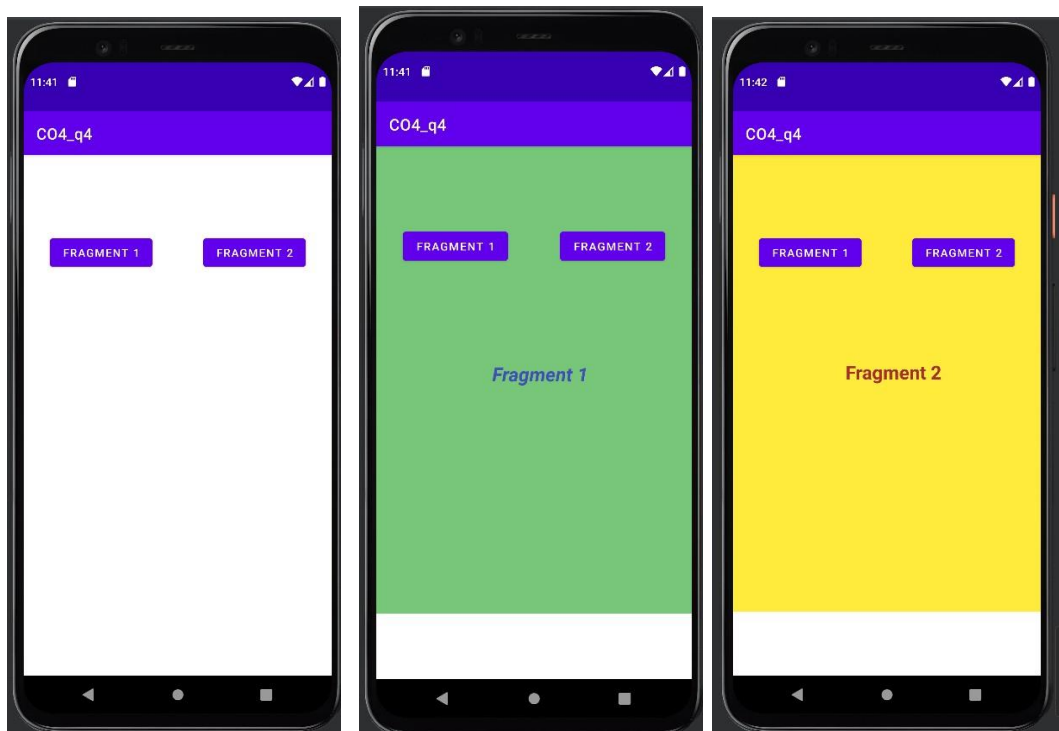
```
android:background="#FFEB3B"
tools:context=".Fragment2">

<!-- TODO: Update blank fragment layout -->

<TextView
    android:id="@+id/textView"
    android:layout_width="131dp"
    android:layout_height="61dp"
    android:text="Fragment 2"
    android:textAlignment="center"
    android:textColor="#A52E2E"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

## **OUTPUT**



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

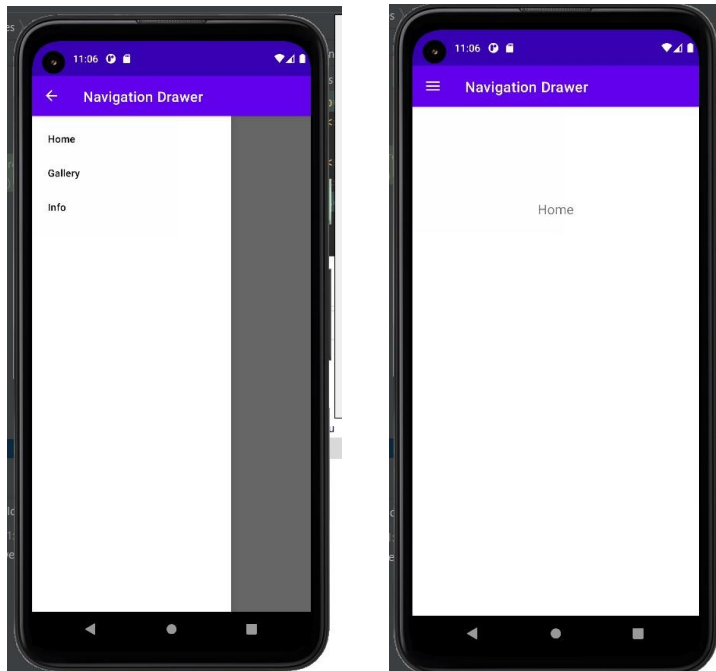
**PROGRAM 18****AIM:** Implement Navigation drawer**PROGRAM CODE**

MainActivity.java	<pre> package com.example.nav_drawer;  import androidx.appcompat.app.AppCompatActivity;  import android.os.Bundle;  import androidx.annotation.NonNull; import androidx.appcompat.app.ActionBarDrawerToggle; import androidx.drawerlayout.widget.DrawerLayout;  import android.view.MenuItem;  public class MainActivity extends AppCompatActivity {      public DrawerLayout drawerLayout;     public ActionBarDrawerToggle actionBarDrawerToggle;      @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);          drawerLayout = findViewById(R.id.my_drawer_layout);         actionBarDrawerToggle = new ActionBarDrawerToggle(this, drawerLayout, R.string.nav_open, R.string.nav_close);          drawerLayout.addDrawerListener(actionBarDrawerToggle);         actionBarDrawerToggle.syncState();          getSupportActionBar().setDisplayHomeAsUpEnabled(true);     }      @Override     public boolean onOptionsItemSelected(@NonNull MenuItem item) {          if (actionBarDrawerToggle.onOptionsItemSelected(item)) {             return true;         }         return super.onOptionsItemSelected(item); </pre>
-------------------	---

<p>Activity_main.xml</p>	<pre>     } }  &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;androidx.drawerlayout.widget.DrawerLayout     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:id="@+id/my_drawer_layout"     android:layout_width="match_parent"     android:layout_height="match_parent"     tools:context=".MainActivity"     tools:ignore="HardcodedText"&gt;      &lt;LinearLayout         android:layout_width="match_parent"         android:layout_height="match_parent"&gt;          &lt;TextView             android:layout_width="match_parent"             android:layout_height="wrap_content"             android:layout_marginTop="128dp"             android:gravity="center"             android:text="Home"             android:textSize="18sp" /&gt;      &lt;/LinearLayout&gt;      &lt;com.google.android.material.navigation.NavigationView         android:layout_width="wrap_content"         android:layout_height="match_parent"         android:layout_gravity="start"         app:menu="@menu/navigation_menu" /&gt;  &lt;/androidx.drawerlayout.widget.DrawerLayout&gt;  &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;menu xmlns:android="http://schemas.android.com/apk/res/android"&gt;     xmlns:tools="http://schemas.android.com/tools"     tools:ignore="HardcodedText"&gt; </pre>
<p>navigation_menu.xml</p>	

Strings.xml	<pre>&lt;item     android:id="@+id/nav_account"     android:title="Home" /&gt;  &lt;item     android:id="@+id/nav_settings"     android:title="Gallery" /&gt;  &lt;item     android:id="@+id/nav_logout"     android:title="Info" /&gt; &lt;/menu&gt;  &lt;resources&gt;     &lt;string name="app_name"&gt;Navigation Drawer&lt;/string&gt;      &lt;string name="nav_open"&gt;Open&lt;/string&gt;     &lt;string name="nav_close"&gt;Close&lt;/string&gt; &lt;/resources&gt;</pre>
-------------	---

## **OUTPUT**



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

**PROGRAM 19****AIM:** Create database using SQLite and perform INSERT and SELECT**PROGRAM CODE**

DBHelper.java	<pre> package com.example.co5_q1;  import android.content.ContentValues; import android.content.Context; import android.database.Cursor; import android.database.sqlite.SQLiteDatabase; import android.database.sqlite.SQLiteOpenHelper;  import androidx.annotation.Nullable;  public class DBHelper extends SQLiteOpenHelper {     public DBHelper(Context context) {         super(context, "User.DB", null, 1);     }     @Override     public void onCreate(SQLiteDatabase DB) {         DB.execSQL("create table userdata(name Text primary key, address TEXT, number TEXT)");     }      @Override     public void onUpgrade(SQLiteDatabase DB, int i, int i1) {         DB.execSQL("drop Table if exists userdata");     }     public Boolean insertuserDB(String name,String address, String number){         SQLiteDatabase DB = this.getWritableDatabase();         ContentValues cv = new ContentValues();         cv.put("name",name);         cv.put("address",address);         cv.put("number",number);         long result = DB.insert("userdata",null,cv);         if(result==-1){             return false;         }         else{             return true;         }     }     public Boolean UpdateuserDB(String name,String address,String number){ </pre>
---------------	---



