Musaliar College of Engineering & Technology

MUSALIAR COLLEGE P.O., PATHANAMTHITTA - 689 653

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LABORATORY RECORD

Certified that this is the Bonafide Record of the work done by

Sri/Smt.....

of.....Semester Class of .....(RegNo.....)

of ..... Branch

in the ..... Laboratory

during the academic year 2023- 2025

Name of Examination

Internal Examiner External Examiner Staff in- charge

DEPARTMENT OF COMPUTER APPLICATIONS

VISION

"To produce competent and dynamic professionals in the field of Computer Applications to thrive and cater the changing needs of the society through research and education".

MISSION

To impart high quality technical education and knowledge in Computer Applications.

To introduce moral, ethical and social values to Computer Application students.

To establish industry institute interaction to enhance the skills of Computer Application students.

To promote research aimed towards betterment of society.

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PROGRAM NO: 1

Aim:Write a program to design a login form with username and password using linear layout and toast valid credentials.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:inputType="textPersonName"
        android:hint="username"
        android:textColor="#E91E63"
        android:layout_margin="20dp"
        android:id="@+id/username"
        />
```

```
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:inputType="textPassword"
        android:hint="password"
        android:textColor="#E91E63"
        android:layout_margin="20dp"
        android:id="@+id/password"
        />
<Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/login"
    android:text="login"
    android:layout_margin="10dp"
    />
</LinearLayout>
```

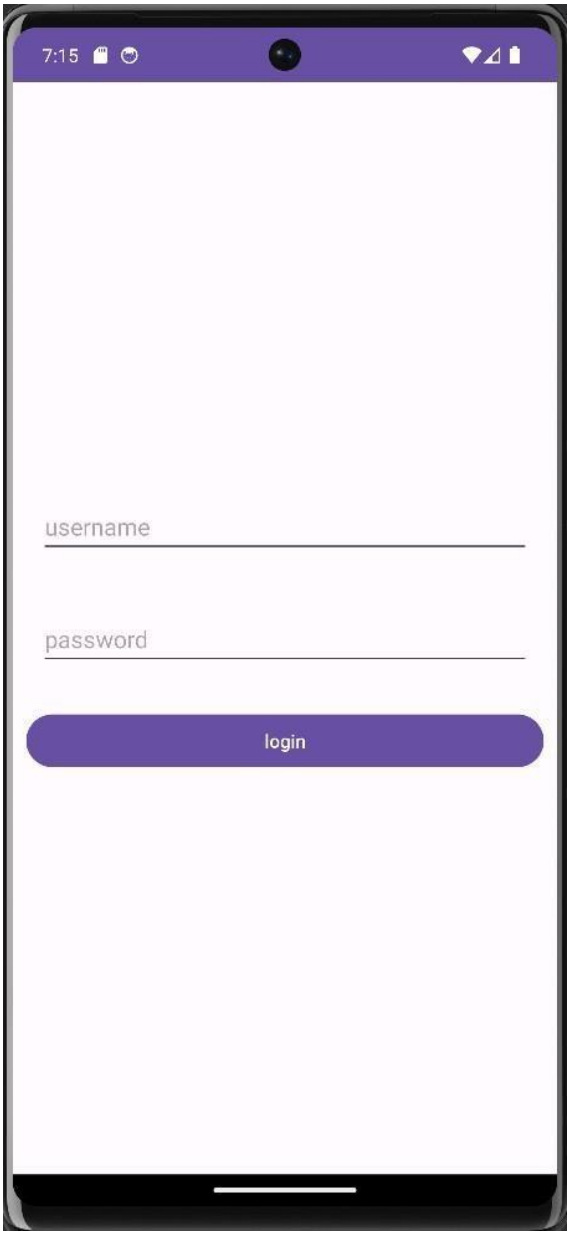
MainActivity.java

```
package com.example.loginapp;

import androidx.appcompat.app.AppCompatActivity;

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 username;
EditText password;
Button login;

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

        //variable initialization

        username=findViewById(R.id.username);
        password=findViewById(R.id.password);
        login=findViewById(R.id.login);
        login.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

                if (username.getText().toString().equals("admin")&&
password.getText().toString().equals("admin")){
                    Toast.makeText(MainActivity.this,"Login
Successful",Toast.LENGTH_SHORT).show();
                }
            }
```

```
        });
    }
}
```

Output



Result

Thus, the program was executed successfully.

PROGRAM NO: 2

Aim:Write a program that demonstrates Activity Lifecycle.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Question Explaining the Activity Lifecycle"
        />
</LinearLayout>
```

MainActivity.java

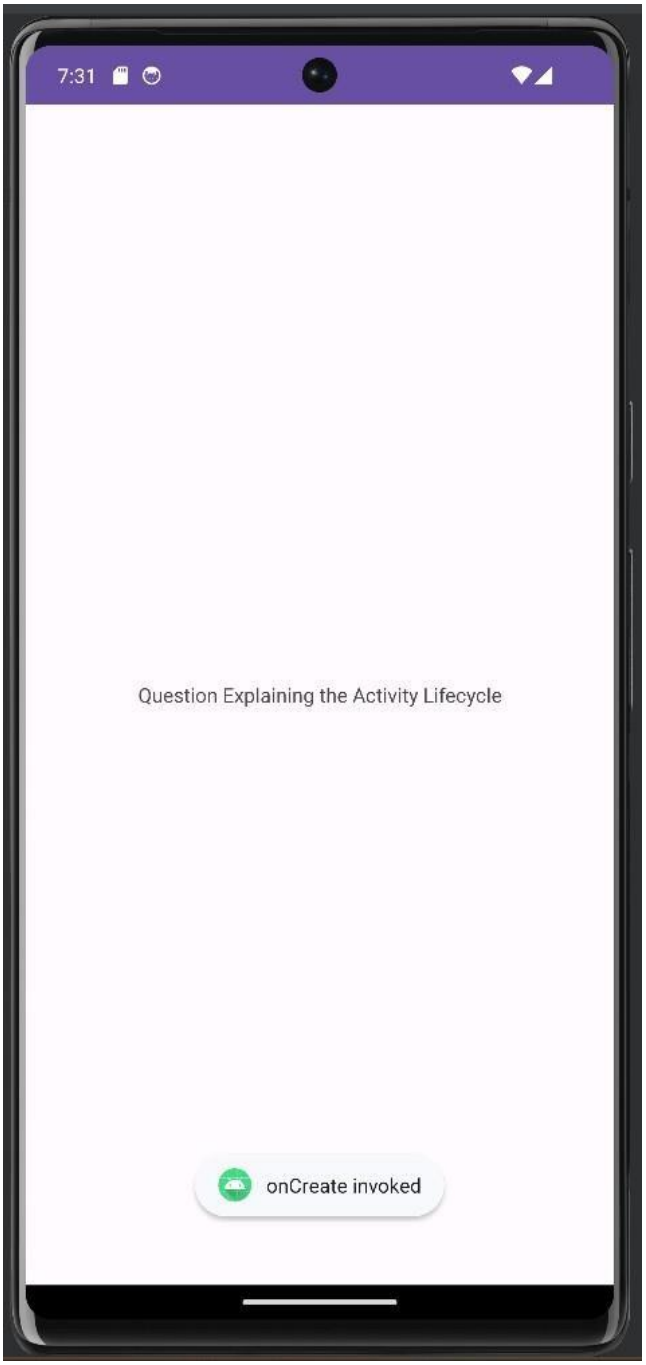
```
package com.example.activitylifecycle;

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

```
import android.os.Bundle;
import android.util.Log;
import android.widget.Toast;


public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d("lifecycle","onCreate invoked");
        Toast.makeText(getApplicationContext(),"onCreate
invoked",Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onStart()
    {
        super.onStart();
        Log.d("lifecycle","onStart invoked");
        Toast.makeText(getApplicationContext(),"onStart
invoked",Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onResume()
    {
        super.onResume();
        Log.d("lifecycle","onResume invoked");
```

```
        Toast.makeText(getApplicationContext(),"onResume
invoked",Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onPause()
    {
        super.onPause();
        Log.d("lifecycle","onPause invoked");
        Toast.makeText(getApplicationContext(),"onPause
invoked",Toast.LENGTH_SHORT).show();
    }

    @Override
    protected void onStop()
    {
        super.onStop();
        Log.d("lifecycle","onStop invoked");
        Toast.makeText(getApplicationContext(),"onStop
invoked",Toast.LENGTH_SHORT).show();
    }



@Override
    protected void onRestart()
    {
        super.onRestart();
        Log.d("lifecycle","onRestart invoked");
        Toast.makeText(getApplicationContext(),"onRestart
```

```
        invoked",Toast.LENGTH_SHORT).show();

    }


   @Override
    protected void onDestroy()
    {
        super.onDestroy();
        Log.d("lifecycle","onDestroy invoked");
        Toast.makeText(getApplicationContext(),"onDestroy
invoked",Toast.LENGTH_SHORT).show();
    }
}
```

Output



Result

Thus, the program was executed successfully.

PROGRAM NO: 3

Aim:Write a program implementing basic arithmetic operations of a simple calculator.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:orientation="vertical"
    android:padding="20dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/number1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Number 01"
        android:inputType="numberDecimal"/>

    <EditText
        android:id="@+id/number2"
        android:layout_width="match_parent"
```

```
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:hint="Enter Number 02"
    android:inputType="numberDecimal"/>


<TextView
    android:id="@+id/result_text"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:textColor="@color/black"
    android:textSize="17sp"
    android:textStyle="bold"/>

<Button
    android:id="@+id/add_btn"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="+"/>

<Button
    android:id="@+id/sub_btn"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="-"/>

<Button
```

```
        android:id="@+id/mul_btn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="x"/>
    <Button
        android:id="@+id/div_btn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="/"/>
    <Button
        android:id="@+id/clear_btn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="clear"/>

</LinearLayout>
```

MainActivity.java

```
package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
```

