20MCA243 - MOBILE APPLICATION DEVELOPMENT LAB

Lab Report Submitted By

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Reg. No.: AJC21MCA-2065

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 **JOBIN T J (AJC21MCA-2065)** in partial fulfilment 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 ComputerApplications 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-skilledprofessionals with ethical values.

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

COURSE OUTCOME

CO	Outcome	Target
CO1	Design and develop user interfaces for mobile apps using basic building blocks, UIcomponents 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 andoptions menu.	60
CO4	Implement activities with dialogs, spinner, fragments and navigation drawer by applyingthemes	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 usingEmulator	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 applyingthemes	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

15	Develop an application that implements Spinner component and perform event handling	25-10-2022	CO4	**58**
16	Create database using SQLite and perform INSERT and SELECT	08-11-2022	CO5	**62**
17	Perform UPDATE and DELETE on SQLite database	08-10-2022	CO5	**68**

Experiment No.: 1

Aim

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

CO1

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

Procedure

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <TextView
      android:id="@+id/login"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_marginTop="30dp"
      android:gravity="center_horizontal"
      android:padding="5dp"
      android:text="Login Form"
      android:textAlignment="center"
      android:textColor="@color/purple_700"
      android:textSize="18sp" />
   <TextView
```

```
        android:layout_width="match_parent"
android:layout_height="wrap_content"
        android:text="Username"
        android:layout_marginTop="90dp"
        android:layout_marginLeft="13dp"/>

    <EditText
        android:id="@+id/username"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/login"
        android:layout_marginStart="10dp"
        android:layout_marginTop="50dp"
        android:layout_marginEnd="10dp"
        android:hint="Enter UserName"
        android:inputType="textEmailAddress" />

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Password"
        android:layout_marginTop="165dp"
        android:layout_marginLeft="13dp"/>

    <EditText
        android:id="@+id/password"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

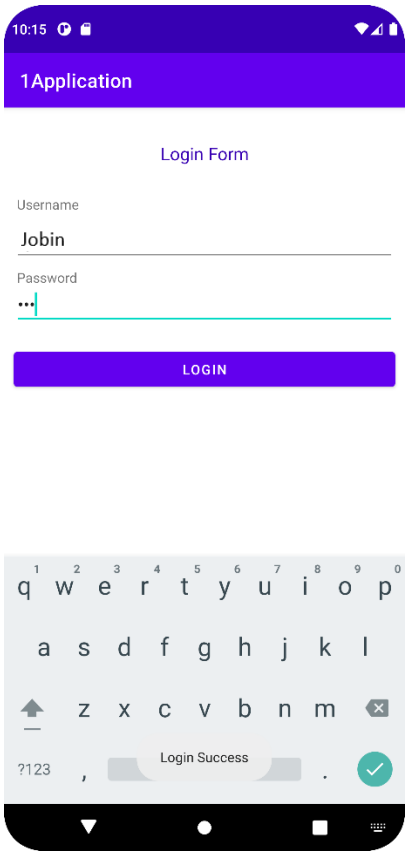
```
        android:layout_below="@id/username"
        android:layout_marginStart="10dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="10dp"
        android:hint="Enter Password"
        android:inputType="textPassword" />
    <Button
        android:id="@+id/idBtnLogin"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/password"
        android:layout_marginStart="10dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="10dp"
        android:text="Login" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.a1;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
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.username);
        EditText pw =(EditText) findViewById(R.id.password);
        Button btn =(Button) findViewById(R.id.idBtnLogin);
        btn.setOnClickListener(view -> {
            String uname = un.getText().toString();
            String passwd = pw.getText().toString();
            if(uname.equals("ajce") && passwd.equals("123")){
                Toast.makeText(this,"Login Success",Toast.LENGTH_SHORT).show();
            }else{
                Toast.makeText(this,"invalid username/password",Toast.LENGTH_SHORT).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 components and application structure using Emulator

Procedure

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="hi friends"
      android:textColor="@color/teal_200"
      android:textSize="30dp"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
  </androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.program9;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      Log.d("Lifecycle", "onCreate invoked");
   }   @Override
   protected void onStart() {
      super.onStart();
      Log.d("Lifecycle", "onStart invoked");
   }   @Override
   protected void onResume() {
      super.onResume();
      Log.d("Lifecycle", "onResume invoked");
   }   @Override
   protected void onPause() {
      super.onPause();
      Log.d("Lifecycle", "onPause invoked");
   }   @Override
   protected void onStop() {
      super.onStop();
      Log.d("Lifecycle", "onStop invoked");
   }   @Override
   protected void onDestroy() {
      super.onDestroy();
```

```
    Log.d("Lifecycle", "onDestroy invoked");
}}
```

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 components and 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:tools="http://schemas.android.com/tools"
    android:id="@+id/activity_main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:textAlignment="center"
    android:weightSum="1">
    <TextView
        android:text="calculator"
        android:layout_width="match_parent"
        android:id="@+id/textView"
        android:layout_height="30dp"
        android:gravity="center_horizontal"
        android:textColorLink="?android:attr/editTextColor"
        android:textSize="40sp"
        android:layout_weight="0.07" />
    <EditText
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="number"
    android:ems="10"
    android:id="@+id/editOp1"
    android:textSize="18sp"
    android:gravity="center_horizontal"
    android:layout_marginBottom="5dp"
    android:visibility="visible"
    android:hint="first number"
    android:layout_marginLeft="30dp"
    android:layout_marginRight="30dp"/>
  <EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="number"
    android:ems="10"
    android:id="@+id/editOp2"
    android:textSize="18sp"
    android:gravity="center_horizontal"
    android:elevation="1dp"
    android:hint="second number"
    android:layout_marginLeft="30dp"
    android:layout_marginRight="30dp"/>
  <LinearLayout
    android:orientation="horizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
```

```
    <Button
        android:text="+"
        android:layout_width="78dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnadd"
        android:layout_weight="0.01"
        android:layout_marginLeft="30dp"
        android:layout_marginRight="30dp"/>
    <Button
        android:text="-"
        android:layout_width="78dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnsub"
        android:layout_weight="0.01"
        android:layout_marginLeft="30dp"
        android:layout_marginRight="30dp"/>
  </LinearLayout>
  <LinearLayout
    android:orientation="horizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <Button
        android:text="*"
        android:layout_width="78dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnmul"
        android:layout_weight="0.01"
        android:layout_marginLeft="30dp"
```