```

        SQLiteDatabase DB = this.getWritableDatabase();
        ContentValues cv = new ContentValues();
        cv.put("address",address);
        cv.put("number",number);
        Cursor cursor = DB.rawQuery("Select * from userdata where
name = ?",new String[]{ name });
        if(cursor.getCount()>0){
            long result = DB.update("userdata",cv,"name=?",new
String[]{ name });
            if(result==-1){
                return false;
            }
            else{
                return true;
            }
        }
        else{
            return false;
        }
    }

    public Boolean DeleteuserDB(String name){
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cursor = DB.rawQuery("Select * from userdata where
name = ?",new String[]{ name });
        if(cursor.getCount()>0){
            long result = DB.delete("userdata","name=?",new
String[]{ name });
            if(result==-1){
                return false;
            }
            else{
                return true;
            }
        }
        else{
            return false;
        }
    }

    public Cursor getuserDB(){
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cursor = DB.rawQuery("Select * from userdata",null);
        return cursor;
    }
}

```

MainActivity.java	<pre> package com.example.co5_q1;  import androidx.appcompat.app.AlertDialog; import androidx.appcompat.app.AppCompatActivity;  import android.database.Cursor; import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.Toast;  public class MainActivity extends AppCompatActivity {     EditText name, address, number;     Button add, update, delete, viewuser;     @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);     }     public void insertUser(View view){         name = findViewById(R.id.name);         address = findViewById(R.id.add);         number = findViewById(R.id.num);         DBHelper DB = new DBHelper(this);         String nam = name.getText().toString();         String add = address.getText().toString();         String num = number.getText().toString();         Boolean checkinsert = DB.insertuserDB(nam,add,num);         if(checkinsert){             Toast.makeText(this, "User added Succesfully", Toast.LENGTH_SHORT).show();         }         else{             Toast.makeText(this, "User not added", Toast.LENGTH_SHORT).show();         }         name.setText("");         address.setText("");         number.setText("");     }     public void updateUser(View view){         name = findViewById(R.id.name);         address = findViewById(R.id.add);         number = findViewById(R.id.num);         DBHelper DB = new DBHelper(this);         String nam = name.getText().toString();         String add = address.getText().toString(); </pre>
-------------------	---

