20MCA243 - MOBILE APPLICATION DEVELOPMENT LAB

Lab Report Submitted By

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Reg. No.: AJC21MCA-2112

In Partial fulfilment for the Award of the Degree Of

MASTER OF COMPUTER APPLICATIONS (2 Year) (MCA)

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

AMAL JYOTHI COLLEGE OF ENGINEERING

KANJIRAPPALLY

[Affiliated to APJ Abdul Kalam Technological University, Kerala. Approved by AICTE, Accredited by NAAC with 'A' grade. Koovapally, Kanjirappally, Kottayam, Kerala – 686518]

2022-2023

DEPARTMENT OF COMPUTER APPLICATIONS

AMAL JYOTHI COLLEGE OF ENGINEERING

KANJIRAPPALLY

CERTIFICATE

This is to certify that the lab report, **"20MCA243 MOBILE APPLICATION DEVELOPMENT LAB"** is the bonafide work of **VISHNU SADASIVAN (AJC21MCA-2112)** in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications under APJ Abdul Kalam Technological University during the year **2022-23.**

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Course Code	Course Name	Syllabus Year	L-T-P-C
20MCA243	Mobile Application Development Lab	2020	0-1-3-2

VISION

To promote an academic and research environment conducive for innovation centric technical education.

MISSION

MS1 - Provide foundations and advanced technical education in both theoretical and applied Computer Applications in-line with Industry demands.

MS2 - Create highly skilled computer professionals capable of designing and innovating real life solutions.

MS3 - Sustain an academic environment conducive to research and teaching focused to generate up-skilled professionals with ethical values.

MS4 - Promote entrepreneurial initiatives and innovations capable of bridging and contributing with sustainable, socially relevant technology solutions.

COURSE OUTCOME

CO	Outcome	Target
CO1	Design and develop user interfaces for mobile apps using basic building blocks, UI components and application structure using Emulator	60
CO2	Write simple programs and develop small applications using the concepts of UI design, layouts and preferences	60
CO3	Develop applications with multiple activities using intents, array adapter, exceptions adoptions menu.	60
CO4	Implement activities with dialogs, spinner, fragments and navigation drawer by applying themes	60
CO5	Develop mobile applications using SQLite.	60

COURSE END SURVEY

CO	Survey Question	Answer Format
CO1	To what extent you are able to design and develop UI using Emulator	Excellent/Very Good/Good Satisfactory/Needs improvement
CO2	To what extent you understood concepts of layouts	Excellent/Very Good/Good Satisfactory/Needs improvement

CO3	To what extent you understood intents, exceptions and menus	Excellent/Very Good/Good Satisfactory/Needs improvement
CO4	To what extent you are able to implement activities applying themes	Excellent/Very Good/Good Satisfactory/Needs improvement
CO5	To what extent you understood to create applications with SQLite	Excellent/Very Good/Good Satisfactory/Needs improvement

CONTENT

Sl. No.	Experiment	Date	CO	Page No.
1	Design a Login Form with username and password using Linear Layout and toast valid credentials	23/08/2022	CO1	7
2	Write a program that demonstrates Activity Lifecycle.	23/08/2022	CO1	10
3	Implementing basic arithmetic operations of a simple calculator	30/08/2022	CO1	12
4	Implement validations on various UI controls	30/08/2022	CO1	17
5	Design a registration activity and store registration details in local memory of phone using Intents and Shared Preferences	06/09/2022	CO2	21
6	Design a simple Calculator using Grid Layout and Cascaded Linear Layout	13/09/2022	CO2	27
7	Create a Facebook page using Relative Layout; set properties using .xml file	20/09/2022	CO2	30
8	Develop an application that toggles image using Frame Layout	27/09/2022	CO2	33
9	Implement Adapters and perform exception handling	27/09/2022	CO3	35
10	Implement Intent to navigate between multiple activities	04/10/2022	CO3	37
11	Develop application that works with explicit intents	04/10/2022	CO3	40
12	Implement Options Menu to navigate to activities	18/10/2022	CO3	45
13	Develop an application that uses Array Adapter with List View.	18/10/2022	CO3	48
14	Develop an application that use Grid View with	25/10/2022	CO4	50

	images and display Alert box on selection			
15	Develop an application that implements Spinner component and perform event handling	25/10/2022	CO4	53
16	Create database using SQLite and perform INSERT and SELECT	01/11/2022	CO5	56
17	Perform UPDATE and DELETE on SQLite database	01/11/2022	CO5	61

Experiment No:1

Aim:

Design a Login Form with username and password using Linear Layout and toast valid credentials

CO1

Design and develop user interfaces for mobile apps using basic building blocks, UI componentsand application structure using Emulator

Procedure:

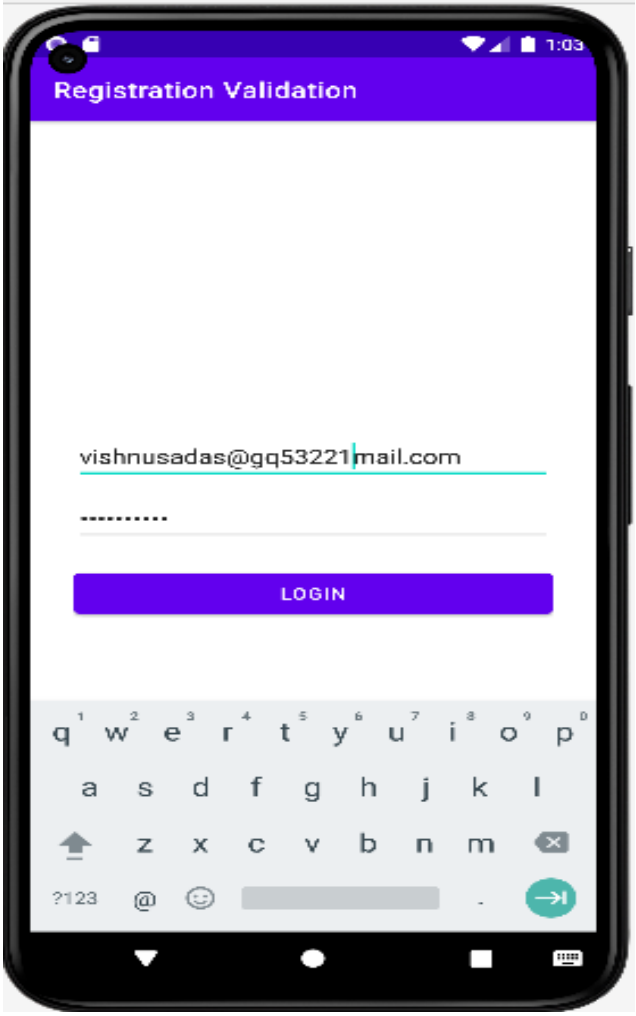
activity_main.xml

```
<?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:id="@+id/username"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:inputType="textPersonName"
        android:hint="Username"/>

    <EditText
        android:id="@+id/password"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:inputType="textPassword"
        android:hint="Password"/>

    <Button
        android:id="@+id/login"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Login"
        android:layout_margin="10dp"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.application;

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 {

    // Variable Creation
    EditText username,password;
    Button login;

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

        // Variables Initializations
        username= findViewById(R.id.username);
        password= findViewById(R.id.password);
        login= findViewById(R.id.login);

        // Below code works when user clicks on the login button
        login.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String username_text= username.getText().toString();
                String password_text= password.getText().toString();
                Toast.makeText(MainActivity.this, "Login Successful.\nUsername is :
"+username_text+"\nPassword is : "+password_text, Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus, CO1 was obtaineD

Experiment No:2

Aim:

Write a program that demonstrates Activity Lifecycle.

CO1

Design and develop user interfaces for mobile apps using basic building blocks, UI componentsand application structure using Emulator

Procedure:

1. 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">
<TextView
android:id="@+id/t1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Activity Life cycle!"
android:textColor="#910000"
android:textSize="40dp"
 app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
</LinearLayout>
```

MainActivity.java

```
public class MainActivity extends AppCompatActivity
{@Override
protected void onCreate(Bundle savedInstanceState)
{super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
Log.d("act_LC","OnCreate Invoke")}
@Override
protected void
onStart(){ super.onStart();
Log.d("act_LC","onStart");
}
@Override
```

```
protected void
onResume(){ super.onResume();
Log.d("act_LC","onResume");
} @Override
protected void
onPause(){ super.onPause();
Log.d("act_LC","onPause");
} @Override
protected void
onStop(){ super.onStop();
Log.d("act_LC","onStop");
}@Override
protected void
onRestart(){ super.onRestart();
Log.d("act_LC","onRestart");
}@Override
protected void
onDestroy(){ super.onDestroy();
Log.d("act_LC","onDestroy");
}}
```

Output Screenshot

Result

The program was executed and the result was successfully obtained. Thus CO1 was obtained.

Experiment No:3

Aim:

Implementing basic arithmetic operations of a simple calculator

CO1

Design and develop user interfaces for mobile apps using basic building blocks, UI componentsand application structure using Emulator

Procedure:

1. 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=".Ques03Activity">
<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>
```

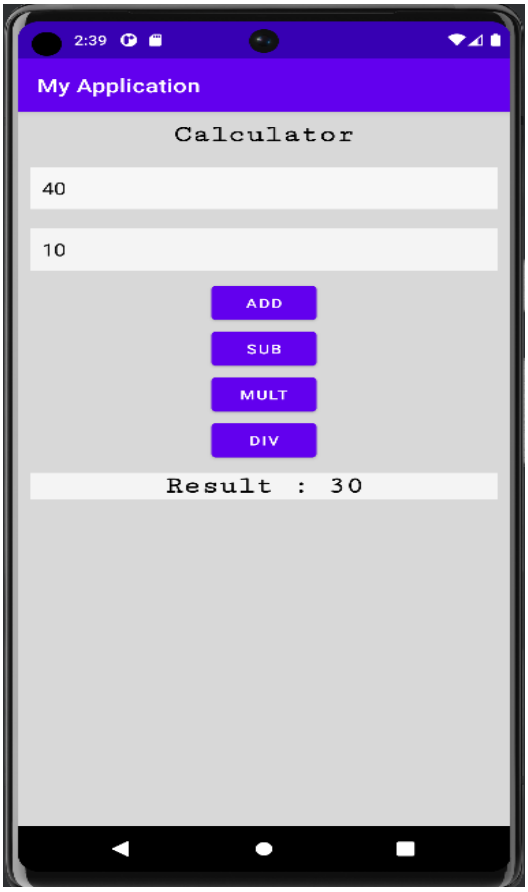
Ques03Activity.java

```
package com.example.application;

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 Ques03Activity 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_ques03);

      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 Screenshot



Result

The program was executed and the result was successfully obtained. Thus, CO1 was obtained.