```
        android:layout_marginRight="30dp"/>
    <Button
        android:text="/"
        android:layout_height="wrap_content"
        android:id="@+id/btndiv"
        android:layout_width="78dp"
        android:layout_weight="0.01"
        android:layout_marginLeft="30dp"
        android:layout_marginRight="30dp"/>
</LinearLayout>
<LinearLayout
    android:orientation="horizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <Button
        android:text="Clear"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnclr"
        android:layout_weight="0.03"
        android:layout_marginLeft="30dp"
        android:layout_marginRight="30dp" />
</LinearLayout>
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="number"
    android:ems="10"
```

```
        android:id="@+id/result"
        android:textSize="18sp"
        android:text="answer"
        android:gravity="center_horizontal"
        android:layout_marginLeft="30dp"
        android:layout_marginRight="30dp"/>
</LinearLayout>
```

MainActivity.java

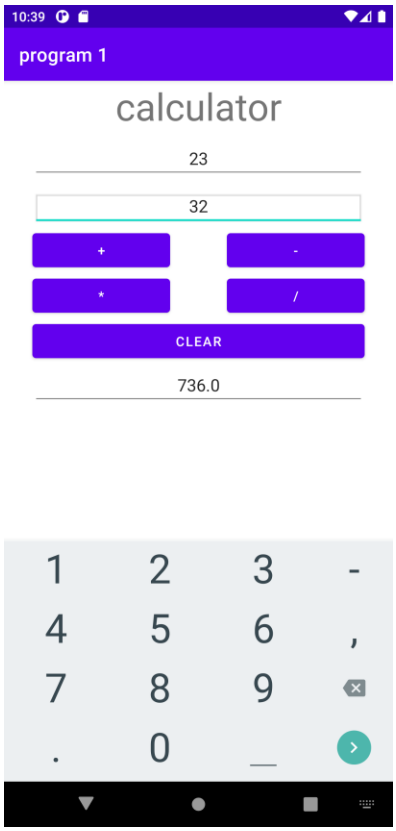
```
package com.example.program1;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    private EditText opr1;
    private EditText opr2;
    private Button btnadd;
    private  Button btnsub;
    private  Button btnmul;
    private Button btndiv;
    private Button btnclr;
    private TextView txtresult;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

```
setContentView(R.layout.activity_main);
opr1 = (EditText) findViewById(R.id.editOp1);
opr2 = (EditText) findViewById(R.id.editOp2);
btnadd = (Button) findViewById(R.id.btnadd);
btnsub = (Button) findViewById(R.id.btnsub);
btnmul = (Button) findViewById(R.id.btnmul);
btndiv = (Button) findViewById(R.id.btndiv);
btnclr = (Button) findViewById(R.id.btnclr);
txtresult= (TextView) findViewById(R.id.result);
btnadd.setOnClickListener(new View.OnClickListener() {          @Override
   public void onClick(View v) {
      if((opr1.getText().length()>0) && (opr2.getText().length()>0)) {
         double oper1 = Double.parseDouble(opr1.getText().toString());
         double oper2 = Double.parseDouble(opr2.getText().toString());
         double result = oper1 + oper2;
         txtresult.setText(Double.toString(result));
      } else{
         Toast toast= Toast.makeText(MainActivity.this,"Enter The Required
Numbers",Toast.LENGTH_LONG);
         toast.show();
      }          }       });
btnsub.setOnClickListener(new View.OnClickListener() {
   @Override
   public void onClick(View v) {
      if((opr1.getText().length()>0) && (opr2.getText().length()>0)) {
         double oper1 = Double.parseDouble(opr1.getText().toString());
         double oper2 = Double.parseDouble(opr2.getText().toString());
         double result = oper1 - oper2;
         txtresult.setText(Double.toString(result));
```

```
        }           else{
            Toast toast= Toast.makeText(MainActivity.this,"Enter The Required
Numbers",Toast.LENGTH_LONG);
            toast.show();
        }       }       });
    btnmul.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        if((opr1.getText().length()>0) && (opr2.getText().length()>0)) {
          double oper1 = Double.parseDouble(opr1.getText().toString());
          double oper2 = Double.parseDouble(opr2.getText().toString());
          double result = oper1 * oper2;
          txtresult.setText(Double.toString(result));
        }           else{
          Toast toast= Toast.makeText(MainActivity.this,"Enter The Required
Numbers",Toast.LENGTH_LONG);
          toast.show();
        }       }       });
    btndiv.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        if((opr1.getText().length()>0) && (opr2.getText().length()>0)) {
          double oper1 = Double.parseDouble(opr1.getText().toString());
          double oper2 = Double.parseDouble(opr2.getText().toString());
          double result = oper1 / oper2;
          txtresult.setText(Double.toString(result));
        }           else{
          Toast toast= Toast.makeText(MainActivity.this,"Enter The Required
Numbers",Toast.LENGTH_LONG);
```

```
            toast.show();            }        }       });
    btnclr.setOnClickListener(new View.OnClickListener() { @Override
        public void onClick(View v) {
            opr1.setText("");
            opr2.setText("");
            txtresult.setText("0.00");
            opr1.requestFocus();
        }   });    }}
```

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 components and 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:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   tools:context=".MainActivity"
   tools:ignore="HardcodedText">
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_gravity="center"
      android:textSize="20dp"
      android:layout_marginTop="20dp"
      android:text="Form Validation"/>
   <EditText
      android:id="@+id/firstName"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_marginStart="16dp"
```

```
    android:layout_marginTop="16dp"
    android:layout_marginEnd="16dp"
    android:hint="First Name"
    android:inputType="text" />
  <EditText
    android:id="@+id/lastName"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
    android:layout_marginEnd="16dp"
    android:hint="Last Name"
    android:inputType="text" />
  <EditText
    android:id="@+id/email"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
    android:layout_marginEnd="16dp"
    android:hint="Email"
    android:inputType="textEmailAddress" />
  <EditText
    android:id="@+id/password"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
    android:layout_marginEnd="16dp"
    android:hint="Password"
    android:inputType="textPassword" />
```

