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:

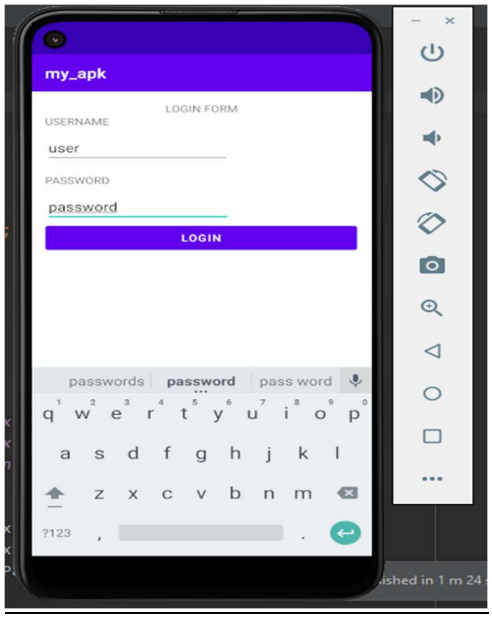
Activity_main.xml

```
<?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" />
   <EditText
      android:id="@+id/usernameEditText"
      android:layout_width="213dp"
      android:layout_height="wrap_content"
      android:layout_marginTop="8dp"
      android:hint="Enter username" />
   <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.widget.EditText;
import android.widget.Button;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    EditText usernameEditText, passwordEditText;
    Button loginButton;
 protected void onCreate(Bundle savedInstanceState){