Experiment No: 4

Aim:

Implement validations on various UI controls

CO1

Design and develop user interfaces for mobile apps using basic building blocks, UI componentsand application structure using Emulator

Procedure:

1.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:padding="50sp"
android:background="#B287AFCA"
android:orientation="vertical"
android:gravity="top|center"
tools:context=".MainActivity">
<TextView
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="LOGIN"
android:textAlignment="center"
android:textSize="25sp"
android:textStyle="bold"
android:layout_marginTop="150dp"/>
<EditText
```

```
android:id="@+id/et_username"
android:layout_marginLeft="15dp"
android:layout_marginTop="25dp"
android:layout_marginBottom="20dp"
android:layout_marginRight="15dp"
android:hint="Email"
android:inputType="text"
android:angle="270"/>
<EditText
android:id="@+id/et_password"
android:layout_marginLeft="15dp"
android:layout_marginTop="15dp"
android:layout_marginBottodp"
android:layout_marginRight="15dp”/>
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/btn_login"
android:text="Sign in"
android:textSize="15sp"
android:textAlignment="center"/>
</LinearLayout>
```

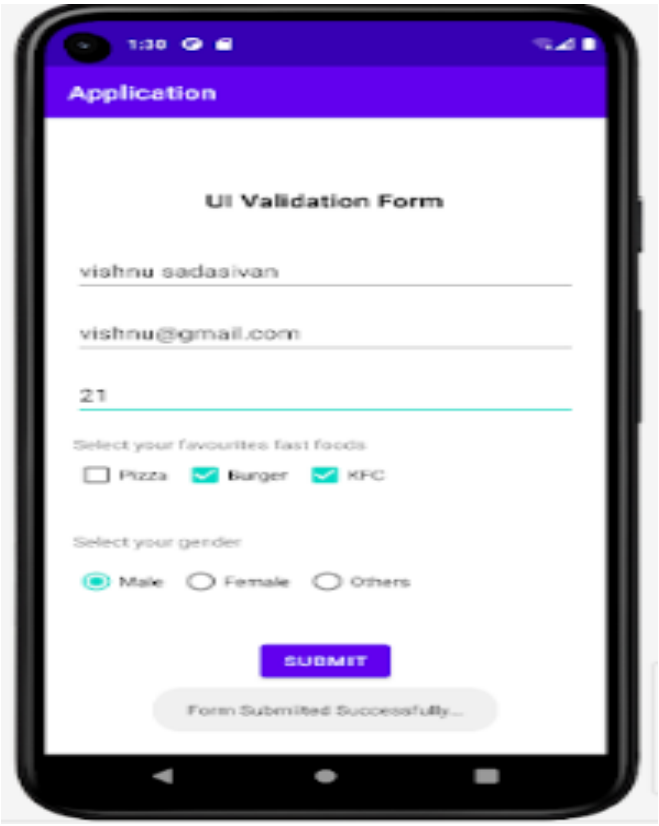
MainActivity.java

```
package com.example.validation;
import
androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import
```

```
android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity
{@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
EditText un = (EditText) findViewById(R.id.et_username);
EditText ps = (EditText) findViewById(R.id.et_password);
Button btn = (Button) findViewById(R.id.btn_login);
btn.setOnClickListener(view -> {
String uname = un.getText().toString();String
pswd = ps.getText().toString();
String specialCharRegex= ".*[@#!$%^&+=].*";String
UpperCaseRegex= ".*[A-Z].*";
String NumberRegex= ".*[0-9].*";
String emailPattern = "[a-zA-Z0-9._-]+@[a-z]+\\.+[a-z]+";if
(uname.length()==0)
{
un.setError("user name not to be null");
}
else if(!uname.matches(emailPattern)){
un.setError(" provided email is invalid");
}
else if(pswd.length() == 0) {
ps.setError("password not to be null");
}
else if((!pswd.matches(specialCharRegex)) && (!pswd.matches(UpperCaseRegex))&&
(!pswd.matches(NumberRegex))){
```

```
else

{ if (uname.equals("ajcemca@gmail.com") && pswd.equals("vishnu@2022")) {
Toast.makeText(this, "Login Success", Toast.LENGTH_SHORT).show();
} else if (uname != ("vishnu@gmail.com") && pswd.equals("vishnu@2022")) {

Toast.makeText(this, "Invalid username", Toast.LENGTH_SHORT).show();

} else if (uname.equals("vishnu@gmail.com") && pswd != ("vishnu@2022")) {

Toast.makeText(this, "Invalid password", Toast.LENGTH_SHORT).show();

} else {

Toast.makeText(this, "Invalid username and password",
Toast.LENGTH_SHORT).show();} }

});

}}
```

Output Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO1 was obtained

Experiment No.: 5

Aim:

Design a registration activity and store registration details in local memory of phone using Intents and Shared Preferences

CO2

Write simple programs and develop small applications using the concepts of UI design, layoutsand preferences

Procedure:

1. 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=".Ques05Activity">
  <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Register Page"
        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:layout_marginTop="10dp"
        android:inputType="textEmailAddress"
```

```
android:hint="Email ID"/>
                    <RadioGroup
        android:id="@+id/gender_radioGroup"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:orientation="horizontal">
    <RadioButton
            android:id="@+id/male_gender"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Male"/>
    <RadioButton
            android:id="@+id/female_gender"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="10dp"
            android:text="Female"/>
<RadioButton
            android:id="@+id/others_gender"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="10dp"
            android:text="Others"/>
 </RadioGroup>
<TextView
        android:id="@+id/gender_error"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textColor="#ff0000"/>
<EditText
        android:id="@+id/password"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:inputType="textPassword"
        android:layout_marginTop="10dp"/>
 <Button
        android:id="@+id/register_btn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Register"/>
</LinearLayout>
```

Ques05Activity.java

```
package com.example.application;
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 Ques05Activity extends AppCompatActivity {
   EditText fullname, emailid, password;
   RadioGroup gender_radioGroup;
   RadioButton male_gender, female_gender, others_gender;
   Button register_btn;
   TextView gender_error;
   LinearLayout main_layout;
@Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_ques05);
      fullname= findViewById(R.id.fullname);
      emailid= findViewById(R.id.emailid);
      password= findViewById(R.id.password);
      gender_radioGroup= findViewById(R.id.gender_radioGroup);
      male_gender= findViewById(R.id.male_gender);
      female_gender= findViewById(R.id.female_gender);
      others_gender= findViewById(R.id.others_gender);
      register_btn= findViewById(R.id.register_btn);
      gender_error= findViewById(R.id.gender_error);
      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);
            gender_error.setText("");
            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();
                int gender_selected= gender_radioGroup.getCheckedRadioButtonId();
                String gender="Not Available";
        if(gender_selected==R.id.male_gender)
           gender="Male";
        else if(gender_selected==R.id.female_gender)

           gender="Female";
        else if(gender_selected==R.id.others_gender)
           gender="Others";
       if(fullname_text.equals("")){
           fullname.requestFocus();
           fullname.setError("Please enter fullname !!");
        }
        else if(fullname_text.length() < 3){
           fullname.requestFocus();
           fullname.setError("Fullname should be more than 2 characters !!");
        }
        else if(emailid_text.equals("")){
           emailid.requestFocus();
           emailid.setError("Please enter email-id !!");
        }
        else if(!Patterns.EMAIL_ADDRESS.matcher(emailid_text).matches()){
           emailid.requestFocus();
           emailid.setError("Please enter a valid email-id !!");
        }
        else if(gender_selected < 0){
           gender_error.setText("Select anyone of the gender option !!");
        }
        else if(!password_text.matches(password_regex)){
           password.requestFocus();
           password.setError("Password should contain - \na digit must occur at least once\na lower case
letter must occur at least once\nan upper case letter must occur at least once\na special character like
@#$%^&+=\nNo blank spaces allowed\natleast 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.putString("reg_gender",gender);
           pref_edit.apply();

           Intent intent= new Intent(getApplicationContext(),Ques05ResultActivity.class);
           startActivity(intent);
        }
     }
```

```
});


    }
}
```

activity_ques05_result.xml

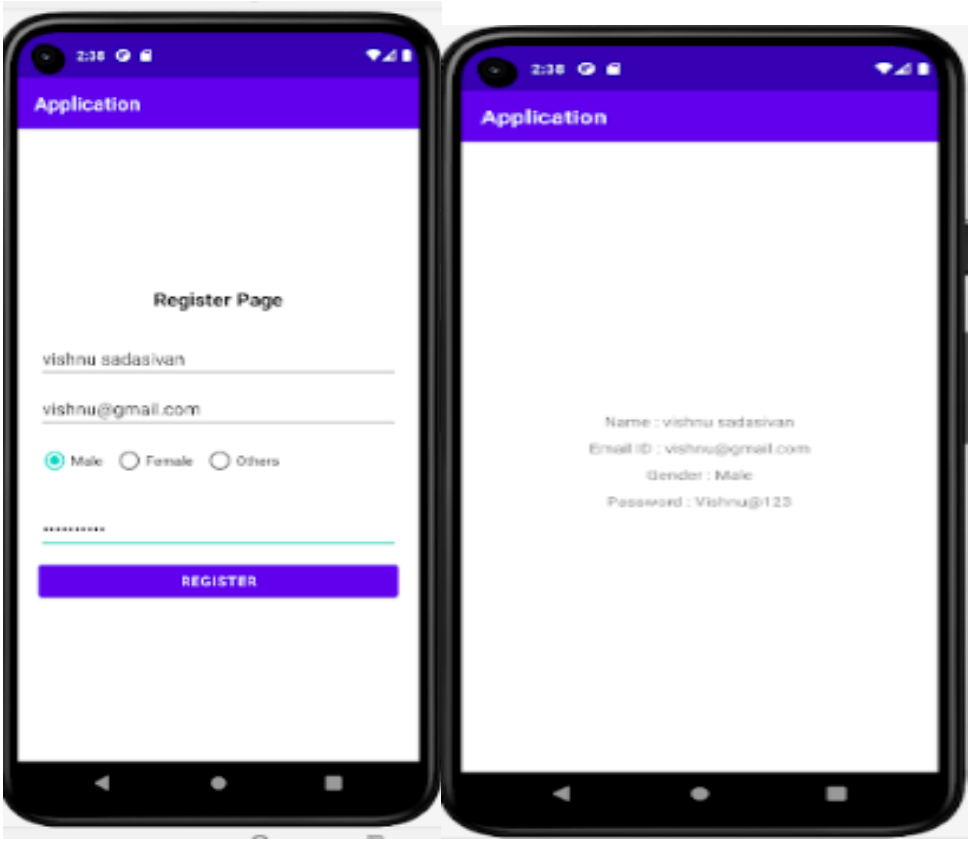
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app= http://schemas.android.com/apk/res-auto
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:gravity="center"
    android:padding="10dp"
    tools:context=".Ques05ResultActivity">
<TextView
        android:id="@+id/fullname_result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Name : "/>
 <TextView
        android:id="@+id/emailid_result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Name : "/>
<TextView
        android:id="@+id/gender_result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Gender : "/>
 <TextView
        android:id="@+id/password_result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Password : "/>
</LinearLayout>
```

Ques05ResultActivity.java

```
package com.example.application;
import androidx.appcompat.app.AppCompatActivity;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.widget.TextView;
public class Ques05ResultActivity extends AppCompatActivity {
```

```
TextView fullname_result, emailid_result, gender_result, password_result;
 @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_ques05_result);
  fullname_result= findViewById(R.id.fullname_result);
       emailid_result= findViewById(R.id.emailid_result);
      gender_result= findViewById(R.id.gender_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 !!");
      String gender= pref.getString("reg_gender","Not Available !!");
      fullname_result.setText("Name : "+name);
      emailid_result.setText("Email ID : "+email);
      gender_result.setText("Gender : "+gender);
      password_result.setText("Password : "+password);
   }
}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO2 was obtained.

