Experiment No. 1

Aim: Design a Login Form with username and password using LinearLayout and toast valid Credentials.

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"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   android:padding="16dp">
   <TextView
      android:id="@+id/textView"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="LOGIN FORM"
      android:textAlignment="center" />
   <TextView
      android:id="@+id/textView1"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="USERNAME" />
   <EditText
      android:id="@+id/usernameEditText"
      android:layout_width="213dp"
      android:layout_height="wrap_content"
      android:layout_marginTop="8dp"
      android:hint="Enter username" />
   <TextView
      android:id="@+id/textView2"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
```

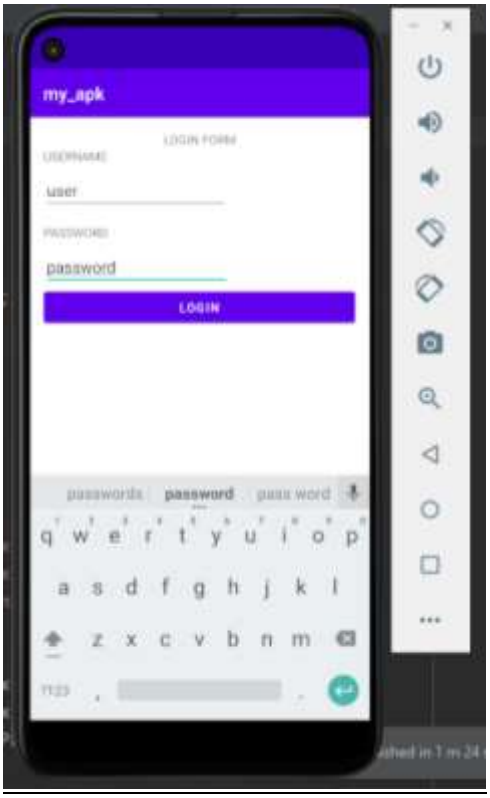
```
        android:text="PASSWORD"
        android:layout_marginTop="16dp"/>
    <EditText
        android:id="@+id/passwordEditText"
        android:layout_width="215dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:hint="Enter password" />
    <Button
        android:id="@+id/loginButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Login" />
</LinearLayout>
```

Main.activity.java

```
package com.example.my_apk;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Button;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    private static final String VALID_USERNAME="user";
    private static final String VALID_PASSWORD="password";
    private EditText usernameEditText;
    private EditText passwordEditText;
    private Button loginButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        usernameEditText=findViewById(R.id.usernameEditText);
        passwordEditText=findViewById(R.id.passwordEditText);
        loginButton=findViewById(R.id.loginButton);
        loginButton.setOnClickListener(v -> {
            String enteredUsername=usernameEditText.getText().toString();
            String enteredPassword=passwordEditText.getText().toString();
```

```
        if(isValidCredentials(enteredUsername,enteredPassword)) {
            showToast("Login Successful");
        }
        else{
            showToast("Invalid Credentials");
        }
    });}
  private boolean isValidCredentials(String enteredUsername, String enteredPassword){
    return VALID_USERNAME.equals(enteredUsername) &&
VALID_PASSWORD.equals(enteredPassword);
  }
  private void showToast(String message){
    Toast.makeText(this,message,Toast.LENGTH_SHORT).show();
  }}
```

Output:



Result : The program was executed successfully and the output was obtained.Thus CO1 was attained.

Experiment No. 2

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.

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:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   android:padding="30dp"
   android:gravity="center_horizontal">
   <!-- Text View -->
   <TextView
      android:id="@+id/TextView1"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Simple Calculator"
      android:textColor="@color/black"
      android:textSize="24sp"
      android:layout_gravity="center"
      android:layout_marginBottom="16dp"
      android:textStyle="bold"/>
   <!-- Edit Text-->
   <EditText
      android:id="@+id/EditText1"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_margin="30dp"
```

```
    android:layout_marginStart="50dp"
    android:layout_marginTop="50dp"
    android:layout_marginEnd="50dp"
    android:layout_marginBottom="50dp" />
  <GridLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:rowCount="4"
    android:columnCount="4"
    android:layout_gravity="center"
    android:layout_marginTop="40dp">
    <Button
      android:id="@+id/button1"
      android:layout_width="0dp"
      android:layout_height="wrap_content"
      style="?android:attr/buttonStyleSmall"
      android:layout_columnWeight="1"
      android:text="1"
      android:textSize="18sp"
      android:onClick="onDigitClick"/>
    <Button
      android:id="@+id/button2"
      android:layout_width="0dp"
      android:layout_height="wrap_content"
      style="?android:attr/buttonStyleSmall"
      android:layout_columnWeight="1"
      android:text="2"
      android:textSize="18sp"
      android:onClick="onDigitClick"/>
    <Button
      android:id="@+id/button3"
      android:layout_width="0dp"
      android:layout_height="wrap_content"
      style="?android:attr/buttonStyleSmall"
      android:layout_columnWeight="1"
      android:text="3"
      android:textSize="18sp"
      android:onClick="onDigitClick"/>
    <Button
      android:id="@+id/buttonDiv"
```

```
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="/"
        android:textSize="18sp"
        android:onClick="onOperatorClick"/>
    <Button
        android:id="@+id/button4"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="4"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
    <Button
        android:id="@+id/button5"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="5"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
    <Button
        android:id="@+id/button6"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="6"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
    <Button
        android:id="@+id/buttonMul"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
```

```
        android:text="*"
        android:textSize="18sp"
        android:onClick="onOperatorClick"/>
    <Button
        android:id="@+id/button7"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="7"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
    <Button
        android:id="@+id/button8"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="8"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
    <Button
        android:id="@+id/button9"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="9"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
    <Button
        android:id="@+id/buttonSub"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="-"
        android:textSize="18sp"
        android:onClick="onOperatorClick"/>
    <Button
```

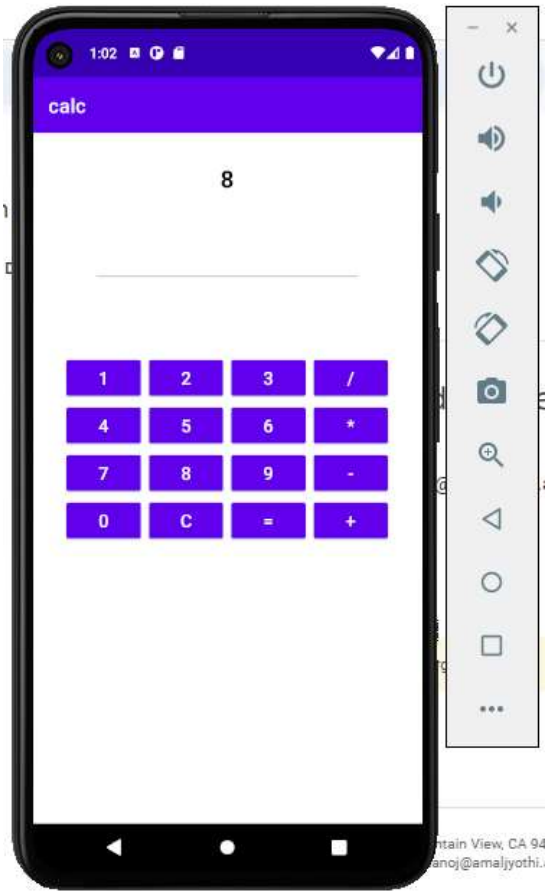
```
        android:id="@+id/button0"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="0"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
    <Button
        android:id="@+id/buttonDot"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="C"
        android:textSize="18sp"
        android:onClick="onClearClick"/>
    <Button
        android:id="@+id/buttonEqual"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="="
        android:textSize="18sp"
        android:onClick="onEqualsClick"/>
    <Button
        android:id="@+id/buttonAdd"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="+"
        android:textSize="18sp"
        android:onClick="onOperatorClick"/>
  </GridLayout>
</LinearLayout>
```