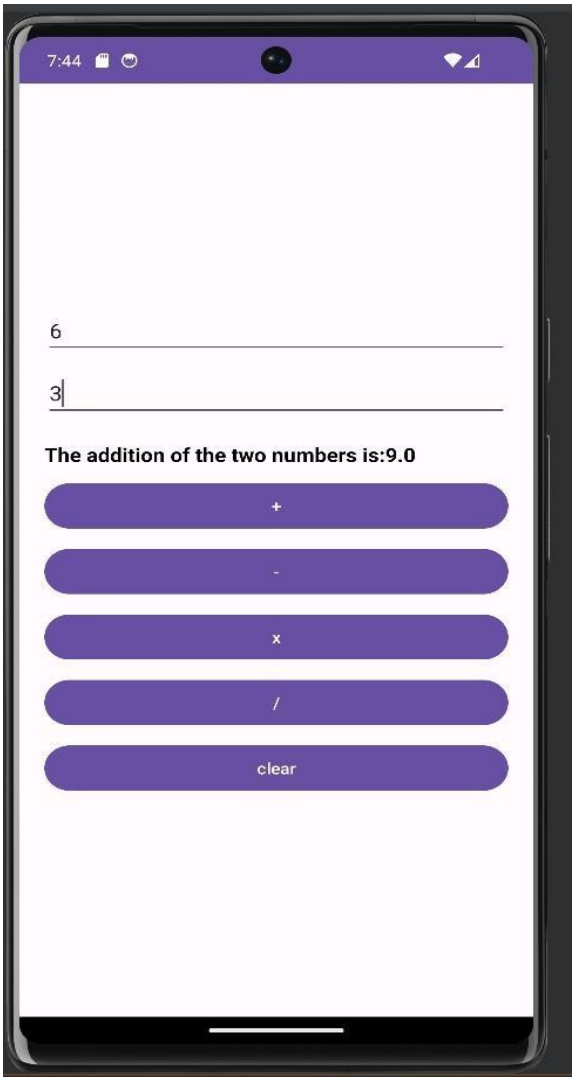
```
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {


    EditText number1, number2;
    TextView result_text;
    Button add_btn, sub_btn, mul_btn, div_btn, clear_btn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        number1 = findViewById(R.id.number1);
        number2 = findViewById(R.id.number2);
        result_text = findViewById(R.id.result_text);
        add_btn = findViewById(R.id.add_btn);
        sub_btn = findViewById(R.id.sub_btn);
        mul_btn = findViewById(R.id.mul_btn);
        div_btn = findViewById(R.id.div_btn);
        clear_btn = findViewById(R.id.clear_btn);

        add_btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String number1_text = number1.getText().toString();
                String number2_text = number2.getText().toString();
                int num1 = Integer.parseInt(number1_text);
                int num2 = Integer.parseInt(number2_text);
```

```
            float sum
                    = num1 + num2;
            result_text.setText("The addition of the two numbers is:" + sum);
            Toast.makeText(getApplicationContext(), "The addition of the two numbers is:" + sum,
Toast.LENGTH_SHORT).show();
        }
    });

    sub_btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String number1_text = number1.getText().toString();
            String number2_text = number2.getText().toString();
            int num1 = Integer.parseInt(number1_text);
            int num2 = Integer.parseInt(number2_text);
            float sub = num1 - num2;
            result_text.setText("The substraction of the two numbers is:" + sub);
            Toast.makeText(getApplicationContext(), "The substraction of the two numbers is:" +
sub, Toast.LENGTH_SHORT).show();
        }
    });

    mul_btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String number1_text = number1.getText().toString();
            String number2_text = number2.getText().toString();
            int num1 = Integer.parseInt(number1_text);
            int num2 = Integer.parseInt(number2_text);
            float mul = num1 * num2;
```

```
            result_text.setText("The multiplication of the two numbers is:" + mul);


            Toast.makeText(getApplicationContext(), "The multiplication of the two numbers is:" +
mul, Toast.LENGTH_SHORT).show();
        }



    });

    div_btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String number1_text = number1.getText().toString();
            String number2_text = number2.getText().toString();
            int num1 = Integer.parseInt(number1_text);
            int num2 = Integer.parseInt(number2_text);
            float div = num1 / num2;
            result_text.setText("The division of the two numbers is:" + div);
            Toast.makeText(getApplicationContext(), "The division of the two numbers is:" + div,
Toast.LENGTH_SHORT).show();
        }


    });

    clear_btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            number1.setText("");
            number2.setText("");
            result_text.setText((""));
```

```
            Toast.makeText(getApplicationContext(), "Inputs cleared...",
Toast.LENGTH_SHORT).show();

          }
       });
   }

}
```

Output



Result

Thus, the program was executed successfully.

PROGRAM NO: 4

Aim:Write a program that implements validations on various UI controls.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:layout_gravity="center_horizontal"
    android:orientation="vertical"
    android:paddingHorizontal="20dp"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="User Form"
        android:textSize="20sp"
        android:layout_marginTop="30dp"
        android:textColor="@color/black"
        android:textStyle="bold"/>
    <EditText
        android:id="@+id/name_et"
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:hint="Full Name"
    android:inputType="textPersonName"
    android:minHeight="48dp"
    android:textColorHint="#757575"
    android:importantForAutofill="no"/>
<EditText
    android:id="@+id/email_et"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:hint="Email ID"
    android:inputType="textEmailAddress"
    android:minHeight="48dp"
    android:textColorHint="#757575"
    android:importantForAutofill="no"/>
<EditText
    android:id="@+id/age_et"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:hint="Age"
    android:inputType="number"
    android:minHeight="48dp"
    android:textColorHint="#757575"
    android:importantForAutofill="no"/>
<Button
    android:id="@+id/submit_btn"
```

```
        android:layout_width="268dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text="Submit"/>

</LinearLayout>
```

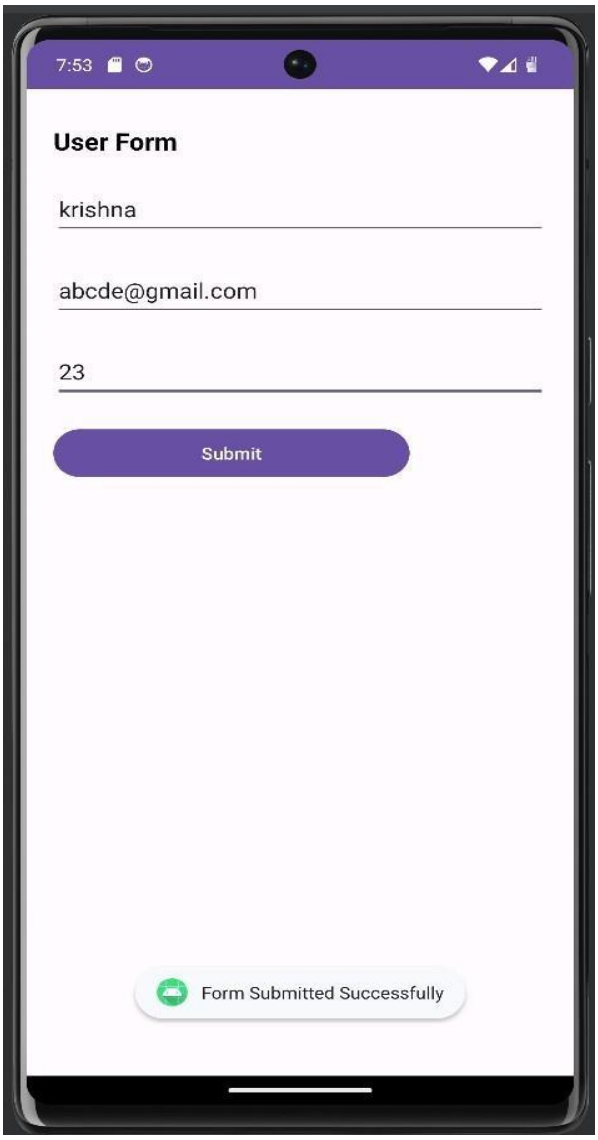
MainActivity.java

```
package com.example.myui;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText name_et,email_et,age_et;
    Button submit_btn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

```
setContentView(R.layout.activity_main);
name_et=findViewById(R.id.name_et);
email_et=findViewById(R.id.email_et);
age_et=findViewById(R.id.age_et);
submit_btn=findViewById(R.id.submit_btn);
submit_btn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        name_et.setError(null);
        age_et.setError(null);
        email_et.setError(null);
        String name_txt=name_et.getText().toString();
        String  email_txt=email_et.getText().toString();
        String age_txt=age_et.getText().toString();

        if(name_txt.equals("")) {
            name_et.setError("Please enter your name");
            name_et.requestFocus();
        } else if (email_txt.equals("")) {
            email_et.setError("Please enter your Email ID");
            email_et.requestFocus();

        }
        else if (age_txt.equals("")) {
            age_et.setError("Please enter your age");
            age_et.requestFocus();

        }
        else {
            Toast.makeText(getApplicationContext(),"Form Submitted
```

```
Successfully",Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

Output



Result

Thus,the program was executed successfully.

PROGRAM NO: 5

Aim:Write a program to design a registration activity and store registration details in local memory of phone using Intents and SharedPreferences.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:orientation="vertical"
    android:paddingHorizontal="20dp"
    android:id="@+id/main_layout"
    android:paddingVertical="10dp"
    android:gravity="center"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Registration Form"
        android:textStyle="bold"
        android:textColor="@color/black"
        android:textSize="20sp" />
```

```
<EditText
    android:id="@+id/fullname"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="textPersonName"
    android:layout_marginTop="30dp"
    android:hint="Full Name"/>

<EditText
    android:id="@+id/emailid"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="textEmailAddress"
    android:layout_marginTop="10dp"
    android:hint="Email ID"/>

<EditText
    android:id="@+id/password"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="textPassword"
    android:hint="Password"/>

<Button
    android:id="@+id/register_btn"
    android:layout_width="201dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text="Register"/>
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.intends;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.util.Patterns;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.LinearLayout;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    EditText fullname,emailid,password;
    Button register_btn;
    LinearLayout main_layout;

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

```
fullname=findViewById(R.id.fullname);
emailid=findViewById(R.id.emailid);
password=findViewById(R.id.password);
register_btn=findViewById(R.id.register_btn);
main_layout=findViewById(R.id.main_layout);

register_btn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {

        fullname.setError(null);
        emailid.setError(null);
        password.setError(null);

        String password_regex = "^(?=.*[0-9])(?=.*[a-z])(?=.*[A-
          Z])(?=.*[@#$%^&+=])(?=\\S+$).{4,}$";
        String fullname_text = fullname.getText().toString();
        String emailid_text = emailid.getText().toString();
        String password_text = password.getText().toString();

        if (fullname_text.equals("")) {
            fullname.requestFocus();
            fullname.setError("Please enter fullname!!");
        } else if (emailid_text.equals("")) {
            emailid.requestFocus();
            emailid.setError("Please enter emaild-id!!");

        } else if (!Patterns.EMAIL_ADDRESS.matcher(emailid_text).matches()) {
            emailid.requestFocus();
```

```
                emailid.setError("Please enter a valid email-id!!");

            } else if (!password_text.matches(password_regex)) {
                password.requestFocus();
                password.setError("Password should contain -\n a digit must occur at least once \n a lower case letter must occur at least once \n an upper case letter occur at least once \n a special character like @#$%^&+=\n No blank spaces allowed \n at least 6 characters");