Experiment No.: 6

Aim:

Design a simple Calculator using GridLayout and Cascaded LinearLayout.

CO2

Write simple programs and develop small applications using the concepts of UI design, layoutsand preferences

Procedure

```
<?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"
   tools:context=".MainActivity"><LinearLayout
      android:layout_width="match_parent"
      android:orientation="vertical"
      android:layout_height="wrap_content"><EditText
         android:id="@+id/display"
         android:layout_width="402dp"
         android:layout_height="85dp"
         android:layout_weight="1"
         android:ems="10"
         android:inputType="textPersonNa
         me"android:text="0"
         tools:ignore="MissingConstraints"/
         >
   </LinearLayout><LinearLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:orientation="horizontal"><Button
         android:id="@+id/btn7"
         android:layout_width="0dp"
         android:layout_height="wrap_conte
         nt"android:layout_weight="0.25"
         android:text="7"
         tools:layout_editor_absoluteX="55
         dp"
```

```
    tools:layout_editor_absoluteY="84dp"
    /><Buttonandroid:id="@+id/btn8"
    android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="0.25"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="0.25"
android:text="9" /><Button
android:id="@+id/btndiv"
android:layout_width="0dp"
android:text="/" /></LinearLayout><LinearLayout
android:id="@+id/btn4"
android:layout_width="0dp"
android:layout_weight="0.25"
android:layout_height="wrap_content"
android:text="4" /><Button
android:id="@+id/btn5"
android:layout_width="0dp"
android:layout_weight="0.25"
android:layout_height="wrap_content"
android:text="5"  />Button
android:id="@+id/btn6"
android:layout_width="0dp"
android:layout_weight="0.25"
android:layout_height="wrap_content"
android:text="6" /><Button
android:id="@+id/btnmult"
android:layout_width="0dp"
android:layout_weight="0.25"
android:layout_height="wrap_content"
android:text="x" /></LinearLayout<LinearLayout
android:id="@+id/btn3"
android:layout_width="0dp"
android:layout_weight="0.25"
android:layout_height="wrap_content"
android:text="3" /><Button
android:id="@+id/btn2"
android:layout_height="wrap_content"
android:text="2" /> <Button
android:id="@+id/btn1"
android:layout_width="0dp"
android:text="1" /><Button
android:id="@+id/btnminus"
android:layout_width="0dp"
```

```
android:layout_weight="0.25"
android:layout_height="wrap_content"
android:text="-" /></LinearLayout><LinearLayout

android:layout_height="wrap_content"
android:text="0" /><Button
android:id="@+id/btndot"
android:layout_width="0dp"
android:text="." /><Button
android:layout_height="wrap_content"
android:text="=" /><Button
android:id="@+id/btnplus"
android:layout_width="0dp"
android:layout_weight="0.25"
android:layout_height="wrap_content"
android:text="+" /></LinearLayout></LinearLayout>
```

Output Screenshot

Result

The program was executed and the result was successfully obtained. Thus CO2 was obtained.

Experiment No: 7

Aim:

Create a Facebook page using Relative Layout; set properties using .xml file.

CO2

Write simple programs and develop small applications using the concepts of UI design, layoutsand preferences

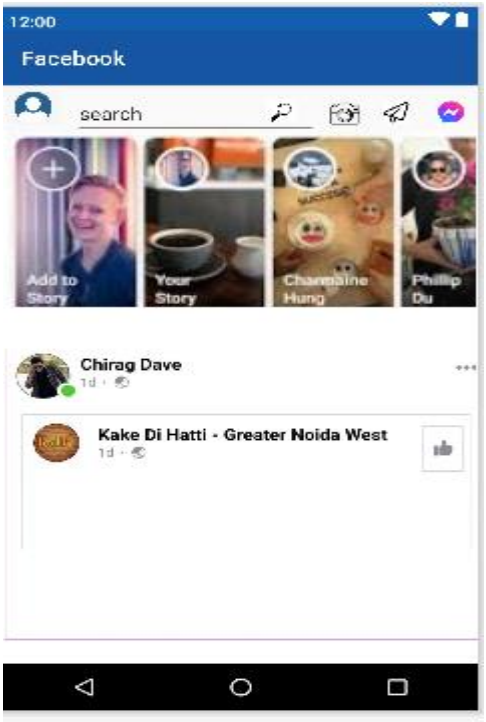
Procedure:

1.activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:id="@+id/fb"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="130dp"
    android:layout_marginTop="200dp"
    android:text="Facebook"
    android:textAlignment="center"
    android:textColor="@color/white"
    android:textSize="30dp"/><EditText
    android:id="@+id/uname"
    android:layout_width="match_parent"
    android:layout_height="40dp"
    android:layout_below="@id/fb"
    android:background="#81FFFFFF"
    android:layout_width="match_parent"
    android:layout_height="40dp"
    android:layout_below="@id/uname"
    android:background="#81FFFFFF"
    android:layout_margin="10dp"
    android:text="Password"
    android:padding="10dp"/><TextView
    android:id="@+id/signin"
    android:layout_width="match_parent"
    android:layout_height="40dp"
```

```
android:layout_below="@id/uname"
android:background="#81FFFFFF"
android:layout_margin="10dp"
android:text="Password"
android:padding="10dp"/><TextView
android:id="@+id/signin"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/pswd"
android:layout_marginLeft="190dp"
android:paddingTop="50dp"
android:textColor="@color/white"
android:text="sign in"/><TextView
android:id="@+id/frgt"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/signin"
android:layout_marginLeft="160dp"
android:textColor="@color/white"
android:text="Forgot password"/><ImageView
android:id="@+id/imageView"
android:layout_width="97dp"
android:layout_height="97dp"
android:layout_marginTop="90dp"
android:layout_marginLeft="140dp"
app:srcCompat="@drawable/fb" />
</RelativeLayout>
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO2 was obtained

Experiment No.: 8

Aim:

Develop an application that toggles image using Frame Layout

CO2

Write simple programs and develop small applications using the concepts of UI design, layoutsand preferences

Procedure:

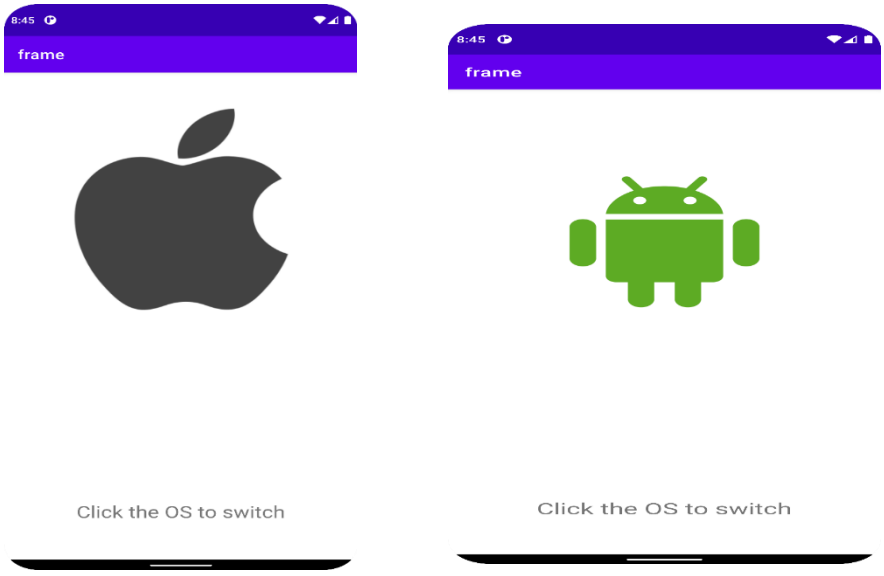
activity_main.xml

```
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
   android:orientation="vertical"
   android:layout_width="match_parent"
   android:layout_height="match_parent">
   <ImageView
      android:id="@+id/first_image"
      android:src = "@drawable/e"
      android:layout_width="match_pare
      nt"
      android:layout_height="match_pare
      nt"android:scaleType="fitXY" />
   <ImageView
      android:id="@+id/second_image"
      android:background="@color/white
      "
      android:layout_width="match_pare
      nt"
      android:layout_height="match_pare
      nt"android:scaleType="fitXY" />
   <TextView
      android:layout_width="wrap_content
      "
      android:layout_height="wrap_content
      " android:text="Click the image to
      switch"
      android:layout_gravity="center_horizontal|botto
      m"android:padding="5dip"
      android:textColor="#ffffff"
      android:textStyle="bold"
      android:background="#333333"
      android:layout_marginBottom="10dip" /></FrameLayout>
```