    super.onCreate(savedInstanceState);
    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(enteredUsername.equals("user") && enteredPassword.equals("password")){
        Toast.makeText(MainActivity.this, "Login successful", Toast.LENGTH_LONG).show();
     }else{
        Toast.makeText(MainActivity.this,"Invalid Credentials",Toast.LENGTH_LONG).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">
   <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"/>
   <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>
```

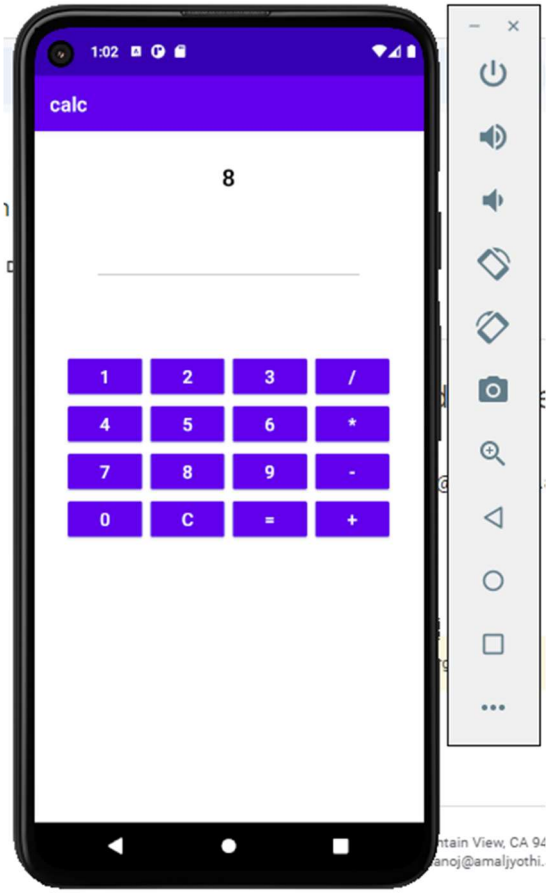
Main.activity.java

```
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

