Musaliar College of Engineering & Technology
MUSALIAR COLLEGE P.O., PATHANAMTHITTA - 689 653

LABORATORY RECORD

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

Sri/Smt…………………………………………………………………

of.……………Semester Class of …………..(Roll No............................)

of .... Branch

in the .... Laboratory

during the academic year 2022 - 2024

Name of Examination

Reg. No.   External Examiner   Staff in- charge

DEPARTMENT OF COMPUTER APPLICATIONS

VISION

"To produce competent and dynamic professionals in the field of Computer Applications
to thriveand 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
<?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"
        />
```

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```xml
    <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

```java
package com.example.loginapp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;
```

```java
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
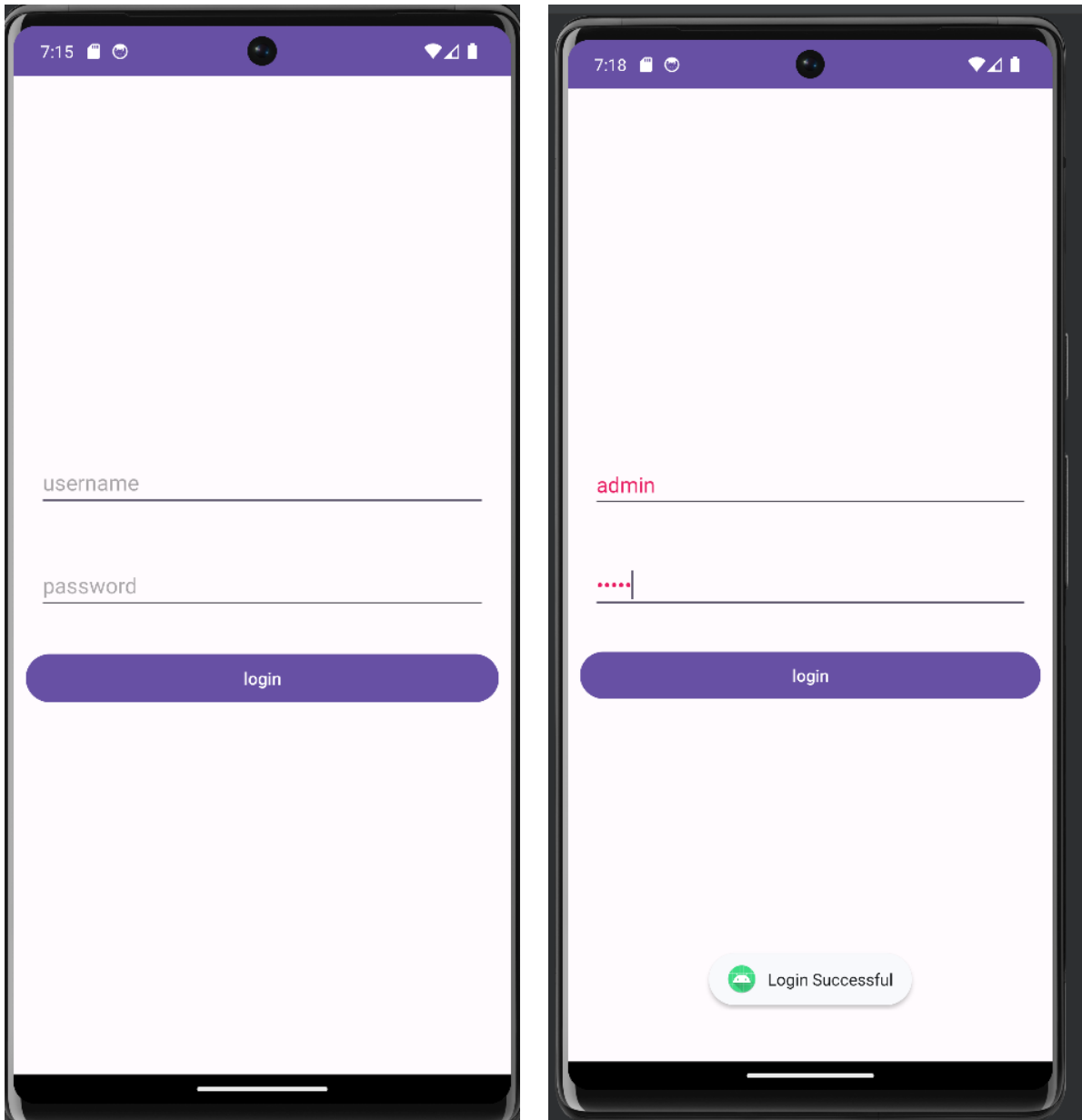
Result

Thus, the program was executed successfully.

PROGRAM NO: 2

Aim:Write a program that demonstrates Activity Lifecycle.

Program

activity_main.xml

```xml
<?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

```java
package com.example.activitylifecycle;

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

```java
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");
```

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```java
    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();
```

```java
    }




    @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
<?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"
```

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```xml
    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
```

```xml
    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

```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;
```

```java
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);
```

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```java
        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);
```

```java
                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
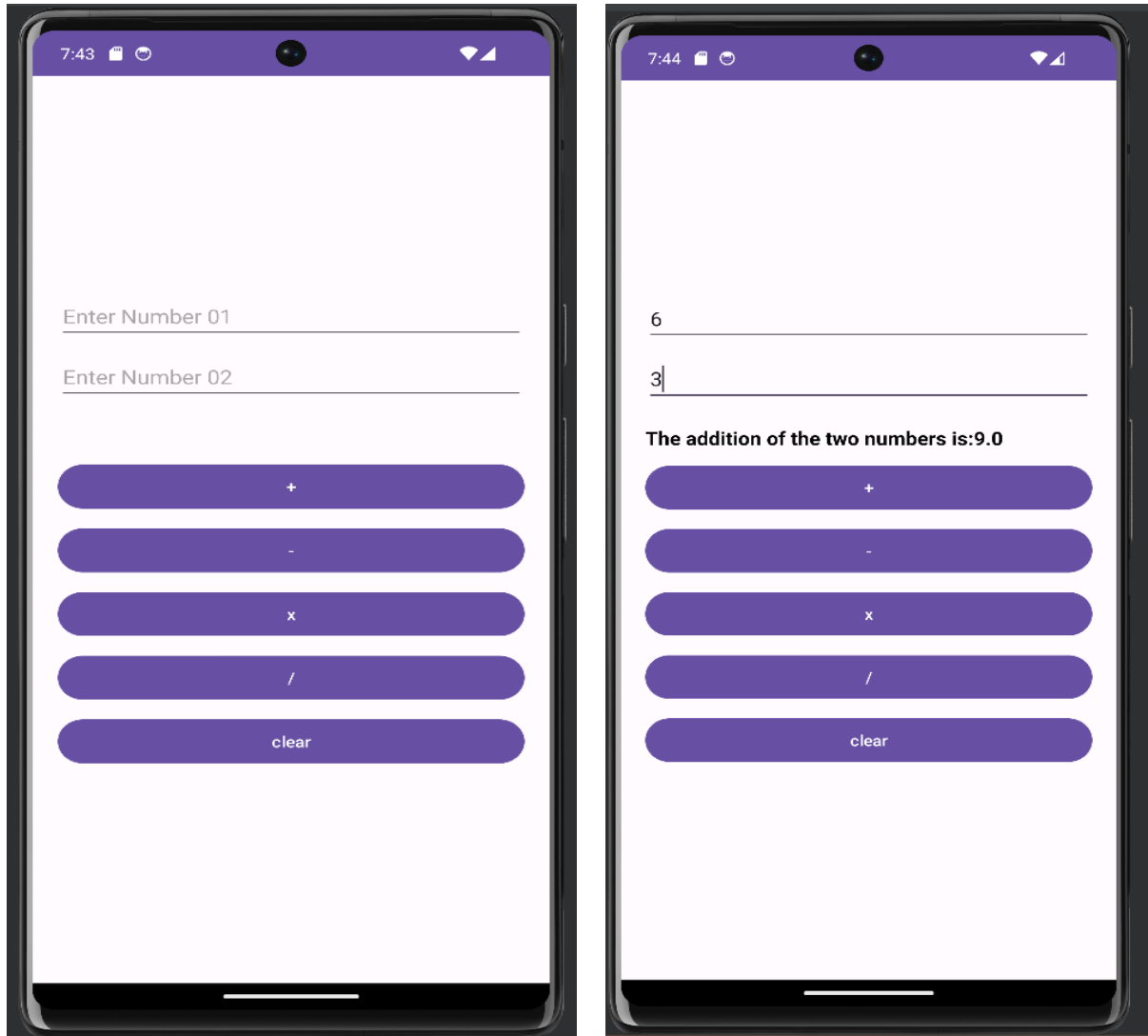
Result

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
<?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