MainActivity.java

```
package com.example.a8prgm;
import android.app.Activity;import android.os.Bundle;import android.widget.ImageView;
import android.view.View.OnClickListener;import android.view.View;
import android.widget.Toast;import
androidx.appcompat.app.AppCompatActivity;public class MainActivity
extends AppCompatActivity {

public void onCreate(Bundle savedInstanceState)
   {super.onCreate(savedInstanceState);
   setContentView(R.layout.activity_main);
   final ImageView first_image = (ImageView)this.findViewById(R.id.first_image);
   final ImageView second_image = (ImageView)this.findViewById(R.id.second_image);
   first_image.setOnClickListener(new OnClickListener(){
      public void onClick(View view) {
         Toast.makeText(MainActivity.this, "Button clicked.Toast.LENGTH_SHORT).show();
         second_image.setVisibility(View.VISIBLE);
         view.setVisibility(View.GONE);}});
   second_image.setOnClickListener(new OnClickListener(){
      public void onClick(View view)
         { first_image.setVisibility(View.VISIBLE);
view.setVisibility(View.GONE);} });}}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO2 was obtained.

Experiment No.: 9

Aim:

Implement Adapters and perform exception handling

CO3

Develop applications with multiple activities using intents, array adapter, exceptions and optionsmenu.

Procedure:

1. activity_main.xml

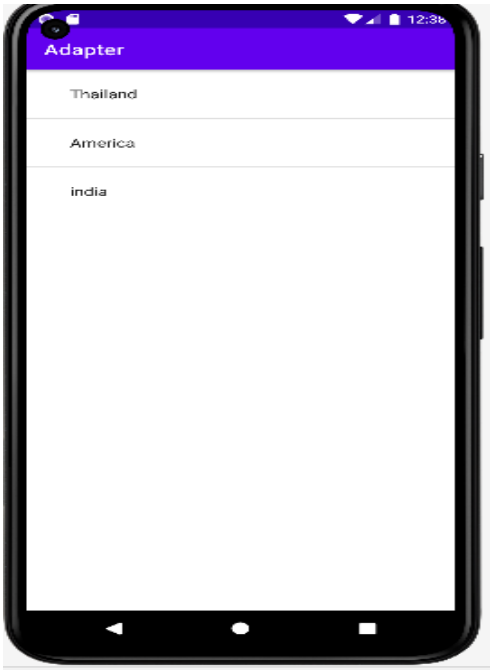
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".MainActivity">
  <ListView
     android:layout_width="match_parent"
     android:layout_height="match_parent"
     android:id="@+id/list"
/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

2. MainActivity.java

```
package com.example.adapter;
import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.RecyclerView;
import android.os.Bundle;
import android.view.View;
import android.widget.Adapter;
```

```
public class MainActivity extends AppCompatActivity {
  ListView list;
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    list =findViewById(R.id.list);
    String Countries[]= new String[] {"Thailand","America","india"};
    ArrayAdapter<String> myAdapter =new ArrayAdapter<String>(MainActivity.this,
        android.R.layout.simple_expandable_list_item_1,Countries);
    list.setAdapter(myAdapter);

    list.setOnItemClickListener(new AdapterView.OnItemClickListener() {
      @Override
      public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
        Toast.makeText(getApplicationContext(),"You
clicked"+Countries[position],Toast.LENGTH_SHORT).show();
      }
    });}}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO3 was obtained.

Experiment No.: 10

Aim:

Implement Intent to navigate between multiple activities.

CO3

Develop applications with multiple activities using intents, array adapter, exceptions and optionsmenu.

Procedure:

1. activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/re
s/ 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:padding="50sp"
android:background="#E886F162"
android:orientation="vertical"
android:gravity="top|center"
   tools:context=".MainActivity">
   <Button
   android:layout_width="wrap_content"
   android:layout_height="wrap_content"
   android:id="@+id/btn_click"
   android:text="Nextscreen"
    android:textSize="15sp"
   android:textAlignment="center"/>
   <TextView
   android:id="@+id/tvid"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:color="#4799E8"
   android:text="goodmorninng"
   android:textColor="@color/black"
   android:background="@color/teal_200"/>
   </LinearLayout>
```

2. activity2.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:padding="50sp"
android:background="#E886F162"
android:orientation="vertical"
android:gravity="top|center"
tools:context=".MainActivity">
   <Button
      android:layout_width="wrap_conte
      nt"
      android:layout_height="wrap_conte
      nt"android:id="@+id/btn_click1"
      android:text="Next Screen"
      android:textSize="15sp"
      android:textAlignment="center"/>
   <TextView
      android:id="@+id/tvi
      d1"
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:color="#4799E8"
      android:text="good evening"
      android:textColor="@color/black"
      android:background="@color/teal_200
</LinearLayout>
```

3. MainActivity.java

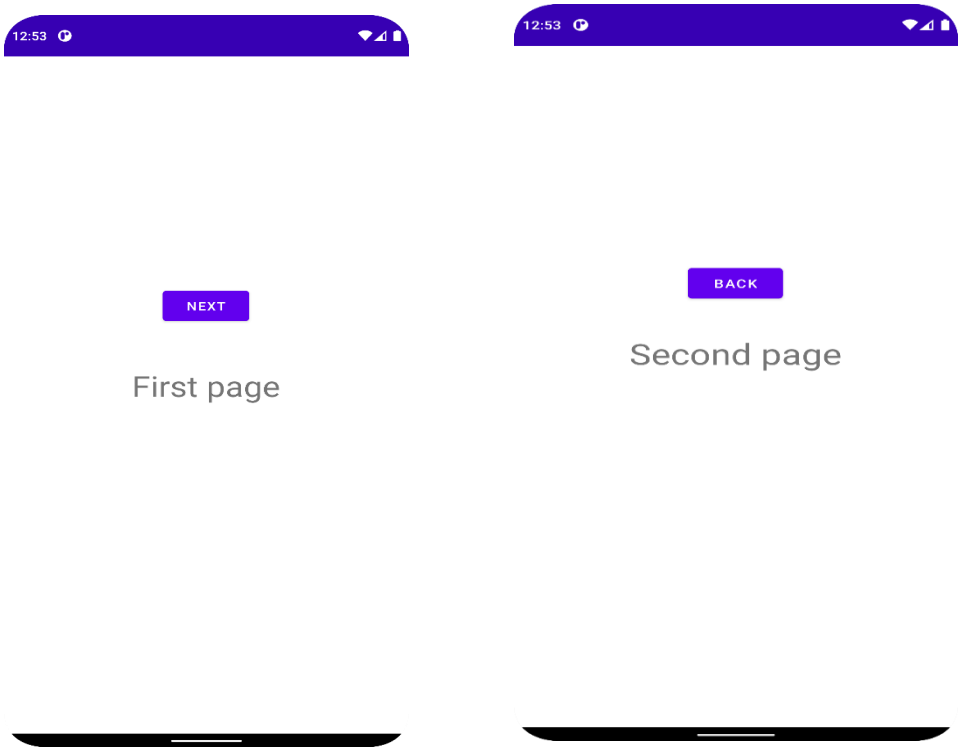
```
package com.example.explicit_intent;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;import android.os.Bundle;import
android.view.View;import android.widget.Button;import
android.widget.TextView;
public class MainActivity extends AppCompatActivity
   {@Override
   protected void onCreate(Bundle savedInstanceState)
      {super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      Button btn = (Button)
      findViewById(R.id.btn_click); TextView tv =
      (TextView) findViewById(R.id.tvid);
      btn.setOnClickListener(new
      View.OnClickListener() {
```

```
    public void onClick(View view) {
Intent i = new Intent(getApplicationContext(),Activity2.class);}})}}
```

4. Activity2.java

```
package com.example.explicit_intent;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;import android.os.Bundle;import
android.view.View;importandroid.widget.Button;import
android.widget.TextView;
public class Activity2 extends AppCompatActivity
   {@Override
   protected void onCreate(Bundle savedInstanceState)
      { super.onCreate(savedInstanceState);setContentView(R.layout.activity2);
      Button btn = (Button) findViewById(R.id.btn_click1);TextView tv = (TextView)
findViewById(R.id.tvid1);
      btn.setOnClickListener(new View.OnClickListener()
         {@Override
         public void onClick(View view) {
            Intent i = new Intent(getApplicationContext(), MainActivity.class);
            startActivity(i);}})}}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO3 was obtained.

Experiment No.: 11

Aim:

Develop application that works with explicit intents

CO3

Develop applications with multiple activities using intents, array adapter, exceptions and optionsmenu.

Procedure:

```
<?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=".Ques11Activity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="First Activity Page" />

    <Button
        android:id="@+id/goto_second_btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Go to Second Activity Page"
        android:layout_marginTop="10dp"/>

</LinearLayout>
```

Ques11Activity.java

```
package com.example.application;

import androidx.appcompat.app.AppCompatActivity;

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

public class Ques11Activity extends AppCompatActivity {

    Button goto_second_btn;
```

```
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques11);

        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(), Ques11SecondActivity.class);
                startActivity(intent);
            }
        });

    }
}
```

activity_ques11.xml

```
package com.example.application;

import androidx.appcompat.app.AppCompatActivity;

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

public class Ques11Activity extends AppCompatActivity {

    Button goto_second_btn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques11);

        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(), Ques11SecondActivity.class);
                startActivity(intent);
            }
        });

    }
}
```

Ques11SecondActivity.java

```
<?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=".Ques11SecondActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Second Activity Page" />

