Experiment No.: 1

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

CO1: Design and develop user interfaces for mobile apps using basic building blocks, UI components and application structure using Emulator.

Procedure:

Xml code

```
<?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/editText1"
      android:layout_width="213dp"
      android:layout_height="wrap_content"
```

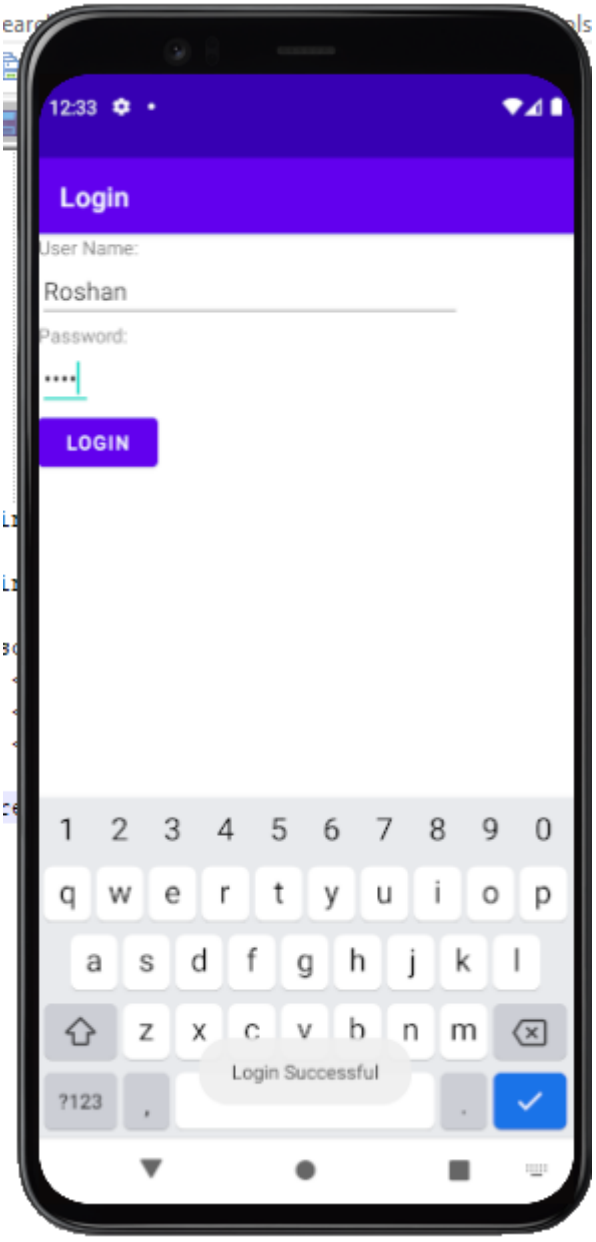
```
      android:layout_marginTop="8dp"
       android:hint="Enter username" />
   <TextView
       android:id="@+id/textView2"
        android:layout_width="wrap_content"
       android:layout_height="wrap_content"
       android:text="PASSWORD"
       android:layout_marginTop="16dp"/>
   <EditText
       android:id="@+id/editText2"
       android:layout_width="215dp"
       android:layout_height="wrap_content"
       android:layout_marginTop="8dp"
       android:hint="Enter password" />
   <Button
       android:id="@+id/buttonLogin"
       android:layout_width="match_parent"
       android:layout_height="wrap_content"
       android:text="Login" />
</LinearLayout>
```

Java code

```
package com.example.jai2;
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="Roshan";
   private static final String VALID_PASSWORD="root";
```

```
 private EditText usernameEditText;
    private EditText passwordEditText;
    private Button buttonLogin;
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        usernameEditText=findViewById(R.id.usernameEditText);
        passwordEditText=findViewById(R.id.passwordEditText);
        buttonLogin=findViewById(R.id.buttonLogin);
        buttonLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View 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 Screenshot



Result:

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

Experiment No.: 2

Aim: Write a program that demonstrates Activity Lifecycle.

CO1: Design and develop user interfaces for mobile apps using basic building blocks, UI components and application structure using Emulator.

Procedure:

Xml code

```
<LinearLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   android:padding="16dp"
   tools:context=".MainActivity">
      <TextView
         android:id="@+id/textView"
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:text="Activity Lifecycle"
         android:textSize="24sp"
         android:layout_gravity="center_horizontal"
         android:layout_marginTop="16dp"/>
   <Button
      android:id="@+id/btnCreate"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="onCreate()"/>
   <Button
      android:id="@+id/btnStart"
      android:layout_height="wrap_content"
```

```
        android:text="onStart()"/>
    <Button
        android:id="@+id/btnPause"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="onPause()"/>
    <Button
        android:id="@+id/btnStop"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="onStop()"/>
    <Button
        android:id="@+id/btnRestart"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="onRestart()"/>
    <Button
        android:id="@+id/btnDestroy"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="onDestroy()"/>
</LinearLayout>
```

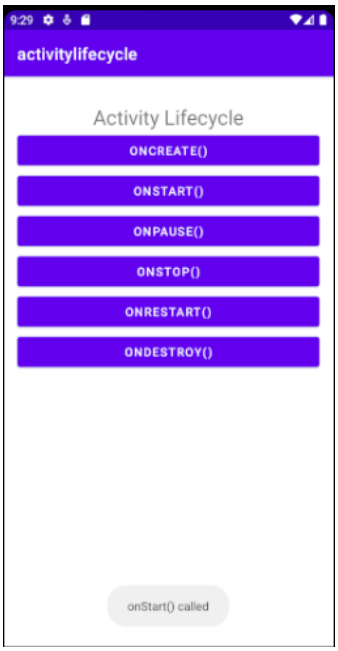
Java code

```
package com.example.myapplication_activitylifecycle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
import android.widget.TextView;
```

```
public class MainActivity extends AppCompatActivity {
   private TextView textView;
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      Button btnCreate = findViewById(R.id.btnCreate);
      Button btnStart = findViewById(R.id.btnStart);
      Button btnPause = findViewById(R.id.btnPause);
      Button btnStop = findViewById(R.id.btnStop);
      Button btnRestart = findViewById(R.id.btnRestart);
      Button btnDestroy = findViewById(R.id.btnDestroy);
      btnCreate.setOnClickListener(new View.OnClickListener() {
         public void onClick(View v) {
            Toast.makeText(getApplicationContext(), "onCreate() called",
Toast.LENGTH_LONG).show();}
      });
      btnStart.setOnClickListener(new View.OnClickListener() {
         public void onClick(View v) {
            Toast.makeText(getApplicationContext(), "onStart() called",
Toast.LENGTH_LONG).show();}
      });
      btnPause.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            Toast.makeText(getApplicationContext(), "onPause() called",
Toast.LENGTH_LONG).show();}
      });
      btnStop.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {
            Toast.makeText(getApplicationContext(), "onStop() called",
Toast.LENGTH_LONG).show(); }
```

```
        });
        btnRestart.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(getApplicationContext(), "onRestart() called",
Toast.LENGTH_LONG).show();}
        });
        btnDestroy.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(getApplicationContext(), "onDestroy() called",
Toast.LENGTH_LONG).show();}
        });}
}
```

Output Screenshot



Result:

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

Experiment No.: 3

Aim: Implementing basic arithmetic operations of a simple calculator.

CO1: Design and develop user interfaces for mobile apps using basic building blocks, UI components and application structure using Emulator.

CO2: Write simple programs and develop small applications using the concepts of UI design, layouts and preferences.

Procedure:

Xml code

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <TableRow
        android:layout_width="wrap_content"
        android:layout_height="wrap_content">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/num1"
            />
        <EditText
            android:id="@+id/num1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            />
    </TableRow>
    <TableRow
        android:layout_width="wrap_content"
        android:layout_height="wrap_content">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/num1"
            />
        <EditText
            android:id="@+id/num2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            />
    </TableRow>
```

```
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <Button
        android:id="@+id/plus"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="+" />
    <Button
        android:id="@+id/minus"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="-" />
</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <Button
        android:id="@+id/star"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="*" />
    <Button
        android:id="@+id/slash"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="/" />
</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <Button
        android:id="@+id/equal"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="=" />
    <Button
        android:id="@+id/C"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="C" />
</TableRow>
<TableRow>
    <TextView
        android:id="@+id/res"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Result: " />
</TableRow>
```

```
</TableLayout>
```