```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);
```

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```java
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");
```

```java
            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
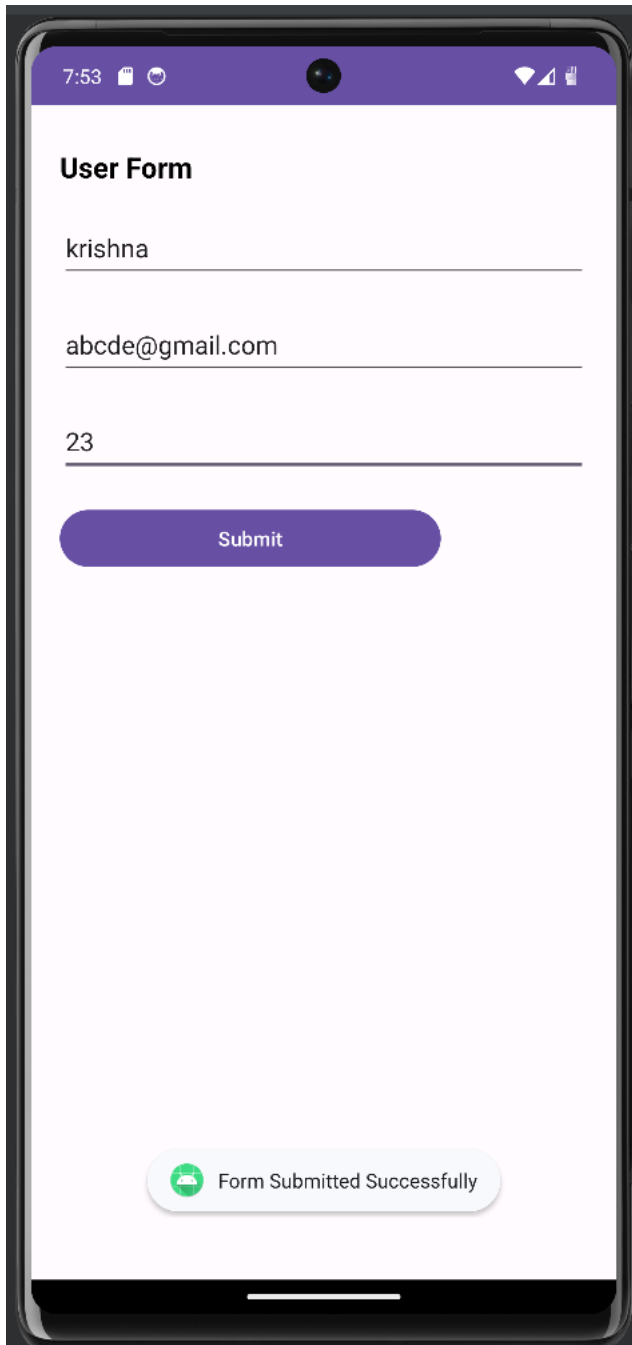
Result

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
<?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" />
```

```xml
<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

```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);
```

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```java
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();
```

```java
                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
<?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"
```

```xml
    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

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```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
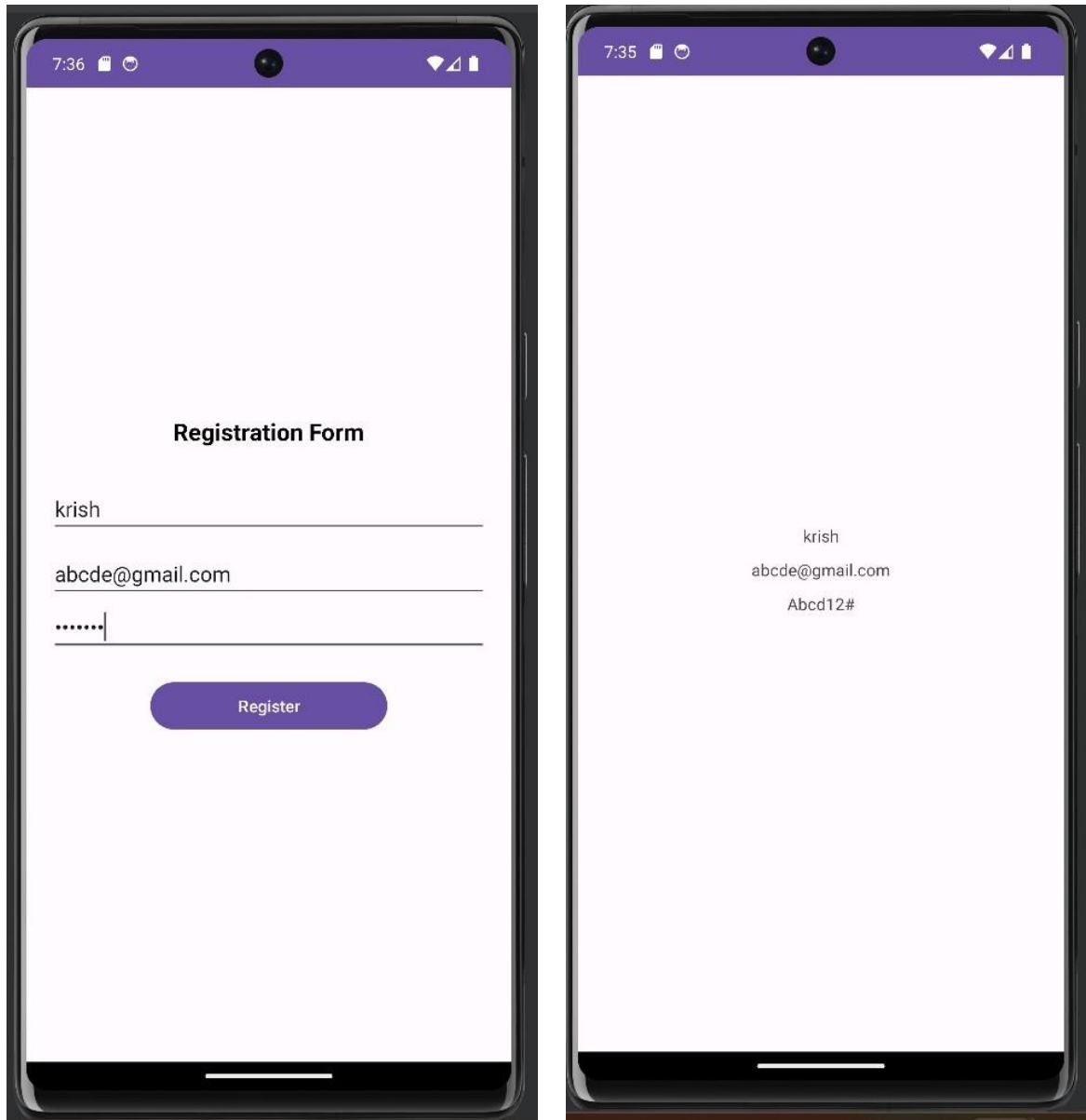
Result

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
<?xml version="1.0" encoding="utf-8"?>
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=".Ques06CascadedLayoutActivity">

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:hint="Number 01"
        android:inputType="number"/>
```

```xml
<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="match_parent"
    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">
```

```xml
<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"/>
```

```xml
<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"
```

```xml
        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"
```

```xml
    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="x"

        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"
```

```xml
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_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
```

```xml
      android:id="@+id/substract_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_weight="1"/>

  <Button

    android:id="@+id/num2_btn"

    android:layout_width="0dp"

    android:layout_height="60dp"
```

```xml
    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"
```

```xml
    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_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"/>
```

```xml
    <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>
```