```

String num = number.getText().toString();
Boolean checkupdate = DB.UpdateuserDB(nam,add,num);
if(checkupdate){
    Toast.makeText(this, "User data updated Succesfully",
Toast.LENGTH_SHORT).show();
}
else{
    Toast.makeText(this, "User date not updated",
Toast.LENGTH_SHORT).show();
}
name.setText("");
address.setText("");
number.setText("");
}
public void deleteUser(View view){
    name = findViewById(R.id.name);
    DBHelper DB = new DBHelper(this);
    String nam = name.getText().toString();
    Boolean checkdelete= DB.DeleteuserDB(nam);
    if(checkdelete){
        Toast.makeText(this, "User deleted Succesfully",
Toast.LENGTH_SHORT).show();
    }
    else{
        Toast.makeText(this, "User not deleted",
Toast.LENGTH_SHORT).show();
    }
    name.setText("");
    address.setText("");
    number.setText("");
}
public void viewUser(View view){
    DBHelper DB = new DBHelper(this);
    Cursor res = DB.getuserDB();
    AlertDialog.Builder alert = new AlertDialog.Builder(this);
    if(res.getCount()==0){
        alert.setCancelable(true);
        alert.setTitle("Users Data");
        alert.setMessage("No user found");
        alert.show();
    }
    else {
        StringBuffer buffer = new StringBuffer();
        while (res.moveToNext()) {
            buffer.append("Name:" + res.getString(0) + "\n");
            buffer.append("Address:" + res.getString(1) + "\n");
            buffer.append("Mobile Number:" + res.getString(2) +
"\n\n");
        }
    }
}

```

	<pre>         alert.setCancelable(true);         alert.setTitle("Users Data");         alert.setMessage(buffer.toString());         alert.show();         name.setText("");         address.setText("");         number.setText("");     } } } </pre>
Activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;      &lt;Button         android:id="@+id/adduser"         android:layout_width="wrap_content"         android:layout_height="wrap_content"         android:onClick="insertUser"         android:text="Add User"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.526"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.455" /&gt;      &lt;Button         android:id="@+id/view"         android:layout_width="wrap_content"         android:layout_height="wrap_content"         android:onClick="viewUser"         android:text="View Users"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.528"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.787" /&gt;      &lt;Button         android:id="@+id/delete"         android:layout_width="wrap_content" </pre>

```

        android:layout_height="wrap_content"
        android:onClick="deleteUser"
        android:text="Delete User"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.528"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.664" />

<EditText
    android:id="@+id/name"
    android:layout_width="188dp"
    android:layout_height="43dp"
    android:ems="10"
    android:hint="Name"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.578"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.174" />

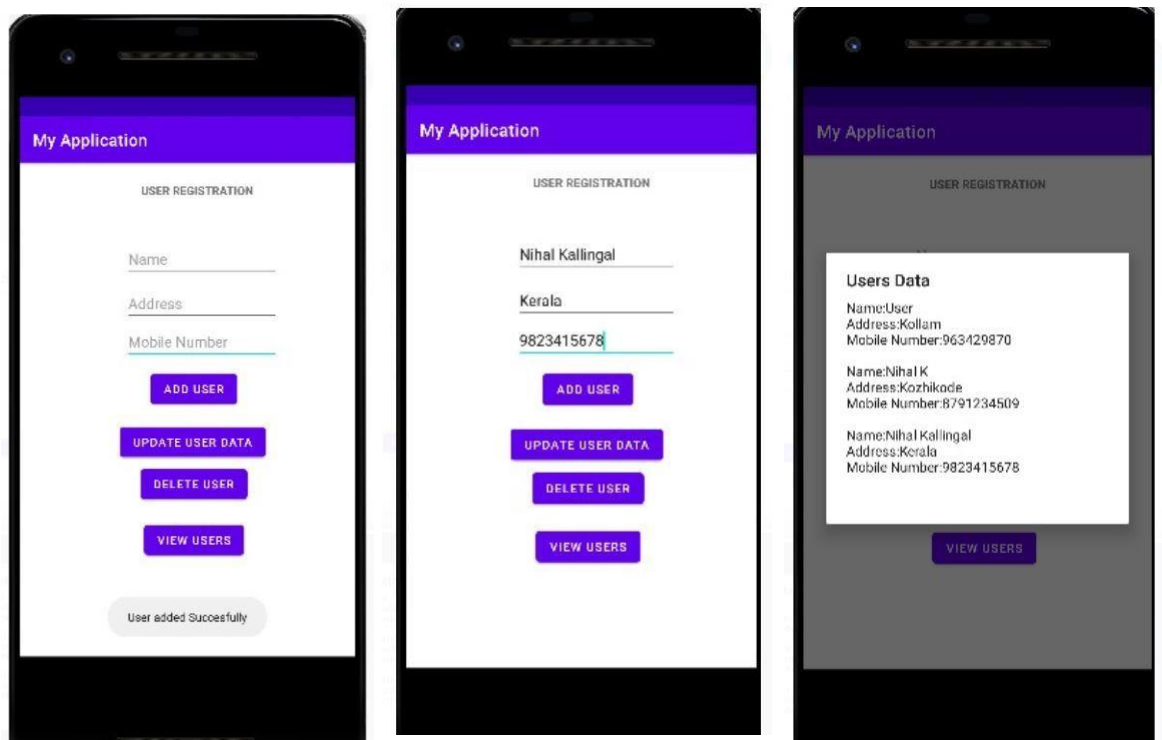
<EditText
    android:id="@+id/num"
    android:layout_width="188dp"
    android:layout_height="43dp"
    android:ems="10"
    android:hint="Mobile Number"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.578"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.354" />