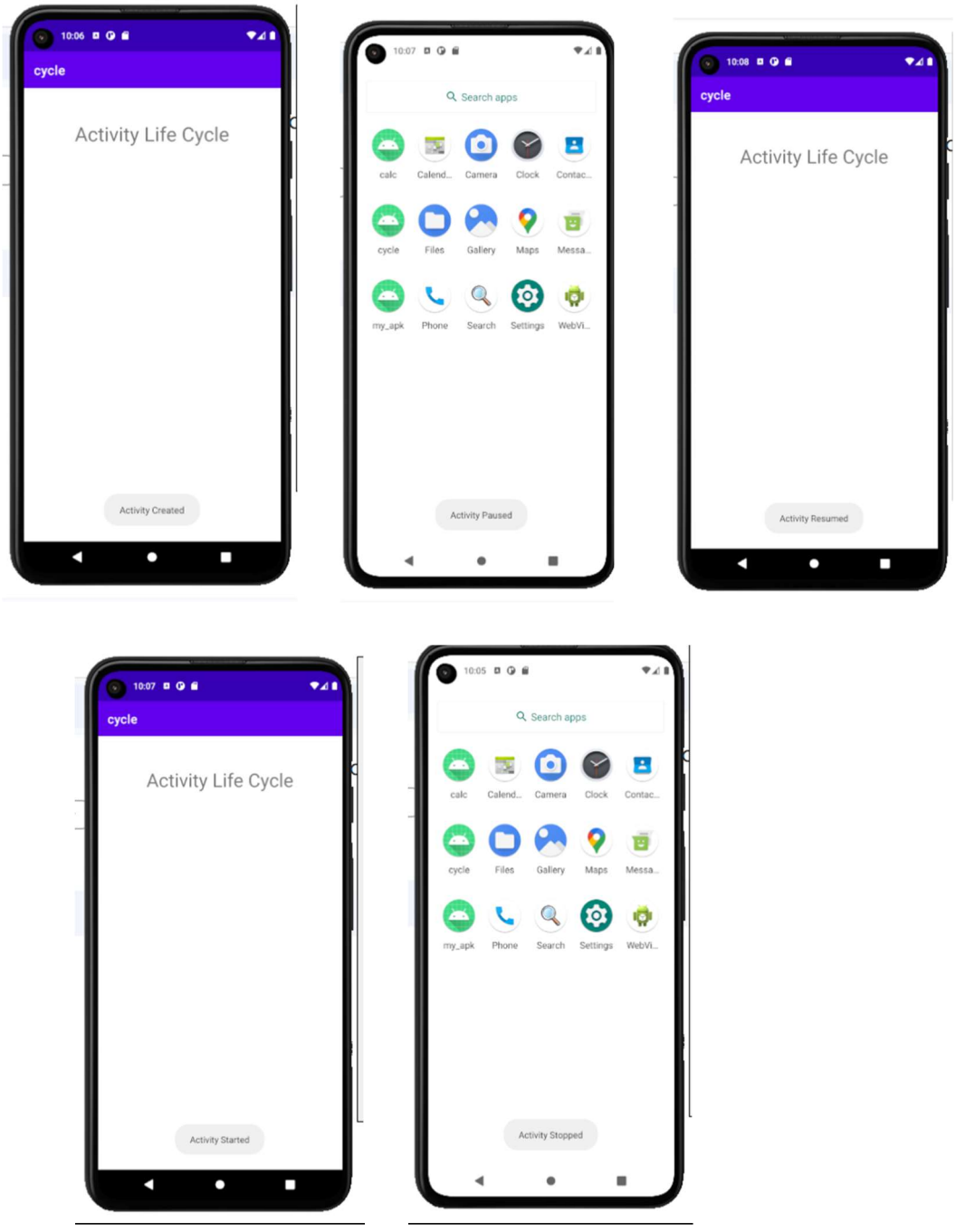
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"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

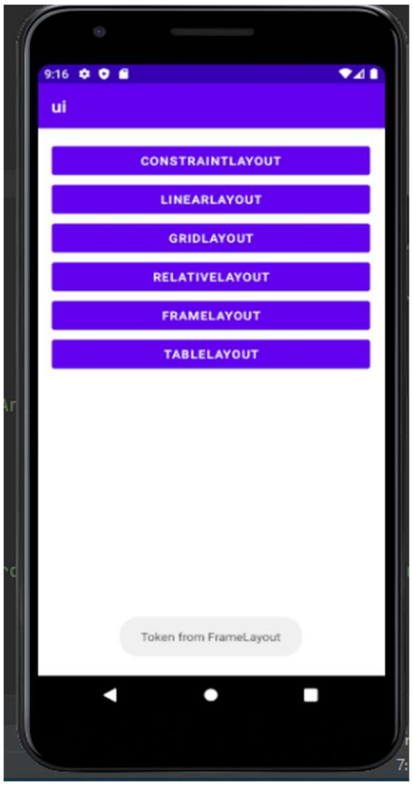
```
package com.example.ui;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    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



Result : 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">
```

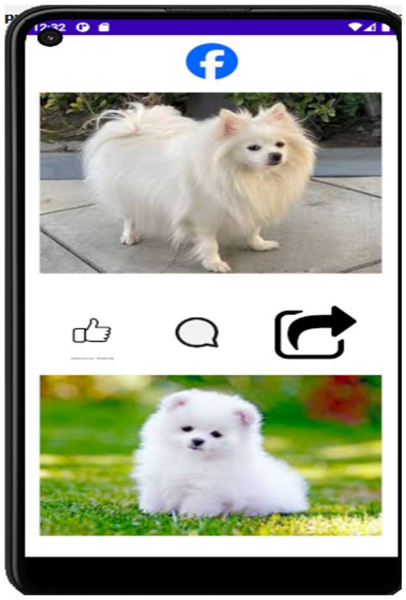
```
        <ImageView
            android:id="@+id/likeImageView"
            android:layout_width="110dp"
            android:layout_height="83dp"
            android:layout_gravity="center"