Ques06CascadedLayoutActivity.java

```java
package com.example.application;


import androidx.appcompat.app.AppCompatActivity;


import android.os.Bundle;


public class Ques06CascadedLayoutActivity extends AppCompatActivity {

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_ques06_cascaded_layout);
```

```
        }
    }
```

activity_ques06_grid_layout.xml

```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" />
```

```xml
<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" />
```

```xml
<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_marginTop="20dp"
    android:padding="13dp"
    android:text="7"
    android:textColor="@color/white" />

<Button
    android:layout_marginStart="10dp"
```

```xml
        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="x"

        android:textColor="@color/white" />


    <Button

        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"
```

```xml
      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_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" />
```

```xml
<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_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

```java
package com.example.application;


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
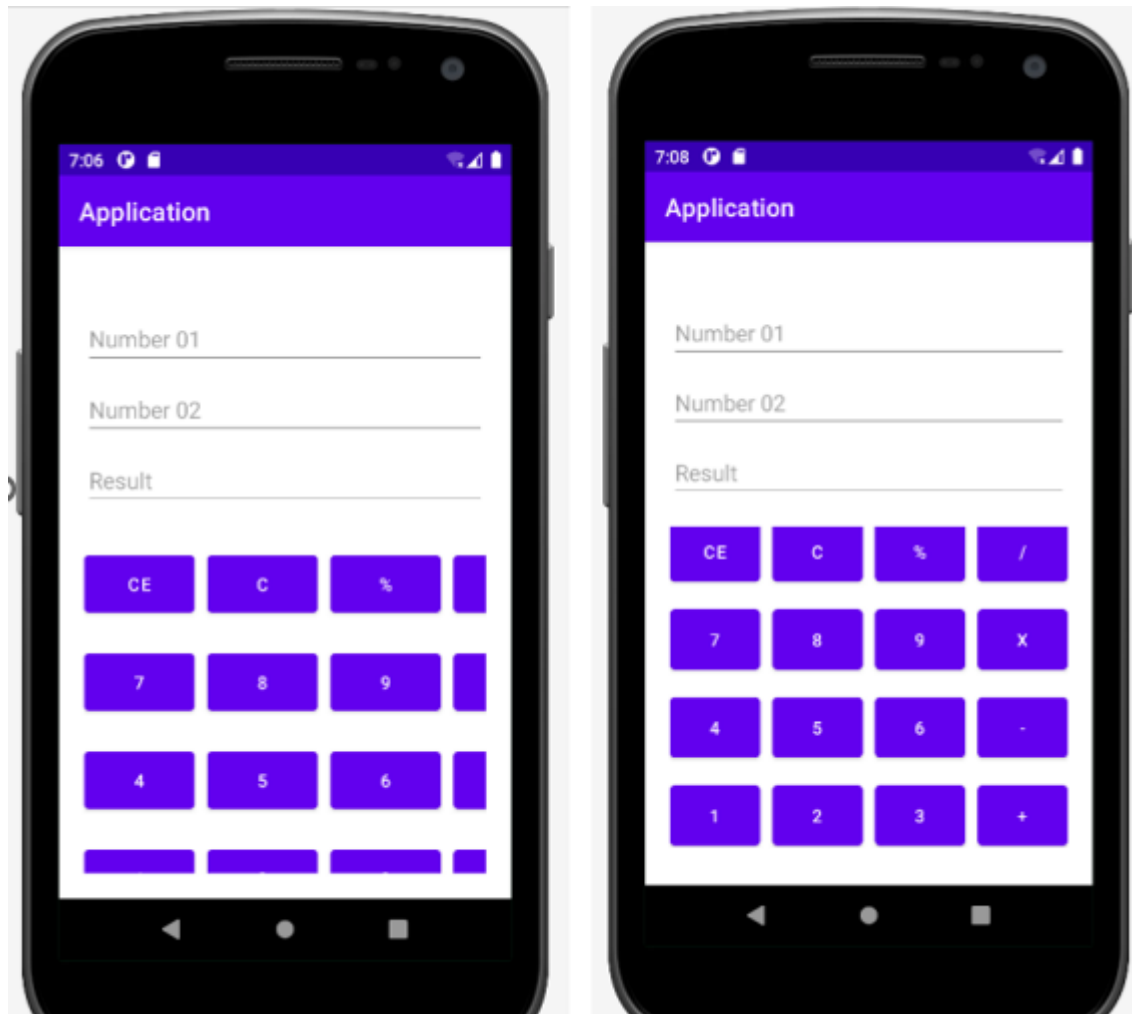
Result

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
<?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"
```

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```xml
            />

    <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
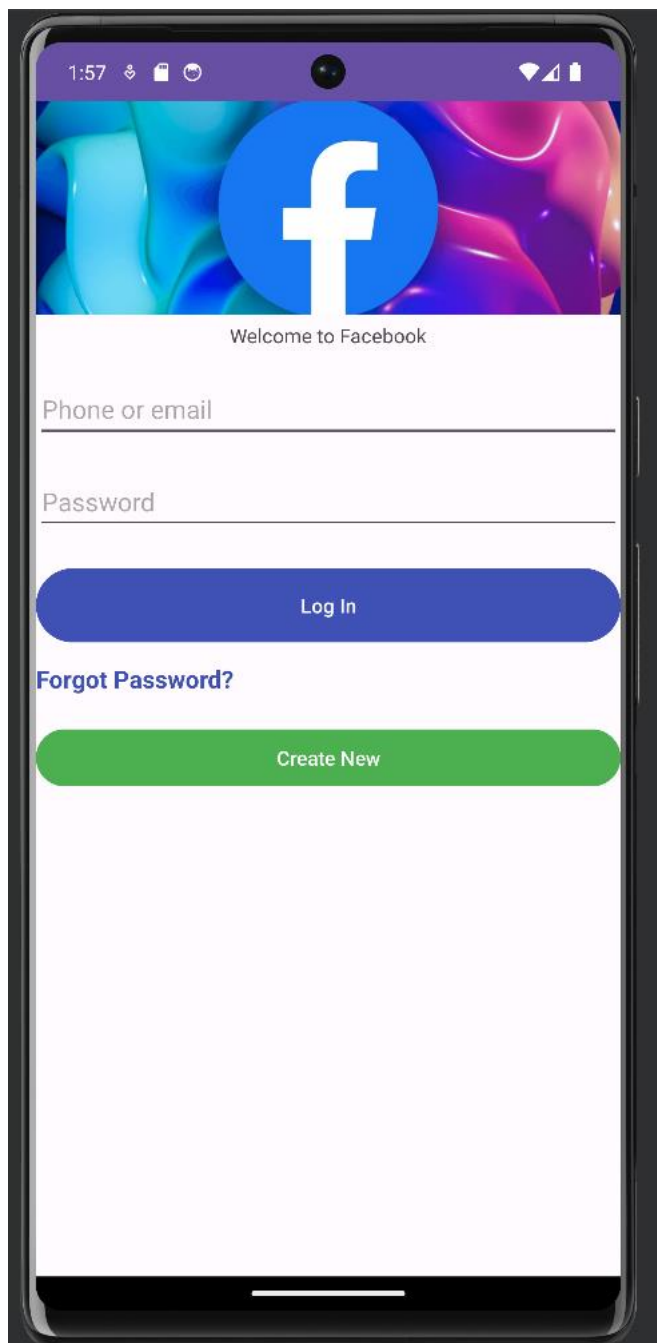
Result

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
<?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