Main.activity.java

```
package com.example.calc;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
   private TextView TextView1;
   private Button button1;
   private Button button2;
   private Button button3;
   private Button buttonDiv;
   private Button button4;
   private Button button5;
   private Button button6;
   private Button buttonMul;
   private Button button7;
   private Button button8;
   private Button button9;
   private Button buttonSub;
   private Button button0;
   private Button buttonDot;
   private Button buttonEqual;
   private Button buttonAdd;
   private String currentInput = "";
   private double operand1 = 0;
   private String operator = "";
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      TextView1 =  findViewById(R.id.TextView1);
   }
   public void onDigitClick(View view) {
      Button button = (Button) view;
      currentInput += button.getText().toString();
      updateDisplay();
   }
   public void onOperatorClick(View view){
```

```
    if (!currentInput.isEmpty()){
        operand1 = Double.parseDouble(currentInput);
        operator = ((Button) view).getText().toString();
        currentInput = "";
    }   }
  public void onEqualsClick(View view){
    if (!currentInput.isEmpty()){
        double operand2 = Double.parseDouble(currentInput);
        double result = performOperation(operand1,operand2,operator);
        currentInput = String.valueOf((result));
        updateDisplay();
    }   }
  public void onClearClick(View view){
    currentInput = "";
    operand1 = 0;
    operator = "";
    updateDisplay();
  }
  private double performOperation(double operand1, double operand2, String operator){
    switch (operator){
        case "+":
            return operand1 + operand2;
        case "-":
            return operand1 - operand2;
        case "*":
            return operand1 * operand2;
        case "/":
            if (operand2 !=0) {
                return operand1 / operand2;
            } else {
                return Double.NaN;
            }
        default:
            return 0;
    }   }
  public void updateDisplay(){
    TextView1.setText(currentInput);
  }}
```

Output



Result : The program was executed successfully and the output was obtained.Thus CO1 and CO2 was attained.

Experiment No. 3

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

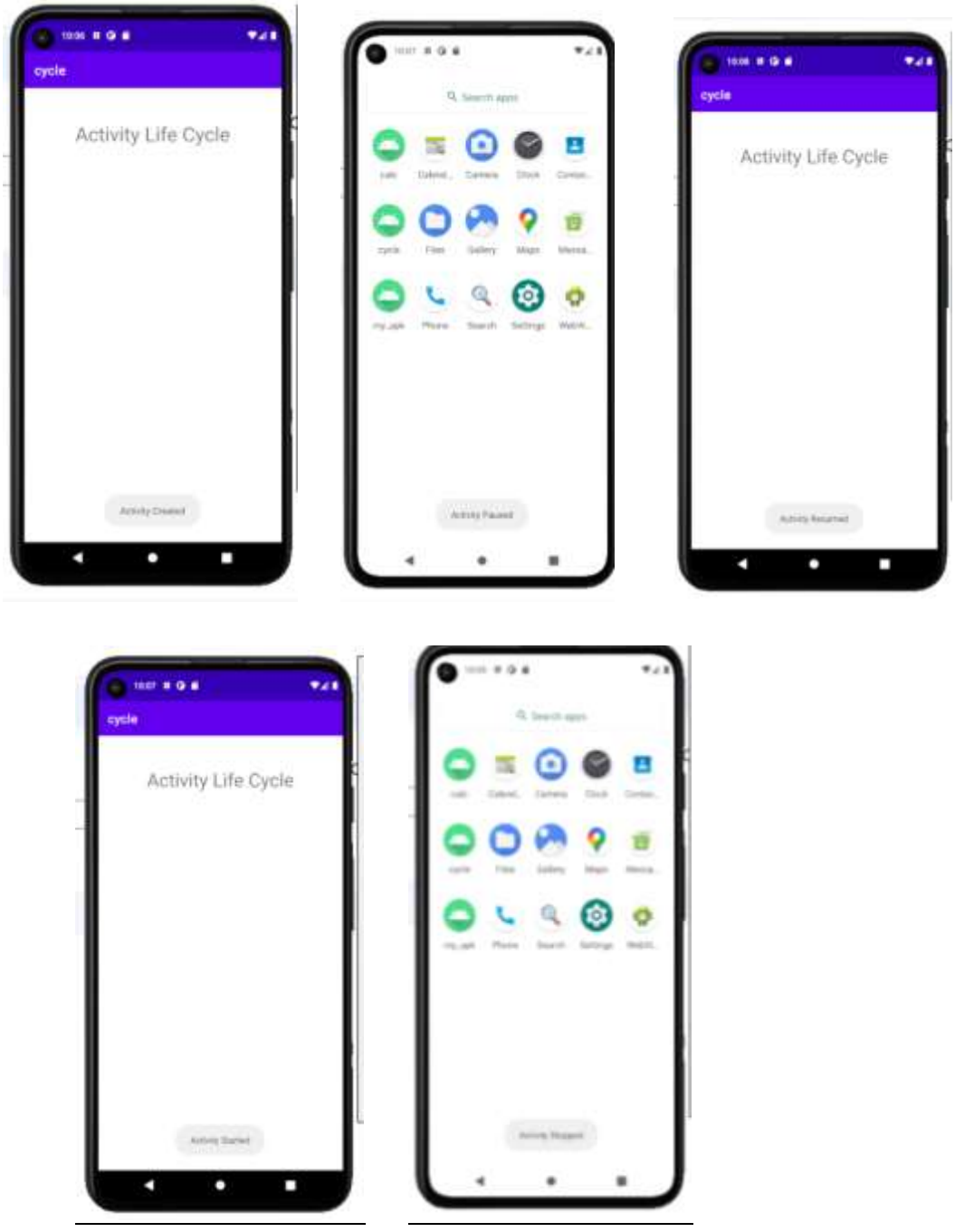
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <TextView
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:text="Activity Life Cycle"
      android:textAlignment="center"
      android:layout_marginTop="50dp"
      android:textSize="30dp"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.cycle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      showToast("Activity Created");
   }
```

```
    protected void onStart(){
        super.onStart();
        showToast("Activity Started");
    }
    protected void onResume(){
        super.onResume();
        showToast("Activity Resumed");
    }
    protected void onPause(){
        super.onPause();
        showToast("Activity Paused");
    }
    protected void onStop(){
        super.onStop();
        showToast("Activity Stopped");
    }
    protected void onRestart(){
        super.onRestart();
        showToast("Activity Restarted");
    }
    @Override
    protected void onDestroy() {
        super.onDestroy();
        showToast("Activity Destroyed");
    }
    void showToast(String message){
        Toast.makeText(this,message,Toast.LENGTH_LONG).show();
    }
}
```

Output



Result : The program was executed successfully and the output was obtained.Thus CO1 was attained.

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.

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:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/constraintButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="ConstraintLayout" />
    <Button
        android:id="@+id/linearButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="LinearLayout" />
    <Button
        android:id="@+id/gridButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="GridLayout" />
    <Button
        android:id="@+id/relativeButton"
        android:layout_width="match_parent"
```

```
      android:layout_height="wrap_content"
      android:text="RelativeLayout" />
   <Button
      android:id="@+id/frameButton"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="FrameLayout" />
   <Button
      android:id="@+id/tableButton"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="TableLayout" />
</LinearLayout>
```

MainActivity.java

```
package com.example.ui;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      Button constraintButton = findViewById(R.id.constraintButton);
      Button linearButton = findViewById(R.id.linearButton);
      Button gridButton = findViewById(R.id.gridButton);
      Button relativeButton = findViewById(R.id.relativeButton);
      Button frameButton = findViewById(R.id.frameButton);
      Button tableButton = findViewById(R.id.tableButton);
      View.OnClickListener buttonClickListener = new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            String layoutName = ((Button) v).getText().toString();
            displayToken(layoutName);
         }      };
```

```
        constraintButton.setOnClickListener(buttonClickListener);
        linearButton.setOnClickListener(buttonClickListener);
        gridButton.setOnClickListener(buttonClickListener);
        relativeButton.setOnClickListener(buttonClickListener);
        frameButton.setOnClickListener(buttonClickListener);
        tableButton.setOnClickListener(buttonClickListener);
    }

    private void displayToken(String layoutName) {
        Toast.makeText(this, "Token from " + layoutName, Toast.LENGTH_SHORT).show();
    }
}
```

Output

<u>Result</u> : The program was executed successfully and the output was obtained.Thus CO1 and CO2 was attained.