            } else {
                SharedPreferences pref = getSharedPreferences("register_data", MODE_PRIVATE);
                SharedPreferences.Editor pref_edit = pref.edit();
                pref_edit.putString("reg_fullname", fullname_text);
                pref_edit.putString("reg_emailid", emailid_text);
                pref_edit.putString("reg_password", password_text);
                pref_edit.apply();

                Intent intent = new Intent(getApplicationContext(),IntendS2.class);
                startActivity(intent);
            }
        }
    });

  }
}
```

activity_intend_s2.xml

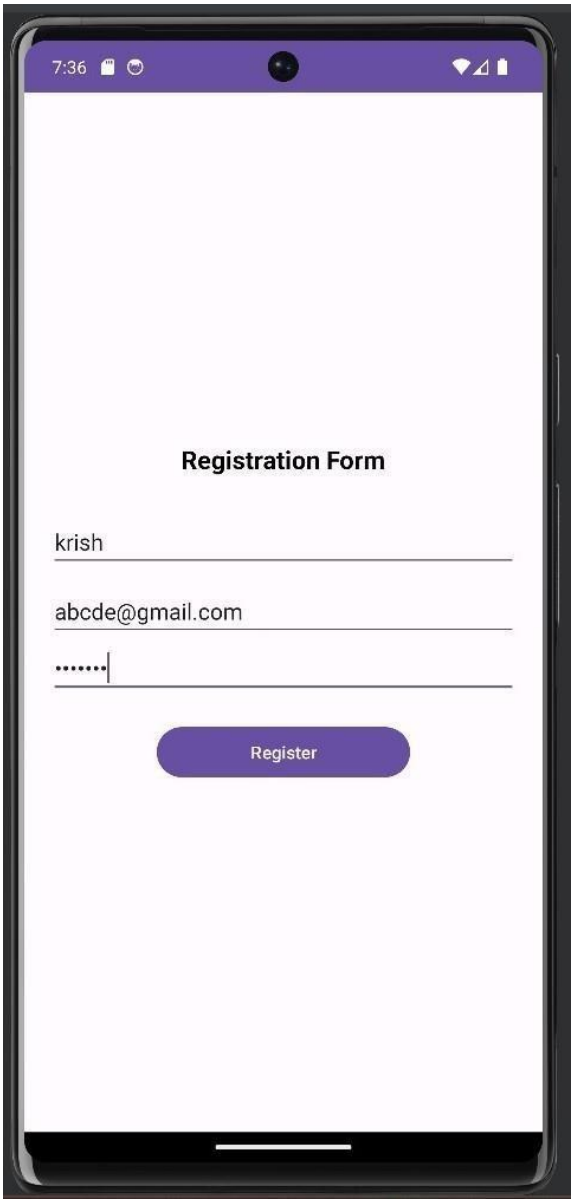
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
```

```
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:gravity="center"
    android:padding="10dp"
    tools:context=".IntendS2">

    <TextView
        android:id="@+id/fullname_result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"/>

    <TextView
        android:id="@+id/emailid_result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"/>

    <TextView
        android:id="@+id/password_result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"/>

</LinearLayout>
```

IntendS2.java

```
package com.example.intends;

import androidx.appcompat.app.AppCompatActivity;

import android.content.SharedPreferences;
import android.os.Bundle;
import android.widget.TextView;

public class IntendS2 extends AppCompatActivity {

    TextView fullname_result,emailid_result,password_result;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_intend_s2);

        fullname_result=findViewById(R.id.fullname_result);
        emailid_result=findViewById(R.id.emailid_result);
        password_result=findViewById(R.id.password_result);

        SharedPreferences pref=getSharedPreferences("register_data",MODE_PRIVATE);
        String name=pref.getString("reg_fullname","Not Available!!");
        String email=pref.getString("reg_emailid","Not Available!!");
        String password=pref.getString("reg_password","Not Available!!");
        fullname_result.setText(name);
        emailid_result.setText(email);
        password_result.setText(password);
      }
  }
```

Output



Result

Thus,the program was executed successfully.

PROGRAM NO: 6

Aim:Write a program to design a Simple Calculator using GridLayout and Cascade LinearLayout.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:orientation="vertical"
    android:id="@+id/calculator_mainlay"
    android:padding="20dp"
    tools:context=".MainActivity">
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="30dp"
    android:hint="number 01"
    android:inputType="number"/>
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:hint="number 02"
    android:inputType="number"/>
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:hint="Result"
    android:clickable="false"
    android:enabled="false"
    android:inputType="number"/>
<LinearLayout
     android:layout_width="match_parent"
     android:layout_height="wrap_content"
     android:orientation="vertical"
     android:layout_marginTop="20dp"
     android:gravity="bottom">
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
```

```
    android:weightSum="4">
  <Button
    android:id="@+id/numclearall_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="CE"
    android:layout_weight="1"/>
  <Button
    android:id="@+id/numclear_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="C"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
  <Button
    android:id="@+id/nummodulus_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="%"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
```

```
<Button
  android:id="@+id/divide_btn"
  android:layout_width="0dp"
  android:layout_height="60dp"
  android:textColor="@color/white"
  android:text="/"
  android:layout_marginStart="10dp"
  android:layout_weight="1"/>

 </LinearLayout>

 <LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_marginTop="10dp"
    android:weightSum="4">
  <Button
    android:id="@+id/num7_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="7"
    android:layout_weight="1"/>
```

```
<Button
    android:id="@+id/num8_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="8"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>

<Button
    android:id="@+id/num9_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="9"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>

<Button
    android:id="@+id/multiply_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
```

```
        android:text="*"
        android:layout_marginStart="10dp"
        android:layout_weight="1"/>
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_marginTop="10dp"
        android:weightSum="4">
    <Button
        android:id="@+id/num4_btn"
        android:layout_width="0dp"
        android:layout_height="60dp"
        android:textColor="@color/white"
        android:text="4"
        android:layout_marginStart="10dp"
        android:layout_weight="1"/>
    <Button
        android:id="@+id/num5_btn"
        android:layout_width="0dp"
        android:layout_height="60dp"
        android:textColor="@color/white"
        android:text="5"
```

```
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
<Button
    android:id="@+id/num6_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="6"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
<Button
    android:id="@+id/subtract_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="-"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_marginTop="10dp"
```

```
    android:weightSum="4">
<Button
    android:id="@+id/num1_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="1"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
<Button
    android:id="@+id/num2_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="2"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
<Button
    android:id="@+id/num3_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="3"
    android:layout_marginStart="10dp"
```

```
    android:layout_weight="1"/>
<Button
    android:id="@+id/add_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="+"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_marginTop="10dp"
    android:weightSum="4">
<Button
    android:id="@+id/numplusminus_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="+/-"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
```

```
<Button
    android:id="@+id/num0_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="0"
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
<Button
    android:id="@+id/decimal_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="."
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
<Button
    android:id="@+id/equals_btn"
    android:layout_width="0dp"
    android:layout_height="60dp"
    android:textColor="@color/white"
    android:text="="
    android:layout_marginStart="10dp"
    android:layout_weight="1"/>
```

```
  </LinearLayout>
   </LinearLayout>
</LinearLayout>
```

MainActivity.java

```
package com.example.calcapplication;

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);
    }
}
```

activity_ques06_grid_layout.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:id="@+id/calculator_mainlay"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="20dp"
    tools:context=".Ques06GridLayoutActivity">

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="30dp"
    android:hint="Number 01"
    android:inputType="number"/>
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:hint="Number 02"
    android:inputType="number"/>
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:clickable="false"
    android:enabled="false"
    android:hint="Result"
    android:inputType="number"/>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
```

```
    android:gravity="bottom"
    android:orientation="vertical">
<GridLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:columnCount="4"
    android:orientation="horizontal"
    android:rowCount="5">

<Button
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="CE"
    android:textColor="@color/white"/>
<Button
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="C"
    android:textColor="@color/white"/>
<Button
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="%"
    android:textColor="@color/white"/>
<Button
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="/"
```

```
    android:textColor="@color/white"/>
<Button
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="7"
    android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="8"
  android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="9"
  android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="*"
  android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="4"
  android:textColor="@color/white"/>
<Button
```

```
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="5"
    android:textColor="@color/white"/>
  <Button
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="6"
    android:textColor="@color/white"/>

  <Button
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="-"
    android:textColor="@color/white"/>

  <Button
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="1"
    android:textColor="@color/white"/>

  <Button
    android:layout_marginStart="10dp"
    android:layout_marginTop="20dp"
    android:padding="13dp"
    android:text="2"
    android:textColor="@color/white"/>
```

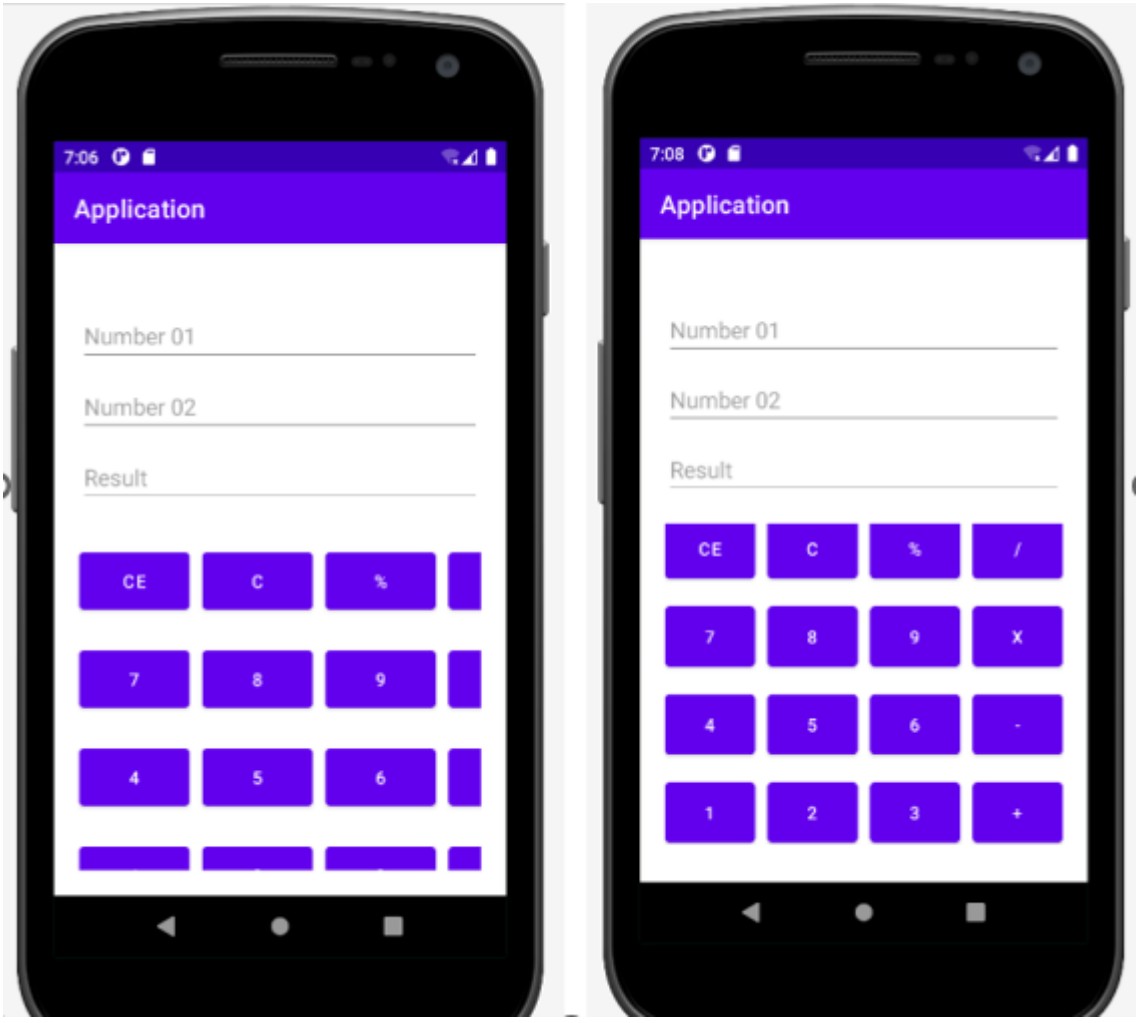
```
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="3"
  android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="+"
  android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="+/-"
  android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="0"
  android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="."
  android:textColor="@color/white"/>
<Button
  android:layout_marginStart="10dp"
```

```
  android:layout_marginTop="20dp"
  android:padding="13dp"
  android:text="="
  android:textColor="@color/white"/>
</GridLayout>

</LinearLayout>



</LinearLayout>
```