```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_volume_up_24));
                Toast.makeText(getApplicationContext(),"Volume Up.",Toast.LENGTH_SHORT).show();

            }
            else{
```

```java
toggle_img_btn.setBackgroundDrawable(getResources().getDrawable(R.drawable.baseline_volume_mute_24));

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

        }

    });

  }

}
```

Output
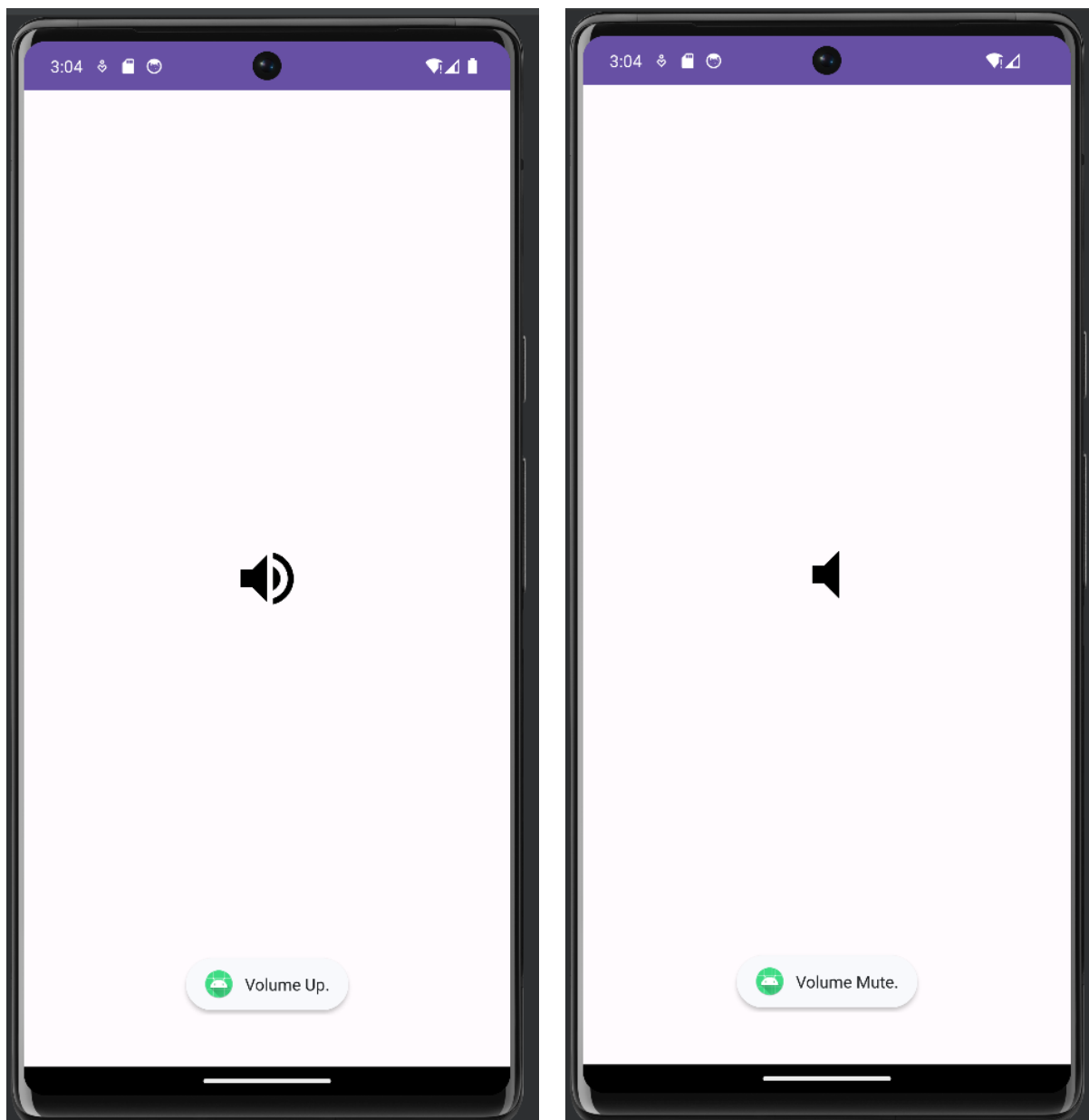
Result

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
<?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"
```

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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);

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```
            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
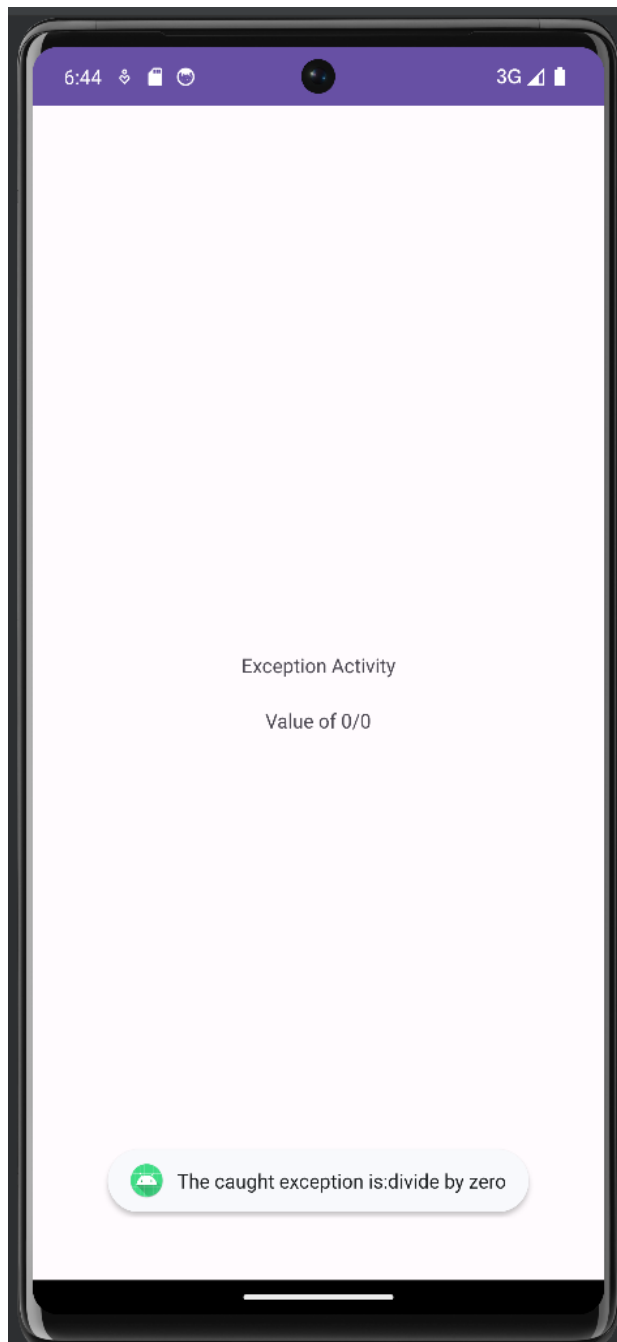
Result