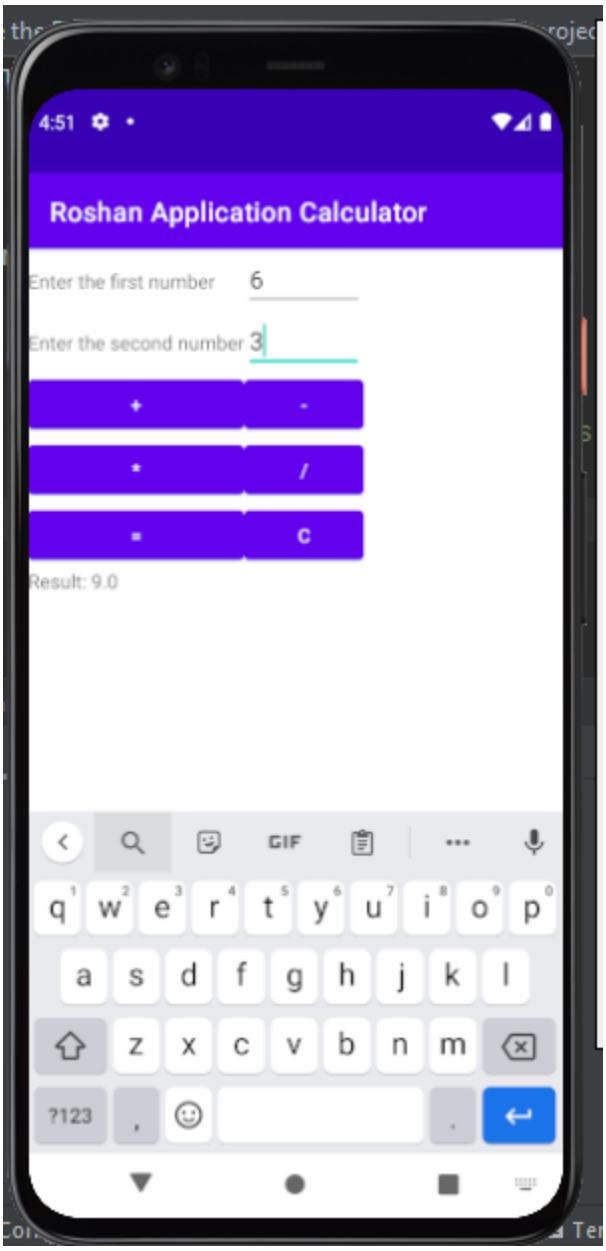
Java code

```
package com.example.roshanapplicationcalculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;


public class MainActivity extends AppCompatActivity {
    EditText ed1, ed2;
    Button plus, minus, multiply, divide, clear, equal;
    TextView result;


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

        ed1 = findViewById(R.id.num1);
        ed2 = findViewById(R.id.num2);
        plus = findViewById(R.id.plus);
        minus = findViewById(R.id.minus);
        multiply = findViewById(R.id.star);
        divide = findViewById(R.id.slash);
        clear = findViewById(R.id.C);
        equal = findViewById(R.id.equal);
        result = findViewById(R.id.res);

        plus.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                calculate('+');
            }
        });

        minus.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                calculate('-');
            }
        });

        multiply.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
        public void onClick(View view) {
            calculate('*');
        }
    });

    divide.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            calculate('/');
        }
    });

    clear.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            ed1.setText("");
            ed2.setText("");
            result.setText("Result: ");
        }
    });

    equal.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            calculate('=');
        }
    });
}

private void calculate(char operator) {
    String num1Str = ed1.getText().toString();
    String num2Str = ed2.getText().toString();

    if (num1Str.isEmpty() || num2Str.isEmpty()) {
        result.setText("Result: Please enter both numbers.");
        return;
    }

    double num1 = Double.parseDouble(num1Str);
    double num2 = Double.parseDouble(num2Str);
    double resultValue = 0.0;

    switch (operator) {
        case '+':
            resultValue = num1 + num2;
            break;
        case '-':
            resultValue = num1 - num2;
            break;
        case '*':
```

```
                resultValue = num1 * num2;
                break;
            case '/':
                if (num2 == 0) {
                    result.setText("Result: Cannot divide by zero.");
                    return;
                }
                resultValue = num1 / num2;
                break;
            case '=':
                break;
        }

        result.setText("Result: " + resultValue);

    }
}
```

Output Screenshot



Result:

The program was executed and the result was successfully obtained. Thus CO1 and CO2 was obtained.

Experiment No.: 4

Aim: Implement validations on various UI controls.

CO1: Design and develop user interfaces for mobile apps using basic building blocks, UI components and application structure using Emulator.

CO2: Write simple programs and develop small applications using the concepts of UI design, layouts and preferences.

Procedure:

Xml code

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical" >
   <RelativeLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content" >
      <Button
         android:id="@+id/button1"
         android:layout_width="match_parent"
         android:layout_height="wrap_content"
         android:text="Relative Layout" />
   </RelativeLayout>
   <GridLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:columnCount="2"
      android:rowCount="2" >
      <Button
         android:id="@+id/button2"
         android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:text="Grid Layout" />
</GridLayout>
  <FrameLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >
    <Button
      android:id="@+id/button3"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="Frame Layout" />
  </FrameLayout>
  <androidx.constraintlayout.widget.ConstraintLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <Button
      android:id="@+id/button4"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintBottom_toBottomOf="parent"
      android:text="Constrained Layout" />
  </androidx.constraintlayout.widget.ConstraintLayout>
  <TableLayout
    android:id="@+id/tableLayout1"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TableRow
      android:id="@+id/tableRow1"
      android:gravity="center_horizontal">
```

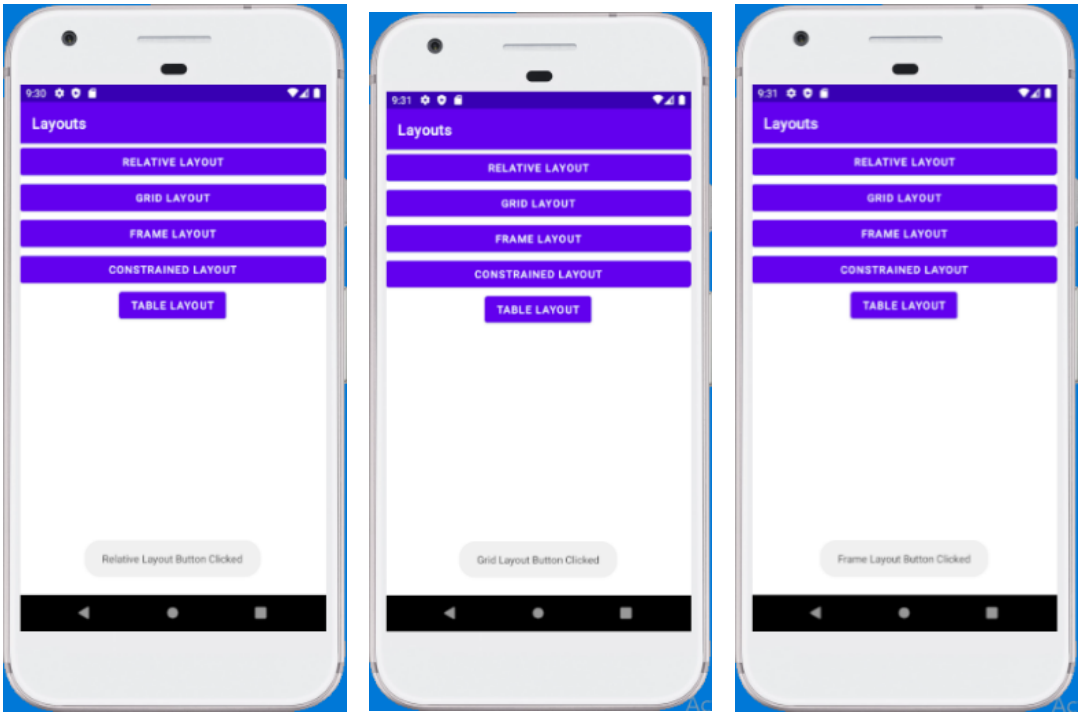
```
        <Button
            android:id="@+id/button5"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Table Layout"/>
      </TableRow>
   </TableLayout>
</LinearLayout>
```

Java code

```
package com.example.uilayout;
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() {
         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 Screenshot



Result:

The program was executed and the result was successfully obtained. Thus CO1 and CO2 was obtained.