Ques06GridLayoutActivity.java

```
package com.example.calcapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class Ques06GridLayoutActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques06_grid_layout);
    }
}
```

Output



Result

Thus, the program was executed successfully.

PROGRAM NO: 7

Aim:Write a program to create a Facebook page using RelativeLayout,set properties using .xml file.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:orientation="vertical"
    android:layout_height="match_parent"
    android:id="@+id/mainlay"
    tools:context=".MainActivity">

    <ImageView
        android:layout_width="match_parent"
        android:layout_height="150dp"
        android:src="@drawable/facebook"
        android:scaleType="centerCrop"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome to Facebook"
```

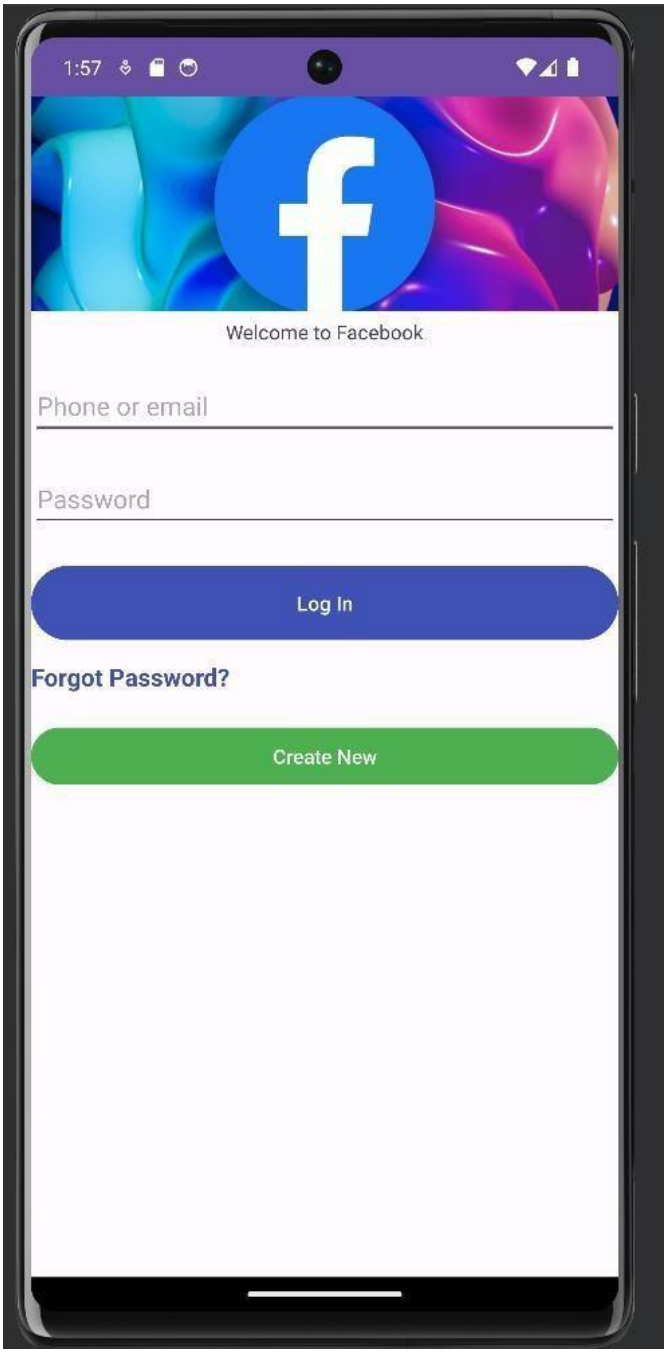
```
    android:textAlignment="center"
    android:layout_marginTop="5dp"
    android:layout_gravity="center"
    />

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:paddingHorizontal="30dp"
    android:layout_marginTop="20dp"
    android:orientation="vertical"
    />


<EditText
    android:id="@+id/fb_id"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Phone or email"
    android:digits=""
    android:inputType="text"/>


<EditText
    android:id="@+id/fb_pass"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:hint="Password"
    android:inputType="textPassword"/>
```

```
    <Button
        android:id="@+id/fb_loginbtn"
        android:layout_width="match_parent"
        android:layout_height="60dp"
        android:text="Log In"
        android:layout_marginTop="20dp"
        android:textAllCaps="false"
        android:backgroundTint="#3F51B5"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Forgot Password?"
        android:textStyle="bold"
        android:textColor="#3F51B5"
        android:textSize="17sp"
        android:layout_marginTop="10dp"/>

    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Create New"
        android:layout_marginTop="20dp"
        android:textAllCaps="false"
        android:backgroundTint="#4CAF50"/>

</LinearLayout
```

MainActivity.java

```
package com.example.applications;

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);
  }
}
```

Output



Result

Thus,the program was executed successfully.

PROGRAM NO: 8

Aim:Write a program to develop an application that toggles image using FrameLayout.

Program

activity_main.xml

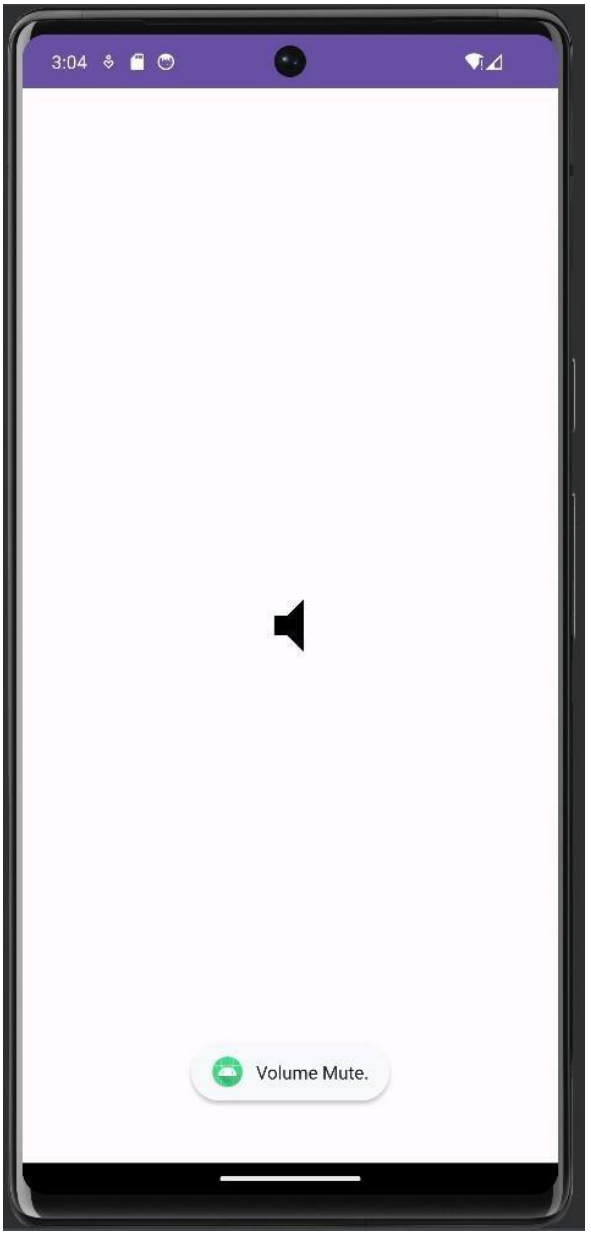
```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

   <ToggleButton
      android:id="@+id/toggle_img_btn"
      android:layout_width="60dp"
      android:layout_height="60dp"
      android:textOff=""
      android:textOn=""
      android:background="@drawable/baseline_volume_up_24"
      android:layout_gravity="center"/>

</FrameLayout>
```

MainActivity.java

```
package com.example.toggle;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.Toast;
import android.widget.ToggleButton;

public class MainActivity extends AppCompatActivity {
   ToggleButton toggle_img_btn;

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

      toggle_img_btn=findViewById(R.id.toggle_img_btn);

      toggle_img_btn.setOnClickListener(v->{
         if(toggle_img_btn.isChecked()){

toggle_img_btn.setBackgroundDrawable(getResources().getDrawable(R.drawable.baseline_volum
e_up_24));
            Toast.makeText(getApplicationContext(),"Volume
Up.",Toast.LENGTH_SHORT).show();

         }
         else{
```

```
toggle_img_btn.setBackgroundDrawable(getResources().getDrawable(R.drawable.baseline_volum
e_mute_24));

            Toast.makeText(getApplicationContext(),"Volume
Mute.",Toast.LENGTH_SHORT).show();

        }

    });

  }

}
```

Output



Result

Thus,the program was executed successfully.

PROGRAM NO: 9

Aim:Write a program to implement Adapters and perform Exception handling.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Exception Activity"
        />
    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
```