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
<?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

```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) {
```

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

            startActivity(intent);


        }

    });

  }

}
```

activity_main.xml

```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

```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);
    }
}
```
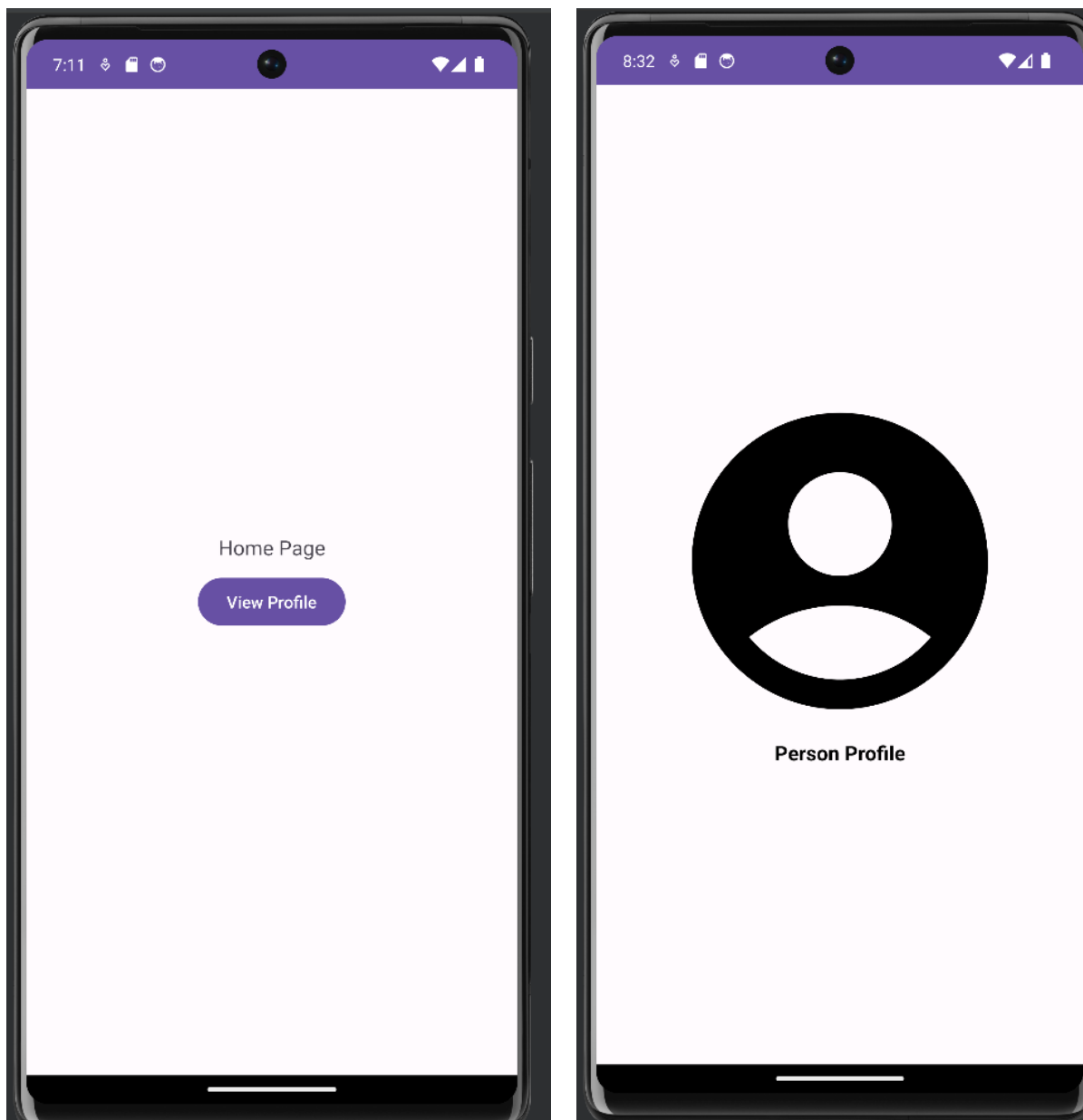
Output

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
<?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"/>
```

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</LinearLayout>

MainActivity.java

```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
<?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

```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);
            }
        });
```

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```
        }}
```

ThirdActivity.xml

```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

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

```java
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);
            }
        });
    }
}
```
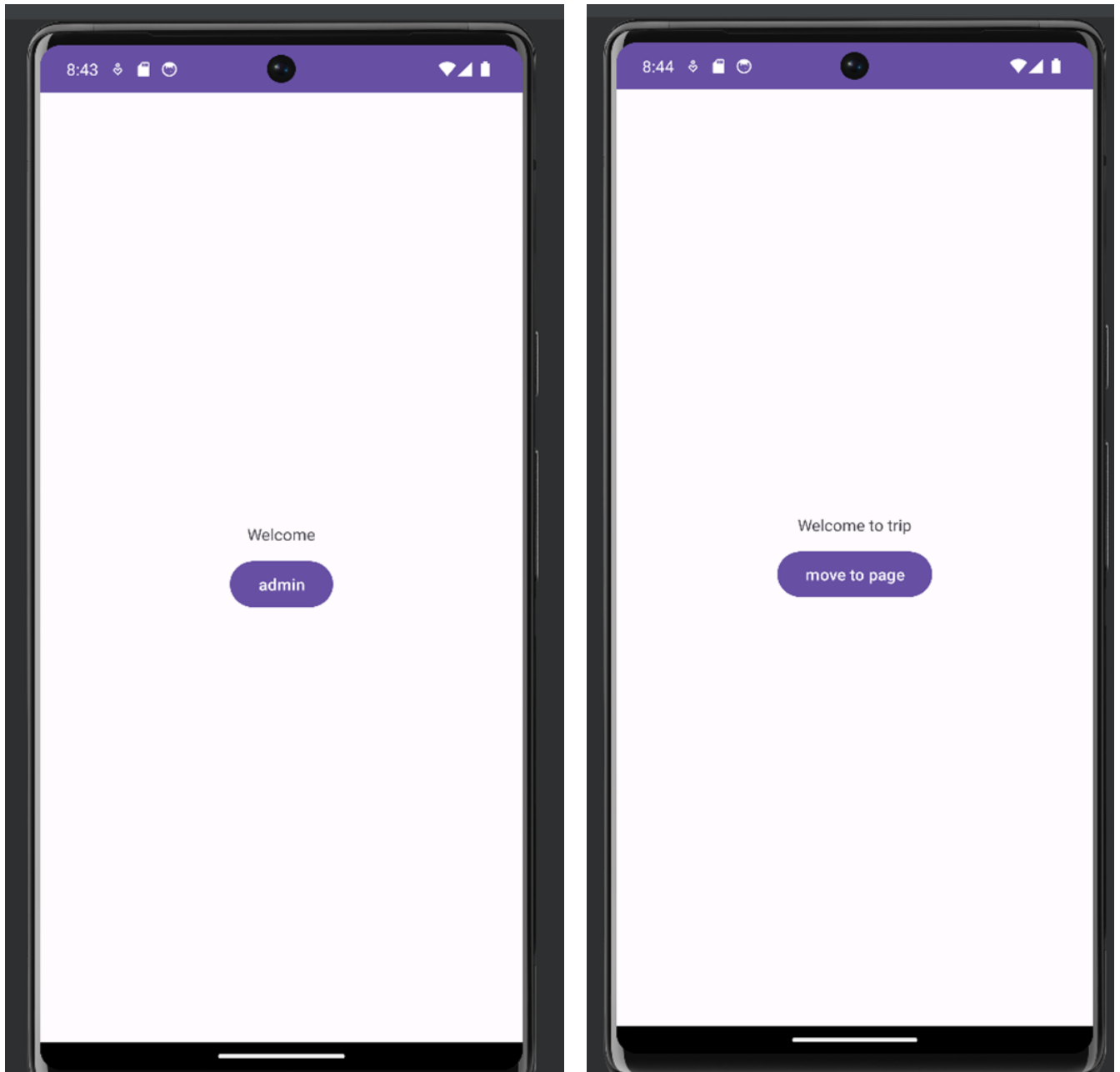
Output