            android:clickable="true"
            android:onClick="onLikeClick"
            android:src="@drawable/like" />
        <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"
```

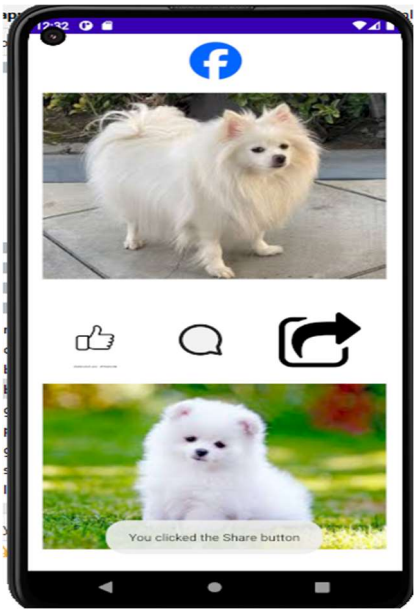
```
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_marginTop="40dp"
            android:columnCount="4"
            android:rowCount="4">
            <ImageView
               android:id="@+id/likeImageView2"
               android:layout_width="110dp"
               android:layout_height="83dp"
               android:layout_gravity="center"
               android:clickable="true"
               android:onClick="onLikeClick"
               android:src="@drawable/like" />
            <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" />
         </GridLayout>
      </LinearLayout>
   </LinearLayout>
  </ScrollView>
</RelativeLayout>
```

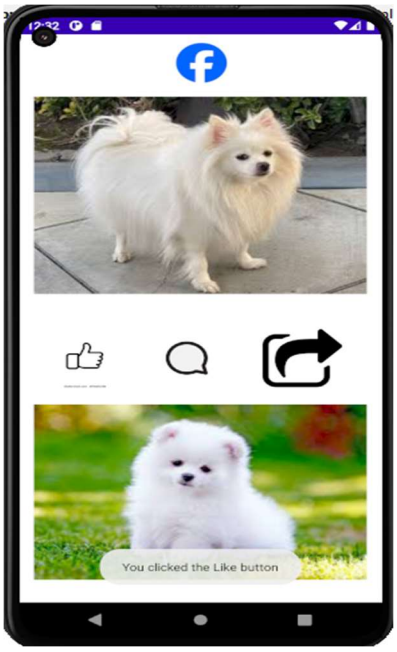
MainActivity.java

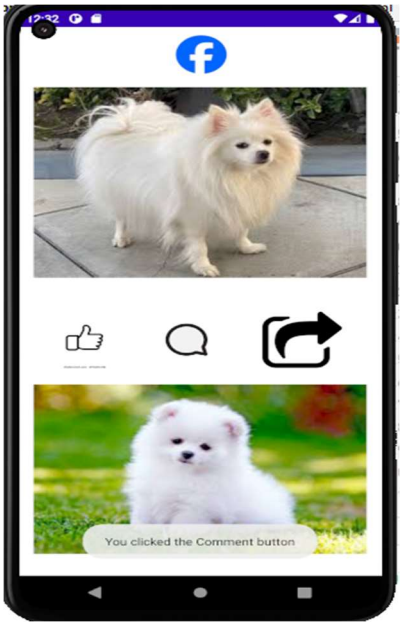
```
package com.example.facebook;
import androidx.appcompat.app.AppCompatActivity;
import android.app.Activity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
import android.widget.Toast;
public class MainActivity extends Activity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      ImageView facebookView = findViewById(R.id.facebookView );