Experiment No.:5

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:

Xml code

```
<?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
```

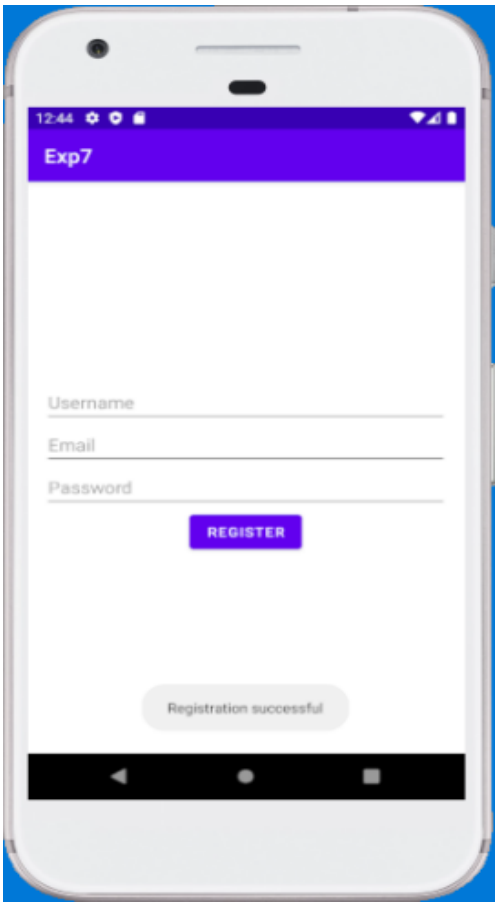
```
        android:id="@+id/passwordEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:inputType="textPassword" />
    <Button
        android:id="@+id/registerButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="Register" />
</LinearLayout>
```

Java code

```
package com.example.exp7;
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;
    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() {
            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 Screenshot



Result:

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

Experiment No.: 6

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

CO2: Write simple programs and develop small applications using the concepts of UI design, layouts and preferences.

Procedure:

Xml code

```
<?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" />
        <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>
```

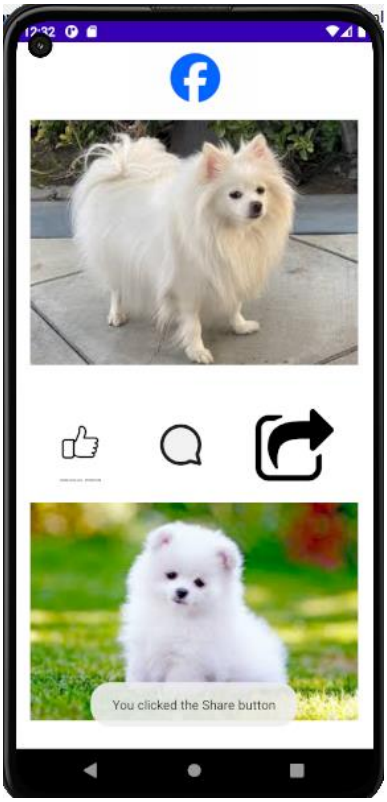
```
</RelativeLayout>
```

Java code

```
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 Screenshot



Result:

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

Experiment No.: 7

Aim: Develop an application that toggles image using Frame Layout.

CO2: Write simple programs and develop small applications using the concepts of UI design, layouts and preferences.

Procedure:

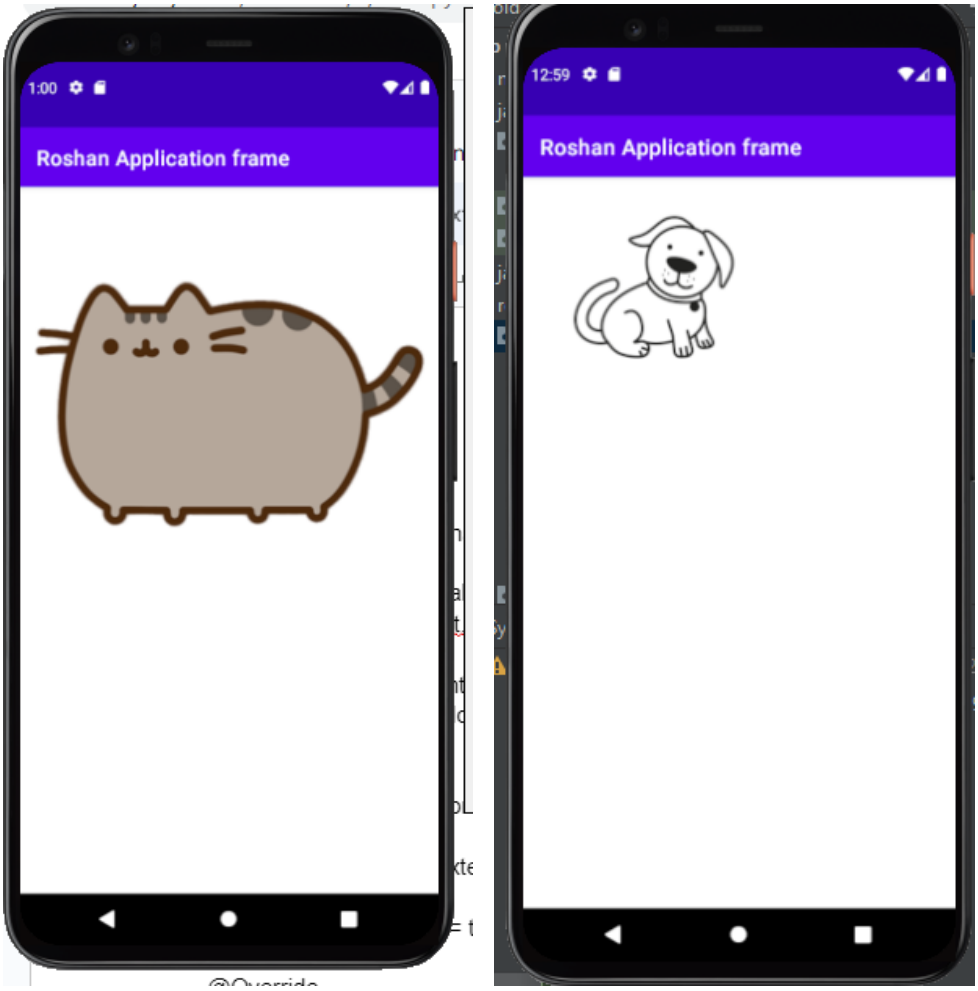
Xml code

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <ImageView
        android:id="@+id/image1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:scaleType="fitXY"
        android:src="@drawable/img1" />
    <ImageView
        android:id="@+id/image2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:scaleType="fitXY"
        android:src="@drawable/img3" />
</FrameLayout>
```

mainActivity.java