<TextView
    android:layout_width="319dp"
    android:layout_height="27dp"
    android:text="User Registration"
    android:textAlignment="center"
    android:textAllCaps="true"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.629"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"

```

	<pre>app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.042" /&gt;  &lt;EditText     android:id="@+id/add"     android:layout_width="188dp"     android:layout_height="43dp"     android:ems="10"     android:hint="Address"     android:inputType="textPersonName"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.578"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.271" /&gt;  &lt;Button     android:id="@+id/update"     android:layout_width="wrap_content"     android:layout_height="wrap_content"     android:onClick="updateUser"     android:text="Update User Data"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.528"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.571" /&gt;  &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt;</pre>
--	---

## **OUTPUT**



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

**PROGRAM 20****AIM:** Perform UPDATE and DELETE on SQLite database**PROGRAM CODE**

DBHelper.java	<pre> package com.example.co5_q1;  import android.content.ContentValues; import android.content.Context; import android.database.Cursor; import android.database.sqlite.SQLiteDatabase; import android.database.sqlite.SQLiteOpenHelper;  import androidx.annotation.Nullable;  public class DBHelper extends SQLiteOpenHelper {     public DBHelper(Context context) {         super(context, "User.DB", null, 1);     }     @Override     public void onCreate(SQLiteDatabase DB) {         DB.execSQL("create table userdata(name Text primary key, address TEXT, number TEXT)");     }      @Override     public void onUpgrade(SQLiteDatabase DB, int i, int i1) {         DB.execSQL("drop Table if exists userdata");     }     public Boolean insertuserDB(String name,String address, String number){         SQLiteDatabase DB = this.getWritableDatabase();         ContentValues cv = new ContentValues();         cv.put("name",name);         cv.put("address",address);         cv.put("number",number);         long result = DB.insert("userdata",null,cv);         if(result==-1){             return false;         }         else{             return true;         }     }     public Boolean UpdateuserDB(String name,String address,String number){ </pre>
---------------	---



```

        SQLiteDatabase DB = this.getWritableDatabase();
        ContentValues cv = new ContentValues();
        cv.put("address",address);
        cv.put("number",number);
        Cursor cursor = DB.rawQuery("Select * from userdata where
name = ?",new String[]{ name});
        if(cursor.getCount()>0){
            long result = DB.update("userdata",cv,"name=?",new
String[]{ name});
            if(result==-1){
                return false;
            }
            else{
                return true;
            }
        }
        else{
            return false;
        }
    }

    public Boolean DeleteuserDB(String name){
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cursor = DB.rawQuery("Select * from userdata where
name = ?",new String[]{ name});
        if(cursor.getCount()>0){
            long result = DB.delete("userdata","name=?",new
String[]{ name});
            if(result==-1){
                return false;
            }
            else{
                return true;
            }
        }
        else{
            return false;
        }
    }