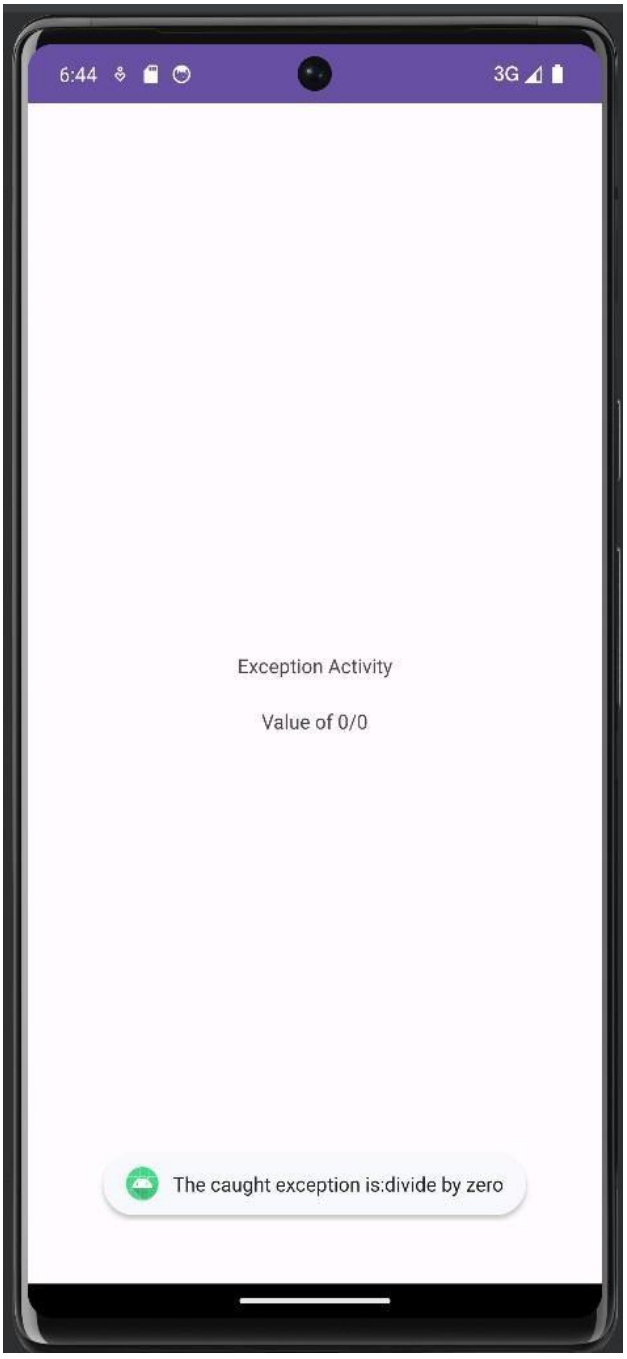
```
        android:text="Value of 0/0"
        />

</LinearLayout>
```

MainActivity.java

```
package com.example.adapter;

import androidx.appcompat.app.AppCompatActivity;

import  android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    TextView textView;

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

        textView=findViewById(R.id.textview);

        try {
            int n1=0,n2=0;
            int a=n1/n2;
            textView.setText("Value of 0/0:"+a);
```

```
            Toast.makeText(getApplicationContext(),"The value
is:"+a,Toast.LENGTH_SHORT).show();



        }
        catch(Exception e){
            Toast.makeText(getApplicationContext(),"The caught exception
is:"+e.getMessage(),Toast.LENGTH_LONG).show();
        }
    }
}
```

Output



Result

Thus, the program was executed successfully.

PROGRAM NO :10

Aim:Write a program to implement Intent to navigate between multiple activities.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Home Page"
        android:textSize="17sp" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="View Profile"
```

```
        android:layout_marginTop="1dp"/>

    </LinearLayout>
```

MainActivity.java

```
    package com.example.navigate;

    import androidx.appcompat.app.AppCompatActivity;
    import android.content.Intent;
    import android.os.Bundle;
    import android.view.View;
    import android.widget.Button;

    public class MainActivity extends AppCompatActivity {


       Button button;


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

          button=findViewById(R.id.button);
          button.setOnClickListener(new View.OnClickListener() {
             @Override
             public void onClick(View view) {
```

```
                Intent intent=new Intent(getApplicationContext(),Navigate2.class);
                startActivity(intent);

            }
        });
    }
}
```

activity_main.xml

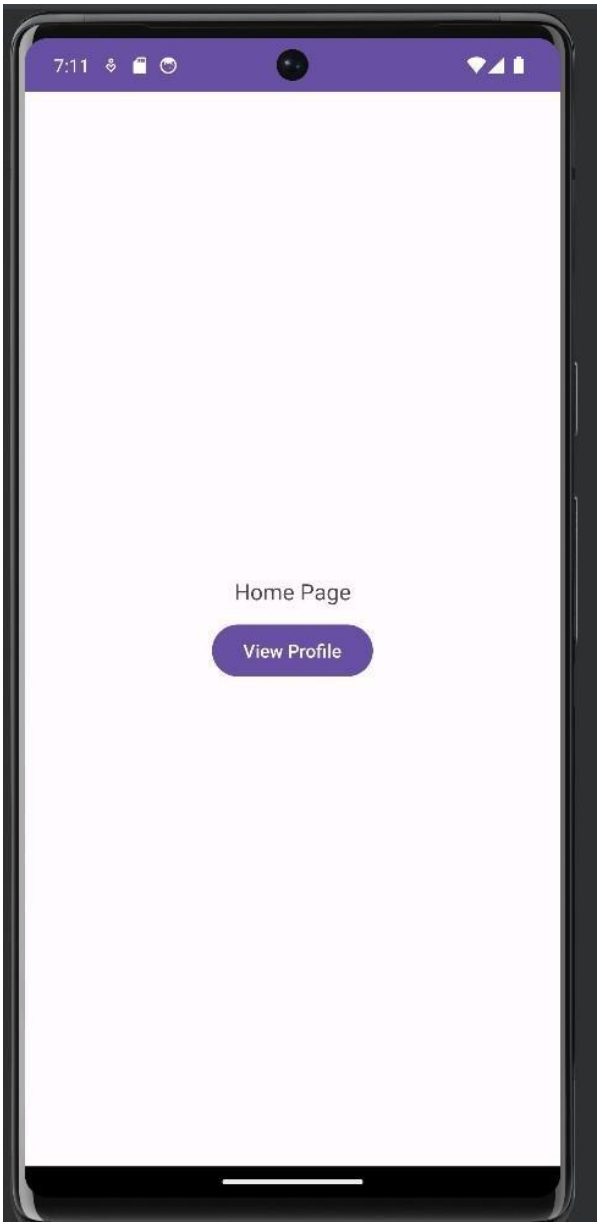
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:orientation="vertical"
    tools:context=".Navigate2">

    <ImageView
        android:layout_width="match_parent"
        android:layout_height="300dp"
        android:src="@drawable/baseline_person_pin_24"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Person Profile"
        android:textColor="@color/black"
```

```
        android:textStyle="bold"
        android:textSize="17sp"/>

    </LinearLayout>
```

MainActivity.java

```
    package com.example.navigate;

    import androidx.appcompat.app.AppCompatActivity;

    import android.os.Bundle;

    public class Navigate2 extends AppCompatActivity {

       @Override
       protected void onCreate(Bundle savedInstanceState) {
          super.onCreate(savedInstanceState);
          setContentView(R.layout.activity_navigate2);
       }
    }
```

Output



Result

Thus,the program was executed successfully.

PROGRAM NO :11

Aim:Write a program to develop application that works with explicit intents.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome" />

    <Button
        android:id="@+id/goto_second_btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="admin"
        android:layout_marginTop="10dp"/>
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.explicit;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button goto_second_btn;

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

        goto_second_btn=findViewById(R.id.goto_second_btn);
        goto_second_btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent=new Intent(getApplicationContext(),Explicit2.class);
                startActivity(intent);
            }
        });
    }}
```

SecondActivity.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:orientation="vertical"
    tools:context=".Explicit2">


    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome to trip"/>

    <Button
        android:id="@+id/goto_third_btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="move to page"
        android:layout_marginTop="10dp"/>

</LinearLayout>
```

SecondActivity.java

```
package com.example.explicit;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class Explicit2 extends AppCompatActivity {


    Button goto_third_btn;


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_explicit2);

        goto_third_btn=findViewById(R.id.goto_third_btn);
        goto_third_btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent=new Intent(getApplicationContext(),Explicit3.class);
                startActivity(intent);
            }
        });
```

```
    }
    }
```

ThirdActivity.xml

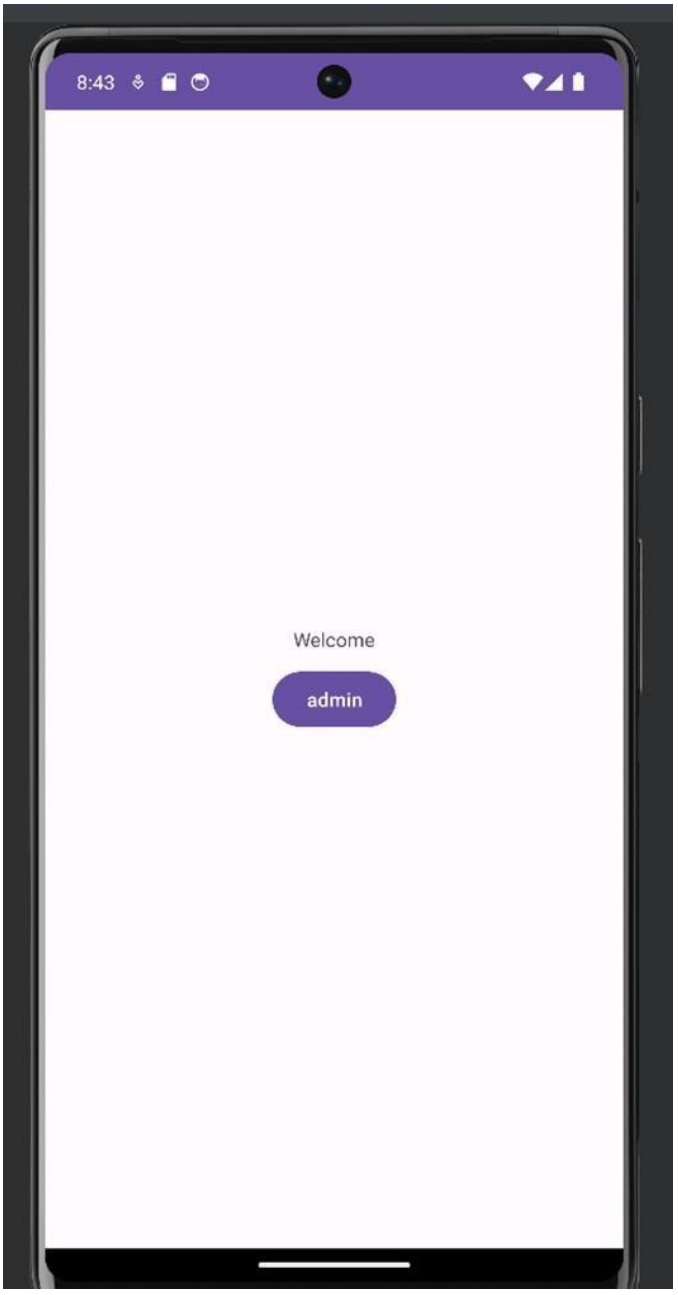
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:orientation="vertical"
    tools:context=".Explicit3">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome to trip"/>