```
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:gravity="end"
        android:orientation="horizontal">
        <Button
            android:id="@+id/cancelButton"
            style="@style/Widget.AppCompat.Button.Borderless"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginEnd="180dp"
            android:text="CANCEL"
            android:textColor="@color/black" />
        <Button
            android:id="@+id/proceedButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginEnd="20dp"
            android:backgroundTint="@color/black"
            android:text="PROCEED"
            android:textColor="@android:color/white"/>
    </LinearLayout>
</LinearLayout>
```

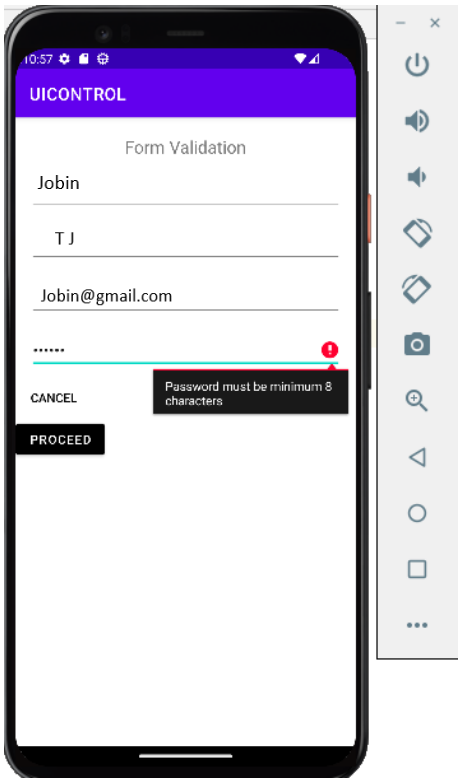
MainActivity.java

```
package com.example.program4;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
```

```
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
    Button bCancel, bProceed;
    EditText etFirstName, etLastName, etEmail, etPassword;
    boolean isAllFieldsChecked = false;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        bProceed = findViewById(R.id.proceedButton);
        bCancel = findViewById(R.id.cancelButton);
        etFirstName = findViewById(R.id.firstName);
        etLastName = findViewById(R.id.lastName);
        etEmail = findViewById(R.id.email);
        etPassword = findViewById(R.id.password);
        bProceed.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                isAllFieldsChecked = CheckAllFields();
                if (isAllFieldsChecked) {
                    Intent i = new Intent(MainActivity.this, MainActivity.class);
                    startActivity(i);
                }           }       });
        bCancel.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

```
            MainActivity.this.finish();
            System.exit(0);
        }       });    }
    private boolean CheckAllFields() {
        if (etFirstName.length() == 0) {
            etFirstName.setError("This field is required");
            return false;
        }
        if (etLastName.length() == 0) {
            etLastName.setError("This field is required");
            return false;
        }
        if (etEmail.length() == 0) {
            etEmail.setError("Email is required");
            return false;
        }
        if (etPassword.length() == 0) {
            etPassword.setError("Password is required");
            return false;
        } else if (etPassword.length() < 8) {
            etPassword.setError("Password must be minimum 8 characters");
            return false;
        }
        return true;
    }}
```

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, layouts and preferences

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:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="prgm4 shared preference "
        android:id="@+id/textView"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:textSize="29dp" />
    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
    android:id="@+id/editText"
    android:layout_below="@+id/textView2"
    android:layout_marginTop="67dp"
    android:hint="Name"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentEnd="true" />
  <EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/editText3"
    android:layout_below="@+id/editText2"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentEnd="true"
    android:hint="Email" />
  <EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/editText2"
    android:layout_below="@+id/editText"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentEnd="true"
    android:hint="Pass" />
```

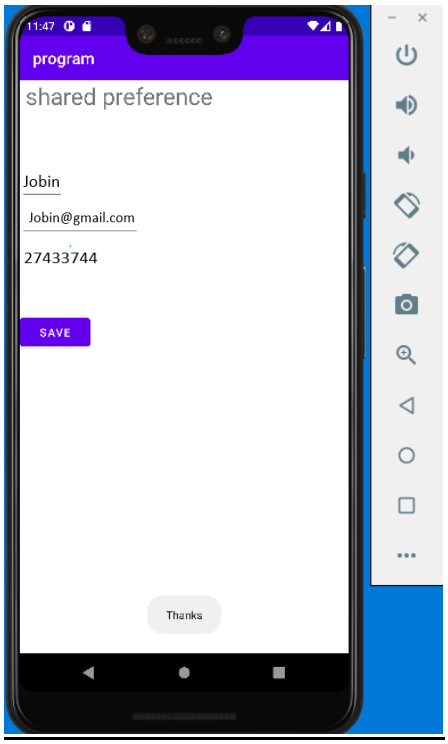
```
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Save"
        android:id="@+id/button"
        android:layout_below="@+id/editText3"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="50dp" />
</LinearLayout>
```

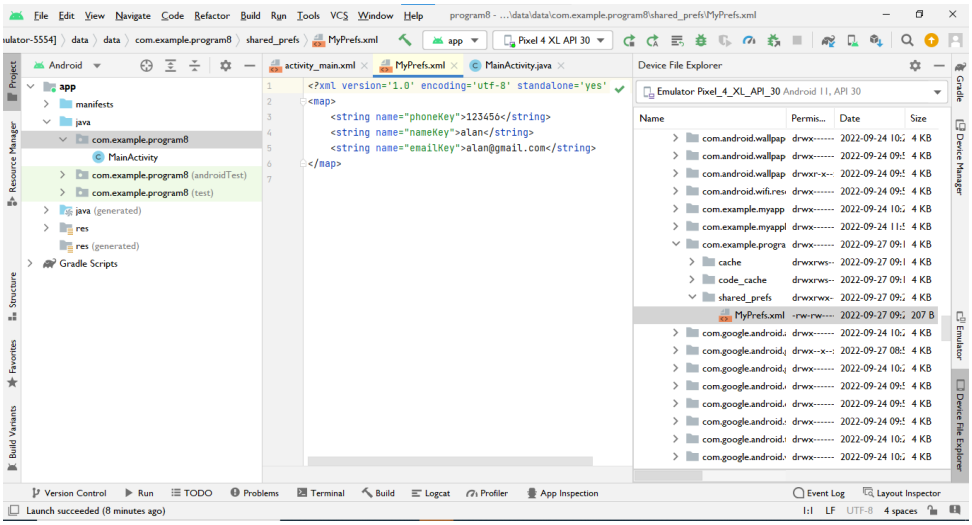
MainActivity.java