```
package com.example.Roshan Application Frame;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
public class MainActivity extends AppCompatActivity {
   ImageView img1,img2;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      img1=findViewById(R.id.image1);
      img2=findViewById(R.id.image2);
      img1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            img1.setVisibility(View.GONE);
            img2.setVisibility(View.VISIBLE);
         }
      });
      img2.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            img2.setVisibility(View.GONE);
            img1.setVisibility(View.VISIBLE);
         }
      });
   }
}
```

Output Screenshot



Result:

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

Experiment No.: 8

Aim: Implement Adapters and perform exception handling.

CO3: Develop applications with multiple activities using intents, array adapter, exceptions and options menu.

Procedure:

xml

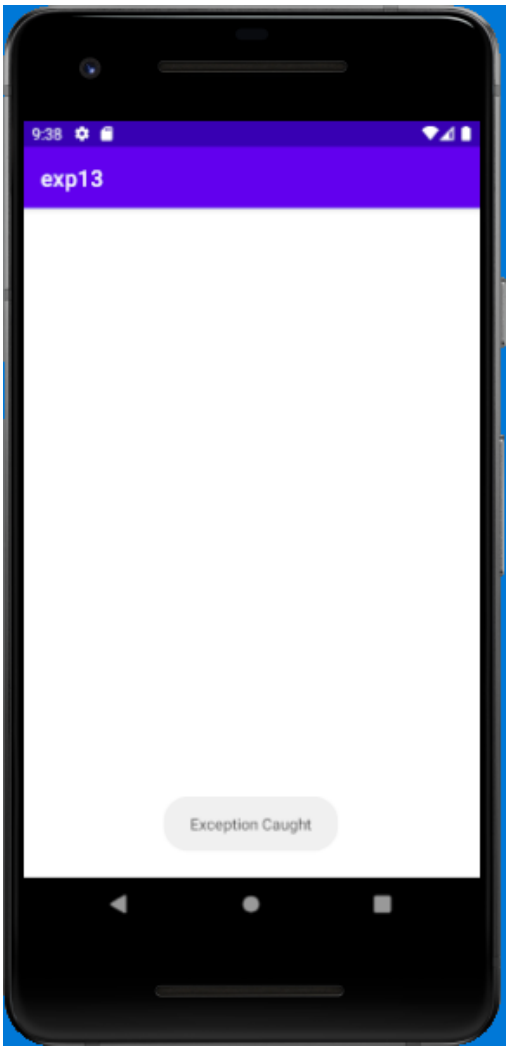
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

java

```
package com.example.exp13;
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("List1");
        list.add("List2");
        list.add("List3");
        list.add("List4");
        try{
            for(int i=0;i<5;i++){
                list.get(i);
            }
        }catch (Exception e){
            Toast.makeText(this, "Exception Caught", Toast.LENGTH_LONG).show();
        }
    }
}
```

Output Screenshot



Result:

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

Experiment No.: 9

Aim

Implement Intent to navigate between multiple activities.

CO4

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

Procedure

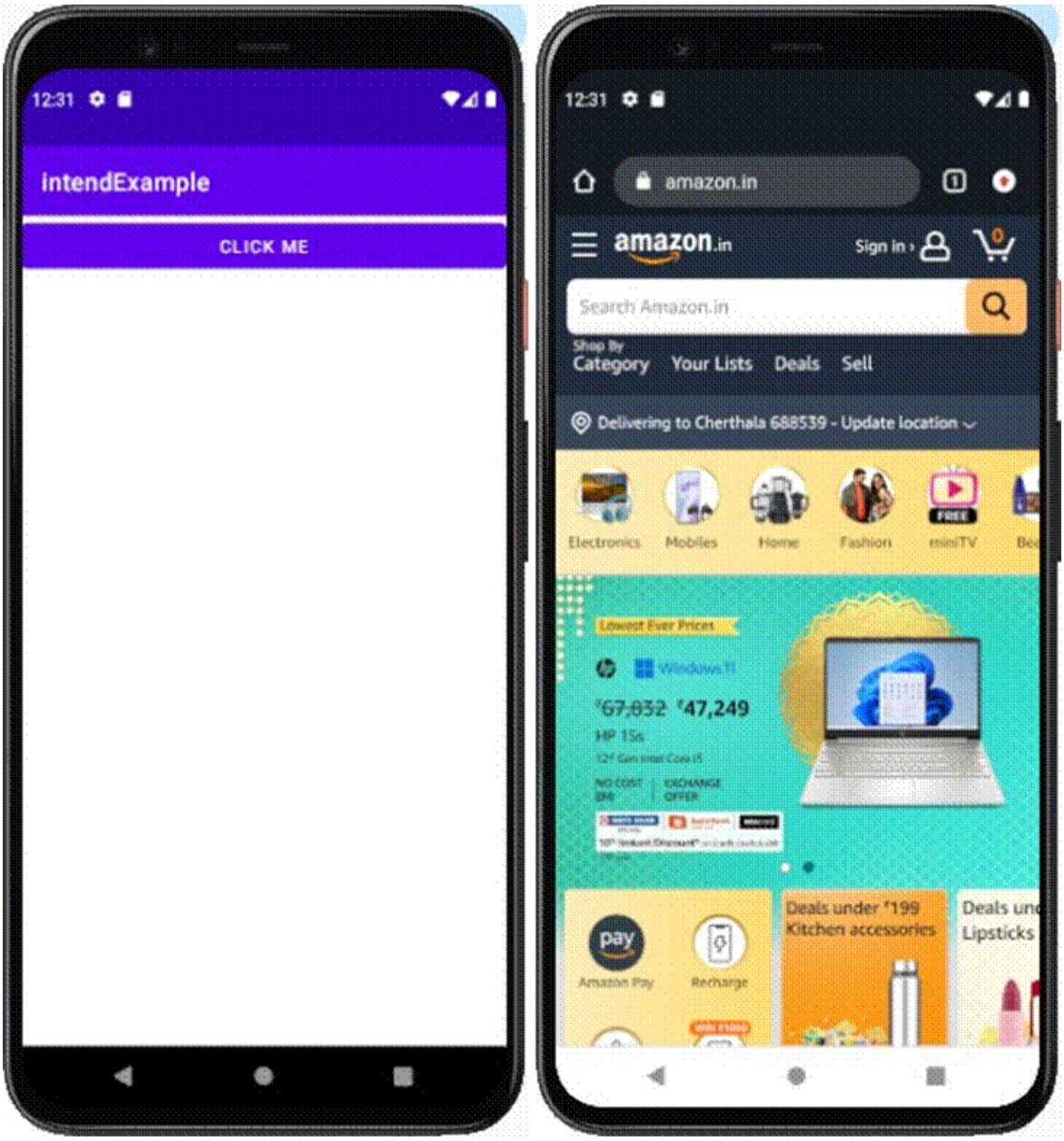
MainActivity.java

```
package com.example.intendexample;
import androidx.appcompat.app.AppCompatActivity; import android.content.Intent;
import android.net.Uri; import android.os.Bundle; import android.view.View;
import android.widget.Button;
public class MainActivity extends AppCompatActivity {
 Button bn;
@Override
protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);

bn = findViewById(R.id.button);

bn.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View view) {
Intent i=new Intent(Intent.ACTION_VIEW, Uri.parse("https://www.amazon.in/"));
startActivity(i);
}
});
}
}
```

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="horizontal"
    tools:context=".MainActivity">

    <Button
       android:id="@+id/button"
       android:layout_width="wrap_content"
       android:layout_height="wrap_content"
       android:layout_weight="1"
       android:text="Click me" />

</LinearLayout>
```

Output



Result

The program was executed successfully and the output was obtained. Thus, CO5 has been attained.

Experiment No.: 10

Aim: Develop application that works with explicit intents.

CO3: Develop applications with multiple activities using intents, array adapter, exceptions and options menu.