    public Cursor getuserDB(){
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cursor = DB.rawQuery("Select * from userdata",null);
        return cursor;
    }
}

```

MainActivity.java	<pre> package com.example.co5_q1;  import androidx.appcompat.app.AlertDialog; import androidx.appcompat.app.AppCompatActivity;  import android.database.Cursor; import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.Toast;  public class MainActivity extends AppCompatActivity {     EditText name, address, number;     Button add, update, delete, viewuser;     @Override     protected void onCreate(Bundle savedInstanceState) {         super.onCreate(savedInstanceState);         setContentView(R.layout.activity_main);     }     public void insertUser(View view){         name = findViewById(R.id.name);         address = findViewById(R.id.add);         number = findViewById(R.id.num);         DBHelper DB = new DBHelper(this);         String nam = name.getText().toString();         String add = address.getText().toString();         String num = number.getText().toString();         Boolean checkinsert = DB.insertuserDB(nam,add,num);         if(checkinsert){             Toast.makeText(this, "User added Succesfully", Toast.LENGTH_SHORT).show();         }         else{             Toast.makeText(this, "User not added", Toast.LENGTH_SHORT).show();         }         name.setText("");         address.setText("");         number.setText("");     }     public void updateUser(View view){         name = findViewById(R.id.name);         address = findViewById(R.id.add);         number = findViewById(R.id.num);         DBHelper DB = new DBHelper(this);         String nam = name.getText().toString();         String add = address.getText().toString(); </pre>
-------------------	---

```

String num = number.getText().toString();
Boolean checkupdate = DB.UpdateuserDB(nam,add,num);
if(checkupdate){
    Toast.makeText(this, "User data updated Succesfully",
Toast.LENGTH_SHORT).show();
}
else{
    Toast.makeText(this, "User date not updated",
Toast.LENGTH_SHORT).show();
}
name.setText("");
address.setText("");
number.setText("");
}
public void deleteUser(View view){
    name = findViewById(R.id.name);
    DBHelper DB = new DBHelper(this);
    String nam = name.getText().toString();
    Boolean checkdelete= DB.DeleteuserDB(nam);
    if(checkdelete){
        Toast.makeText(this, "User deleted Succesfully",
Toast.LENGTH_SHORT).show();
    }
    else{
        Toast.makeText(this, "User not deleted",
Toast.LENGTH_SHORT).show();
    }
    name.setText("");
    address.setText("");
    number.setText("");
}
public void viewUser(View view){
    DBHelper DB = new DBHelper(this);
    Cursor res = DB.getuserDB();
    AlertDialog.Builder alert = new AlertDialog.Builder(this);
    if(res.getCount()==0){
        alert.setCancelable(true);
        alert.setTitle("Users Data");
        alert.setMessage("No user found");
        alert.show();
    }
    else {
        StringBuffer buffer = new StringBuffer();
        while (res.moveToNext()) {
            buffer.append("Name:" + res.getString(0) + "\n");
            buffer.append("Address:" + res.getString(1) + "\n");
            buffer.append("Mobile Number:" + res.getString(2) +
"\n\n");
        }
    }
}

```

	<pre>         alert.setCancelable(true);         alert.setTitle("Users Data");         alert.setMessage(buffer.toString());         alert.show();         name.setText("");         address.setText("");         number.setText("");     } } } </pre>
Activity_main.xml	<pre> &lt;?xml version="1.0" encoding="utf-8"?&gt; &lt;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"&gt;      &lt;Button         android:id="@+id/adduser"         android:layout_width="wrap_content"         android:layout_height="wrap_content"         android:onClick="insertUser"         android:text="Add User"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.526"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.455" /&gt;      &lt;Button         android:id="@+id/view"         android:layout_width="wrap_content"         android:layout_height="wrap_content"         android:onClick="viewUser"         android:text="View Users"         app:layout_constraintBottom_toBottomOf="parent"         app:layout_constraintEnd_toEndOf="parent"         app:layout_constraintHorizontal_bias="0.528"         app:layout_constraintStart_toStartOf="parent"         app:layout_constraintTop_toTopOf="parent"         app:layout_constraintVertical_bias="0.787" /&gt;      &lt;Button         android:id="@+id/delete"         android:layout_width="wrap_content" </pre>

```

        android:layout_height="wrap_content"
        android:onClick="deleteUser"
        android:text="Delete User"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.528"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.664" />

<EditText
    android:id="@+id/name"
    android:layout_width="188dp"
    android:layout_height="43dp"
    android:ems="10"
    android:hint="Name"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.578"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.174" />