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

</LinearLayout>
```

activity_ques11_third.xml

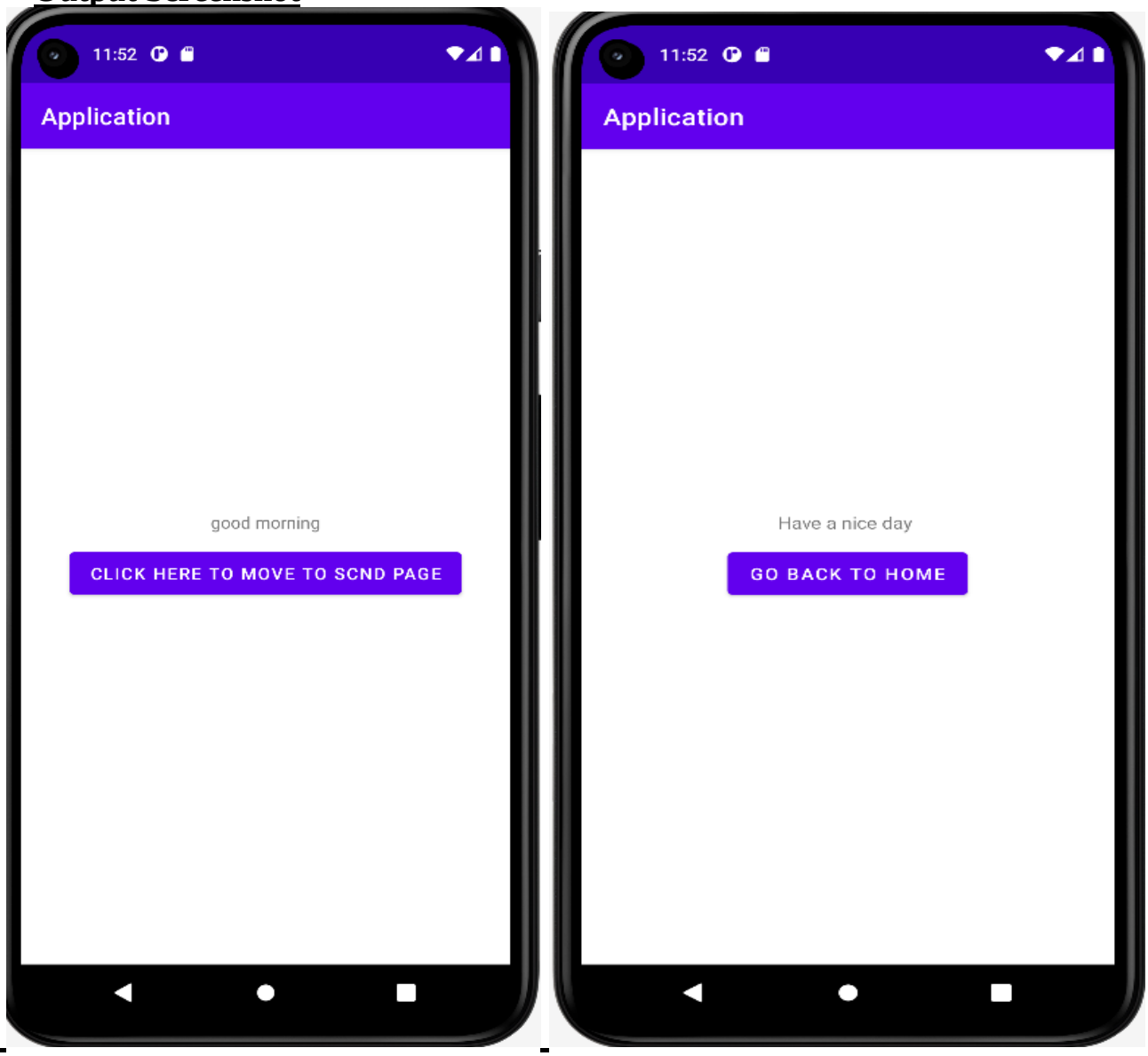
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:orientation="vertical"
    tools:context=".Ques11ThirdActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Third Activity Page" />

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

```
</LinearLayout>
```

Ques11ThirdActivity.java

```
package com.example.application;

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

import androidx.appcompat.app.AppCompatActivity;

public class Ques11ThirdActivity extends AppCompatActivity {

    Button goto_main_btn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques11_third);

        goto_main_btn= findViewById(R.id.goto_main_btn);
        goto_main_btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent= new Intent(getApplicationContext(), Ques11Activity.class);
                startActivity(intent);
            }
        });
    }
}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO3 was obtained

Experiment No.: 12

Aim:

Implement Options Menu to navigate to activities.

CO3

Develop applications with multiple activities using intents, array adapter, exceptions and optionsmenu.

Procedure:

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
   xmlns:android="http://schemas.android.com/apk/res/andro
   id"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">
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      app:layout_constraintStart_toStartOf="paren
      t"
      app:layout_constraintTop_toTopOf="parent"
      />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.optionmenu;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;import android.view.Menu;import
android.view.MenuItem;import android.widget.Toast;public class MainActivity
extends AppCompatActivity {
   protected void onCreate(Bundle savedInstanceState)
      {super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);}
   public boolean onCreateOptionsMenu(Menu menu)
      {
      getMenuInflater().inflate(R.menu.mainmen
      u,menu);return true}
   public boolean onOptionsItemSelected(MenuItem item) {
      Toast.makeText(this, "Selected Item: " +item.getTitle(),
      Toast.LENGTH_SHORT).show();switch (item.getItemId()) {case R.id.search_item:
```

```
            return true;
          case
            R.id.upload_item
            :return true;
          case R.id.copy_item:
          return true;
       case R.id.print_item:
          return true;
       case R.id.share_item:
          return true;
       case R.id.bookmark_item:
          return true;
       default:return super.onOptionsItemSelected(item);}    }}
```

Mainmenu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
   <item
      android:id="@+id/search_item"
      android:title="Search" />
   <item
      android:id="@+id/upload_item"
      android:title="Upload" />
   <item
      android:id="@+id/copy_item"
      android:title="Copy" />
   <item
      android:id="@+id/print_item"
      android:title="Print" />
   <item
      android:id="@+id/share_item"
      android:title="Share" />
   <item android:id="@+id/bookmark_item"
      android:title="BookMark" />
      app:showAsAction="withText"/>
</menu>
```

Output Screenshot

Result

The program was executed and the result was successfully obtained. Thus CO3 was obtained.

Experiment No.: 13

Aim:

Develop an application that uses Array Adapter with List View.

CO3

Develop applications with multiple activities using intents, array adapter, exceptions and optionsmenu.

Procedure:

Activity_main.xml

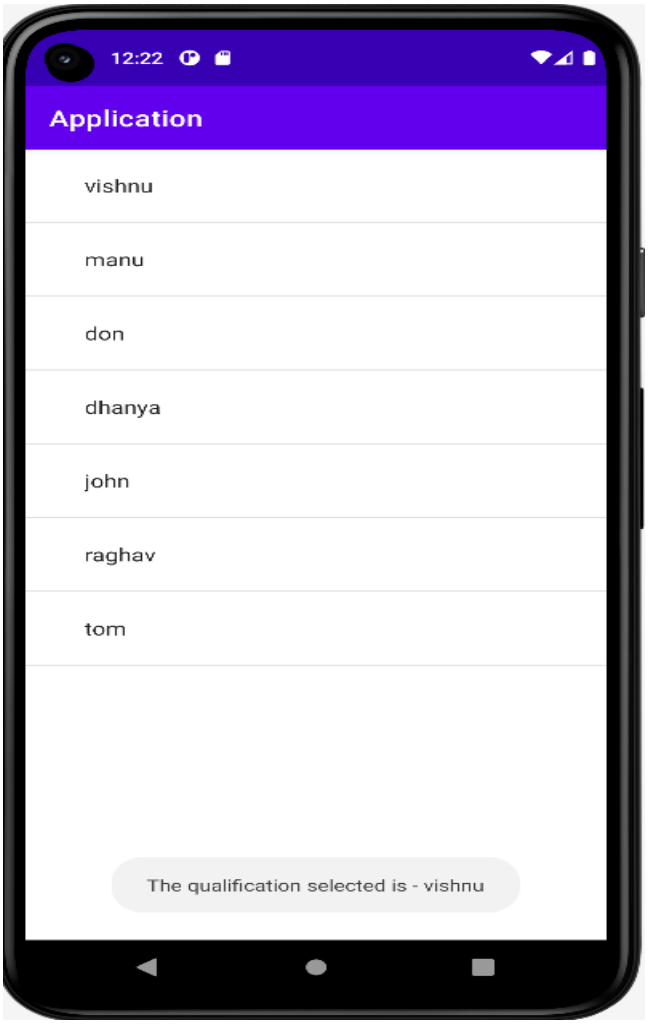
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"android:layout_height="match_parent"
tools:context=".MainActivity">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

MainActivity.java

```
package com.example.application;
import
androidx.appcompat.app.AppComp
atActivity;import
android.os.Bundle; import
android.widget.Arr
ayAdapter;import
android.widget.List
View; import
android.widget.To
ast;

public class Ques13Activity
   extends AppCompatActivity
   {@Override protected void
   onCreate(Bundle
      savedInstanceState)
      {
      super.onCreate(savedInstanceState
      );
      setContentView(R.layout.activity_
      q ues13);ListView listview;
      String[] person_qualify = {"vishnu ", "manu", "don", "dhanya", "john",
```

```
    “raghav", "tom"};
          listview =
          findViewById(R.id.li
          stview);

       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 qualification selected is - " +
person_qualify[position],Toast.LENGTH_SHORT).show();
       });}}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus, CO3 was obtained.

Experiment No.: 14

Aim:

Develop an application that use Grid View with images and display Alert box on selection

CO4

Implement activities with dialogs, spinner, fragments and navigation drawer by applying themes

Procedure:

1. activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity"><GridView
    android:id="@+id/gv1"
    android:verticalSpacing="1dp"
    android:horizontalSpacing="1dp"
    android:numColumns="2"
    android:layout_width="match_pare
    nt"
    android:layout_height="wrap_content"> </GridView></RelativeLayout>
```

2. row_data.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   android:layout_width="match_parent"
   android:layout_height="match_parent"><RelativeLayout
      android:id="@+id/gv12"
      android:layout_width="190dp"
      android:layout_height="180dp"
      android:background ="#fff"><TextView
         android:id="@+id/tvid"
         android:layout_width="wrap_content
         "
         android:layout_height="wrap_conten
         t"
         android:layout_centerHorizontal="tru
         e"android:text="Apple"
         android:textSize="25dp"
         /><ImageView
```

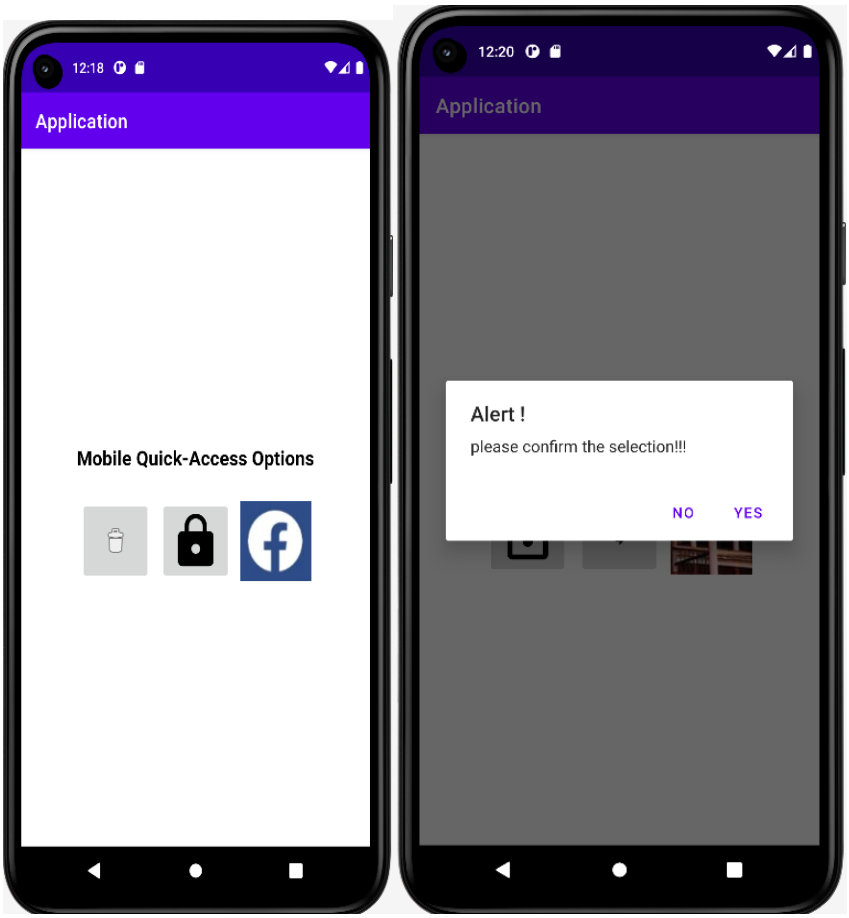
```
android:id="@+id/imgview"
android:layout_width="90dp"
android:layout_height="90dp"
android:layout_marginStart="50dp"
androidlayout_marginTop="45dp"
android:layout_marginEnd="50dp"
android:layout_marginBottom="45dp"
android:src="@drawable/img1" /></RelativeLayout></RelativeLayout>
```

MainActivity.java