Experiment No. 5

Aim: Create a Facebook page using RelativeLayout; 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:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="fill_parent"
   android:layout_height="fill_parent"
   android:paddingLeft="16dp"
   android:paddingRight="16dp" >
   <ScrollView
      android:layout_width="match_parent"
      android:layout_height="match_parent">
      <LinearLayout
         android:layout_width="fill_parent"
         android:layout_height="fill_parent"
         android:orientation="vertical">
         <ImageView
            android:id="@+id/facebookView"
            android:layout_width="200dp"
            android:layout_height="80dp"
            android:layout_gravity="center"
            android:src="@drawable/facebook" />
         <ImageView
            android:id="@+id/imageView4"
            android:layout_width="match_parent"
            android:layout_height="281dp"
            android:src="@drawable/post" />
         <GridLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
```

```
        android:layout_gravity="center"
        android:layout_marginTop="40dp"
        android:columnCount="4"
        android:rowCount="4">
        <!-- Like ImageView -->
        <ImageView
            android:id="@+id/likeImageView"
            android:layout_width="110dp"
            android:layout_height="83dp"
            android:layout_gravity="center"
            android:clickable="true"
            android:onClick="onLikeClick"
            android:src="@drawable/like" />
        <!-- Comment ImageView -->
        <ImageView
            android:id="@+id/commentImageView"
            android:layout_width="111dp"
            android:layout_height="66dp"
            android:layout_row="0"
            android:layout_column="1"
            android:layout_gravity="center"
            android:clickable="true"
            android:onClick="onCommentClick"
            android:src="@drawable/comment" />
        <ImageView
            android:id="@+id/shareImageView"
            android:layout_width="93dp"
            android:layout_height="86dp"
            android:layout_row="0"
            android:layout_column="3"
            android:layout_gravity="center"
            android:clickable="true"
            android:onClick="onShareClick"
            android:src="@drawable/share" />
    </GridLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">
        <ImageView
```

```
        android:id="@+id/imageView7"
        android:layout_width="match_parent"
        android:layout_height="281dp"
        android:src="@drawable/dog" />
    <GridLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="40dp"
        android:columnCount="4"
        android:rowCount="4">
        <!-- Like ImageView -->
        <ImageView
            android:id="@+id/likeImageView2"
            android:layout_width="110dp"
            android:layout_height="83dp"
            android:layout_gravity="center"
            android:clickable="true"
            android:onClick="onLikeClick"
            android:src="@drawable/like" />
        <!-- (Your existing ImageView code) -->
        <!-- Comment ImageView -->
        <ImageView
            android:id="@+id/commentImageView2"
            android:layout_width="111dp"
            android:layout_height="66dp"
            android:layout_row="0"
            android:layout_column="1"
            android:layout_gravity="center"
            android:clickable="true"
            android:onClick="onCommentClick"
            android:src="@drawable/comment" />
        <ImageView
            android:id="@+id/shareImageView2"
            android:layout_width="93dp"
            android:layout_height="86dp"
            android:layout_row="0"
            android:layout_column="3"
            android:layout_gravity="center"
            android:clickable="true"
```

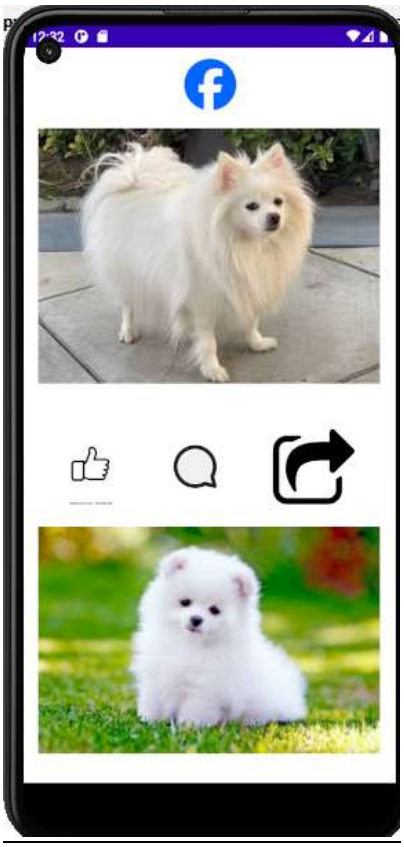
```
                android:onClick="onShareClick"
                android:src="@drawable/share" />
            <!-- (Your existing ImageView code) -->
        </GridLayout>
    </LinearLayout>
  </LinearLayout>
 </ScrollView>
</RelativeLayout>
```

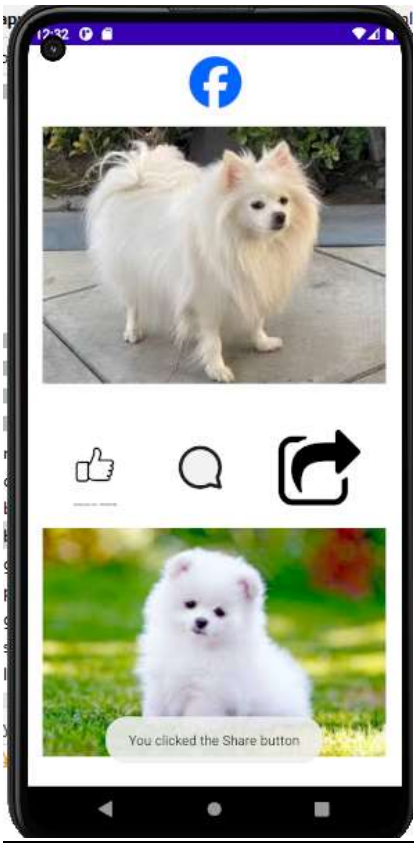
MainActivity.java

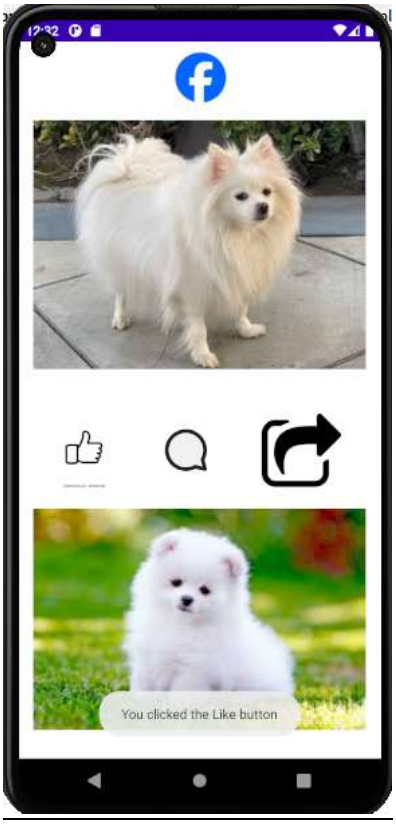
```
package com.example.facebook;
import androidx.appcompat.app.AppCompatActivity;
import android.app.Activity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
import android.widget.Toast;
public class MainActivity extends Activity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    // Find the ImageView elements by their IDs
    ImageView facebookView = findViewById(R.id.facebookView );
    ImageView likeImageView = findViewById(R.id.likeImageView);
    ImageView commentImageView = findViewById(R.id.commentImageView);
    ImageView shareImageView = findViewById(R.id.shareImageView);
    // Set click listeners for the ImageViews
    likeImageView.setOnClickListener(new View.OnClickListener() {
      public void onClick(View v) {
        showToast("You clicked the Like button");
      }    });
    commentImageView.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        showToast("You clicked the Comment button");
      }    });
    shareImageView.setOnClickListener(new View.OnClickListener() {
      public void onClick(View v) {
```

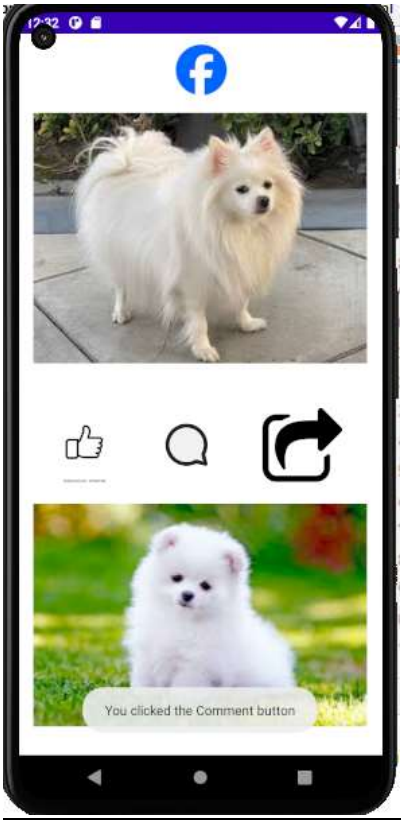
```
            showToast("You clicked the Share button");
        }       });    }
    // Helper method to display a toast message
    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();    }}
```

Output









Result : The program was executed successfully and the output was obtained.Thus CO2 was attained.

Experiment No. 6

Aim: Develop an application that toggles image using FrameLayout.

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"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:background="#BDBABA"
   tools:context=".MainActivity">
   <ImageView
      android:id="@+id/imageView1"
      android:layout_width="427dp"
      android:layout_height="wrap_content"
      android:layout_gravity="left|top"
      android:background="#CACAC8"
      app:srcCompat="@drawable/s1" />
   <ImageView
      android:id="@+id/imageView2"
      android:layout_width="396dp"
      android:layout_height="wrap_content"
      android:layout_gravity="left|top"
      android:visibility="gone"
      app:srcCompat="@drawable/f1" />
</FrameLayout>
```