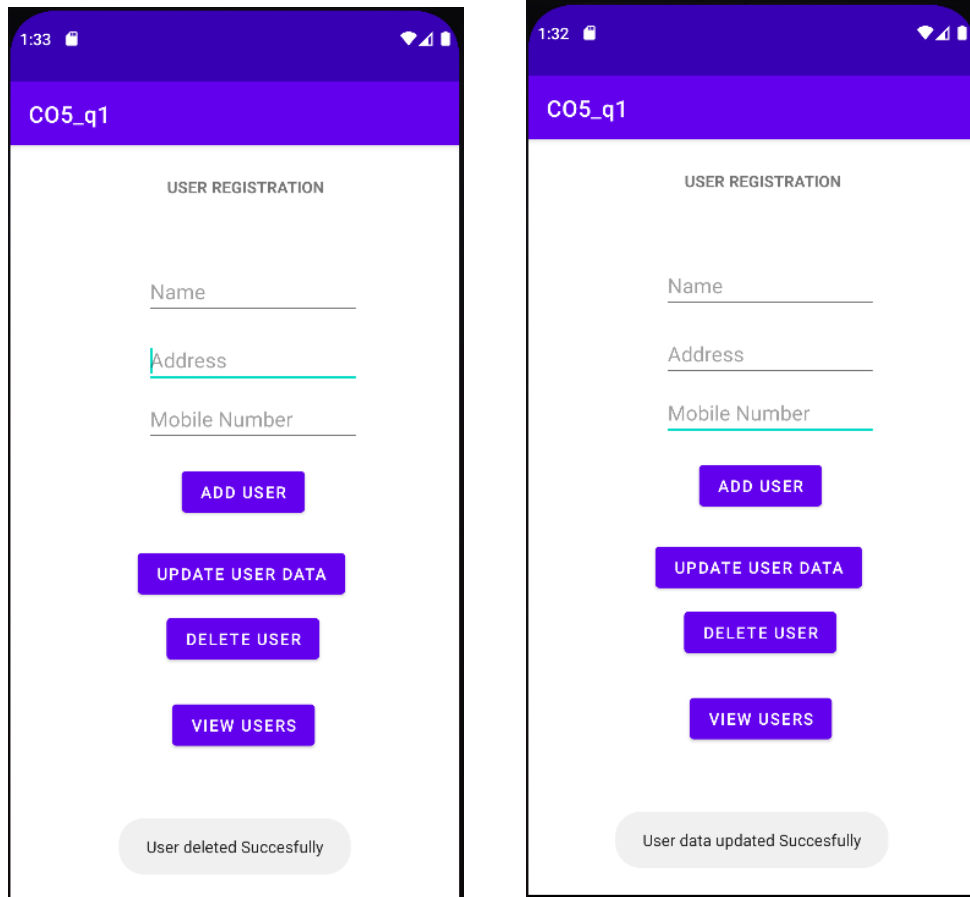
<EditText
    android:id="@+id/num"
    android:layout_width="188dp"
    android:layout_height="43dp"
    android:ems="10"
    android:hint="Mobile Number"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.578"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.354" />

<TextView
    android:layout_width="319dp"
    android:layout_height="27dp"
    android:text="User Registration"
    android:textAlignment="center"
    android:textAllCaps="true"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.629"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"

```

	<pre>app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.042" /&gt;  &lt;EditText     android:id="@+id/add"     android:layout_width="188dp"     android:layout_height="43dp"     android:ems="10"     android:hint="Address"     android:inputType="textPersonName"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.578"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.271" /&gt;  &lt;Button     android:id="@+id/update"     android:layout_width="wrap_content"     android:layout_height="wrap_content"     android:onClick="updateUser"     android:text="Update User Data"     app:layout_constraintBottom_toBottomOf="parent"     app:layout_constraintEnd_toEndOf="parent"     app:layout_constraintHorizontal_bias="0.528"     app:layout_constraintStart_toStartOf="parent"     app:layout_constraintTop_toTopOf="parent"     app:layout_constraintVertical_bias="0.571" /&gt;  &lt;/androidx.constraintlayout.widget.ConstraintLayout&gt;</pre>
--	---

## **OUTPUT**



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