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

```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) {
```
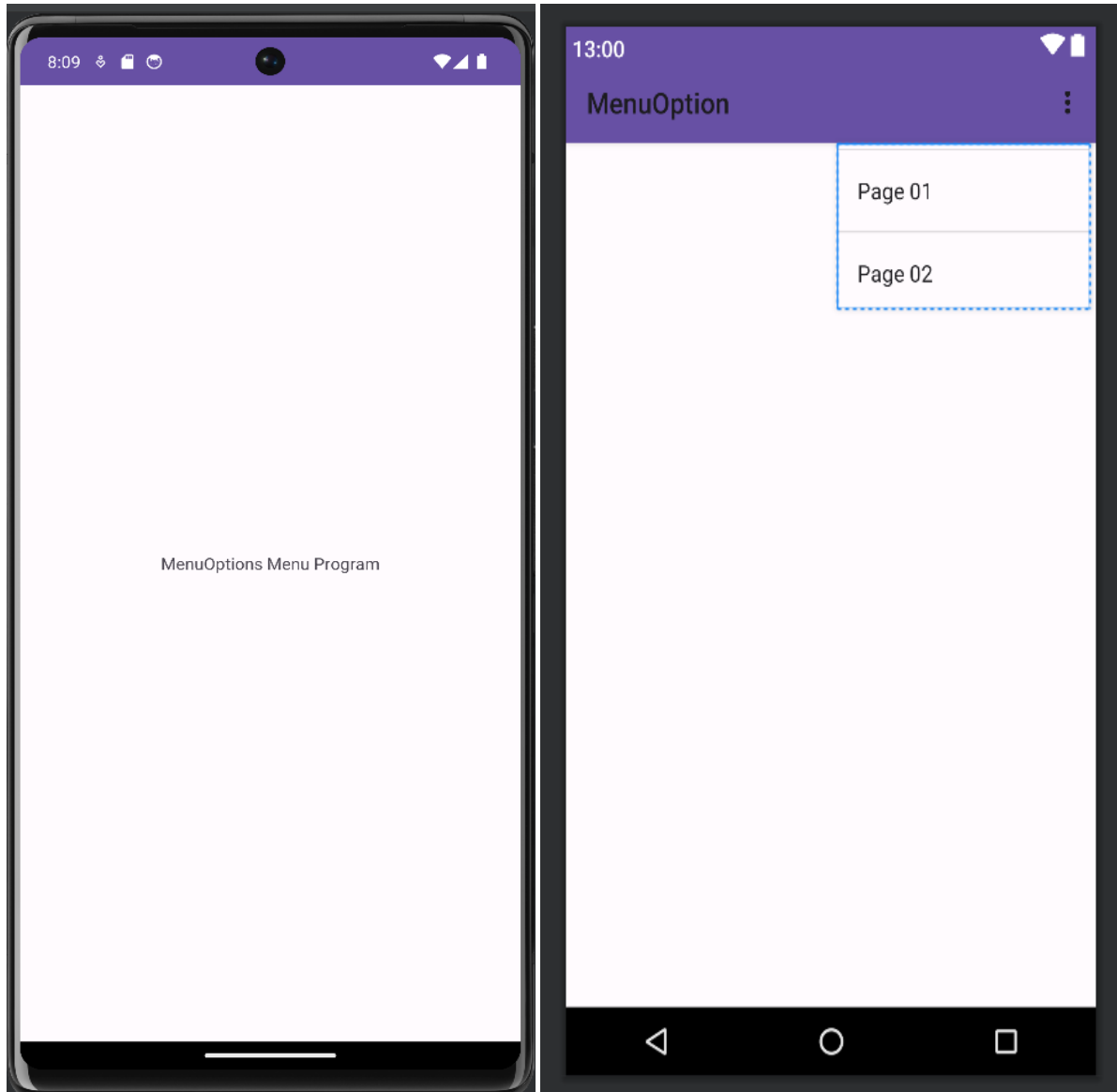
77

```
getMenuInflater().inflate(R.menu.menu_item,menu);

return super.onCreateOptionsMenu(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
<?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

```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],
```
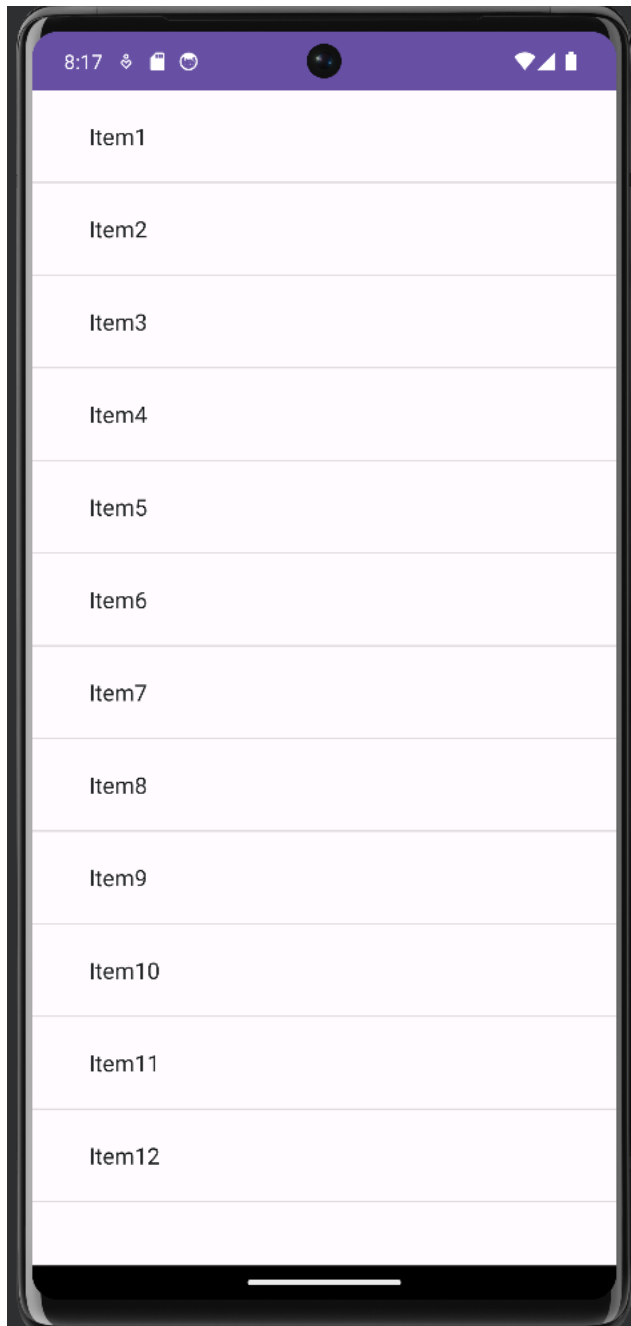
80