```
package com.example.program8;
        import androidx.appcompat.app.AppCompatActivity;
        import android.content.Context;
        import android.content.SharedPreferences;
        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 ed1,ed2,ed3;
    Button b1;
    public static final String MyPREFERENCES = "MyPrefs" ;
    public static final String Name = "nameKey";
    public static final String Phone = "phoneKey";
    public static final String Email = "emailKey";
    SharedPreferences sharedpreferences;
```

```
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      ed1=(EditText)findViewById(R.id.editText);
      ed2=(EditText)findViewById(R.id.editText2);
      ed3=(EditText)findViewById(R.id.editText3);
      b1=(Button)findViewById(R.id.button);
      sharedpreferences = getSharedPreferences(MyPREFERENCES,
Context.MODE_PRIVATE);
      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            String n  = ed1.getText().toString();
            String ph  = ed2.getText().toString();
            String e  = ed3.getText().toString();
            SharedPreferences.Editor editor = sharedpreferences.edit();
            editor.putString(Name, n);
            editor.putString(Phone, ph);
            editor.putString(Email, e);
            editor.commit();
            Toast.makeText(MainActivity.this,"Thanks",Toast.LENGTH_LONG).show();
         }       });    }}
```

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, layouts and preferences

Procedure

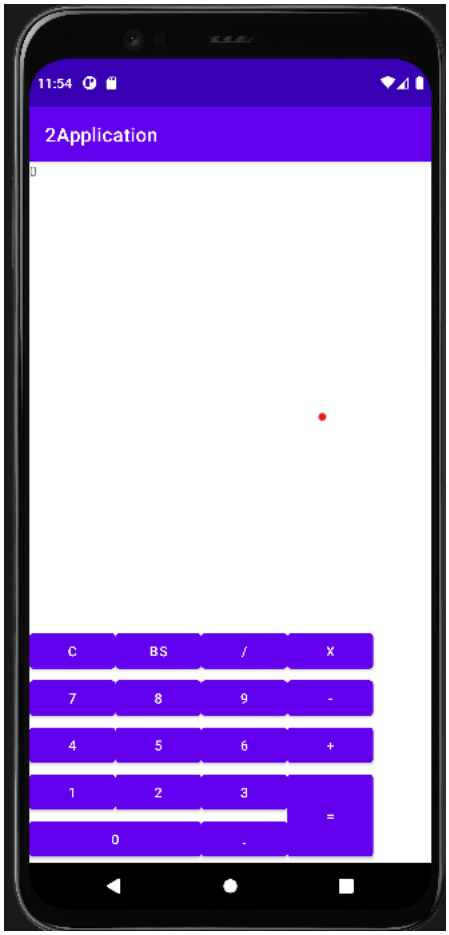
Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools"
   android:orientation="vertical"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
  <TextView
    android:layout_height="match_parent"
    android:layout_width="match_parent"
    android:text="0"
    android:layout_above="@+id/gridLayout" />
 <GridLayout
    android:id="@+id/gridLayout"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_alignParentBottom="true"
```

```
    android:columnCount="4"
    android:rowCount="5"
    android:orientation="horizontal"
    android:useDefaultMargins="false">
  <Button android:text="C" />
  <Button android:text="BS" />
  <Button android:text="/" />
  <Button android:text="x" />
  <Button android:text="7" />
  <Button android:text="8" />
  <Button android:text="9" />
  <Button android:text="-" />
  <Button android:text="4" />
  <Button android:text="5" />
  <Button android:text="6" />
  <Button android:text="+" />
  <Button   android:text="1" />
  <Button android:text="2" />
  <Button android:text="3" />
  <Button android:layout_gravity="fill_vertical"
     android:layout_rowSpan="2"
     android:text="=" />
  <Button
     android:layout_gravity="fill_horizontal"
     android:layout_columnSpan="2"
     android:text="0" />
  <Button
     android:text="." />
```

```
</GridLayout>
</RelativeLayout>
```

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, layouts and preferences

Procedure

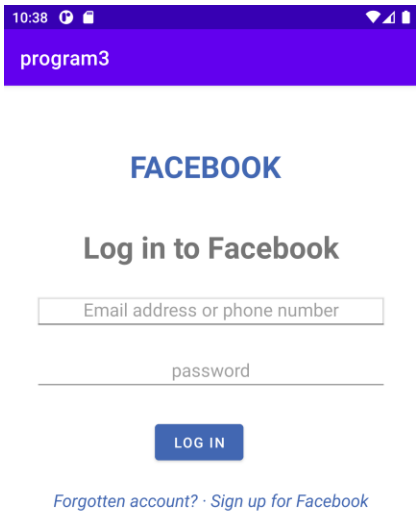
Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   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"
      android:text="FACEBOOK"
      android:textColor="#4267B2"
      android:textSize="30dp"       android:textStyle="bold"
      android:layout_marginLeft="125dp"
      android:layout_marginTop="60dp"/>
   <TextView
      android:text="Log in to Facebook"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_marginTop="140dp"
      android:textSize="30dp"       android:textStyle="bold"
      android:gravity="center_horizontal"/>
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="number"
    android:ems="10"
    android:textSize="18sp"
    android:gravity="center_horizontal"
    android:elevation="1dp"       android:hint="Email address or phone number"
    android:layout_marginLeft="30dp"
    android:layout_marginRight="30dp"
    android:layout_marginTop="200dp"/>
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="number"
    android:textSize="18sp"
    android:gravity="center_horizontal"
    android:hint="password"
    android:layout_marginLeft="30dp"
    android:layout_marginRight="30dp"
    android:layout_marginTop="260dp"/>
<Button
    android:text="Log In"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="150dp"
    android:layout_marginRight="150dp"       android:layout_marginTop="330dp"
    android:backgroundTint="#4267B2"/>
```

```
    <TextView
        android:text="Forgotten account? · Sign up for Facebook"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="17dp"
        android:textStyle="italic"
        android:gravity="center_horizontal"
        android:layout_marginTop="400dp"
        android:textColor="#4267B2 />
</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