Procedure:

Xml1

```
<?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">
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="160dp"
        android:layout_marginTop="160dp"
        android:onClick="switchActivity"
        android:text="Button" />
    <EditText
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Enter your name"
        android:layout_marginLeft="110dp"
        android:layout_marginTop="60dp" />
```

```
    <EditText
        android:id="@+id/age"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:layout_marginLeft="110dp"
        android:hint="Enter your age"
        android:layout_marginTop="110dp" />
</RelativeLayout>
```

xml2

```
<?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=".Activity2">
    <TextView
        android:id="@+id/textView1"
        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" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

java1

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

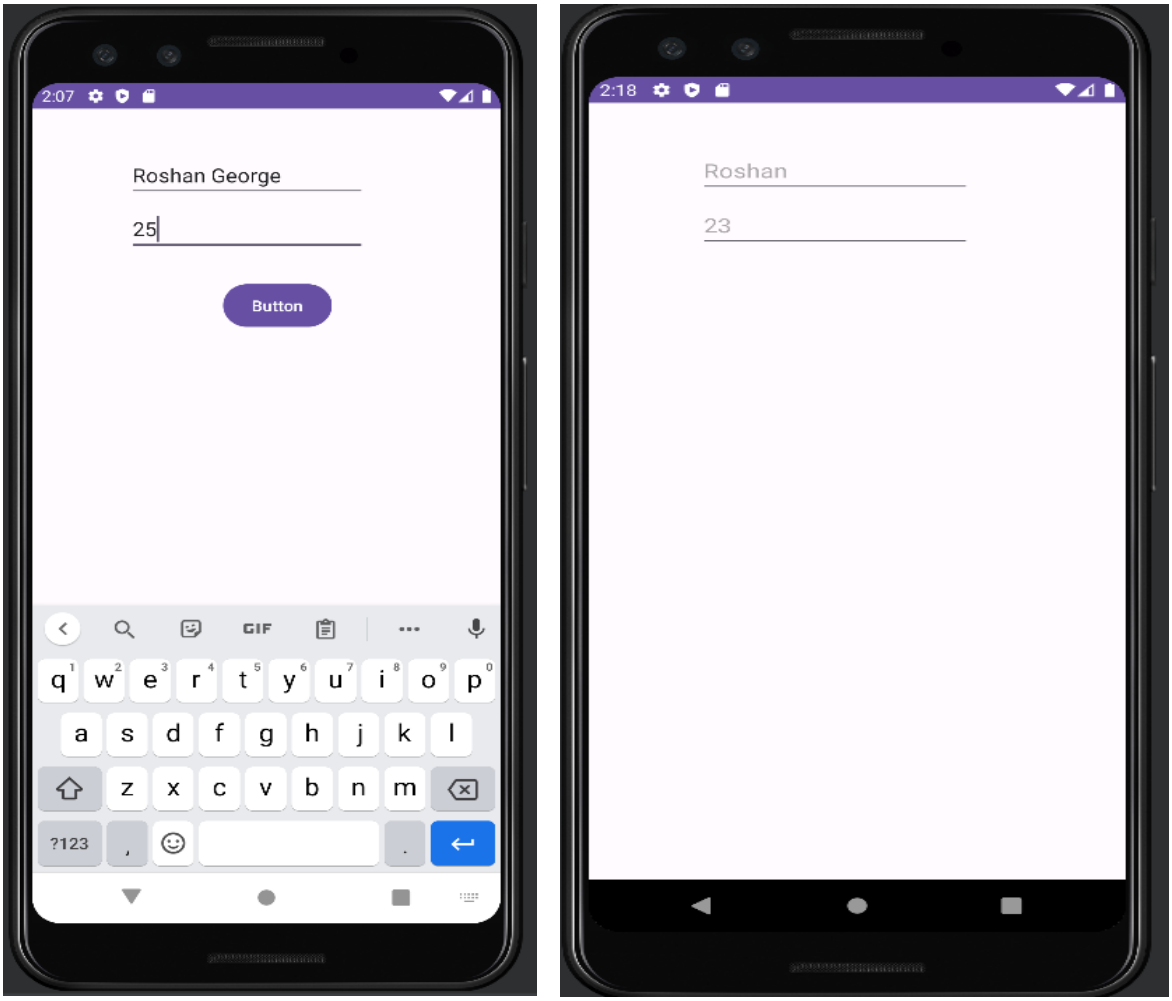
```
import android.view.View;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
   EditText name;
   EditText age;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      name = findViewById(R.id.name);
      age = findViewById(R.id.age);
   }
   public void switchActivity(View view) {
      Intent intent=new Intent(this, Activity2.class);
      intent.putExtra("user",name.getText().toString());
      intent.putExtra("age",age.getText().toString());
      startActivity(intent);
   }
}
```

java2

```
package com.example.intent;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;
public class Activity2 extends AppCompatActivity {
   TextView tv;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_2);
      Intent intent= getIntent();
```

```
        String user = intent.getStringExtra("user");
        String age = intent.getStringExtra("age");
        tv=findViewById(R.id.textView1);
        tv.setText("Welcome "+user+" Age: "+age);
    }
}
```

Output Screenshot



Result:

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

Experiment No.: 11

Aim: Implement Options Menu to navigate to activities.

CO3: Develop applications with multiple activities using intents, array adapter, exceptions and options menu.

Procedure:

main xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
   <item android:id="@+id/search_item"
         android:icon="@drawable/search_icon"
         android:title="search"
   />
   <item android:id="@+id/upload"
      android:icon="@drawable/upload_icon"
      android:title="upload"
      />
   <item android:id="@+id/copy"
      android:icon="@drawable/copy_icon"
      android:title="copy"
      />
   <item android:id="@+id/print"
      android:icon="@drawable/print_icon"
      android:title="print"
      />
   <item android:id="@+id/b_mark"
      android:icon="@drawable/b_mark_icon"
      android:title="book mark"
      />
   <item android:id="@+id/share"
      android:icon="@drawable/share_icon"
```

```
    android:title="share"
    />
</menu>
```

Main_activity.java

```
package com.example.roshanapplicationmenu;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.view.menu.MenuBuilder;
import android.annotation.SuppressLint;
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);
   }
   @SuppressLint("RestrictedApi")
   @Override
   public boolean onCreateOptionsMenu(Menu menu) {
      MenuInflater inflater = getMenuInflater();
      inflater.inflate(R.menu.optionmenu,menu);
       if(menu instanceof MenuBuilder)
       {
          MenuBuilder m= (MenuBuilder) menu;
          m.setOptionalIconsVisible(true);
       }
```

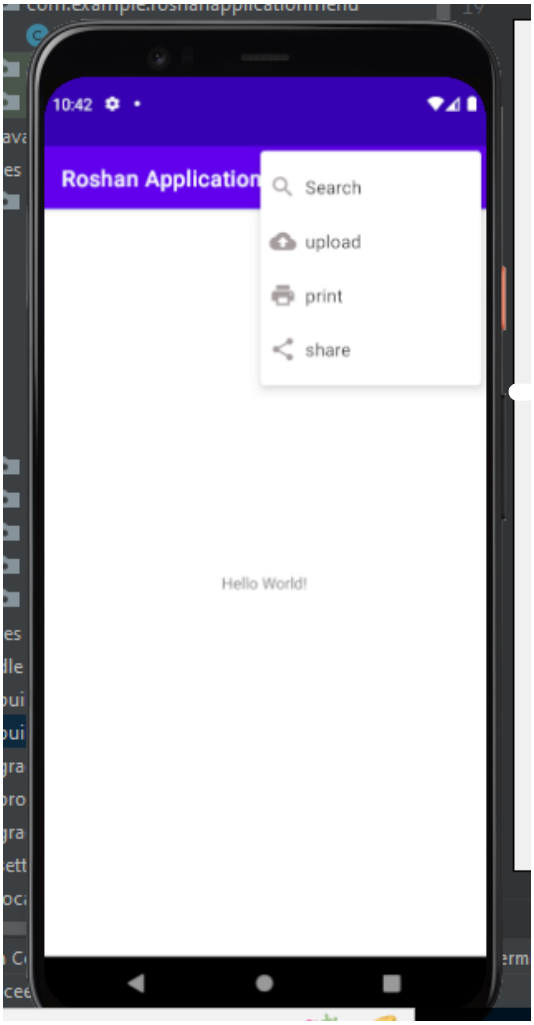
```
        return super.onCreateOptionsMenu(menu);
    }
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        Toast.makeText(this, "selected item"+ item.getTitle(), Toast.LENGTH_SHORT).show();
        switch (item.getItemId()){
            case R.id.search_item:
                return true;
            case R.id.upload:
                return true;
            case R.id.copy:
                return true;
            case R.id.print:
                return true;
            case R.id.b_mark:
                return  true;
            case R.id.share:
                return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

Optionmenu.xml-