    <Button
        android:id="@+id/goto_main_btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Go back"
        android:layout_marginTop="10dp"/>

</LinearLayout>
```

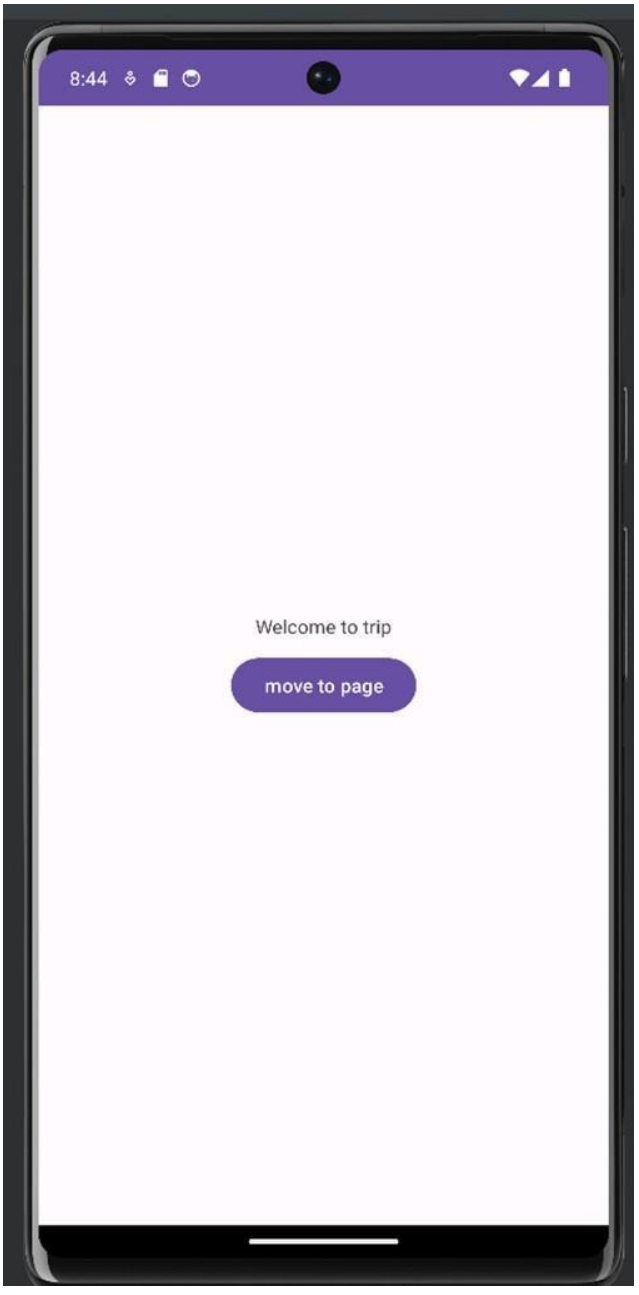
ThirdActivity.java

```
package com.example.explicit;
```

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

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class Explicit3 extends AppCompatActivity {

    Button goto_main_btn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_explicit3);

        goto_main_btn=findViewById(R.id.goto_main_btn);
        goto_main_btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent=new Intent(getApplicationContext(),MainActivity.class);
                startActivity(intent);
            }
        });
    }
}
```

Output





Result

Thus,the program was executed successfully.

PROGRAM NO :12

Aim:Write a program to implement Option Menu to navigate to activities.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    tools:context=".MainActivity">

    <TextView android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="MenuOptions Menu Program"
        />
</LinearLayout>
```

MainActivity.java

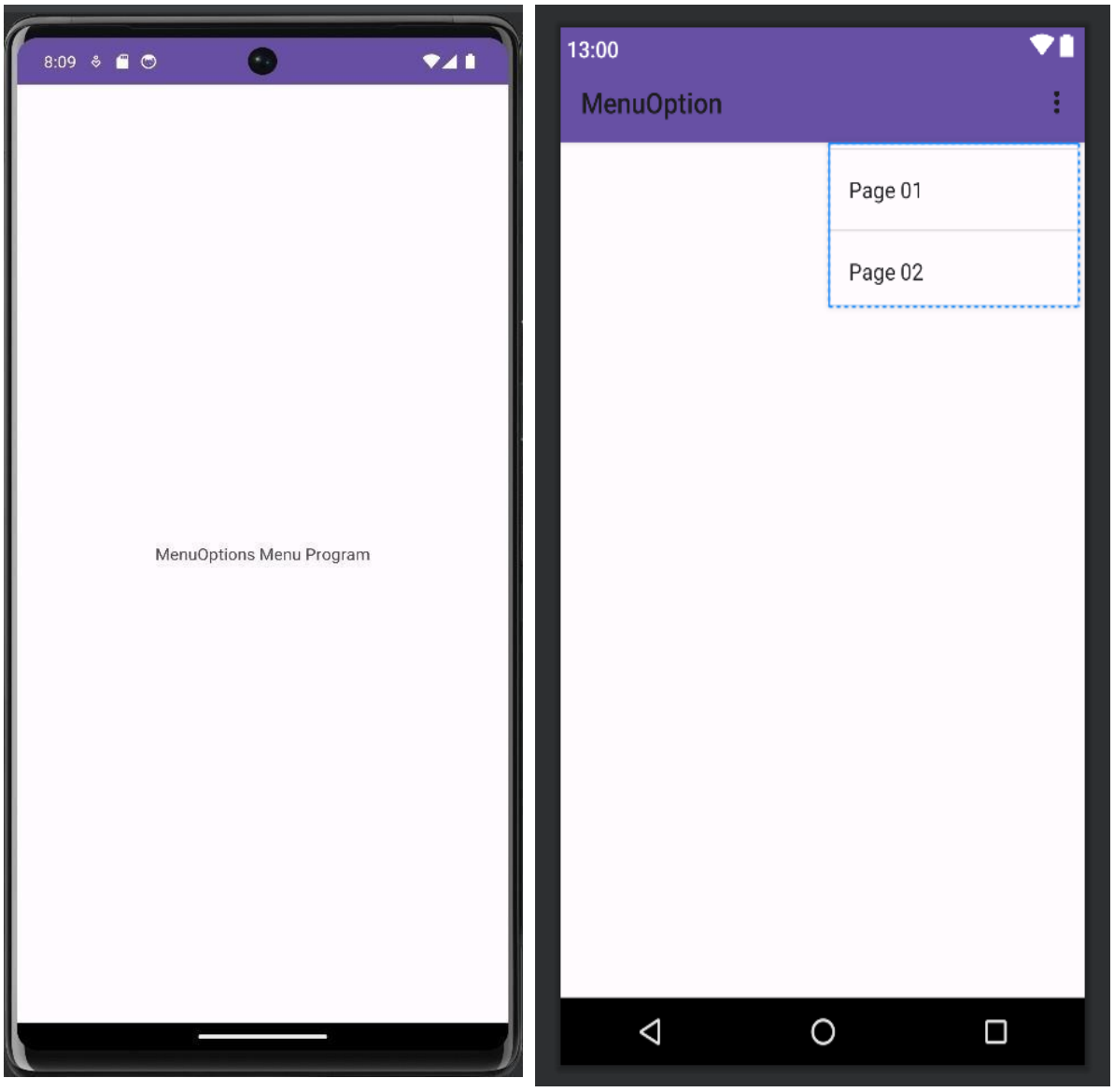
```
package com.example.menuoption;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;
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 onOptionsItemSelected(@NonNull MenuItem item) {
        int menu_id=item.getItemId();
        switch (menu_id){
            default: {
                break;
            }
        }
        return true;
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
```

```
        getMenuInflater().inflate(R.menu.menu_item,menu);
        return super.onCreateOptionsMenu(menu);
    }
}
```

Menu_item.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
<item
   android:id="@+id/menu_option_1"
   android:title="Page1" />
<item
   android:id="@+id/menu_option_2"
   android:title="Page2" />
</menu>
```

Output



Result

Thus,the program was executed successfully.

PROGRAM NO: 13

Aim:Write a program to develop an application that uses ArrayAdapter with ListView.

Program

activity_main.xml

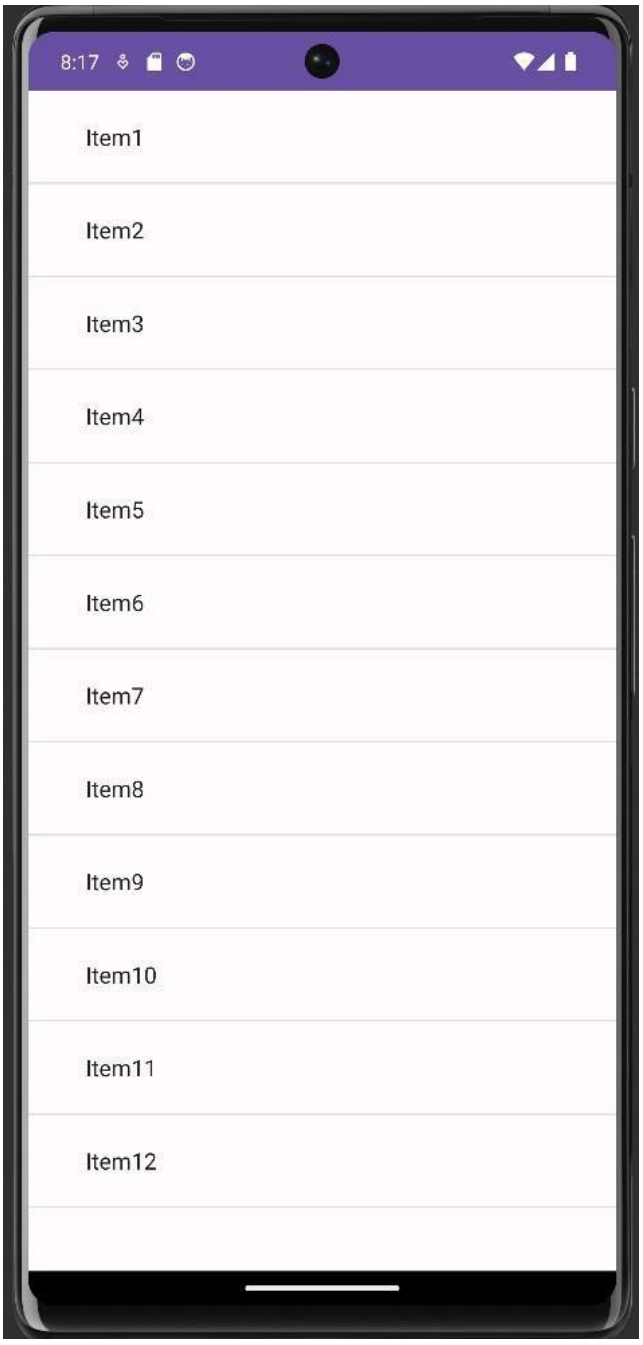
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <ListView
        android:id="@+id/listview"
        android:layout_width="match_parent"
        android:layout_height="match_parent"/>