O2

Write simple programs and develop small applications using the concepts of UI design, layouts and 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/a"
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:scaleType="fitXY" />
   <ImageView
      android:id="@+id/second_image"
      android:src = "@drawable/b"
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:scaleType="fitXY" />
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Click the image to switch"
```

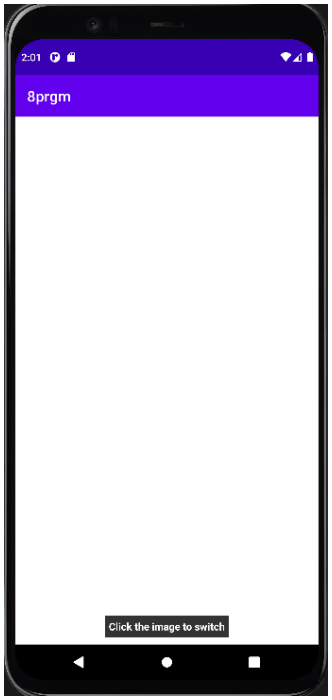
```
    android:layout_gravity="center_horizontal|bottom"
    android:padding="5dip"
    android:textColor="#ffffff"
    android:textStyle="bold"
    android:background="#333333"
    android:layout_marginBottom="10dip" />
</FrameLayout>
```

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 androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
   @Override
   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) {
            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 options menu.

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:orientation="vertical"
   tools:context=".MainActivity">
   <EditText
      android:id="@+id/first"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:ems="10"
      android:hint="enter first value"  />
   <EditText
      android:id="@+id/second"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:ems="10"
```

```
        android:hint="enter second value" />
    <Button
        android:id="@+id/btn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Button" />
</LinearLayout>
```

MainActivity.java

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
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 et1 = (EditText)findViewById(R.id.first);
        EditText et2 = (EditText)findViewById(R.id.second);
        Button butt = (Button) findViewById(R.id.btn);
        butt.setOnClickListener(view -> {
            int x = Integer.parseInt(et1.getText().toString());
            int y = Integer.parseInt(et2.getText().toString());
            try{
                int c = x / y;
```

```
        Toast.makeText(getApplicationContext(), "result :"+c,
Toast.LENGTH_SHORT).show();
    }catch (Exception e){
        Toast.makeText(getApplicationContext(), "error", 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 options menu.

Procedure

Activity_main1.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/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="good morning"
        android:textAlignment="center"
        android:textSize="28sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toTopOf="parent" />
  <Button
    android:id="@+id/btn1"
    android:text="next Screen"
    android:onClick="newsScreen"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editText" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_main2.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=".MainActivity2">
  <TextView
    android:id="@+id/editText"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="good evening"
    android:textAlignment="center"
```

```
        android:textSize="28sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <Button
        android:id="@+id/btn2"
        android:text="next Screen"
        android:onClick="next Screen"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity1.java

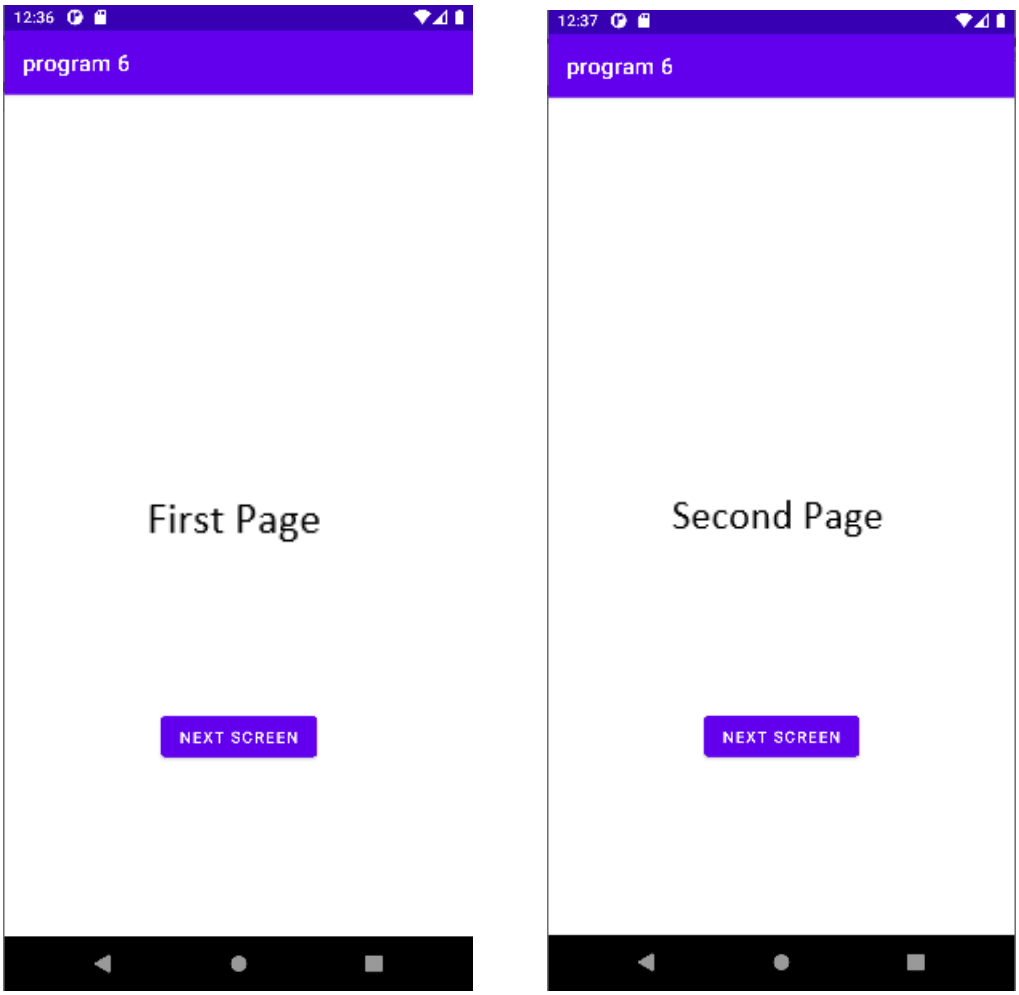
```
package com.example.program6;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
    }
    public void newsScreen(View view) {
        Intent i = new Intent(getApplicationContext(), MainActivity2.class);
        startActivity(i);
    }}
```

MainActivity2.java

```
package com.example.program6;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
public class MainActivity2 extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
    }
    public void newsScreen(View view) {
        Intent i = new Intent(getApplicationContext(), MainActivity2.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 options menu.

Procedure

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   tools:context=".MainActivity"
   tools:ignore="HardcodedText">
   <EditText
      android:id="@+id/fn"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_marginStart="16dp"
      android:layout_marginTop="16dp"
      android:layout_marginEnd="16dp"
      android:hint="type a url"
      android:inputType="text" />
   <Button
      android:id="@+id/proceed"
```