```
<?xml version="1.0" encoding="utf-8"?>
<menu 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"
    tools:context=".MainActivity">
    <item android:id="@+id/search_item"
        android:title="Search"
        android:icon="@drawable/search"/>
    <item android:id="@+id/upload"
    android:title="upload"
```

```
    android:icon="@drawable/upload"/>
    <item android:id="@+id/print"
        android:title="print"
        android:icon="@drawable/print"/>
    <item android:id="@+id/share"
        android:title="share"
        android:icon="@drawable/share"/>
</menu>
```

Output Screenshot



Result:

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

Experiment No.: 12

Aim: Develop an application that uses Array Adapter with List View.

CO3: Develop applications with multiple activities using intents, array adapter, exceptions and options menu.

Procedure:

Xml code

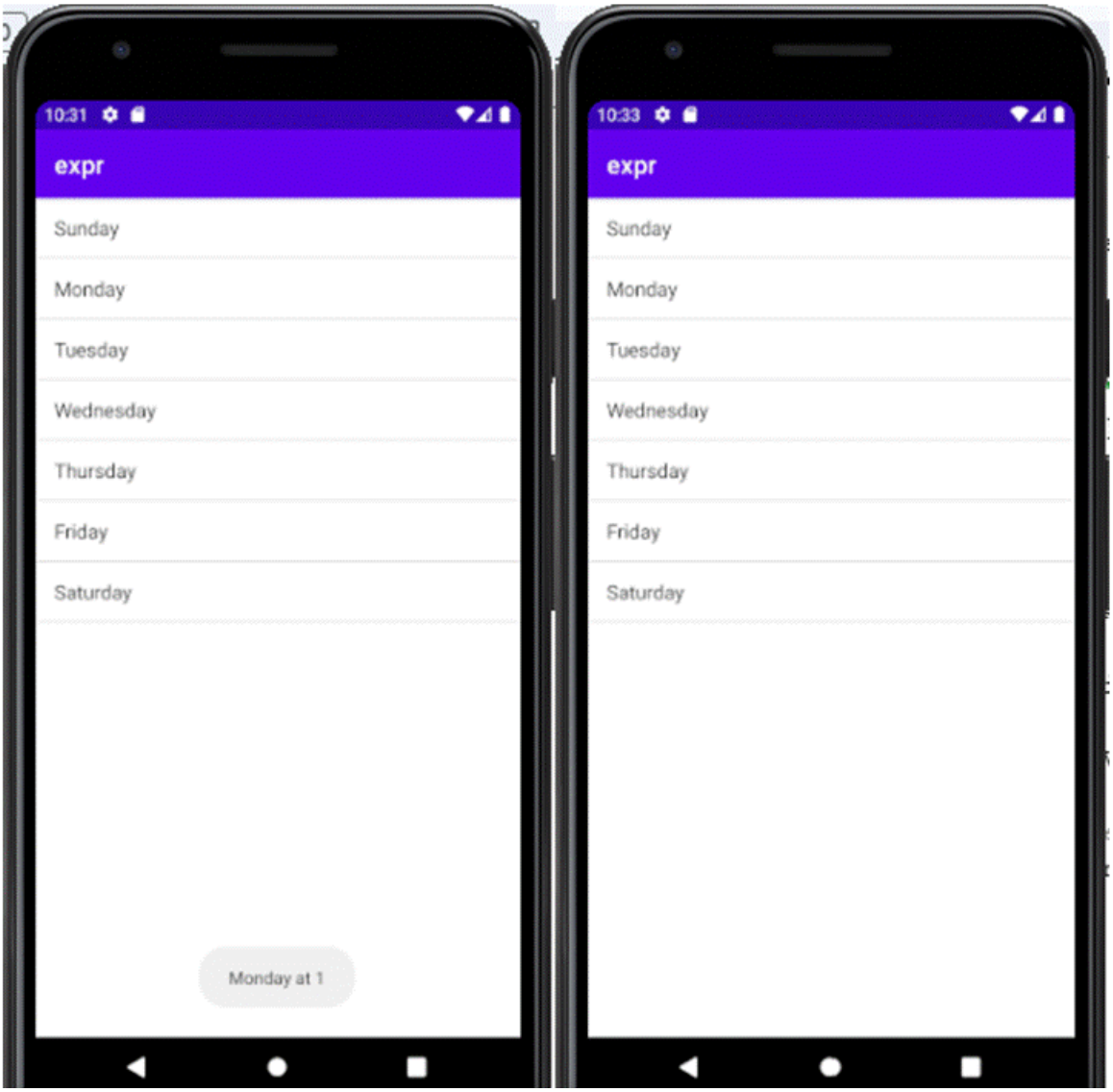
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".MainActivity">
  <ListView
    android:id="@+id/weeks"
    android:layout_width="400dp"
    android:layout_height="354dp"
    tools:ignore="Missing Constraint"/>
</RelativeLayout>
```

Java code

```
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;
```

```
public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemClickListener{
  ListView lists;
  String []
days={"Sunday","Monday","Tuesday","Wednesday","Thursday","Friday","Saturday"};
  @Override
  protected void onCreate(Bundle savedInstanceState) {
     super.onCreate(savedInstanceState);
     setContentView(R.layout.activity_main);
     lists=findViewById(R.id.weeks);
     ArrayAdapter<String> adapter=new
ArrayAdapter<String>(this,android.R.layout.simple_spinner_dropdown_item,days);
     lists.setAdapter(adapter);
     lists.setOnItemClickListener(this);}
  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_LONG).show();}
}
```

Output Screenshot



Result:

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

Experiment No.: 13

Aim: Develop an application that use GridView with images and display Alert box on selection.

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

Procedure:

Activity.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:orientation="vertical"
  tools:context=".MainActivity">
  <GridView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/d1"
    android:numColumns="2"
    android:horizontalSpacing="2dip"
    android:verticalSpacing="5dip"
    android:columnWidth="130dip"
    android:stretchMode="columnWidth"
    android:gravity="center"
    tools:ignore="MissingConstraints">
  </GridView>
</LinearLayout>
```

grind_list

```
<?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">
  <TextView
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:id="@+id/t"
     android:text="">
  </TextView>
  <ImageView
     android:id="@+id/pup6"
     android:layout_width="wrap_content"
     android:layout_height="wrap_content">
  </ImageView>
</LinearLayout>
```

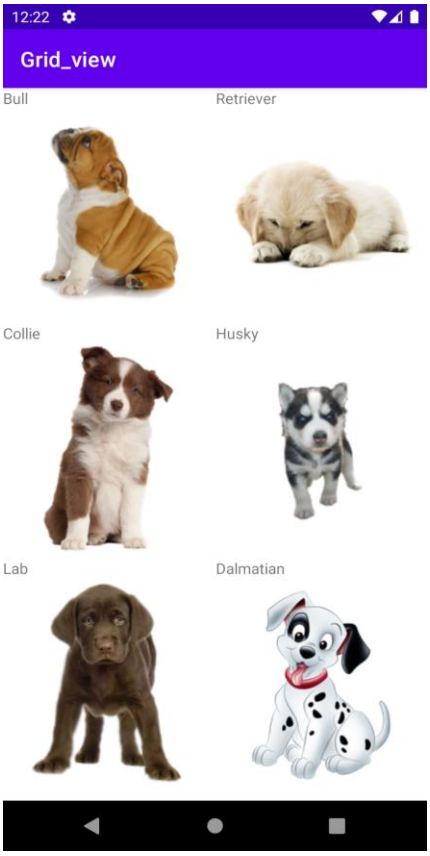
mainActivity