MainActivity.java

```
javapackage com.example.frame_layout;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
   ImageView i1,i2;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      i1=(ImageView) findViewById(R.id.imageView1);
      i2=(ImageView) findViewById(R.id.imageView2);
      i1.setOnClickListener(this);
      i2.setOnClickListener(this);
   }
   @Override
   public void onClick(View v) {
      if(v.getId()==R.id.imageView1)
      {
         i1.setVisibility(v.GONE);
         i2.setVisibility(v.VISIBLE);
      }
      else
      {
         i2.setVisibility(v.GONE);
         i1.setVisibility(v.VISIBLE);
      }
   }
}
```

Output

Result : The program was executed successfully and the output was obtained.Thus CO2 was attained.

Experiment No. 7

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

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:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   android:padding="16dp"
   android:gravity="center">
   <EditText
      android:id="@+id/usernameEditText"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Username"
      android:inputType="text" />
   <EditText
      android:id="@+id/emailEditText"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Email"
      android:inputType="textEmailAddress" />
   <EditText
      android:id="@+id/passwordEditText"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:hint="Password"
      android:inputType="textPassword" />
```

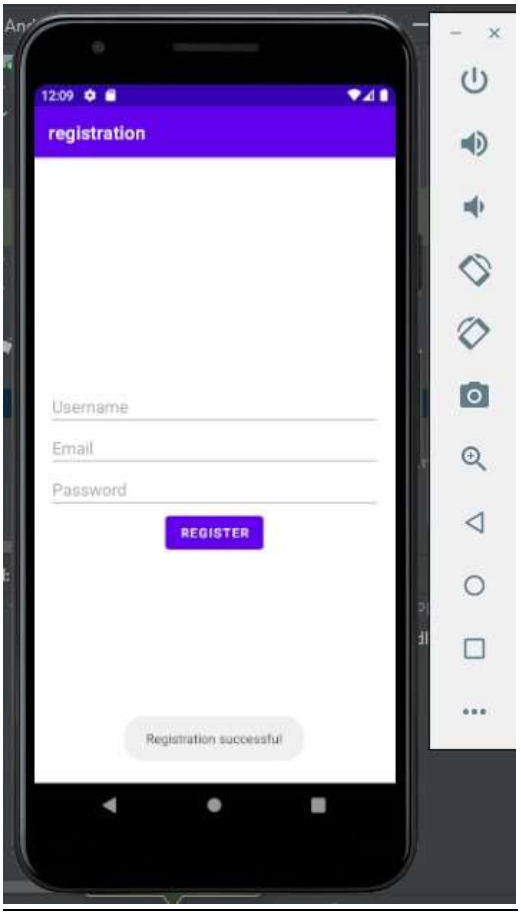
```
    <Button
        android:id="@+id/registerButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="Register" />
</LinearLayout>
```

MainActivity.java

```
package com.example.registration;
import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    private EditText usernameEditText, emailEditText, passwordEditText;
    private Button registerButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        usernameEditText = findViewById(R.id.usernameEditText);
        emailEditText = findViewById(R.id.emailEditText);
        passwordEditText = findViewById(R.id.passwordEditText);
        registerButton = findViewById(R.id.registerButton);
        registerButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String username = usernameEditText.getText().toString();
                String email = emailEditText.getText().toString();
                String password = passwordEditText.getText().toString();
                // Store registration details in SharedPreferences
                SharedPreferences preferences = getSharedPreferences("MyPrefs",
MODE_PRIVATE);
                SharedPreferences.Editor editor = preferences.edit();
```