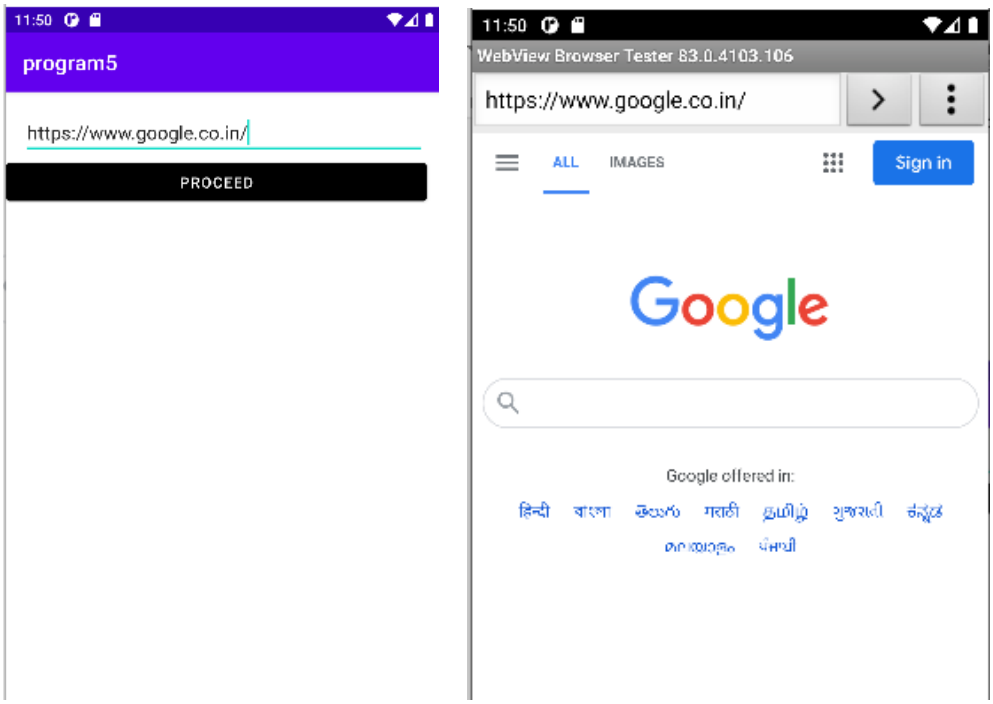
```
        android:layout_width="397dp"
        android:layout_height="wrap_content"
        android:layout_marginEnd="16dp"
        android:backgroundTint="@color/black"
        android:text="PROCEED"
        android:textColor="@android:color/white"
        tools:ignore="ButtonStyle" />
</LinearLayout>
```

MainActivity.java

```
package com.example.program5;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        EditText fn=(EditText)findViewById(R.id.fn);
        Button proceed=(Button)findViewById(R.id.proceed);
        proceed.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

```
        String url=fn.getText().toString();
        Intent intent=new Intent(Intent.ACTION_VIEW, Uri.parse(url));
        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 options menu.

Procedure

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:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="ajce"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

MainActivity.java

```
package com.example.optionmenu;
```

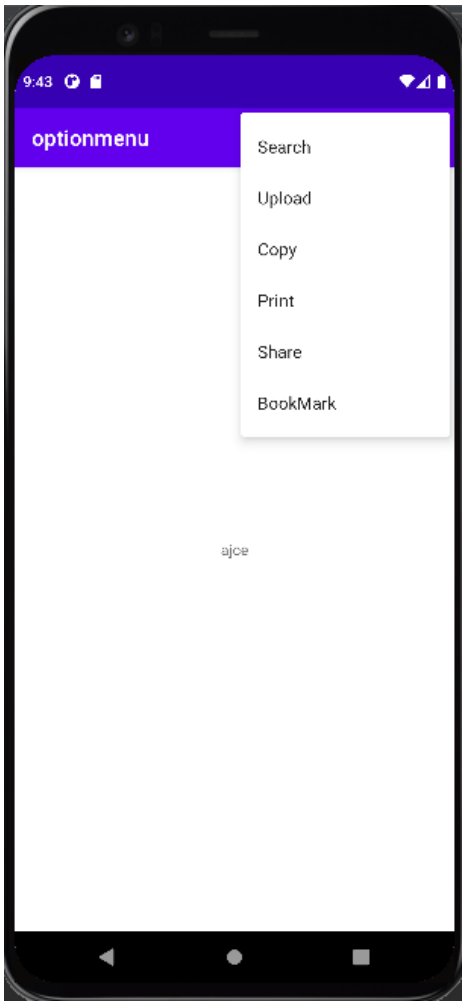
```
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
   }
   @Override
   public boolean onCreateOptionsMenu(Menu menu) {
      getMenuInflater().inflate(R.menu.mainmenu, menu);
      return true;
   }    @Override
   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 options menu.

Procedure

Activity_main.xml

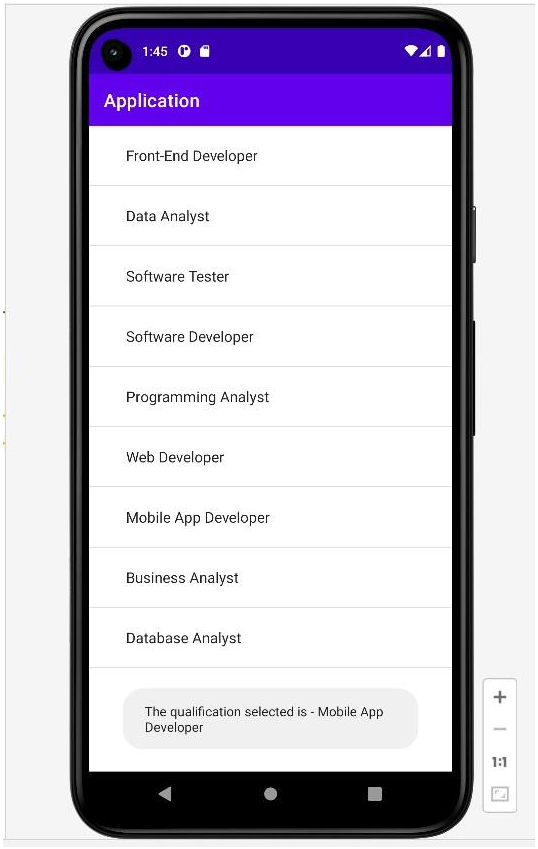
```
<?xml version="1.0" encoding="utf-8"?>