</LinearLayout>
```

MainActivity.java

```
package com.example.arrayadapter;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
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 listview;
        String[]person_qualify={"Item1", "Item2", "Item3", "Item4", "Item5", "Item6", "Item7",
"Item8", "Item9", "Item10", "Item11", "Item12"};
        listview=findViewById(R.id.listview);
        listview.setAdapter(new ArrayAdapter(getApplicationContext(),
                android.R.layout.simple_expandable_list_item_1,person_qualify));
        listview.setOnItemClickListener((parent,view,position,id)-> {
            Toast.makeText(this,"The selected item is-" +person_qualify[position],
```

```
                Toast.LENGTH_SHORT).show();
        });
    } }
```

Output



Result

Thus, the program was executed successfully.

PROGRAM NO :14

Aim:Write a program to develop an application that uses GridView with images and display Alert box on selection.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="My Apps"
        android:layout_marginTop="30dp"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:textStyle="bold"/>

    <GridLayout
        android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
android:layout_marginTop="30dp"
android:columnCount="3"
android:orientation="horizontal"
android:rowCount="3">

<ImageView
    android:id="@+id/wifi_btn"
    android:layout_width="80dp"
    android:layout_height="80dp"
    android:padding="13dp"
    android:src="@drawable/baseline_wifi_24"
    android:textColor="@color/white"/>
<ImageView
    android:id="@+id/bluetooth_btn"
    android:layout_width="80dp"
    android:layout_height="80dp"
    android:layout_marginStart="10dp"
    android:padding="13dp"
    android:src="@drawable/baseline_bluetooth_24"
    android:textColor="@color/white"/>
<ImageView
    android:id="@+id/volume_btn"
    android:layout_width="80dp"
    android:layout_height="80dp"
    android:layout_marginStart="10dp"
    android:padding="13dp"
    android:src="@drawable/baseline_volume_up_24"
    android:textColor="@color/white"/>
```

```
    </GridLayout>
</LinearLayout>
```

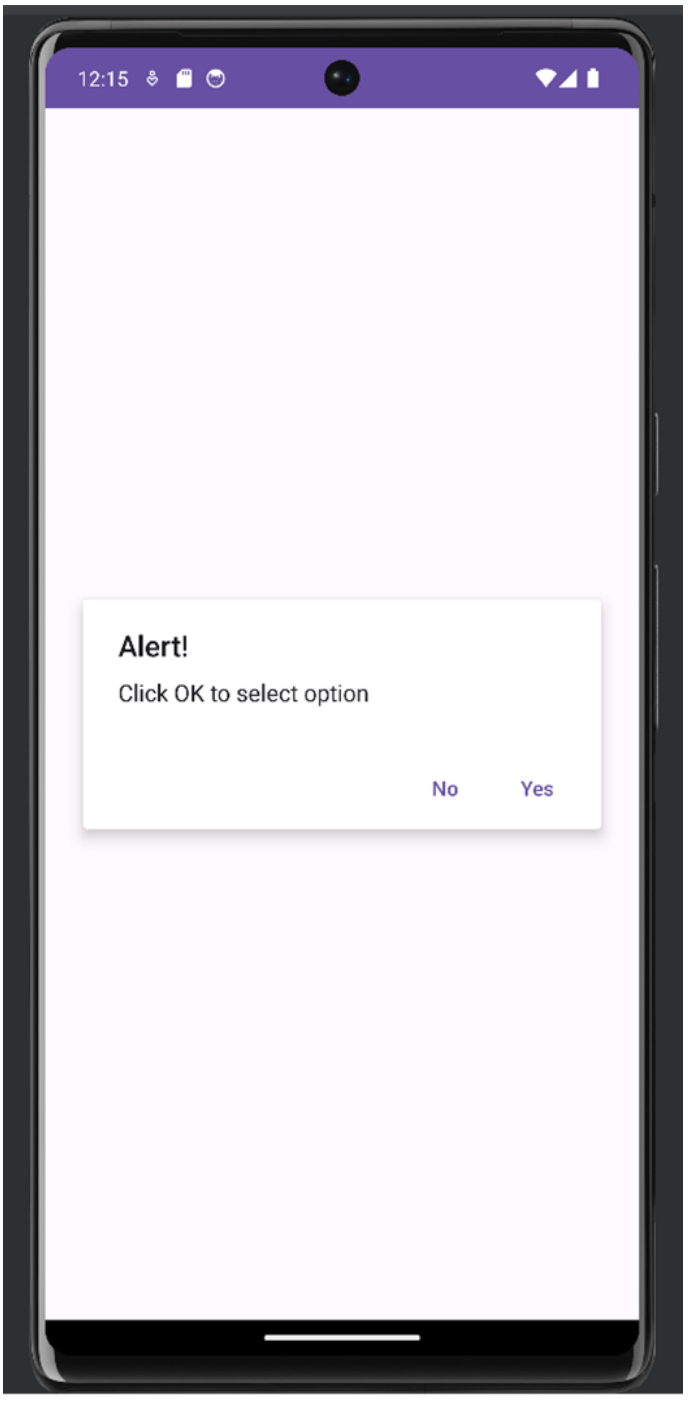
MainActivity.java

```
package com.example.gridview;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageButton;
import android.widget.ImageView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    ImageView wifi_btn,bluetooth_btn,volume_btn;

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

        wifi_btn=findViewById(R.id.wifi_btn);
        bluetooth_btn=findViewById(R.id.bluetooth_btn);
        volume_btn=findViewById(R.id.volume_btn);
```

```
    wifi_btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            myAlertBox("Album Option");
        }
    });

    bluetooth_btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            myAlertBox("Mail Option");
        }
    });

    volume_btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            myAlertBox("Money Option");
        }
    });

}

public void myAlertBox(String buttonname) {
    AlertDialog.Builder builder=new AlertDialog.Builder(MainActivity.this);
    builder.setMessage(("Click OK to select option"));
    builder.setTitle("Alert!");
    builder.setCancelable(false);
    builder.setPositiveButton("Yes", new DialogInterface.OnClickListener() {
```

```
        @Override
        public void onClick(DialogInterface dialogInterface, int i) {
            Toast.makeText(getApplicationContext(),buttonname+"is successfully
selected",Toast.LENGTH_SHORT).show();

        }
    });

    builder.setNegativeButton("No",(DialogInterface.OnClickListener)(dialog, which)->{
        dialog.cancel();
    });

    AlertDialog alertDialog= builder.create();
    alertDialog.show();
  }
}
```

Output



Result

Thus, the program was executed successfully.

PROGRAM NO:15

Aim:Write a program to develop an application that implements Spinners components and perform event handling.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Birds Spinner"
        android:textStyle="bold"
        android:textSize="20sp"
        android:textColor="@color/black"/>
    <Spinner
        android:id="@+id/spinner"
        android:layout_width="wrap_content"
```

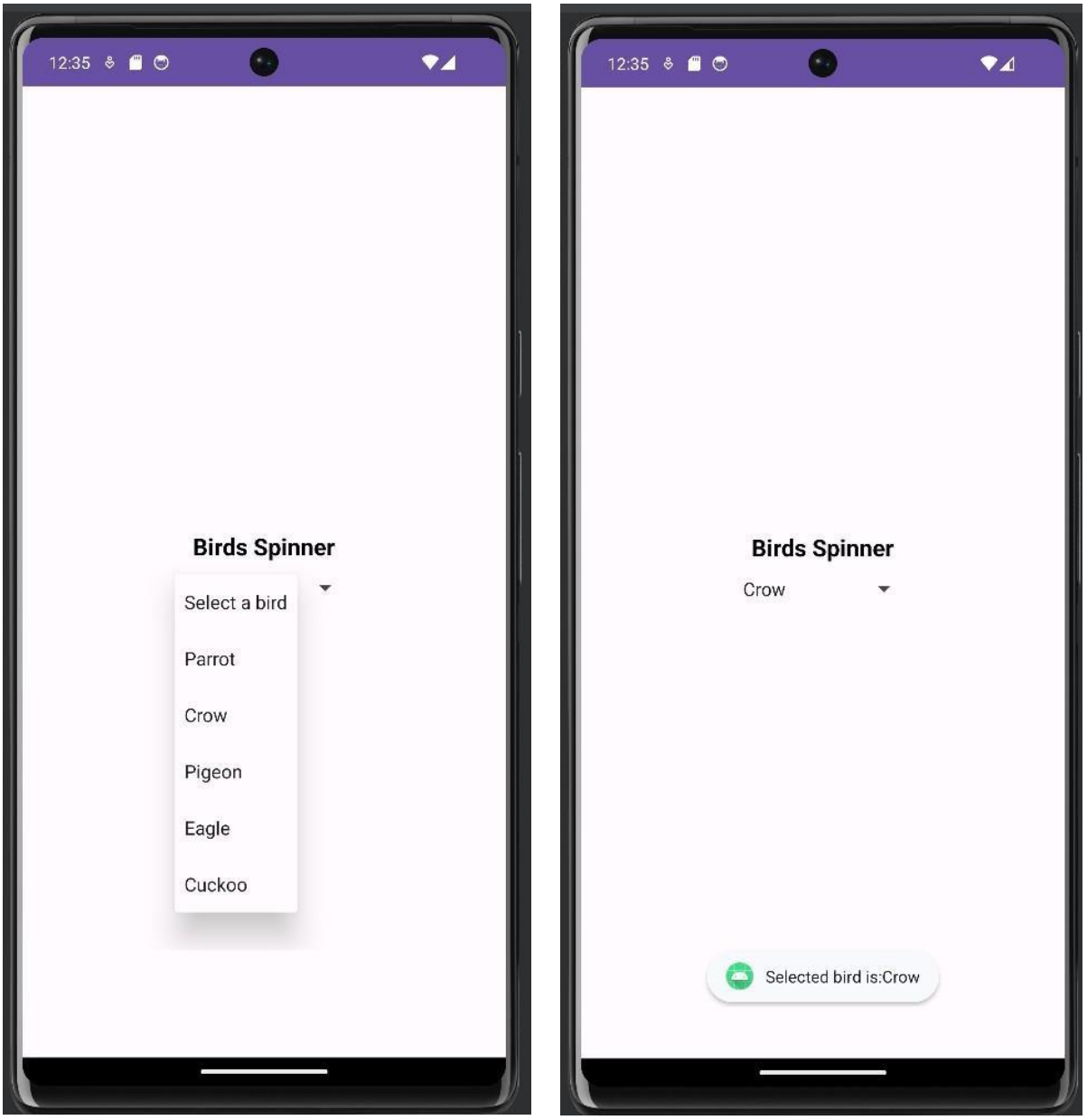
```
        android:layout_height="wrap_content"
        android:layout_margin="10dp"/>