```
                    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"/>
```

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</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);

```java
    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() {
```

```java
            @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();
    }
}
```
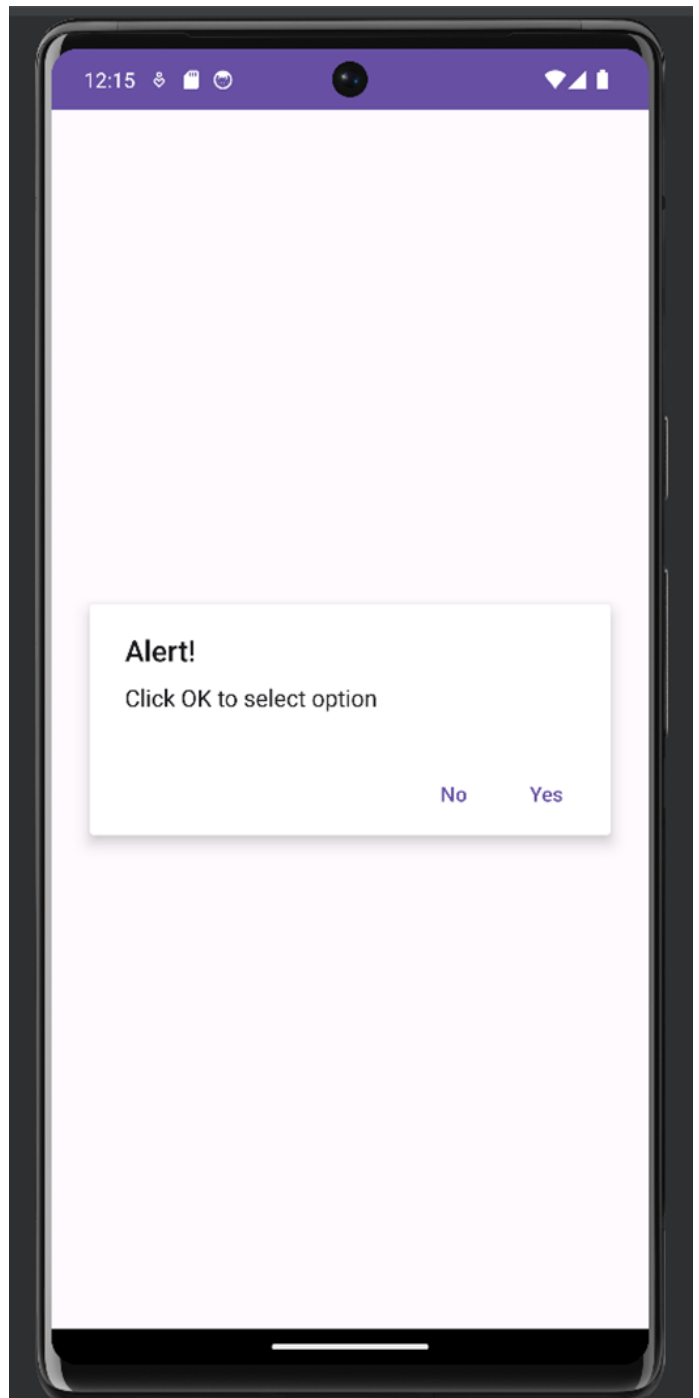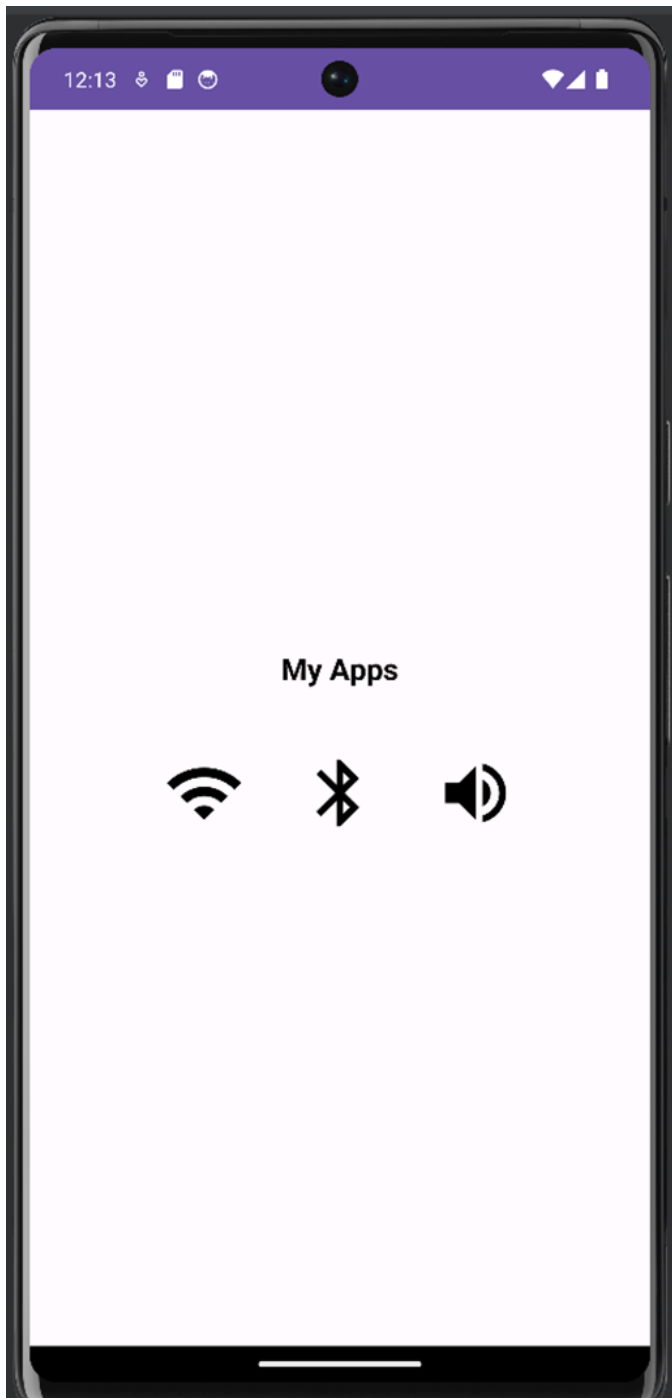
<u>Output</u>

<u>Result</u>

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
<?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

```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);
```

```java
        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) {


            }

        });