<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.AppCompat
Activity;import android.os.Bundle;
import
android.widget.Array
Adapter;import
android.widget.ListVi
ew; import
android.widget.Toast;

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 = {"Front-End Developer", "Data Analyst", "Software
Tester", "Software Developer", "Programming Analyst", "Web Developer", "Mobile
App Developer", "Business Analyst","Database Analyst"};
listview =
findViewById(R.id.listv
iew);
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

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_parent"
     android:layout_height="wrap_content">
 </GridView>
</RelativeLayout
```

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"
```

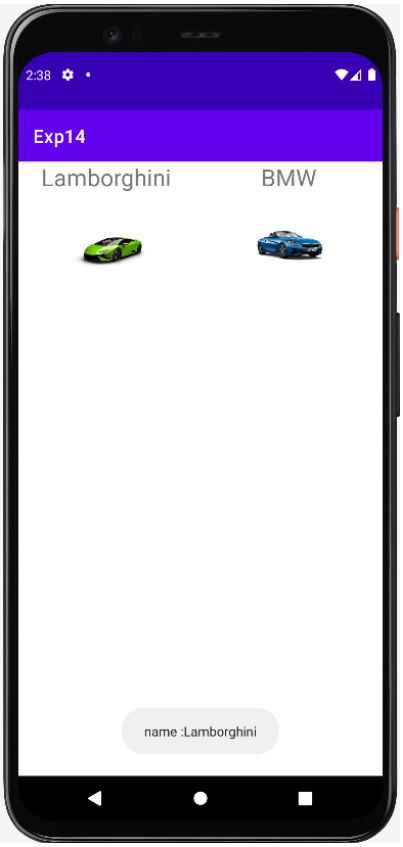
```
   android:layout_height="match_parent">
   <RelativeLayout
      android:id="@+id/gv12"
      android:layout_width="190dp"
      android:layout_height="180dp"
      android:background ="#fff"       >
      <TextView
         android:id="@+id/tvid"
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:layout_centerHorizontal="true"
         android:text="Apple"
         android:textSize="25dp" />
      <ImageView
         android:id="@+id/imgview"
         android:layout_width="90dp"
         android:layout_height="90dp"
         android:layout_alignParentStart="true"
         android:layout_alignParentTop="true"
         android:layout_alignParentEnd="true"
         android:layout_alignParentBottom="true"
         android:layout_marginStart="50dp"
         android:layout_marginTop="45dp"
         android:layout_marginEnd="50dp"
         android:layout_marginBottom="45dp"
         android:src="@drawable/d" />
   </RelativeLayout>
</RelativeLayout>
```

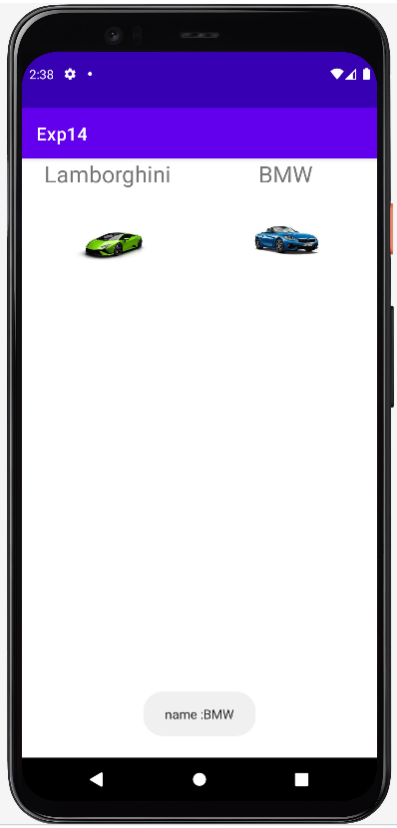
MainActivity.java

```
package com.example.a8prgm;
import androidx.appcompat.app.AppCompatActivity;
import android.media.Image;
import android.os.Bundle;
import android.view.View;
import android.view.ViewGroup;
import android.widget.AdapterView;
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.c,R.drawable.d};
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      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() {
         return frtimg.length;
      }       @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

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"
   tools:context=".MainActivity">
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="cars"
      android:textColor="@color/black"
      android:textSize="30dp"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
   <Spinner
```

```
    android:id="@+id/spinner"
    android:layout_width="300dp"
    android:layout_height="70dp" />
</LinearLayout>
```

MainActivity.java

```
package com.example.spinner;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemSelectedListener {
  String[] cars = { "city", "tiago", "civic", "nano", "mustang"};
  @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,cars);
    aa.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
    spin.setAdapter(aa);
  }  @Override
  public void onItemSelected(AdapterView<?> arg0, View arg1, int position, long id) {
    Toast.makeText(getApplicationContext(),cars[position] , Toast.LENGTH_LONG).show();
```

```
}    @Override
public void onNothingSelected(AdapterView<?> arg0) {
    // TODO Auto-generated method stub
}}
```

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

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" tools:context=".Ques15Activity">
<TextView android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Insert Table"
 android:layout_gravity="center"
android:layout_marginTop="50dp"
android:textSize="25sp"
 android:textStyle="bold"
android:textColor="@color/black"/>
<EditText android:id="@+id/rollno"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:hint="Enter your 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="Enter your name"
android:layout_marginHorizontal="20dp"
android:layout_marginTop="10dp"/>
<EditText android:id="@+id/email"
android:layout_width="match_parent"
android:layout_height="wrap_content"
 android:hint="Enter your email id"
 android:layout_marginHorizontal="20dp"
android:layout_marginTop="10dp"/>
<Button
android:id="@+id/insert_btn"
 android:layout_width="wrap_content"
android:layout_height="wrap_content"
 android:text="Insert" android:layout_marginTop="30dp"
 android:layout_gravity="center"/>
<Button
android:id="@+id/select_btn"
android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="View"
android:layout_marginTop="30dp"
android:layout_gravity="center"/>
</LinearLayout>
```

MainActivity.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();
}
}
});
```

```
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();

 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;

}

}
```