```
package com.fb.exp14;
import
androidx.appcompat.app.AppCompatActivit
y; import android.media.Image;import
android.os.Bundle;
import android.view.View;import
android.view.ViewGroup;importandroid.widget.Adapter
View;import android.widget.BaseAdapter;
import android.widget.CursorAdapter;import android.widget.GridView;import
android.widget.ImageView;import android.widget.TextView;import
android.widget.Toast; public class MainActivity extends AppCompatActivity {
    GridView gridView;
    String[] frtname={"apple","orange"};
    int[]
    frtimg={R.drawable.img1,R.drawable.i
    mg2}; @Override
    protected void onCreate(Bundle savedInstanceState)
        {super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_mai
        n); gridView=
        findViewById(R.id.gv1);
        CustomAdaptor customadaptor = new CustomAdaptor();
        gridView.setAdapter(customadaptor);
        gridView.setOnItemClickListener(new
        AdapterView.OnItemClickListener()
            {@Override
            public void onItemClick(AdapterView<?> adapterView, View view, int i, long l)
                {Toast.makeText(MainActivity.this, "name
:"+frtname[i], Toast.LENGTH_SHORT).show();}});}
    private class CustomAdaptor extends BaseAdapter
        {@Override
        public int getCount()
            {
        @Override
```

```
public Object getItem(int i)
   {return null;}
   @Override
public long getItemId(int i)
   {return 0;}
@Override
public View getView(int i, View view, ViewGroup viewGroup)
   { View view1
   =getLayoutInflater().inflate(R.layout.row_data,null);TextView
   name=view1.findViewById(R.id.tvid);
   ImageView img = view1.findViewById(R.id.imgview);name.setText(frtname[i]
img.setImageResource(frtimg[i]);return
view1;
}
}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO4 was obtained

Experiment No.: 15

Aim:

Develop an application that implements Spinner component and perform event handling

CO4

Implement activities with dialogs, spinner, fragments and navigation drawer by applying themes

Procedure:

1. Activity_main.xml

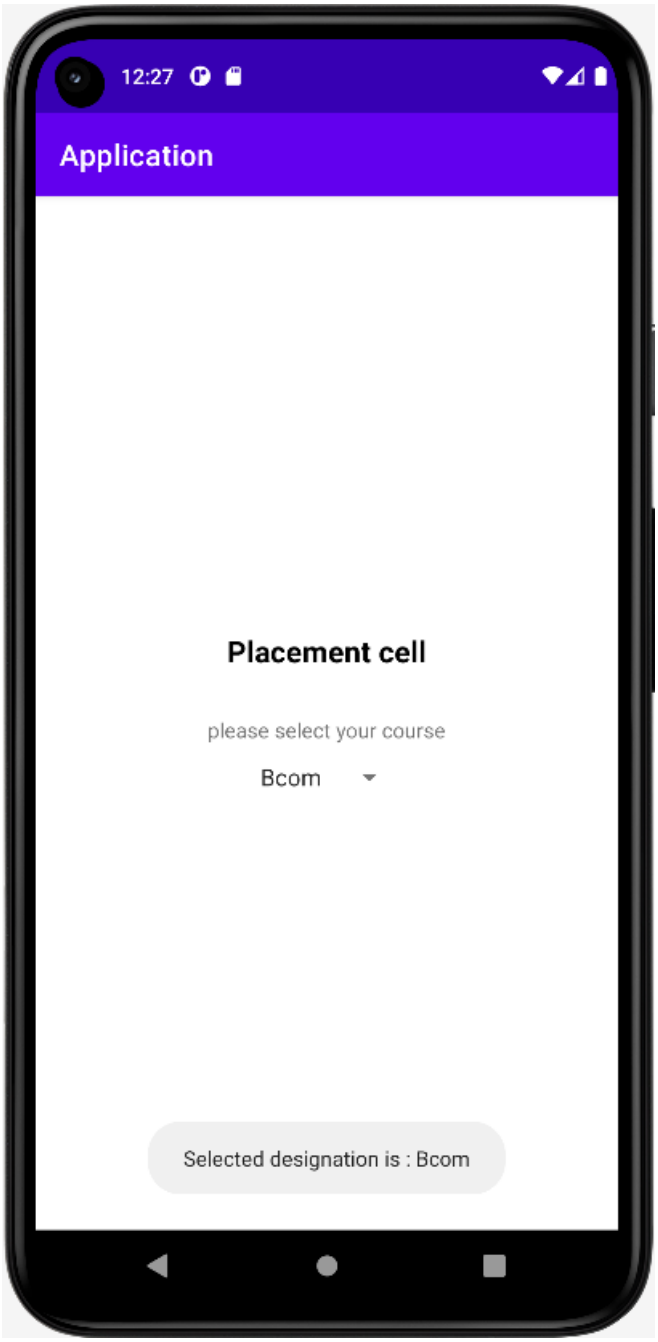
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-
   auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <Spinner
      android:id="@+id/spinne
      r"
      android:layout_width="36
      0dp"
      android:layout_height="3
      6dp"
      android:layout_marginStart="4dp"
      android:layout_marginTop="20dp"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toBottomOf="@+id/textView2" />
   <TextView
      android:id="@+id/textView2"
      android:layout_width="wrap_con
      tent"
      android:layout_height="wrap_con
      tent"
      android:layout_marginStart="160
      dp"
      android:layout_marginTop="100
      dp" android:text="placement
      cell”
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
```

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

2. 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.Spinner;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity
implementsAdapterView.OnItemSelectedListener{
String[]
   pets={"Bcom","Bca",BBa"};
   @Override
   protected void onCreate(Bundle savedInstanceState)
      {super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      Spinner spin = (Spinner)
      findViewById(R.id.spinner);
      spin.setOnItemSelectedListener(this);
      ArrayAdapter aa = new ArrayAdapter(this, android.R.layout.simple_spinner_item,pets);
      aa.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
      spin.setAdapter(aa);}
   @Override
   public void onItemSelected(AdapterView<?> parent, View view, int i, long l)
      {
      Toast.makeText(getApplicationContext(),pets
      [i],Toast.LENGTH_SHORT).show();}
   @Override
   public void onNothingSelected(AdapterView<?> parent) {
      Toast.makeText(this, "nothing Selected", Toast.LENGTH_SHORT).show();}}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus, CO4 was obtained.

Experiment No.: 16

Aim:

Create database using SQLite and perform INSERT and SELECT

CO5

Develop mobile applications using SQLite.

Procedure:

1.Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-
   auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <TextView
      android:id="@+id/textView"
      android:layout_width="wrap_conte
      nt"
      android:layout_height="wrap_content"
      android:text="Enter the Details Below!"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintVertical_bias="0.108" />
   <EditText
      android:id="@+id/editTextTextPersonNam
      e"android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginStart="116dp"
      android:layout_marginTop="24dp"
      android:ems="10"
      android:inputType="textPersonName"
      android:hint="Enter Name Here"
      app:layout_constraintStart_toStartOf="pare
      nt"
      app:layout_constraintTop_toBottomOf="@+id/textView" />
<EditText
```

```
    android:id="@+id/editTextTextPersonName4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="116dp"
    android:layout_marginTop="36dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Enter contact Here"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName" />
  <EditText
    android:id="@+id/editTextTextPersonName5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="116dp"
    android:layout_marginTop="40dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Enter DOB"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4" />
  <Button
    android:id="@+id/button5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="76dp"
    android:layout_marginTop="64dp"
    android:hint="Insert data"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName5" />
  <Button
    android:id="@+id/button7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginTop="64dp" android:text="View
    Details"
    app:layout_constraintStart_toEndOf="@+id/button5"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName5" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

2. MainActivity.java