```
            editor.putString("username", username);
            editor.putString("email", email);
            editor.putString("password", password);
            editor.apply();
            Toast.makeText(MainActivity.this, "Registration successful",
Toast.LENGTH_SHORT).show();
            // Start another activity, e.g., MainActivity, using an Intent
            Intent intent = new Intent(MainActivity.this, MainActivity.class);
            startActivity(intent);
        }       });
   }}
```

Output



Result : The program was executed successfully and the output was obtained.Thus CO2 was attained.

Experiment No:8

Aim: Develop an application using array adapter with List view

CO3: Develop application with multiple activities using intents array adapter, exception and options menu.

Procedure:

Activity_main.xml

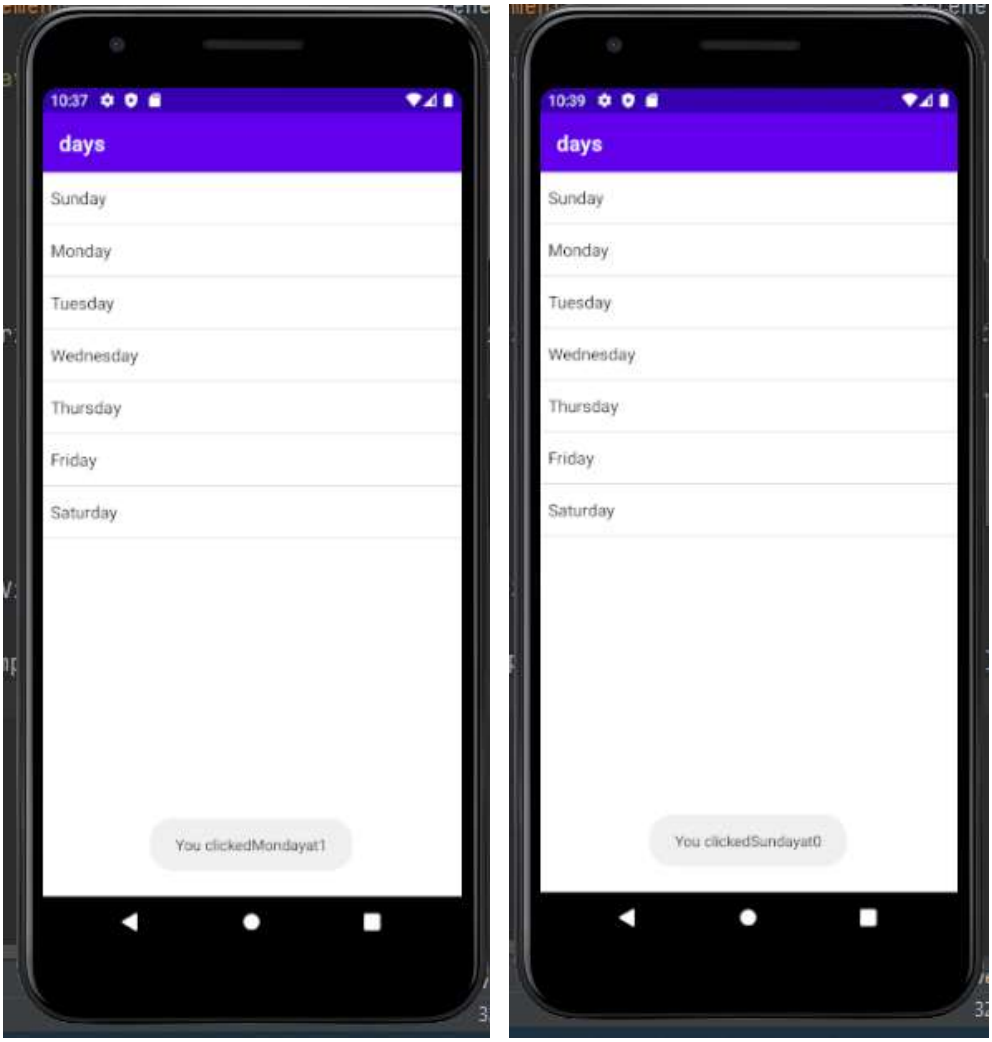
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

Main_Activity.java

```
package com.example.days;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity implements AdapterView.OnItemClickListener {
    ListView l;
    String[] days = {"Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        l = findViewById(R.id.MyLists);
```

```
    ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
androidx.appcompat.R.layout.support_simple_spinner_dropdown_item, days);
    l.setAdapter(adapter);
    l.setOnItemClickListener(this);
  }
  @Override
  public void onItemClick(AdapterView<?> adapterView, View view, int position, long id) {
    TextView temp = (TextView) view;
    Toast.makeText(this,"You Clicked" +temp.getText()+ "at"+position,Toast.LENGTH_SHORT).show();
  }}
```

Output:



Result: The program is executed successfully and the output is verified.Thus CO3 was attained.

Experiment No:9

Aim: Implement Options Menu to navigate to activities

CO3: Develop application with multiple activities using intents array adapter, exception 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="Hello World!"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

menu_main.xml

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

```
      android:title="starred messages"/>
</menu>
```

activity_settingspage.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=".settingspage">

   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Hello!"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

settingspage.java

```
package com.example.option;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class settingspage extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_settingspage);
   }}
```

MainActivity.java

```
package com.example.option;
import androidx.annotation.NonNull;
```

```
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
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) {
      MenuInflater inflater = getMenuInflater();
      inflater.inflate(R.menu.menu_main,menu);
      return super.onCreateOptionsMenu(menu);
   }
   @Override
   public boolean onOptionsItemSelected(@NonNull MenuItem item) {
      switch(item.getItemId())
      {
         case R.id.settings:
            Intent intent = new Intent(MainActivity.this,settingspage.class);
            startActivity(intent);
            break;
         case R.id.about:
            Toast.makeText(this,"you clicked about",Toast.LENGTH_LONG).show();
         break;
         case R.id.msgs:
            Toast.makeText(this,"you clicked starred messages",Toast.LENGTH_LONG).show();
            break;
      }
      return super.onOptionsItemSelected(item);
   }
}
```

Output:

Result: The program is executed successfully and the output is verified.Thus CO3 was attained.

Experiment No:10

Aim: Develop an application that with explicit intent.

CO3 : Develop application with multiple activities using intents array adapter, exception 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">
   <Button
      android:id="@+id/button"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:onClick="switchActivity"
      android:text="Button"
      app:layout_constraintBottom_toTopOf="@+id/editText1"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintHorizontal_bias="0.498"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintVertical_bias="0.5" />
   <EditText
      android:id="@+id/editText1"
      android:layout_width="0dp"
      android:layout_height="wrap_content"
      android:ems="10"
      android:text="Enter Your Name"
      app:layout_constraintTop_toBottomOf="@+id/button"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintEnd_toEndOf="parent" />
```

```
   <EditText
      android:id="@+id/editText2"
      android:layout_width="0dp"
      android:layout_height="wrap_content"
      android:ems="10"
      android:text="Enter age"
      app:layout_constraintTop_toBottomOf="@+id/editText1"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintEnd_toEndOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_main1.java

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
   EditText name;
   EditText age;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      name=findViewById(R.id.editText1);
      age=findViewById(R.id.editText2);
   }
   public void switchActivity(View view){
      Intent intent=new Intent(this,MainActivity2.class);
      intent.putExtra("user",name.getText().toString());
      intent.putExtra("age",age.getText().toString());
      startActivity(intent);
   }}
```

Activity_Main2.xml

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

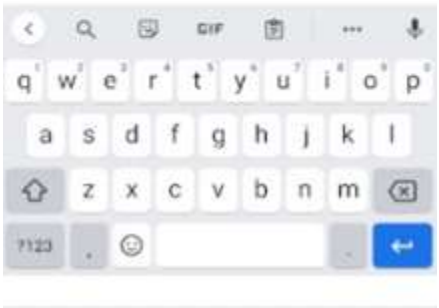
```
<androidx.constraintlayout.widget.ConstraintLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity2">

   <TextView
      android:id="@+id/textView"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Activity 2"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintBottom_toBottomOf="parent"
      android:layout_margin="16dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_Main2.java

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;
public class MainActivity2 extends AppCompatActivity {
TextView tv;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main2);
      Intent intent=getIntent();
      String user=intent.getStringExtra("user");
      String age =intent.getStringExtra("age");
      tv=findViewById(R.id.textView);
      tv.setText("welcome"+user+"age :"+age);
   }
}
```

Output:



Result: The program is executed successfully and the output is verified.Thus CO3 was attained.

Experiment No:11

Aim: Develop an application that implements Spinner component and perform event Handling.