    </LinearLayout>
```

MainActivity.java

```
    package com.example.spinner;

    import androidx.appcompat.app.AppCompatActivity;



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

    public class MainActivity extends AppCompatActivity {
        Spinner spinner;
        String[] designations={"Select a bird", "Parrot", "Crow", "Pigeon", "Eagle", "Cuckoo"};



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

            spinner=findViewById(R.id.spinner);
            spinner.setSelection(0,false);
```

```
        ArrayAdapter adapter=new ArrayAdapter(this, android.R.layout.simple_spinner_item,
designations);
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        spinner.setAdapter(adapter);


        spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) {
                Toast.makeText(getApplicationContext(),"Selected bird is:"+designations[i],
Toast.LENGTH_SHORT).show();
            }


            @Override
            public void onNothingSelected(AdapterView<?> adapterView) {


            }
        });
    }
}
```

Output



Result

Thus, the program was executed successfully.

PROGRAM NO:16

Aim:Write a program to create database using SQLite and perform INSERT and SELECT.

Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:gravity="center"
 android:orientation="vertical"
 tools:context=".MainActivity">
 <TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Database Operations"
    android:layout_gravity="center"
    android:layout_marginTop="50dp"
    android:textSize="25sp"
    android:textStyle="bold"/>
 <EditText
    android:id="@+id/rollno"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:hint="Roll no"
    android:layout_marginHorizontal="20dp"
```

```
    android:layout_marginTop="30dp"/>
  <EditText
    android:id="@+id/name"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Name"
    android:layout_marginHorizontal="20dp"
    android:layout_marginTop="10dp"/>
  <EditText
    android:id="@+id/email"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Email ID"
    android:layout_marginHorizontal="20dp"
    android:layout_marginTop="10dp"/>
  <Button
    android:id="@+id/insert_btn"
    android:layout_width="286dp"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_marginTop="30dp"
    android:backgroundTint="#8BC34A"
    android:text="Insert into table" />
  <Button
    android:id="@+id/select_btn"
    android:layout_width="286dp"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_marginTop="30dp"
    android:backgroundTint="#8BC34A"
    android:text="View from table"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.database;
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 rollno, name, email;
    Button insert_btn, select_btn;
    dbhelper db;
    @Override
     protected void onCreate(Bundle savedInstanceState) {
          super.onCreate(savedInstanceState);
          setContentView(R.layout.activity_main);
          rollno=findViewById(R.id.rollno);
          name=findViewById(R.id.name);
          email=findViewById(R.id.email);
          select_btn=findViewById(R.id.insert_btn);
          db=new dbhelper(getApplicationContext());

        insert_btn.setOnClickListener(new View.OnClickListener() {
       @Override
        public void onClick(View view) {
         int rollno_num = Integer.parseInt(rollno.getText().toString());
         String name_txt = name.getText().toString();
         String email_txt = email.getText().toString();
```

```
        boolean insert_result = db.insertToDB(rollno_num, name_txt, email_txt);
        if (insert_result) {
        Toast.makeText(getApplicationContext(), "Inserted successfully.",
        Toast.LENGTH_LONG).show();
      }
     else {
         Toast.makeText(getApplicationContext(), "Insertion failed!!",Toast.LENGTH_LONG).show();



      }

   }
});

select_btn.setOnClickListener(new View.OnClickListener() {

@Override
public void onClick(View view) {
Cursor res = db.selectFromDB();
if (res.getCount() == 0) {
Toast.makeText(getApplicationContext(), "No entry Exist", Toast.LENGTH_LONG).show();
} else {
StringBuffer buffer = new StringBuffer();
while (res.moveToNext()){
buffer.append("id:" + res.getString(0) + "\n");
buffer.append("Name:" + res.getString(1) + "\n");
buffer.append("email:" + res.getString(2) + "\n");
}
AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
builder.setCancelable(true);
builder.setTitle("User Entries");
```

```
builder.setMessage(buffer.toString());
builder.show();
}
}
});
}
}
```

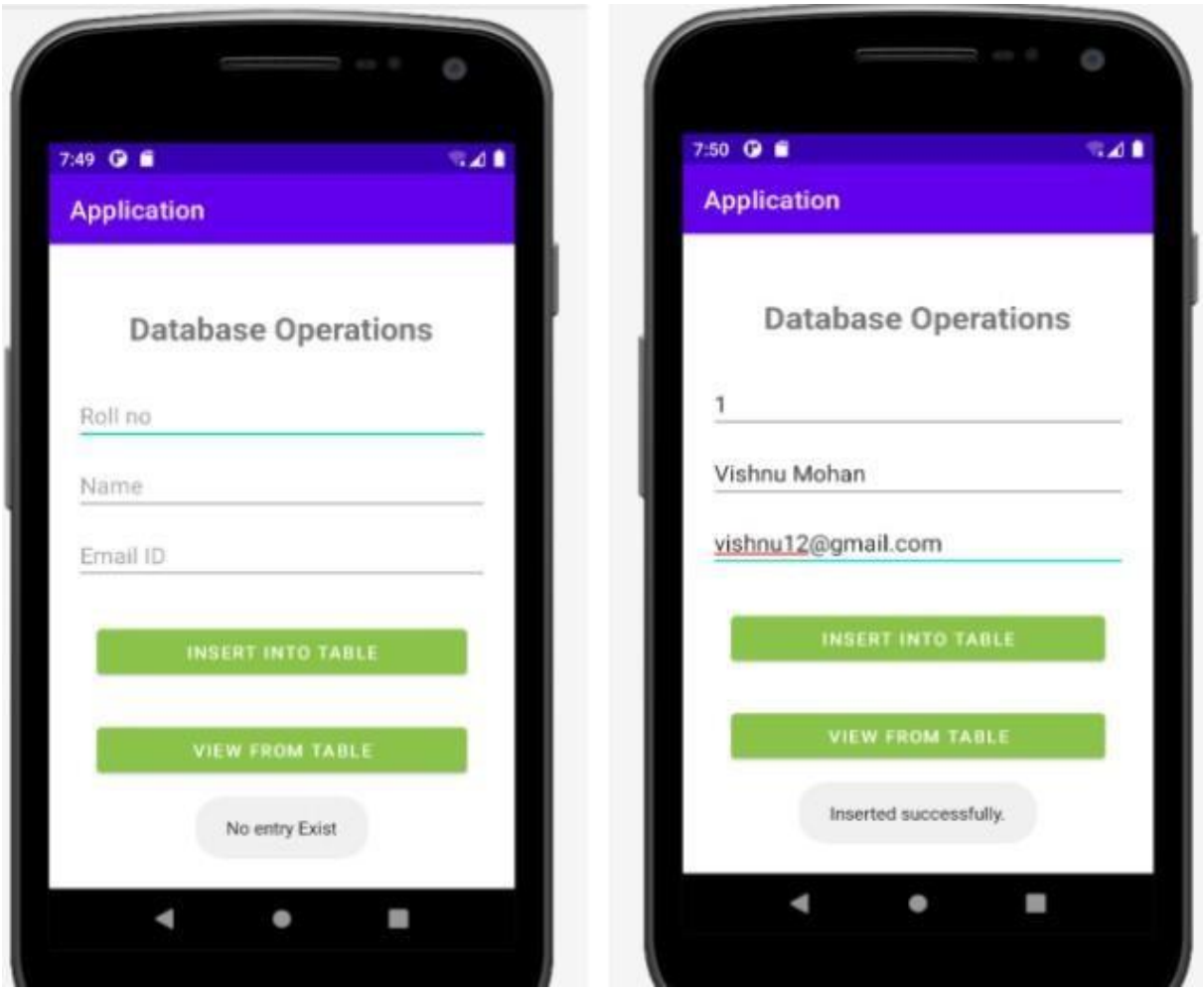
dbhelper.java

```
package com.example.database;

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(@Nullable Context context) {
        super(context, "MyDB", null, 1);
    }

    @Override
    public void onCreate(SQLiteDatabase sqliteDatabase) {
        sqliteDatabase.execSQL("CREATE TABLE userdetails (rolino INTEGER PRIMARY
KEY, name TEXT, email TEXT)");
    }
```

```
    @Override
     public void onUpgrade(SQLiteDatabase sqLiteDatabase,int i,int i1){
          sqLiteDatabase.execSQL("Drop table if exists userdetails");
     }
     public boolean insertToDB(int rollno, String name, String email) {
          SQLiteDatabase db = this.getWritableDatabase();
          ContentValues values = new ContentValues();
          values.put("rollno", rollno);
          values.put("name", name);
          values.put("email", email);
          long result = db.insert("userdetails", null, values);
          if (result >= 0) {
               return true;
          } else {
               return false;
          }
     }

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

     public boolean updateToDB(int rollno, String name, String email) {
          SQLiteDatabase db = this.getWritableDatabase();
          ContentValues values = new ContentValues();
          values.put("name", name);
          values.put("email", email);
          Cursor check_user = db.rawQuery("SELECT * from userdetails WHERE rollnow=?", new
String[]{String.valueOf(rollno)});
if (check_user.getCount() > 0) {
```

```
long update_user_query = db.update("userdetails", values, "rollno=?", new String[]{String.valueOf(rollno)});
                        if (update_user_query >= 0) {
                              return true;
                        } else {
                              return false;
                        }
                  } else{

                        return false;
      }
      }
                        public boolean deleteFromDB(int rollno)
            {
                  SQLiteDatabase db=this.getWritableDatabase();
                  Cursor check_user=db.rawQuery("SELECT * FROM userdetails WHERE rollno=?",new
      String[] {String.valueOf(rollno)});
                  if(check_user.getCount()>(0)){
                        long delete_user_query=db.delete("userdetails", "rollno=?", new
      String[]{String.valueOf(rollno)});
                        if(delete_user_query >=0) {
                              return true;
                        }
                              else{
                              return false;
                              }
                        }
                        else{

                              return false;
                        }
                  }
                  }
```

Output



Result

Thus, the program was executed successfully.