      ImageView likeImageView = findViewById(R.id.likeImageView);
      ImageView commentImageView = findViewById(R.id.commentImageView);
      ImageView shareImageView = findViewById(R.id.shareImageView);
      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");
         }       });    }
   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

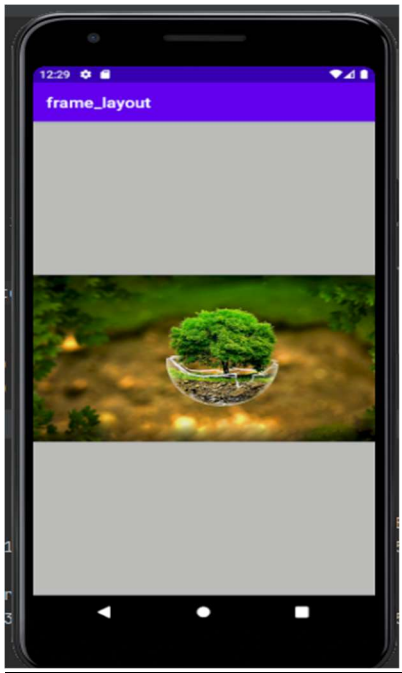
```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
 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

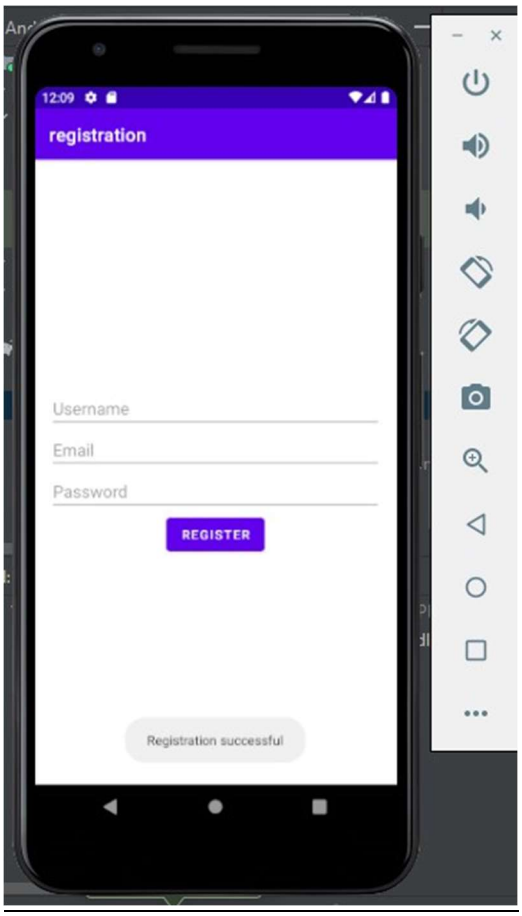
```
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="Register" />
</LinearLayout>
```