CO3: Implement activities with dialogs spinners 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">
   <TextView
      android:id="@+id/textview1"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Hello World!"
      android:layout_marginTop="50dp"
      android:layout_marginLeft="150dp"/>
   <Spinner
      android:id="@+id/spinner2"
      android:layout_height="50dp"
      android:layout_width="200dp"
      android:layout_marginTop="100dp"
      android:layout_marginLeft="110dp"/>
</RelativeLayout>
```

Main_activity.java

```
package com.example.spin;
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.TextView;
public class MainActivity extends AppCompatActivity {
   String []names = {"values1","values2","values3","value4","value5"};
   String []text = {"values1 text","values2 text","values3 text","value4 text","value5 text"};
   ArrayAdapter<String> adapter;
   Spinner spinner;
   TextView textView;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      spinner = findViewById(R.id.spinner2);
      textView = findViewById(R.id.textview1);
      adapter = new ArrayAdapter<String>(getApplicationContext(),
android.R.layout.simple_list_item_1,names);
      spinner.setAdapter(adapter);
      spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
         @Override
         public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) {
            switch (i)
            {
               case 0:
                  textView.setText(""+text[i]);
                  break;
               case 1:
                  textView.setText(""+text[i]);
                  break;
               case 2:
                  textView.setText(""+text[i]);
                  break;
               case 3:
                  textView.setText(""+text[i]);
                  break;
               case 4:
                  textView.setText(""+text[i]);
                  break;
            }
         }

         @Override
```

```
public void onNothingSelected(AdapterView<?> adapterView) {

}       });    }}
```

Output:

Result: The program is executed successfully and the output is verified.Thus CO3 was attained.

Experiment No:12

Aim: Develop an application using fragments

CO4: Implement activities with dialogs spinners fragments and navigation drawer by applying themes.

Procedure:

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
   android:id="@+id/fragment_container"
   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"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
   <Button
      android:id="@+id/fragment1"
      android:layout_width="100dp"
      android:layout_height="50dp"
      android:layout_marginStart="200dp"
      android:layout_marginTop="100"
      android:layout_marginEnd="100dp"
      android:text="Fragment1"
      android:textSize="10dp"
      tools:layout_editor_absoluteX="16dp"
      tools:layout_editor_absoluteY="16dp" />
   <Button
      android:id="@+id/fragment2"
      android:layout_width="100dp"
```

```
    android:layout_height="50dp"
    android:layout_marginStart="200dp"
    android:layout_marginTop="150"
    android:layout_marginEnd="300dp"
    android:text="Fragment2"
    android:textSize="10dp"
    tools:ignore="MissingConstraints"
    tools:layout_editor_absoluteX="17dp"
    tools:layout_editor_absoluteY="67dp" />
</FrameLayout>
```

Activity_main.java

```
package com.example.fragment;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
public class MainActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    Button buttonFragment1 = findViewById(R.id.fragment1);
    Button buttonFragment2 = findViewById(R.id.fragment2);
    buttonFragment1.setOnClickListener(new View.OnClickListener() {
      public void onClick(View v) {
        getSupportFragmentManager().beginTransaction()
            .replace(R.id.fragment_container, new firstfragment())
            .commit();
      }    });
    buttonFragment2.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
        getSupportFragmentManager().beginTransaction()
            .replace(R.id.fragment_container, new secondfragment())
            .commit();
      }    });  }}
```

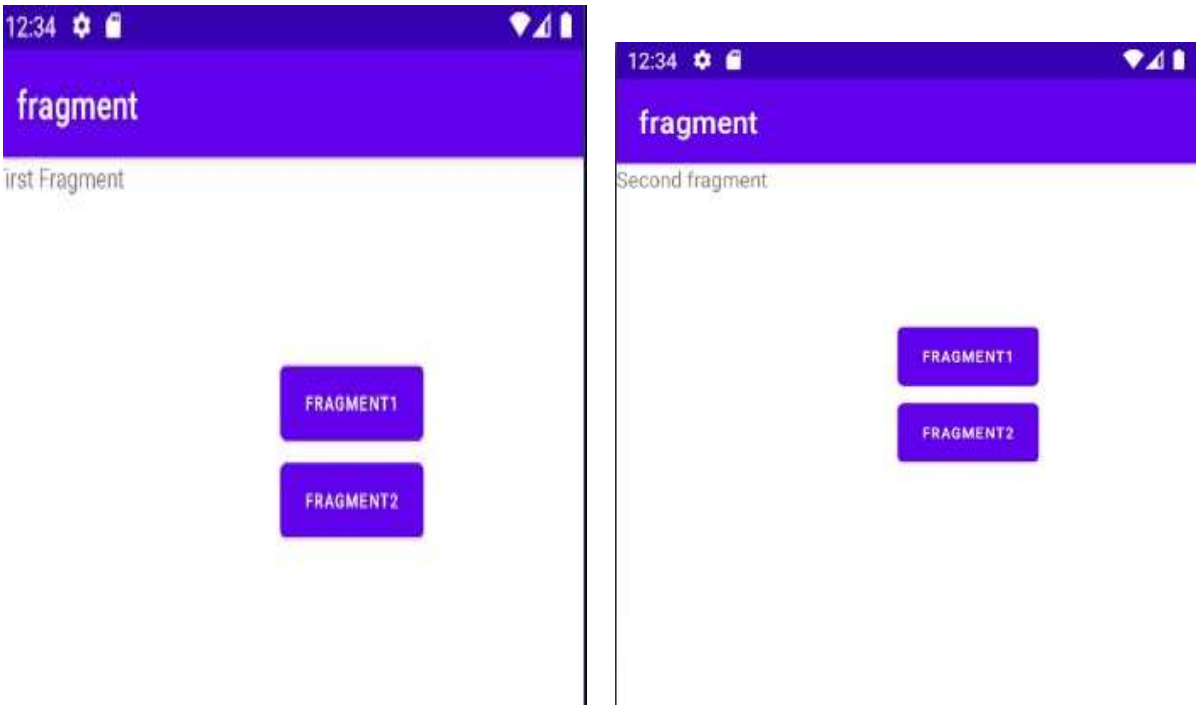
FirstFragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout 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=".firstfragment">
   <!-- TODO: Update blank fragment layout -->
   <TextView
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:text="First Fragment" />
</FrameLayout>
```

SecondFragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout 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=".secondfragment">
   <!-- TODO: Update blank fragment layout -->
   <TextView
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:text="Second fragment" />
</FrameLayout>
```

Output:



Result: The program is executed Successfully and the output is verified.Thus CO4 was attained.

Experiment No:13

Aim: Implement adapter and perform exception.

CO4: Implement activities with dialogs spinners fragments and navigation drawer by applying themes.

Procedure:

Activity_main.xml

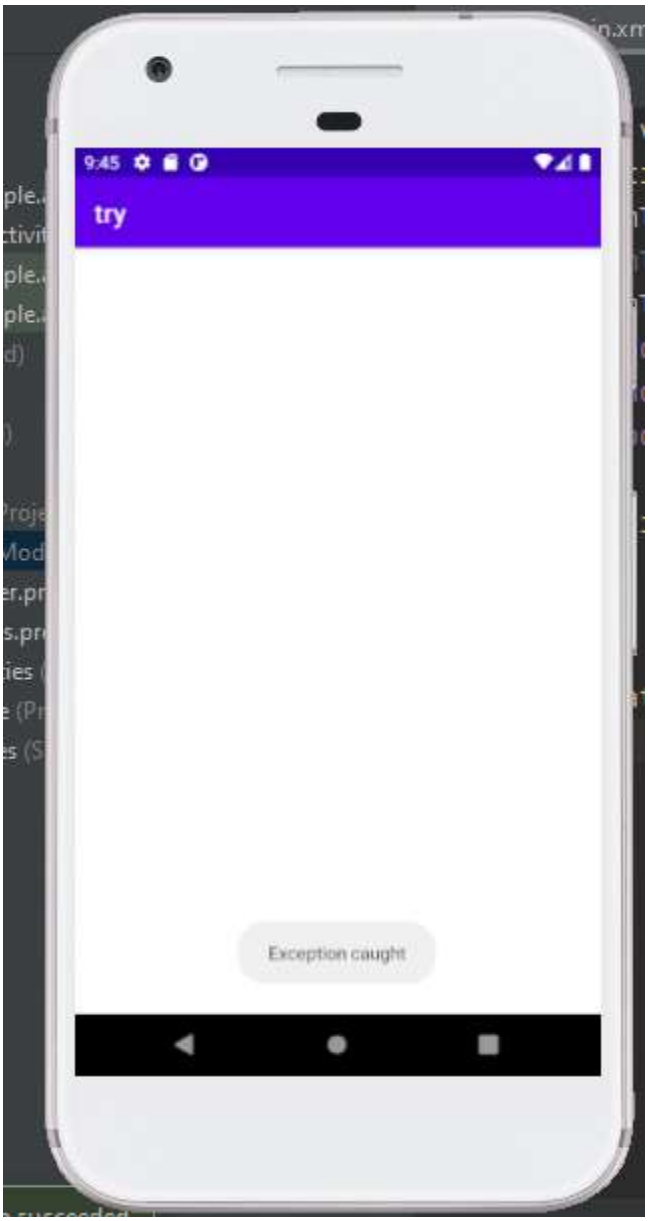
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"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

Activity_main.java

```
package com.example.exception2;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Toast;
import java.util.ArrayList;
import java.util.List;
public class MainActivity extends AppCompatActivity {
   List<String> list=new ArrayList();
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      list.add("Item1");
      list.add("Item2");
      list.add("Item3");
```

```
list.add("Item4");
for(int i=0;i<5;i++){
   try{
      list.get(i);          }
   catch (Exception e){
      Toast.makeText(this,"Exception caught0",Toast.LENGTH_LONG).show();
   }  } }}
```

Output :



Result: The program is executed successfully and the output is verified.Thus CO4 was attained.