```
package com.fb.insertview;
import androidx.appcompat.app.AlertDialog;
import
androidx.appcompat.app.AppCompatActivity;
```

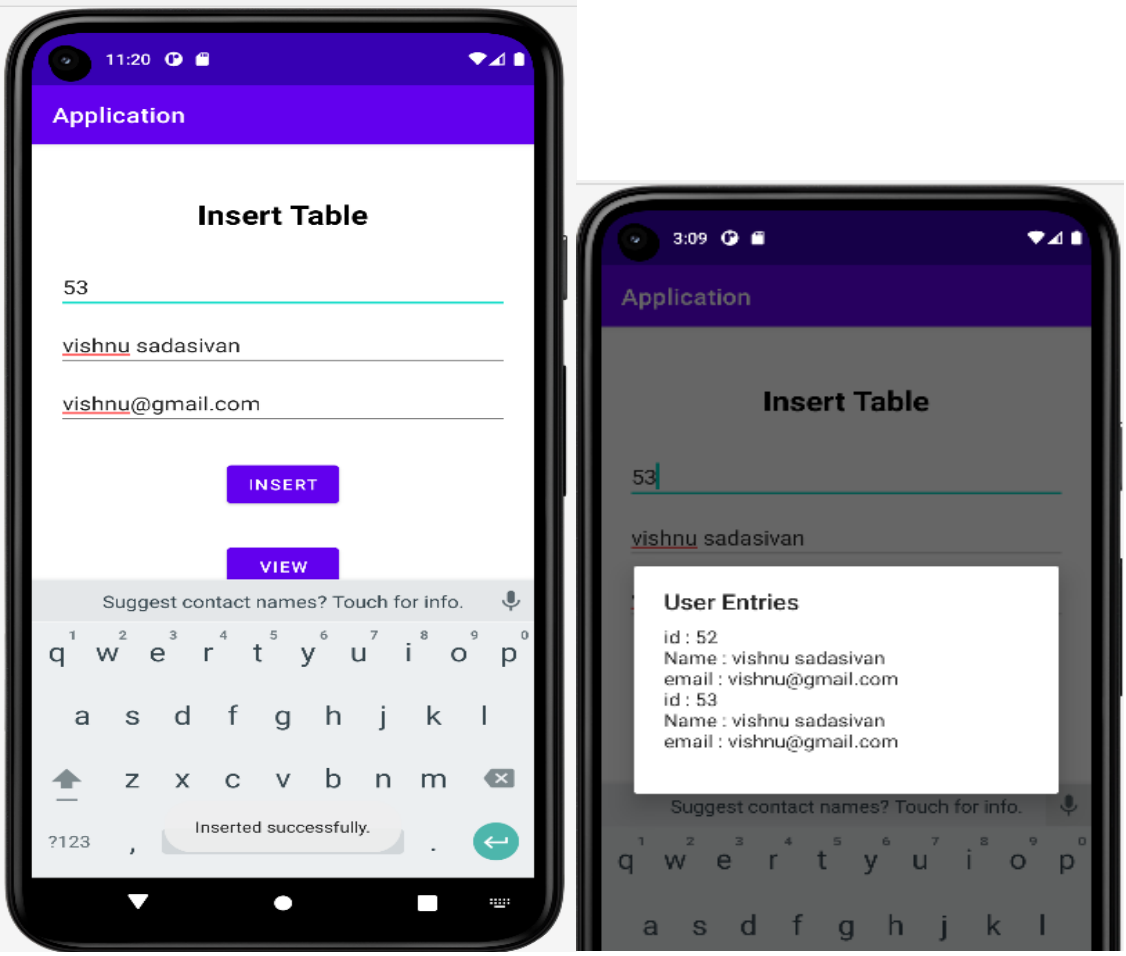
```
import android.database.Cursor;
import android.os.Bundle;
import android.view.View;
import
android.widget.Button;
import
android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity
   {protected void onCreate(Bundle savedInstanceState)
   {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_mai
      n);
      name = (EditText) findViewById(R.id.editTextTextPersonName);
      age =(EditText) findViewById(R.id.editTextTextPersonName4);
      contact = (EditText)
      findViewById(R.id.editTextTextPersonName5);create1 =
      (Button) findViewById(R.id.button5);
      Button read = (Button)findViewById(R.id.button7);
      DB=new DBHelper(this);
      create1.setOnClickListener(new
      View.OnClickListener()
         {public void onClick(View v) {
            String nameTXT=name.getText().toString();String
            ageTXT=age.getText().toString();String contactTXT=contact.getText().toString();
            Boolean checkinsertdata =
            DB.insertuserdatas(nameTXT,ageTXT,contactTXT);if(checkinsertdata ==
            true){
        Toast.makeText(MainActivity.this, "data inserted",
            Toast.LENGTH_SHORT).show();}else{
          Toast.makeText(MainActivity.this, "failed to insert", Toast.LENGTH_SHORT).show();
            }}});
      read.setOnClickListener(new View.OnClickListener()
         {public void onClick(View
            v) {Cursor res =
            DB.getdata();
            if(res.getCount()==0){
          Toast.makeText(MainActivity.this, "no datas found", Toast.LENGTH_SHORT).show();
               return;}
            StringBuffer buffer = new
            StringBuffer();
            while(res.moveToNext()){
   buffer.append("name:"+res.getString(0)+"\n"); buffer.append("age:"+res.getString(1)+"\n");
   buffer.append("contact:"+res.getString(2)+"\n\n\n");}
```

```
    AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
    builder.setCancelable(true);
    builder.setTitle("user DEtails");
    builder.setMessage(buffer.toString());
    builder.show();
                    } });}}
```

3. DBHelper.java

```
    package com.fb.insertview;import
    android.content.ContentValues;import
    android.content.Context;import android.database.Cursor;
    import android.database.sqlite.SQLiteDatabase;
    import android.database.sqlite.SQLiteOpenHelper;     import androidx.annotation.Nullable;
public class DBHelper extends SQLiteOpenHelper
   {public DBHelper(Context context) {
      super(context, "user1.db",null, 1);}
   public void onCreate(SQLiteDatabase db) {
      db.execSQL("create table studdetails (name TEXT primary key, age TEXT, contact
TEXT)");}
   public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion)
      {db.execSQL("drop table if exists studdetails");}
   public Boolean insertuserdatas (String name, String age,String contact)
      {SQLiteDatabase DB = this.getWritableDatabase();
      ContentValues contentvalues = new ContentValues();
      contentvalues.put("name", name);contentvalues.put("age", age);
      contentvalues.put("contact", contact);long result = DB.insert("studdetails", null,
contentvalues);
      if (result==-1)
         {return false;
      } else { return true;}    }
   public Cursor getdata(){  SQLiteDatabase DB = this.getWritableDatabase();
      Cursor cursor = DB.rawQuery("select * from studdetails",null);
      return cursor;    }}
```

Output Screenshot



Result

The program was executed and the result was successfully obtained. Thus CO5 was obtained.

Experiment No.: 17

Aim:

Perform UPDATE and DELETE on SQLite database

CO5

Develop mobile applications using SQLite.

Procedure:

1. Main_activity.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-
   auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <TextView
      android:id="@+id/textView"
      android:layout_width="wrap_conte
      nt"
      android:layout_height="wrap_content"
      android:text="Enter the Details Below!"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintVertical_bias="0.108"
      /><EditText
      android:id="@+id/editTextTextPersonName"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginStart="116dp"
      android:layout_marginTop="24dp"
      android:ems="10"
      android:inputType="textPersonName"
      android:hint="Enter Name Here"
      app:layout_constraintStart_toStartOf="pare
      nt"
app:layout_constraintTop_toBottomOf="@+id/textView" /><EditText
android:id="@+id/editTextTextPersonName4"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="116dp" android:layout_marginTop="36dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Enter contact Here"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName" />
  <EditText
    android:id="@+id/editTextTextPersonName5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="116dp"
    android:layout_marginTop="40dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Enter DOB"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4" /><Button
    android:id="@+id/button5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName5" />
  <Button
    android:id="@+id/button6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginTop="48dp"
    android:text="Update"
app:layout_constraintStart_toEndOf="@+id/button5"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName5" />
  <Button
    android:id="@+id/button7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
        app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName5" />
      <Button
          android:id="@+id/button8"
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"
          android:layout_marginStart="4dp"
          android:layout_marginTop="48dp"
          android:text="Delete"
```

```
        app:layout_constraintStart_toEndOf="@+id/but
        ton7"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName5" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

2. MainActivity.java