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

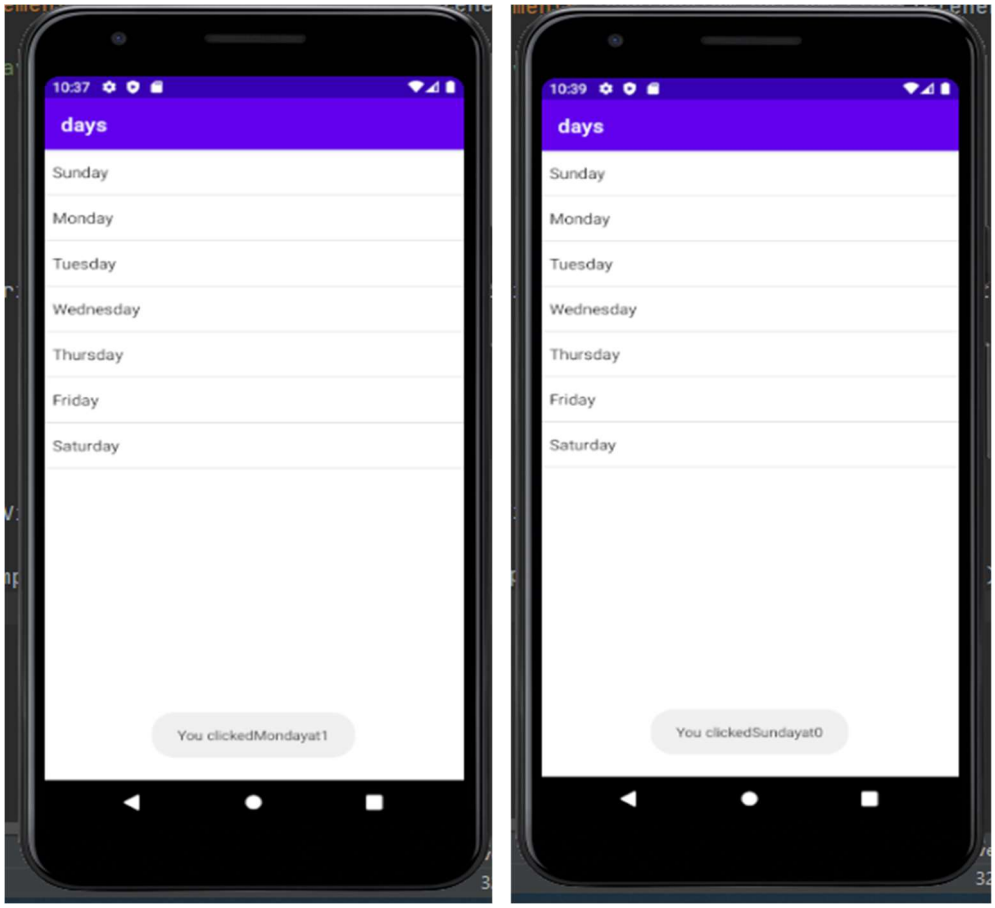
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"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

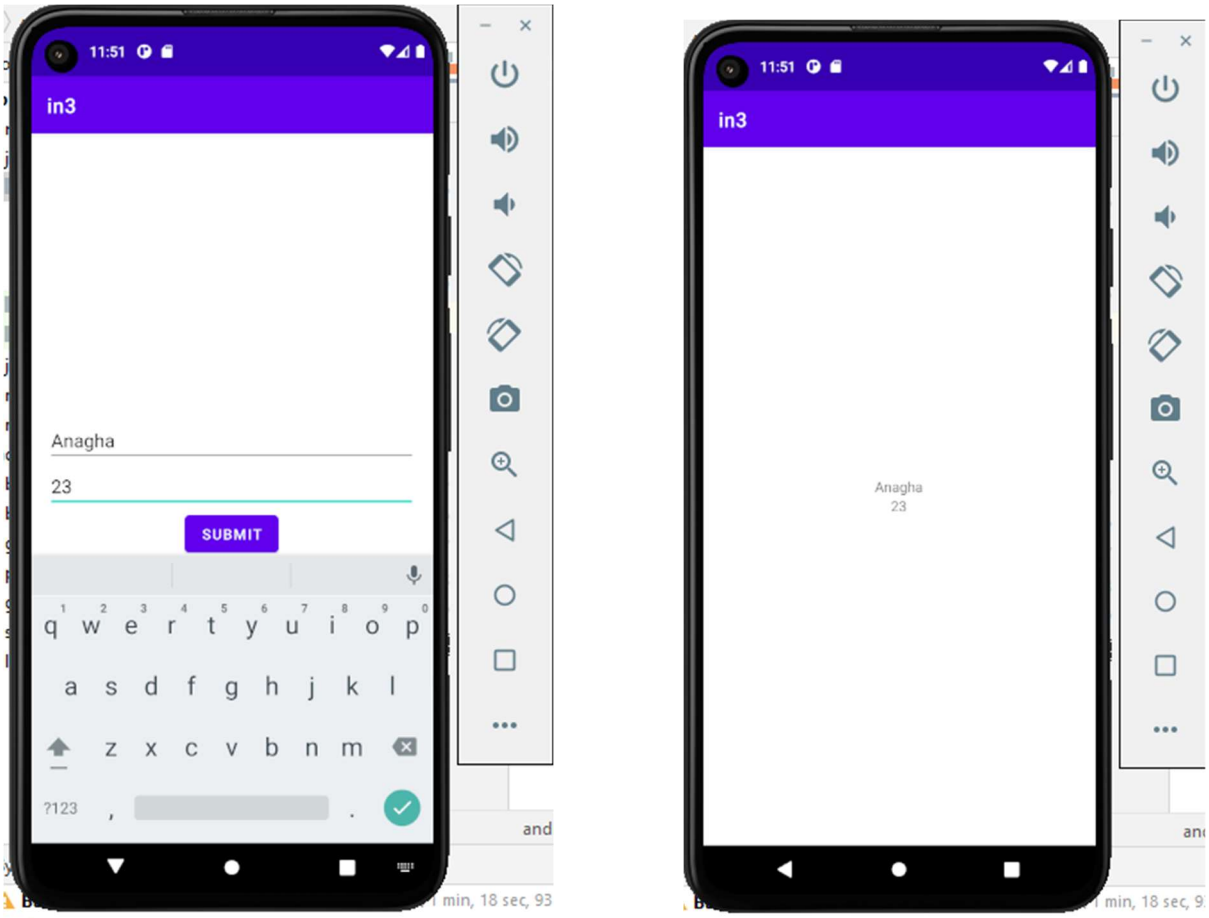
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"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

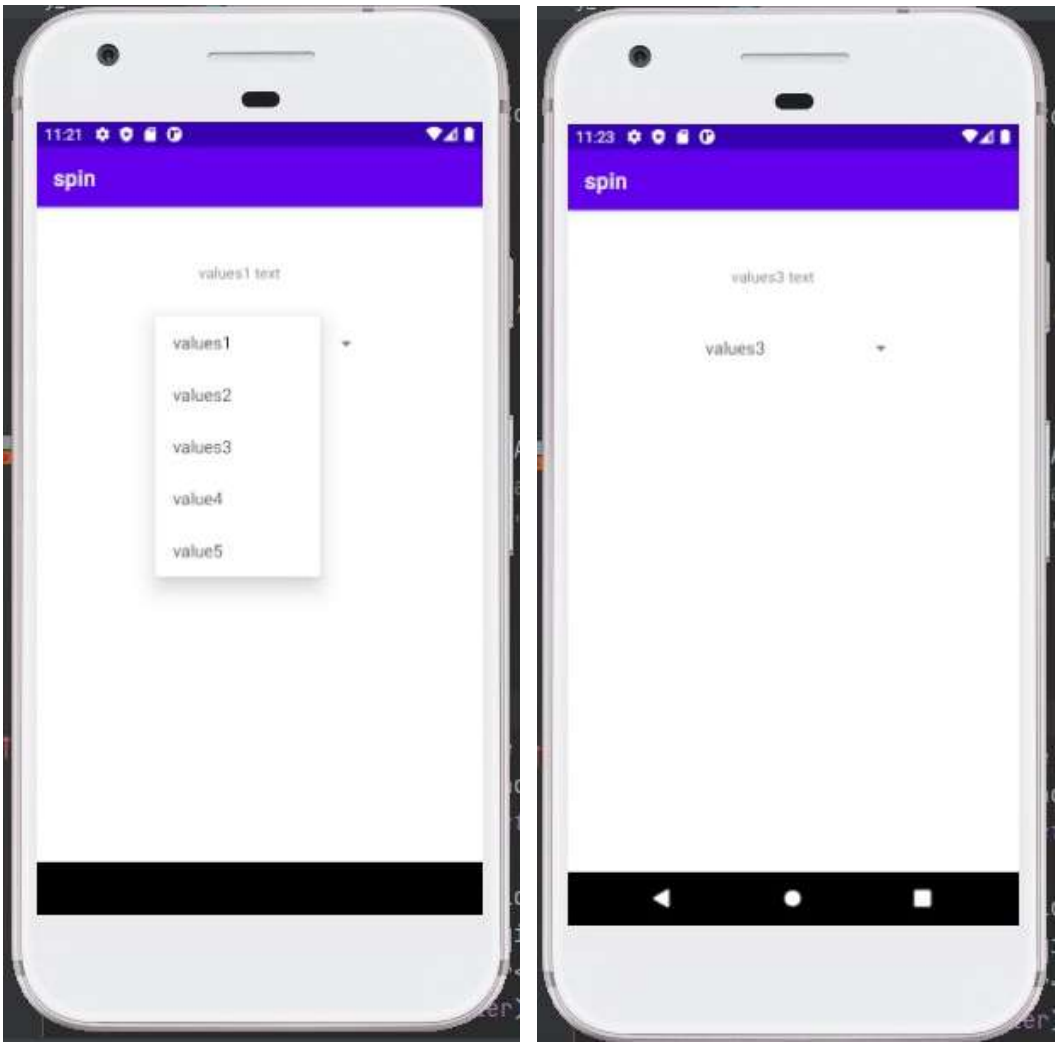
Main_activity.java

```
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

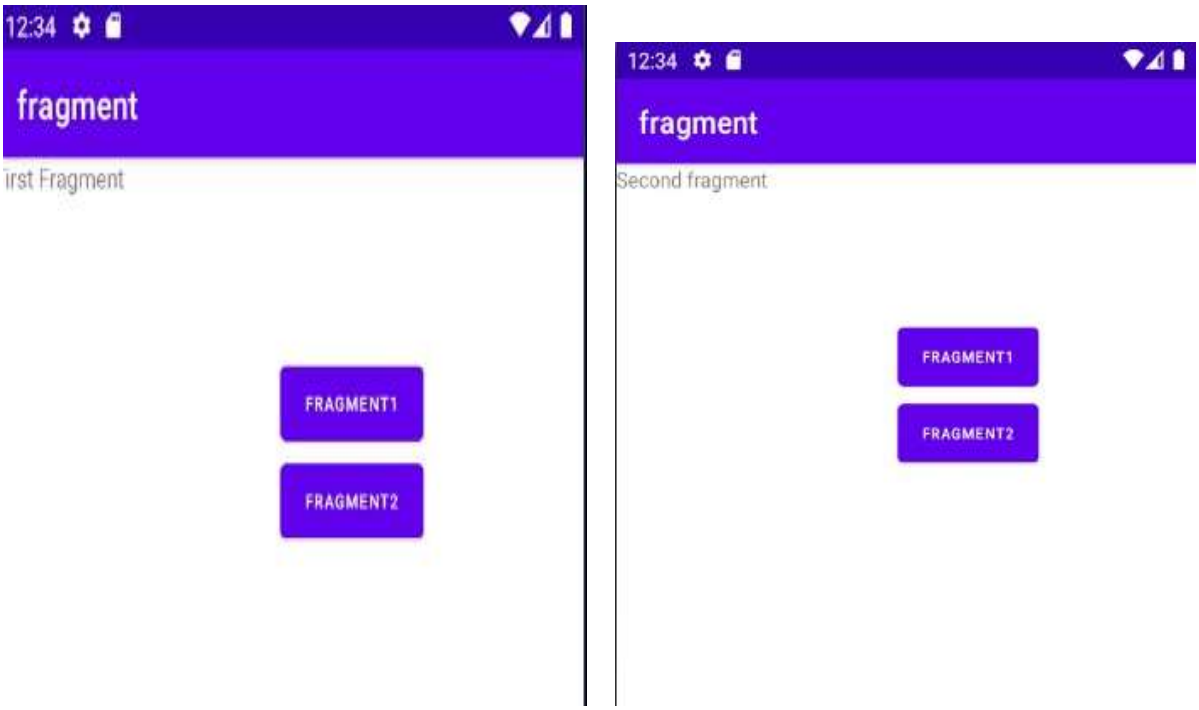
```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
```

```
    tools:context=".firstfragment">
    <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">