```
package com.example.grid_view;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
  String[] dog_names = {"Bull", "Retriever", "Collie", "Husky", "Lab", "Dalmatian"};
  int[] dog_images = {R.drawable.bull,
R.drawable.retri,R.drawable.collie,R.drawable.husk,R.drawable.lab,R.drawable.dal};
```

```
  @Override
  protected void onCreate(Bundle savedInstanceState) {
     super.onCreate(savedInstanceState);
     setContentView(R.layout.activity_main);
     GridView g = findViewById(R.id.d1);
     CustomAdapter customAdapter = new CustomAdapter();
     g.setAdapter(customAdapter);
  }
  private class CustomAdapter extends BaseAdapter{
     @Override
     public int getCount() {
        return dog_names.length;
     }
     @Override
     public Object getItem(int position) {
        return null;
     }
     @Override
     public long getItemId(int position) {
        return 0;
}
     @Override
     public View getView(int position, View convertView, ViewGroup parent) {
        View view =getLayoutInflater().inflate(R.layout.grind_list,null);
        TextView dogname=view.findViewById(R.id.t);
        ImageView dogimage=view.findViewById(R.id.pup6);

        dogname.setText(dog_names[position]);
        dogimage.setImageResource(dog_images[position]);

        dogimage.setOnClickListener(new View.OnClickListener() {
           @Override
```

```
            public void onClick(View v) {
                Toast.makeText(MainActivity.this,dog_names[position],
Toast.LENGTH_LONG).show();
            }
        });
        return view;
    }
  }
}
```

Output Screenshot



Result:

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

Experiment No.: 14

Aim: Develop an application that implements spinner component and perform event handling.

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

Procedure:

xml

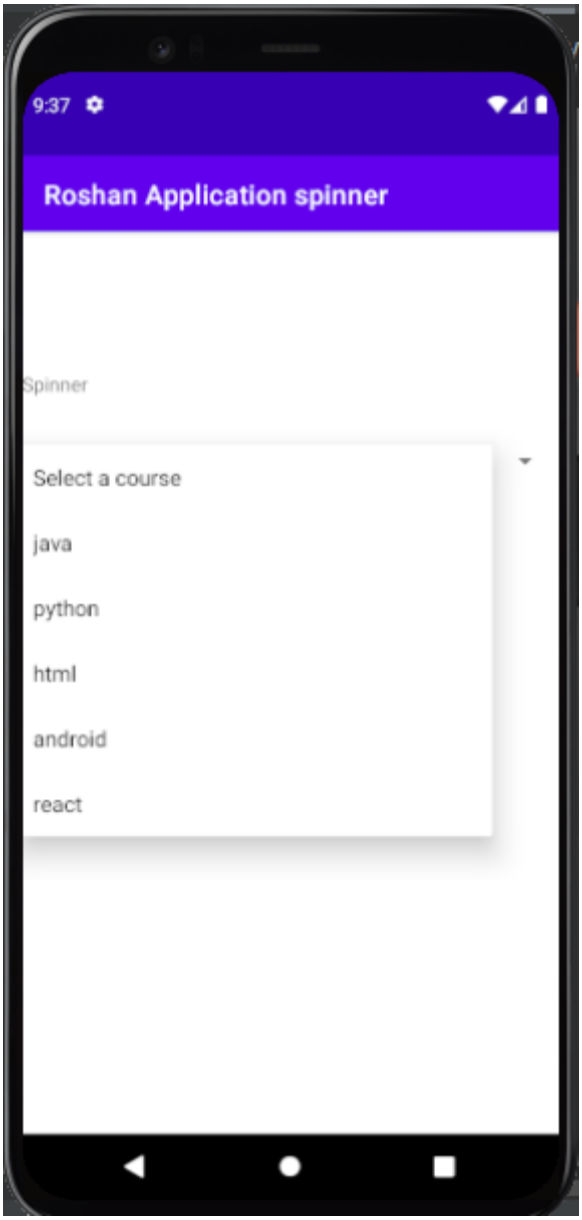
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Spinner"
        android:layout_marginTop="102dp"
        android:gravity="center"/>

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="35dp"/>


</LinearLayout>
```

java

```
package com.example.roshanapplicationspinner;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
```

```
import android.widget.Spinner;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
   Spinner spinner;
   String[] courses = {"Select a course", "java", "python", "html", "android", "react"};

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

      spinner = findViewById(R.id.spinner);

      ArrayAdapter<String> aa = new ArrayAdapter<>(this,
android.R.layout.simple_spinner_item, courses);
      aa.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
      spinner.setAdapter(aa);

      spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
         @Override
         public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) {
            if (i != 0) {
               Toast.makeText(getApplicationContext(), "selected course is :" + courses[i],
                     Toast.LENGTH_LONG).show();
            }
         }

         @Override
         public void onNothingSelected(AdapterView<?> adapterView) {
         }
      });
   }
}
```

Output Screenshot



Result:

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

Experiment No.: 15

Aim: Develop applications using fragments.

CO4: Implement activities with dialogues,spinner,fragments and navigation drawer by applying themes.

Procedure:

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:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Fragments"
    android:textStyle="bold"
    android:textSize="40dp"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="30dp"/>
  <Button
    android:id="@+id/fragment1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Fragment1"
    android:textSize="20dp"
    android:layout_marginTop="100dp"
    android:layout_centerHorizontal="true"/>
  <Button
```

```
    android:id="@+id/fragment2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Fragment2"
    android:textSize="20dp"
    android:layout_marginTop="150dp"
    android:layout_centerHorizontal="true"/>
  <FrameLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:id="@+id/layout1">
  </FrameLayout>
</RelativeLayout>
```

java

```
package com.example.fragments;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
public class MainActivity extends AppCompatActivity {
  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() {
      @Override
      public void onClick(View view) {
        getSupportFragmentManager().beginTransaction()
            .replace(R.id.layout1,new firstfragment())
            .commit();   }
    });
```

```
    buttonFragment2.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            getSupportFragmentManager().beginTransaction()
                    .replace(R.id.layout1,new secondfragment())
                    .commit();}});
}}
```

fragments

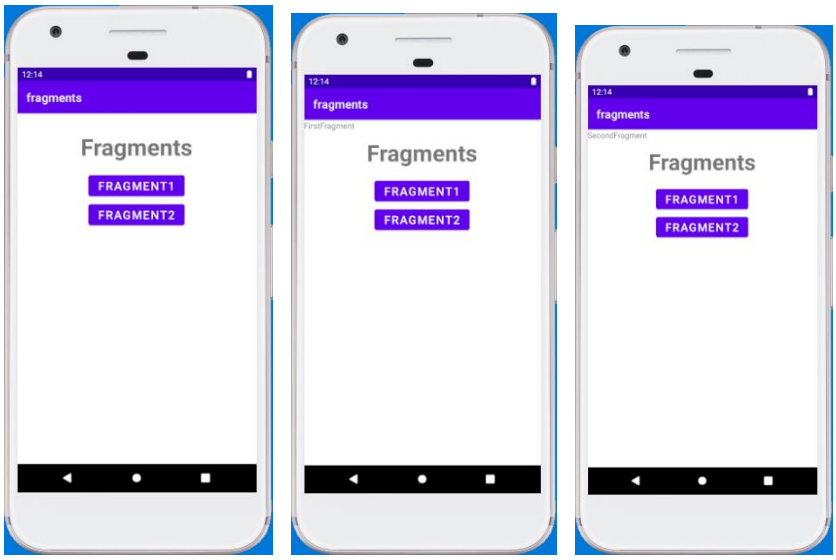
Fragment1

```
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_firstfragment, container, false);  }
```

Fragment2