Experiment No:14

Aim: Create database using SQLite and perform INSERT and SELECT.

CO5: Develop mobile application using SQLite .

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">

   <TextView
      android:id="@+id/textView"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="STUDENT DETAILS"
      android:layout_centerHorizontal="true"
      />

   <EditText
      android:id="@+id/edit1"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:hint="Enter Rollno"
      android:layout_margin="10dp"
      android:layout_centerHorizontal="true"
      android:layout_below="@id/textView"
      />

   <EditText
      android:id="@+id/edit2"
      android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:hint="Enter Name"
        android:layout_margin="10dp"
        android:layout_centerHorizontal="true"
        android:layout_below="@id/edit1"
        />

    <EditText
        android:id="@+id/edit3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter Department"
        android:layout_margin="10dp"
        android:layout_centerHorizontal="true"
        android:layout_below="@id/edit2"
        />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="INSERT"
        android:onClick="onInsert"
        android:layout_margin="10dp"
        android:layout_centerHorizontal="true"
        android:layout_below="@id/edit3" />

    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="READ"
        android:onClick="onRead"
        android:layout_margin="10dp"
        android:layout_centerHorizontal="true"
        android:layout_below="@id/button2" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.sql;
import androidx.appcompat.app.AppCompatActivity;
import android.content.ContentValues;
import android.database.sqlite.SQLiteDatabase;
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 {
   TextView textView;
   EditText edit1, edit2, edit3;
   Button button1, button2, button3, button4;
   String rno;
   String name;
   String dept;
   SQLiteDatabase db;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      textView = findViewById(R.id.textView);
      edit1 = findViewById(R.id.edit1);
      edit2 = findViewById(R.id.edit2);
      edit3 = findViewById(R.id.edit3);
      button1 = findViewById(R.id.button1);
      button2 = findViewById(R.id.button2);
      button3 = findViewById(R.id.button3);
      button4 = findViewById(R.id.button4);
      DBHelper dbHelper = new DBHelper(this);
      db = dbHelper.getWritableDatabase();
      db = dbHelper.getReadableDatabase(); }
   public void onInsert(View view) {
      rno = edit1.getText().toString();
      name = edit2.getText().toString();
```

```
      dept = edit3.getText().toString();
      if(rno.equals("")  || name.equals("") || dept.equals(""))
      {
         Toast.makeText(this, "Please Enter Values", Toast.LENGTH_SHORT).show();}
      else
      {
         ContentValues values = new ContentValues();
         values.put("rollno", rno);
         values.put("name", name);
         values.put("dept", dept);
         db.insert("student", null, values);
         Toast.makeText(this, "Inserted", Toast.LENGTH_SHORT).show();
      } }
   public void onRead(View view) {
  }
  }
```

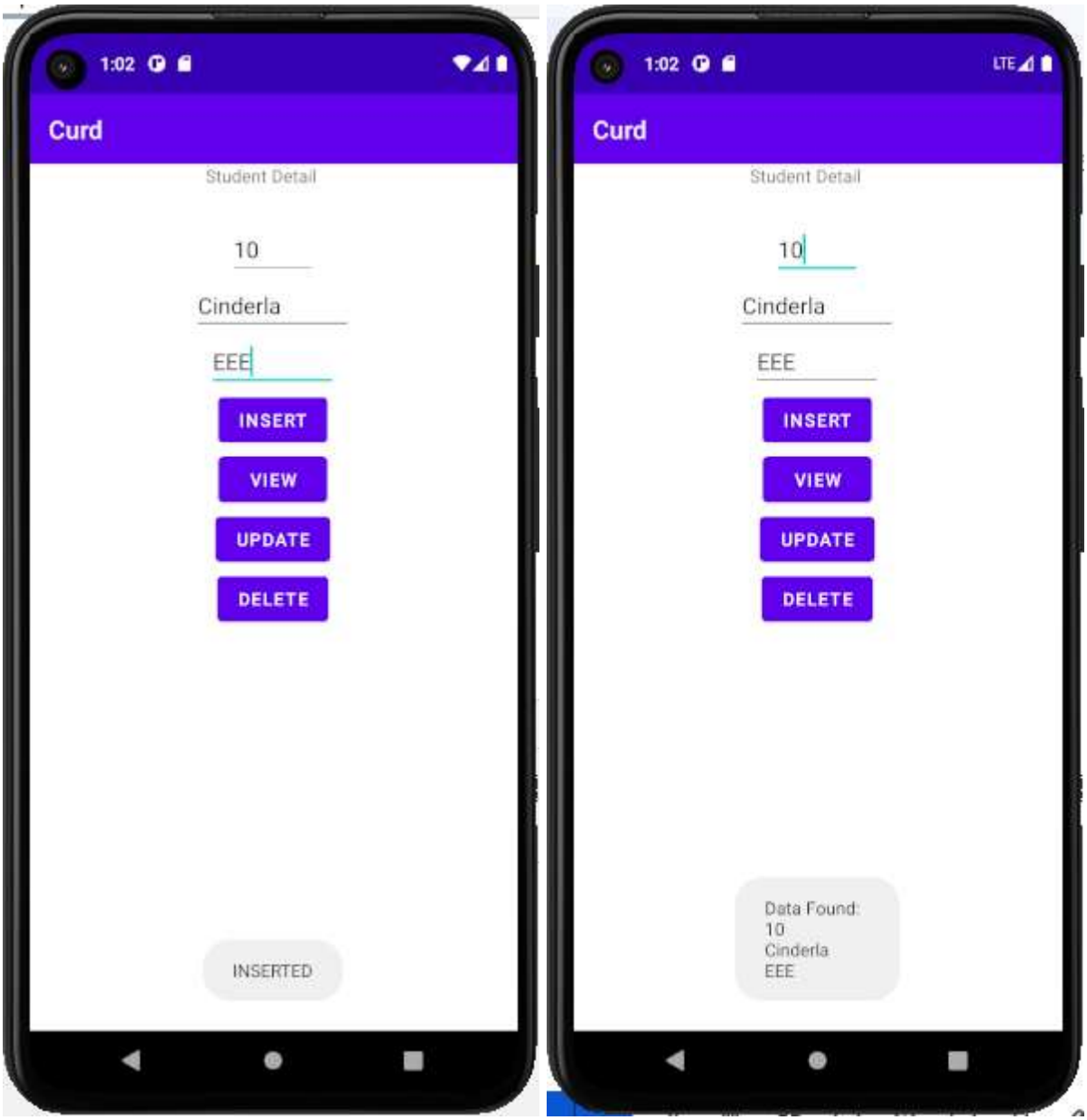
DBHelper.java

```
package com.example.sql;
import android.content.Context;
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, "student.db", null , 1 );
   }