Output Screenshot

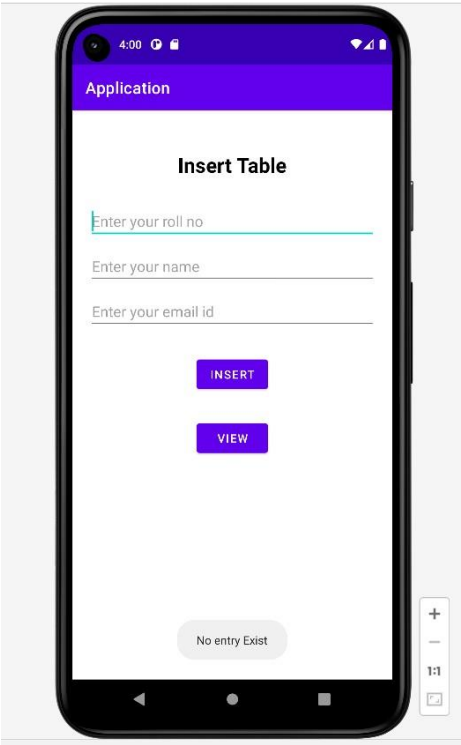


Table: userdetails

	rollno	name	email
	Filter	Filter	Filter
1	5	Athulvinayakur	athul@gmail...
2	6	jesnamolthom	jesna@gmail.....
3	7	jobintj	jobin@gmail...

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

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"
tools:context=".Ques15Activity">
<TextView android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Insert Table"
android:layout_gravity="center"
 android:layout_marginTop="50dp"
 android:textSize="25sp"
 android:textStyle="bold" android:textColor="@color/black"/>
<EditText android:id="@+id/rollno"
android:layout_width="match_parent"
android:layout_height="wrap_content"
 android:hint="Enter your 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="Enter your name"
android:layout_marginHorizontal="20dp"
 android:layout_marginTop="10dp"/>
<EditText android:id="@+id/email"
android:layout_width="match_parent"
 android:layout_height="wrap_content"
 android:hint="Enter your email id"
 android:layout_marginHorizontal="20dp"
 android:layout_marginTop="10dp"/>
<Button
android:id="@+id/update_btn"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Update Record"
 android:layout_marginTop="30dp"
android:layout_gravity="center"/>
<Button
android:id="@+id/delete_btn"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Delete Record"
 android:layout_marginTop="30dp"
 android:layout_gravity="center"/>
<Button
```

```
android:id="@+id/select_btn"
android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="View Record"
android:layout_marginTop="30dp"
 android:layout_gravity="center"/>
</LinearLayout>
```

MainActivity.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 Ques17Activity extends AppCompatActivity {
EditText rollno, name, email;
Button update_btn, delete_btn, select_btn; DBHelper db;
@Override
protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
setContentView(R.layout.activity_ques17);
rollno= findViewById(R.id.rollno);
name= findViewById(R.id.name);
 email= findViewById(R.id.email);
update_btn= findViewById(R.id.update_btn);
```

```
 delete_btn= findViewById(R.id.delete_btn);
 select_btn= findViewById(R.id.select_btn);
 db= new DBHelper(getApplicationContext());
update_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();
DBHelper db= new DBHelper(getApplicationContext());
boolean update_result= db.updateToDB(rollno_num, name_txt, email_txt);
 if(update_result){
Toast.makeText(getApplicationContext(), "Updated successfully.",
Toast.LENGTH_LONG).show();
}
 else{
Toast.makeText(getApplicationContext(), "Updation failed !!", Toast.LENGTH_LONG).show();
}}});
delete_btn.setOnClickListener(new View.OnClickListener() {
 @Override
public void onClick(View view) {
int rollno_num= Integer.parseInt(rollno.getText().toString());
DBHelper db= new DBHelper(getApplicationContext());
boolean update_result= db.deleteFromDB(rollno_num);
if(update_result){
Toast.makeText(getApplicationContext(), "Deleted successfully.",
Toast.LENGTH_LONG).show();
} else{
Toast.makeText(getApplicationContext(), "Deletion failed !!", Toast.LENGTH_LONG).show();
```

```
}} });
select_btn.setOnClickListener(new View.OnClickListener() {
 @Override
public void onClick(View view) {
Cursor res = db.selectFromDB();
 if (res.getCount() == 0) {
Toast.makeText(getApplicationContext(), "No entry Exist", Toast.LENGTH_LONG).show();
} else {
StringBuffer buffer = new StringBuffer();
 while (res.moveToNext()) {
buffer.append("id : " + res.getString(0) + "\n"); buffer.append("Name : " + res.getString(1) +
"\n"); buffer.append("email : " + res.getString(2) + "\n");
 } });}
AlertDialog.Builder builder = new AlertDialog.Builder(Ques17Activity.this);
builder.setCancelable(true);
builder.setTitle("User Entries");
 builder.setMessage(buffer.toString());
 builder.show();
}} });
 } }
}
```

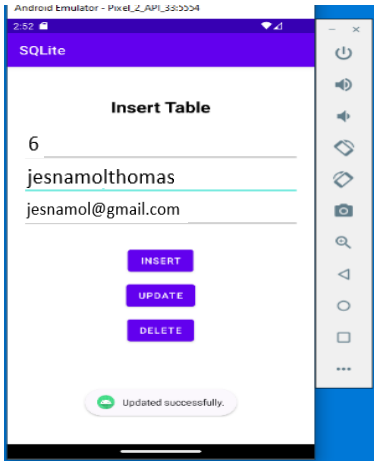
DBhelper.java

```
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();

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)});

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 Screenshot



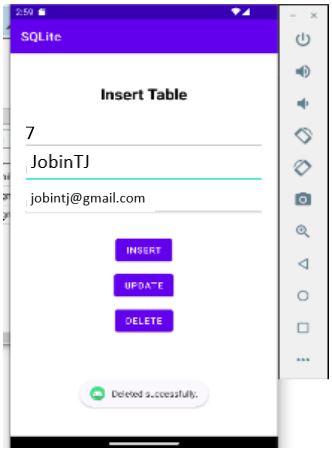


Table: userdetails

	rollno	name	email
	Filter	Filter	Filter
1	5	Athulvinayakumar	athulvnaya@gmail.com
2	6	Jesnamolethomas	jesnamol@gmail.com
3	7	JobinTJ	jobintj@gmail.com

Result

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