    }

}
```
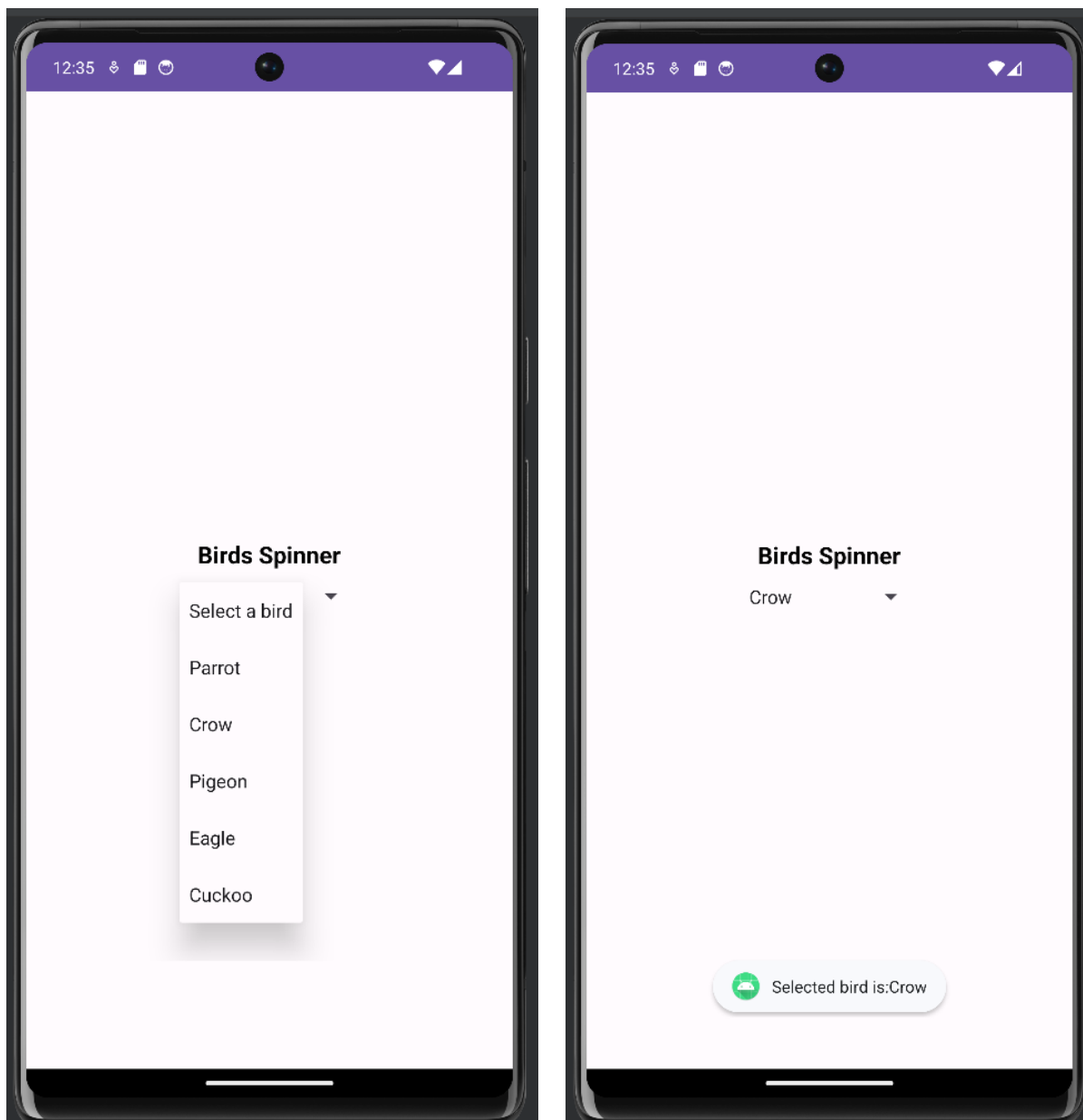
Output

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
<?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="wrap_content"

    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"/>
```

```xml
    <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

```java
package com.example.application;

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 Ques16Activity 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_ques16);


    rollno= findViewById(R.id.rollno);
    name= findViewById(R.id.name);
    email= findViewById(R.id.email);
    insert_btn= findViewById(R.id.insert_btn);
    select_btn= findViewById(R.id.select_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();
            }
        }
    });
```

```java
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(Ques16Activity.this);
            builder.setCancelable(true);
            builder.setTitle("User Entries");
            builder.setMessage(buffer.toString());
            builder.show();
        }
    }
});
}
}
```

DBHelper.java

```
package com.example.application;

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 (rollno 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();
```

```java
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 rollno=?",new
String[]{String.valueOf(rollno)});

   if(check_user.getCount() > 0){


       long update_user_query= db.update("userdetails",values,"rollno=?",new
String[]{String.valueOf(rollno)});
```

```java
            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;

        }

    }

}
```
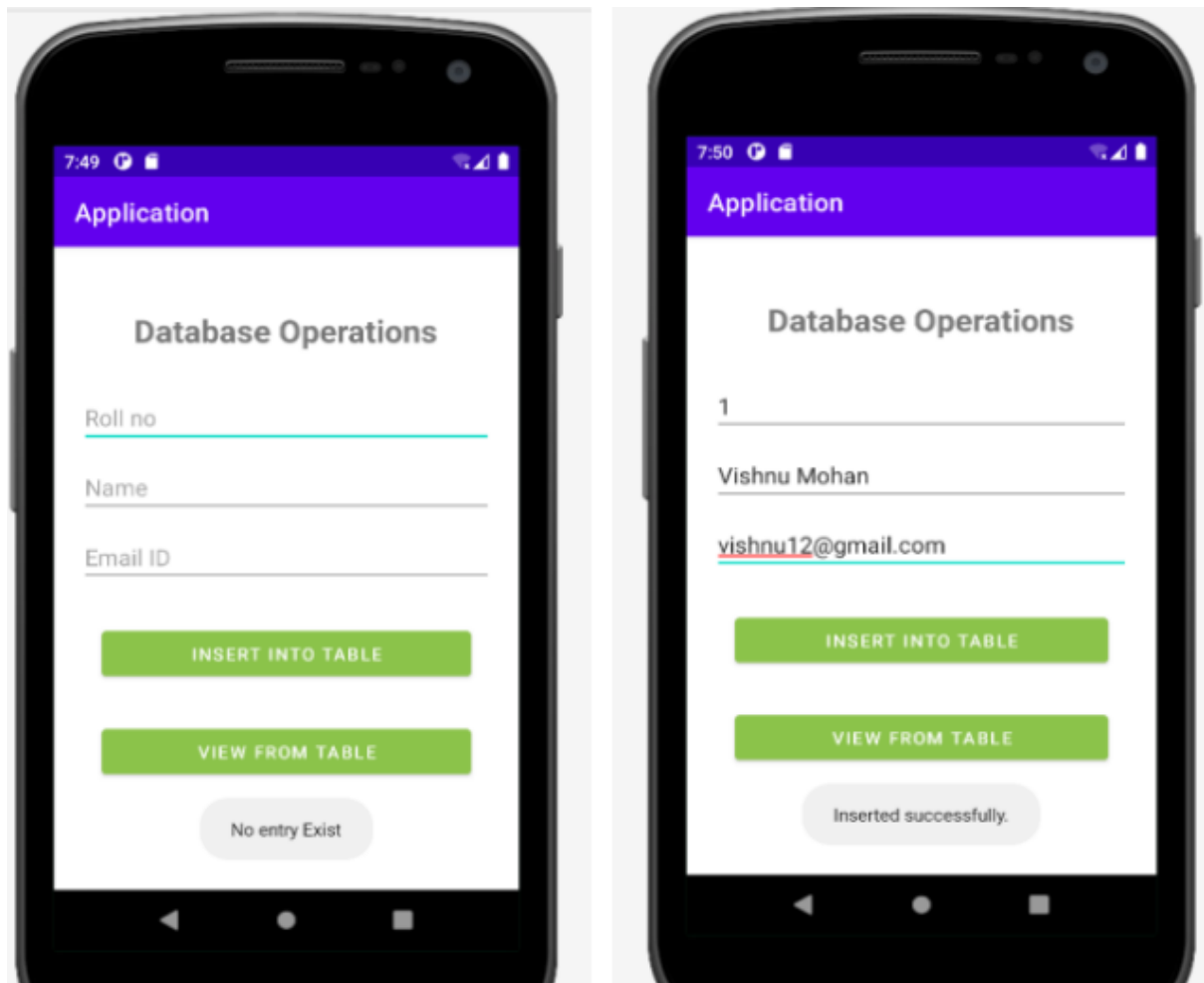
Output

Result

Thus, the program was executed successfully.