   @Override
   public void onCreate(SQLiteDatabase sqLiteDatabase) {
      sqLiteDatabase.execSQL("create table student(rollno int, name varchar(20), dept
varchar(10))");
   }

   @Override
   public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {
      sqLiteDatabase.execSQL("drop table if exists student");
      onCreate(sqLiteDatabase);
   }
}
```

Output:



Result: The program is executed successfully and the output is verified.Thus CO5 was attained.

Experiment No:15

Aim: Perform UPDATE and DELETE on SQLite database

CO5: Develop mobile application using SQLite

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">

   <TextView
      android:id="@+id/textView"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="STUDENT DETAILS"
      android:layout_centerHorizontal="true" />

   <EditText
      android:id="@+id/edit1"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:hint="Enter Rollno"
      android:layout_margin="10dp"
      android:layout_centerHorizontal="true"
      android:layout_below="@id/textView”/>

   <EditText
      android:id="@+id/edit2"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:hint="Enter Name"
```

```
    android:layout_margin="10dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@id/edit1"/>

  <EditText
    android:id="@+id/edit3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:hint="Enter Department"
    android:layout_margin="10dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@id/edit2"/>

  <Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="INSERT"
    android:onClick="onInsert"
    android:layout_margin="10dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@id/edit3" />

  <Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="UPDATE"
    android:onClick="onUpdate"
    android:layout_margin="10dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@id/button1" />

  <Button
    android:id="@+id/button3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="READ"
    android:onClick="onRead"
    android:layout_margin="10dp"
```

```
        android:layout_centerHorizontal="true"
        android:layout_below="@id/button2" />

    <Button
        android:id="@+id/button4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="DELETE"
        android:onClick="onDelete"
        android:layout_margin="10dp"
        android:layout_centerHorizontal="true"
        android:layout_below="@id/button3" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.sql;
import androidx.appcompat.app.AppCompatActivity;
import android.content.ContentValues;
import android.database.sqlite.SQLiteDatabase;
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 {

    TextView textView;
    EditText edit1, edit2, edit3;
    Button button1, button2, button3, button4;
    String rno;
    String name;
    String dept;
    SQLiteDatabase db;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
```

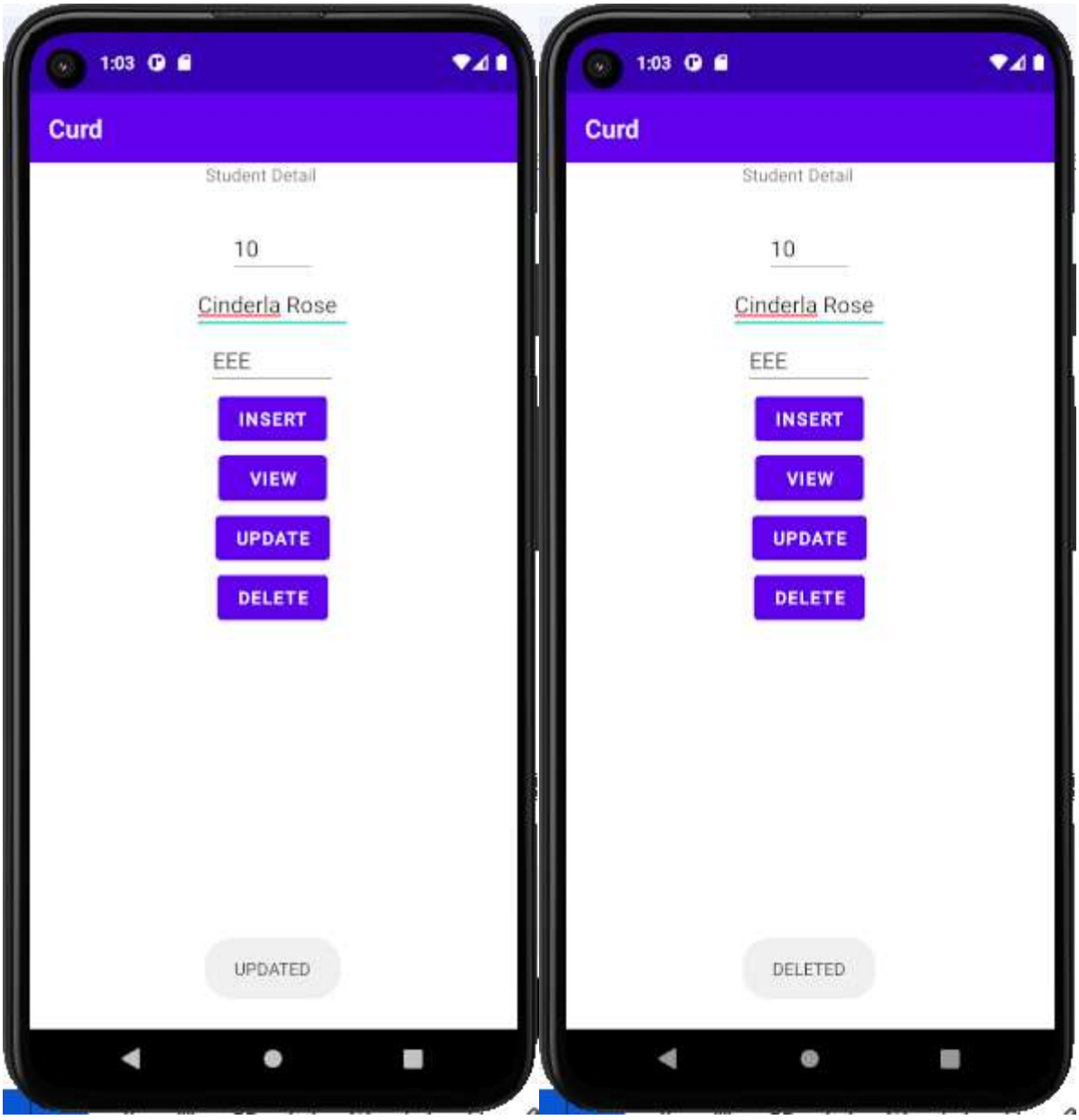
```
        textView = findViewById(R.id.textView);
        edit1 = findViewById(R.id.edit1);
        edit2 = findViewById(R.id.edit2);
        edit3 = findViewById(R.id.edit3);
        button1 = findViewById(R.id.button1);
        button2 = findViewById(R.id.button2);
        button3 = findViewById(R.id.button3);
        button4 = findViewById(R.id.button4);
        DBHelper dbHelper = new DBHelper(this);
        db = dbHelper.getWritableDatabase();
        db = dbHelper.getReadableDatabase();
    }
    public void onInsert(View view) {
        rno = edit1.getText().toString();
        name = edit2.getText().toString();
        dept = edit3.getText().toString();
        if(rno.equals("")  || name.equals("") || dept.equals(""))
        {
            Toast.makeText(this, "Please Enter Values", Toast.LENGTH_SHORT).show();
        }
    else
        {
            ContentValues values = new ContentValues();
            values.put("rollno", rno);
            values.put("name", name);
            values.put("dept", dept);
            db.insert("student", null, values);
            Toast.makeText(this, "Inserted", Toast.LENGTH_SHORT).show();
        }
    }
    public void onUpdate(View view) {
    }
    public void onRead(View view) {
    }
    public void onDelete(View view) {
    }
}
```

DBHelper.java

```
package com.example.sql;
import android.content.Context;
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, "student.db", null , 1 );
   }
   @Override
   public void onCreate(SQLiteDatabase sqLiteDatabase)
{
      sqLiteDatabase.execSQL("create table student(rollno int, name varchar(20), dept
varchar(10))");
   }
   @Override
   public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1)
{
      sqLiteDatabase.execSQL("drop table if exists student");
      onCreate(sqLiteDatabase);
   }
}
```

Output:



Result: The program is executed successfully and the output is verified.Thus CO5 was attained.