```
package com.example.curdoperation;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.database.Cursor;import
android.os.Bundle;
import android.view.View;import android.widget.Button;import
android.widget.EditText;import android.widget.Toast;
public class MainActivity extends AppCompatActivity
  { EditText name,contact,dob;Button
  create1;DBHelperDB;@Override
  protected void onCreate(Bundle savedInstanceState)
    {super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    name = (EditText)
    findViewById(R.id.editTextTextPersonName); contact
    =(EditText) findViewById(R.id.editTextTextPersonName4);dob
    = (EditText) findViewById(R.id.editTextTextPersonName5);
    create1 = (Button) findViewById(R.id.button5);
    Button update =
    (Button)findViewById(R.id.button6);Button delete
    = (Button)findViewById(R.id.button8);
    Button read = (Button)findViewById(R.id.button7);DB=new DBHelper(this);
    create1.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        String nameTXT=name.getText().toString();
        String
        contactTXT=contact.getText().toString();String
        dobTXT=dob.getText().toString();
        Boolean checkinsertdata = DB.insertuserdatas(nameTXT,contactTXT,dobTXT);
        if(checkinsertdata == true){
          Toast.makeText(MainActivity.this, "data
inserted",Toast.LENGTH_SHORT).show();}else{
          Toast.makeText(MainActivity.this, "failed to
insert",Toast.LENGTH_SHORT).show();}}});
    update.setOnClickListener(new View.OnClickListener()
      {@Override
      public void onClick(View v) {
String nameTXT=name.getText().toString(); String
contactTXT=contact.getText().toString();String
```

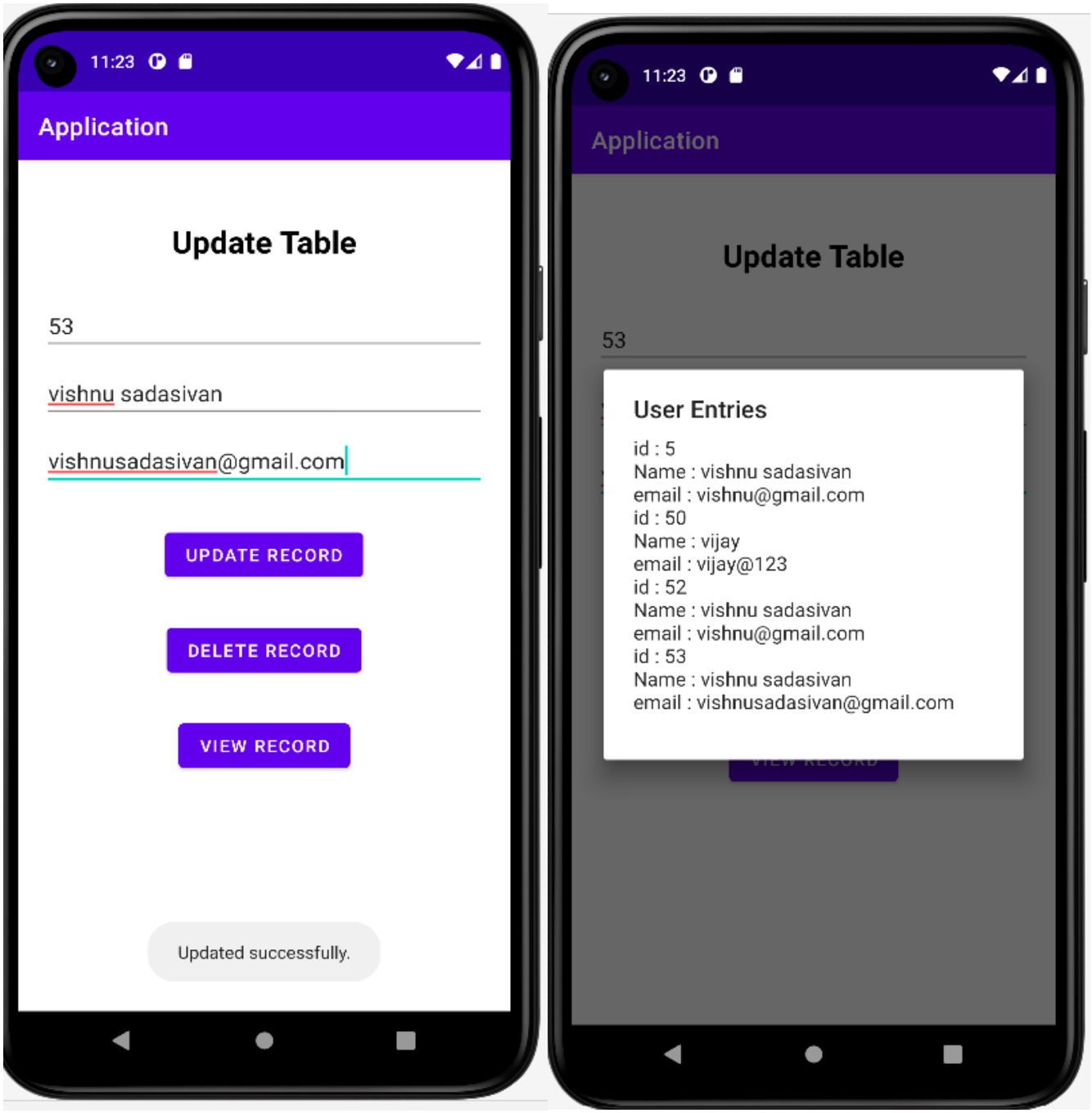
```
   dobTXT=dob.getText().toString();
   Boolean checkupdatedata = DB.updateuserdatas(nameTXT,contactTXT,dobTXT);
   if(checkupdatedata == true){
                  Toast.makeText(MainActivity.this, "data
   updated",Toast.LENGTH_SHORT).show();}else{
               Toast.makeText(MainActivity.this, "failed to update",
Toast.LENGTH_SHORT).show();}}});
      delete.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            String nameTXT=name.getText().toString();
            Boolean checkdeletedata = DB.deleteuserdatas(nameTXT);
            if(checkdeletedata == true){
               Toast.makeText(MainActivity.this, "row deleted",
Toast.LENGTH_SHORT).show();}else{
               Toast.makeText(MainActivity.this, "failed to delete row",
Toast.LENGTH_SHORT).show();}}});
read.setOnClickListener(new View.OnClickListener()
         {@Override
         public void onClick(View v)
            {Cursor res = DB.getdata();
            if(res.getCount()==0){
               Toast.makeText(MainActivity.this, "no datas found",
Toast.LENGTH_SHORT).show();
               return;}
            StringBuffer buffer = new StringBuffer();
            while(res.moveToNext()){
               buffer.append("name:"+res.getString(0)+"\n");
               buffer.append("contact:"+res.getString(1)+"\n");
               buffer.append("dob:"+res.getString(2)+"\n\n\n");}
            AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
            builder.setCancelable(true);
            builder.setTitle("user DEtails");
            builder.setMessage(buffer.toString());
            builder.show();}}); }}
```

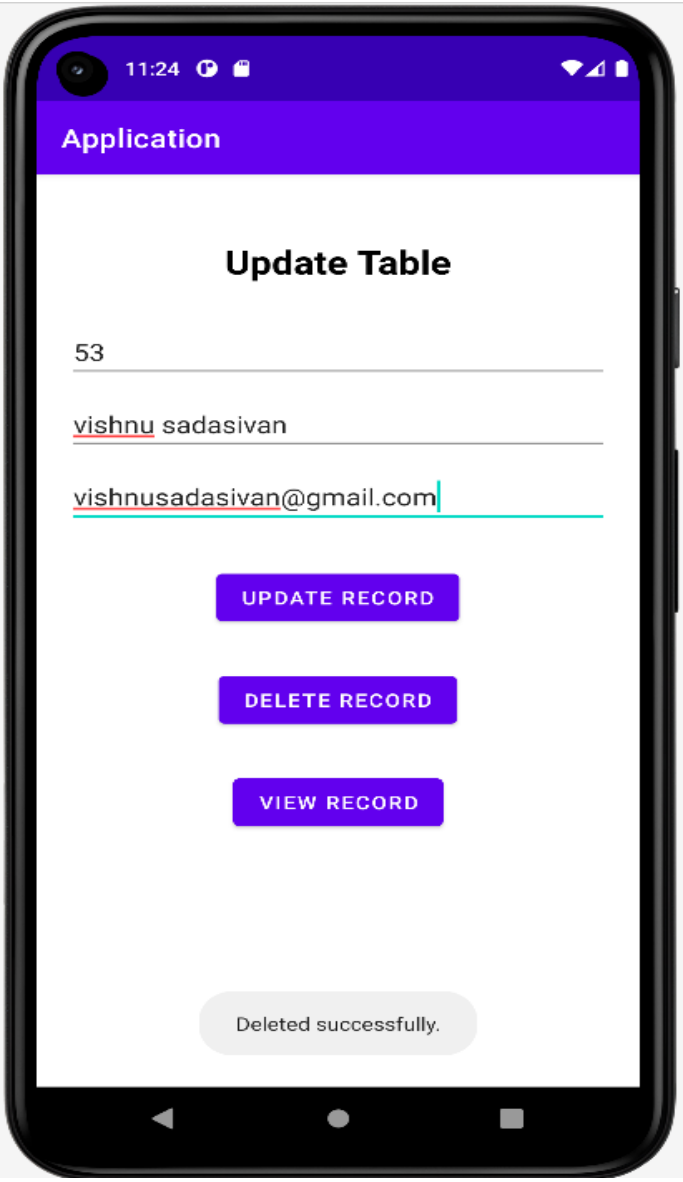
3.DBHelper.java

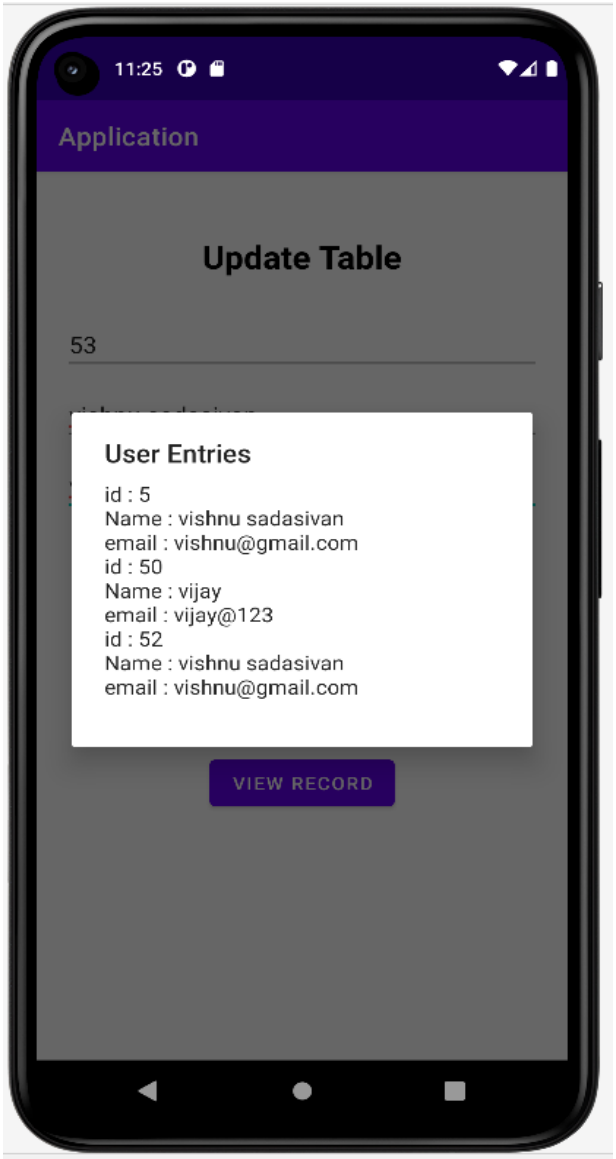
```
package com.example.curdoperation;
import android.content.ContentValues;import android.content.Context;
import android.database.Cursor;import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import androidx.annotation.Nullable;
public class DBHelper extends SQLiteOpenHelper
   {public DBHelper(Context context) {
      super(context, "userdata.db", null, 1)}
               @Override
```

```
        public void onCreate(SQLiteDatabase db) {
        db.execSQL("create table userdetails (name TEXT primary key, contact TEXT , dob
TEXT)");}
@Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion)
        {db.execSQL("drop table if exists userdetails");}
    public Boolean insertuserdatas (String name,String contact, String dob)
        {SQLiteDatabase DB = this.getWritableDatabase();

        ContentValues contentvalues = new
        ContentValues();contentvalues.put("name",
        name); contentvalues.put("contact", contact);
        contentvalues.put("dob", dob);
        long result = DB.insert("userdetails", null,
        contentvalues);if (result==-1) {return false;} else
        {return true;}}
    public Boolean updateuserdatas (String name,String contact, String dob)
        {SQLiteDatabase DB =
        this.getWritableDatabase(); ContentValues
        contentvalues = new ContentValues();
        contentvalues.put("contact", contact);
        contentvalues.put("dob", dob);
        Cursor cursor = DB.rawQuery("select * from userdetails where name=
?",newString[]{name});
        if(cursor.getCount()>0{
        long result = DB.update("userdetails", contentvalues,"name=?", new
        String[]{name});if (result==-1) {return false;} else {return true;}}else{return
        false;}}
    public Boolean deleteuserdatas (String name)
        { SQLiteDatabase DB =
        this.getWritableDatabase(); ContentValues
        contentvalues = new ContentValues();
        Cursor cursor = DB.rawQuery("select * from userdetails where name=
?",newString[]{name});
        if(cursor.getCount()>0){
            long result = DB.delete("userdetails","name=?", new
            String[]{name});if (result==-1) {
                return false;} else
                {return true;}}else
        {return false;}}
public Cursor
getdata(){
    SQLiteDatabase DB = this.getWritableDatabase();
    Cursor cursor = DB.rawQuery("select * from
    userdetails",null);return cursor;}}
```

Output Screenshot







Result

The program was executed and the result was successfully obtained. Thus CO5 was obtained.