    <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

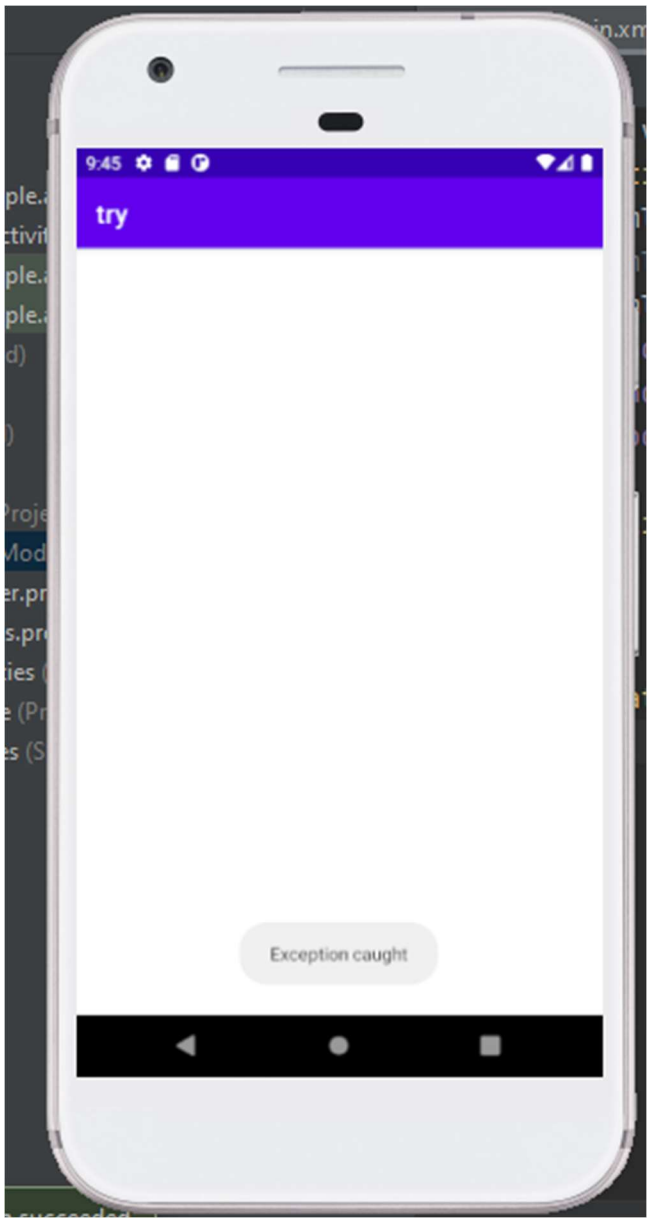
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"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

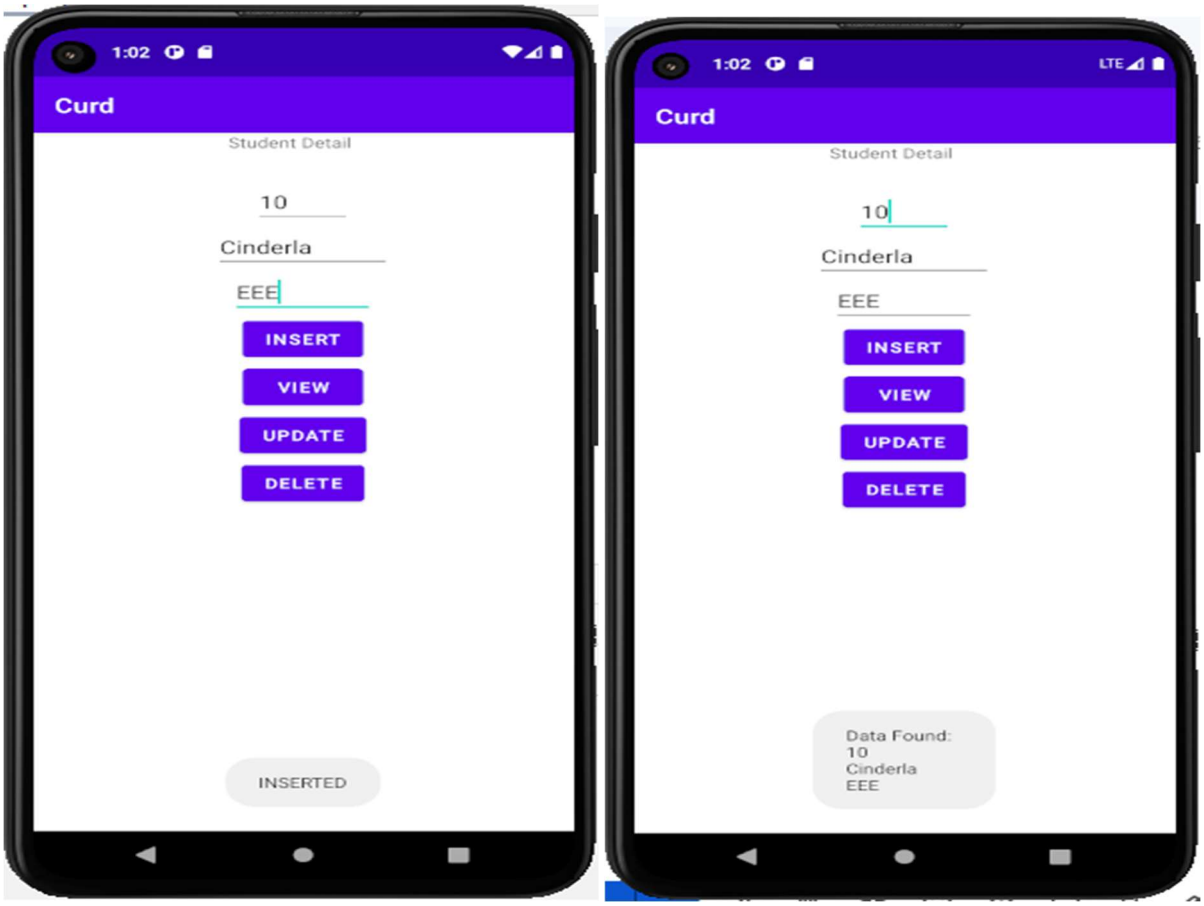
```
   String rno;
   String name;
   String dept;
   SQLiteDatabase db;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      textView = findViewById(R.id.textView);
      edit1 = findViewById(R.id.edit1);
      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) {
    }
}
```

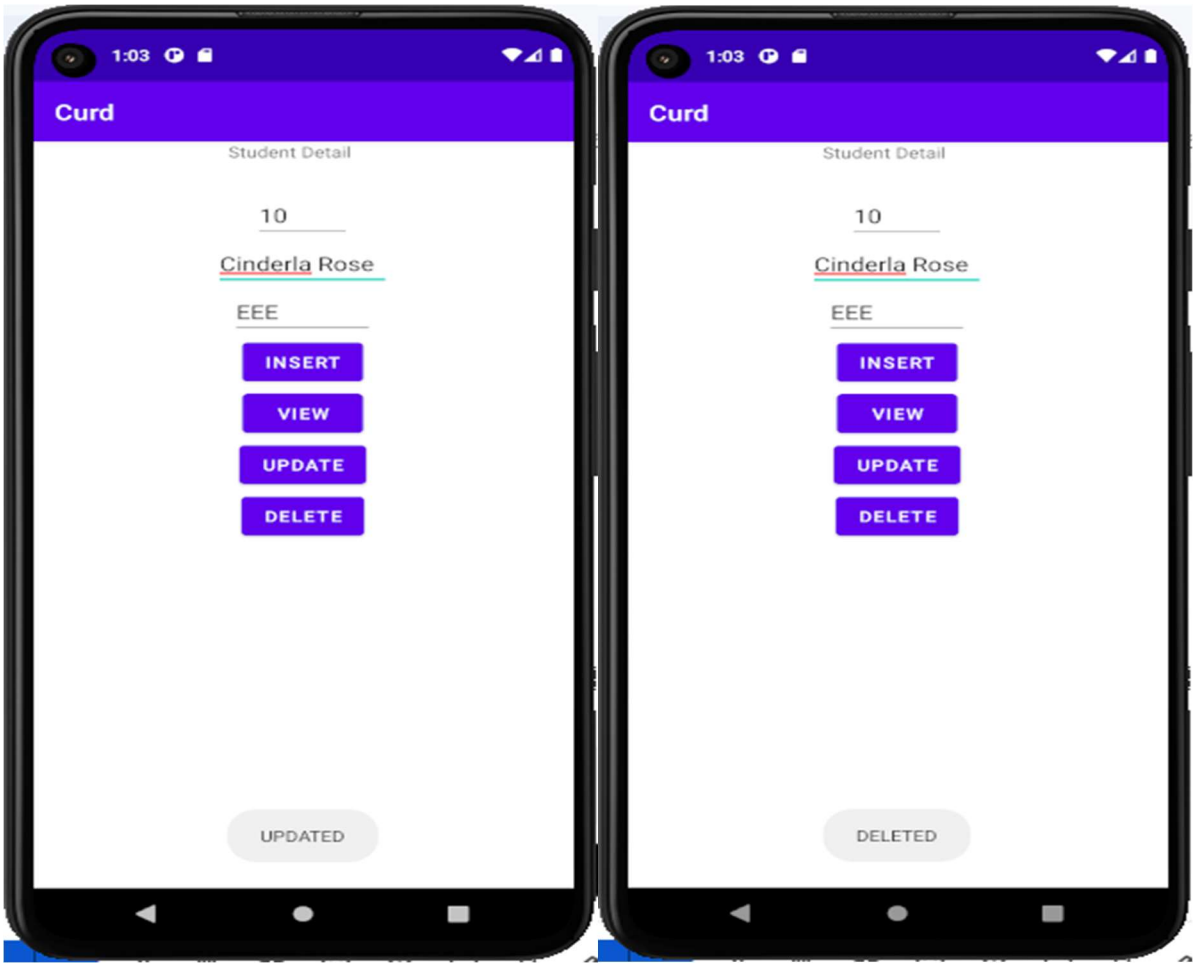
DBHelper.java

```
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.