```
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_secondfragment, container, false);}
```

Output Screenshot



Result:

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

Experiment No.: 16

Aim: Implement Navigation drawer.

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

Procedure:

activity_main

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

  <androidx.appcompat.widget.Toolbar
    android:id="@+id/toolbar"
    android:layout_width="match_parent"
    android:layout_height="?attr/actionBarSize"
    app:popupTheme="@style/ThemeOverlay.AppCompat.Light"/>
  <LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="match_parent"
    android:orientation="vertical">

  </LinearLayout>
  <com.google.android.material.navigation.NavigationView
    android:layout_width="wrap_content"
    android:layout_height="match_parent"
    android:layout_gravity="start"
```

```
    app:menu="@menu/menu"/>
</androidx.drawerlayout.widget.DrawerLayout>
```

mainActivity

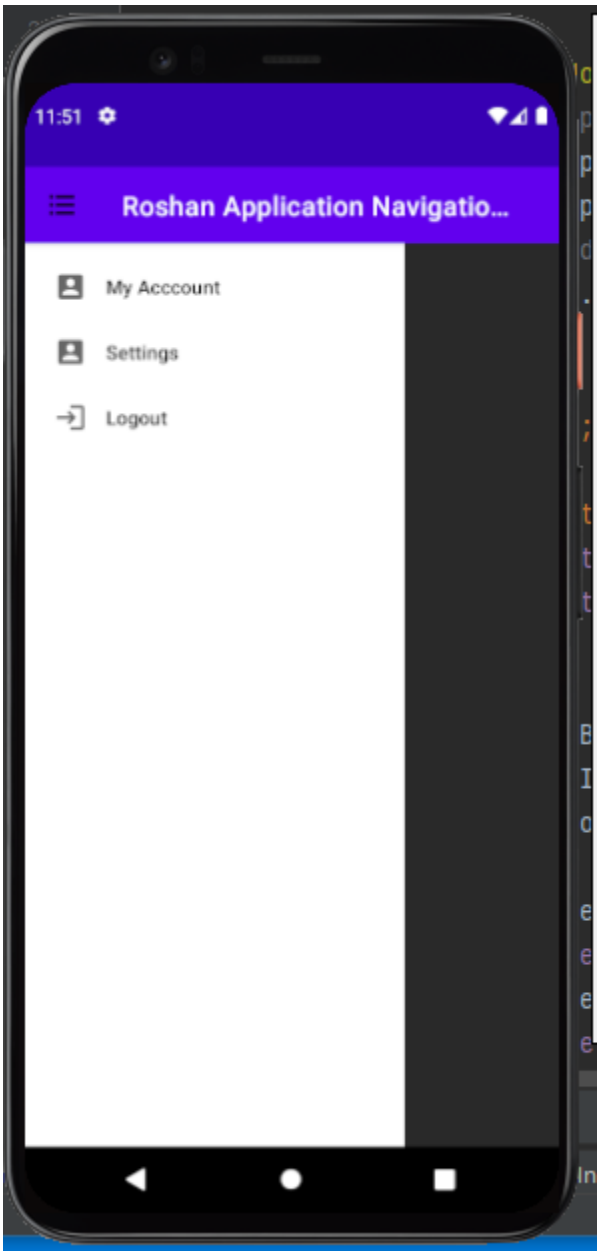
```
package com.example.roshanapplicationnavigation_drawer;

import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.Toolbar;
import androidx.drawerlayout.widget.DrawerLayout;

import android.os.Bundle;
import android.view.MenuItem;

public class MainActivity extends AppCompatActivity {
   DrawerLayout drawerLayout;
   ActionBarDrawerToggle actionBarDrawerToggle;

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

      drawerLayout =findViewById(R.id.drawerLayout);
      actionBarDrawerToggle= new
ActionBarDrawerToggle(this,drawerLayout,R.string.Open,R.string.Close);
      drawerLayout.addDrawerListener(actionBarDrawerToggle);
      actionBarDrawerToggle.syncState();


      getSupportActionBar().setDisplayHomeAsUpEnabled(true);
      getSupportActionBar().setHomeAsUpIndicator(R.drawable.icon);
   }
   @Override

   public boolean onOptionsItemSelected(@NonNull MenuItem item ){
      if(actionBarDrawerToggle.onOptionsItemSelected(item))
      {
         return true;
      }
      return super.onOptionsItemSelected(item);
```

```
    }
}
```

menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
  <item
     android:id="@+id/ac"
     android:title="Account"
     android:icon="@drawable/account"/>
  <item
     android:id="@+id/st"
     android:title="Settings"
     android:icon="@drawable/settings"/>
  <item
     android:id="@+id/log"
     android:title="Logout"
     android:icon="@drawable/logout"/>
</menu>
```

Output Screenshot



Result:

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

Experiment No.: 17

Aim: Create database using SQLite and perform INSERT and SELECT

CO5: To what extent you understood to create applications with SQLite

Procedure:

XML code

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

    <TextView
        android:id="@+id/textVi"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Enter the Name" />

    <EditText
        android:layout_marginTop="40dp"
        android:layout_gravity="center"
        android:layout_width="300dp"
        android:layout_height="wrap_content"
        android:id="@+id/name"
        android:hint=""
        />
```

```
<TextView
    android:id="@+id/textV"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter the Roll No" />

<EditText
    android:layout_gravity="center"
    android:layout_width="300dp"
    android:layout_height="wrap_content"
    android:id="@+id/roll_no"
    android:hint=""
    />
<TextView
    android:id="@+id/text"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter the Address" />

<EditText
    android:layout_gravity="center"
    android:layout_width="300dp"
    android:layout_height="wrap_content"
    android:id="@+id/address"
    android:hint=""
    />
<Button
    android:layout_gravity="center"
    android:layout_marginTop="50dp"
    android:layout_width="100dp"
    android:layout_height="40dp"
    android:id="@+id/insert"
```

```
        android:text="Insert"
        android:onClick="insert"
        tools:ignore="UsingOnClickInXml" />
    <Button
        android:layout_gravity="center"
        android:id="@+id/delete"
        android:layout_width="100dp"
        android:layout_height="40dp"
        android:text="Delete"
        android:onClick="delete"
        tools:ignore="UsingOnClickInXml" />
    <Button
        android:layout_gravity="center"
        android:layout_width="100dp"
        android:layout_height="40dp"
        android:id="@+id/update"
        android:text="Update"
        android:onClick="update"
        tools:ignore="OnClick" />
    <Button
        android:layout_gravity="center"
        android:layout_width="100dp"
        android:layout_height="40dp"
        android:id="@+id/read"
        android:text="Read"
        android:onClick="read"
        tools:ignore="OnClick" />

</LinearLayout>
```

JAVA code

```
package com.example.crudd_jaimol;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.CursorWrapper;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
   EditText name, address, rollno;
   SQLiteDatabase sqlDB;
   dbHelper helper = new dbHelper(this);

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

      sqlDB = helper.getReadableDatabase();
      name = findViewById(R.id.namee);
      rollno = findViewById(R.id.roll_no);
      address = findViewById(R.id.address);
   }

   public void insert(View view) {
```

```
        sqlDB = helper.getWritableDatabase();
        String sn = name.getText().toString();
        String srn = rollno.getText().toString();
        String sa = address.getText().toString();
        ContentValues info = new ContentValues();
        info.put("rollno",srn);
        info.put("name", sn);
        info.put("address", sa);
        sqlDB.insert("stud_table", null, info);
        Toast.makeText(this, "Inserted", Toast.LENGTH_SHORT).show();
    }

    public void delete(View view) {
        String srn = rollno.getText().toString();
        ContentValues info = new ContentValues();
        info.put("rollno",srn);
        sqlDB.delete("stud_table","rollno="+srn, null);
        Toast.makeText(this, "Delete", Toast.LENGTH_SHORT).show();
    }

    public void update(View view) {
        sqlDB = helper.getWritableDatabase();
        String sn = name.getText().toString();
        String srn = rollno.getText().toString();
        String sa = address.getText().toString();
        ContentValues info = new ContentValues();
        info.put("rollno",srn);
        info.put("name", sn);
        info.put("address", sa);
        sqlDB.update("stud_table", info,"rollno="+srn, null);
        Toast.makeText(this, "Updated", Toast.LENGTH_SHORT).show();
    }
```

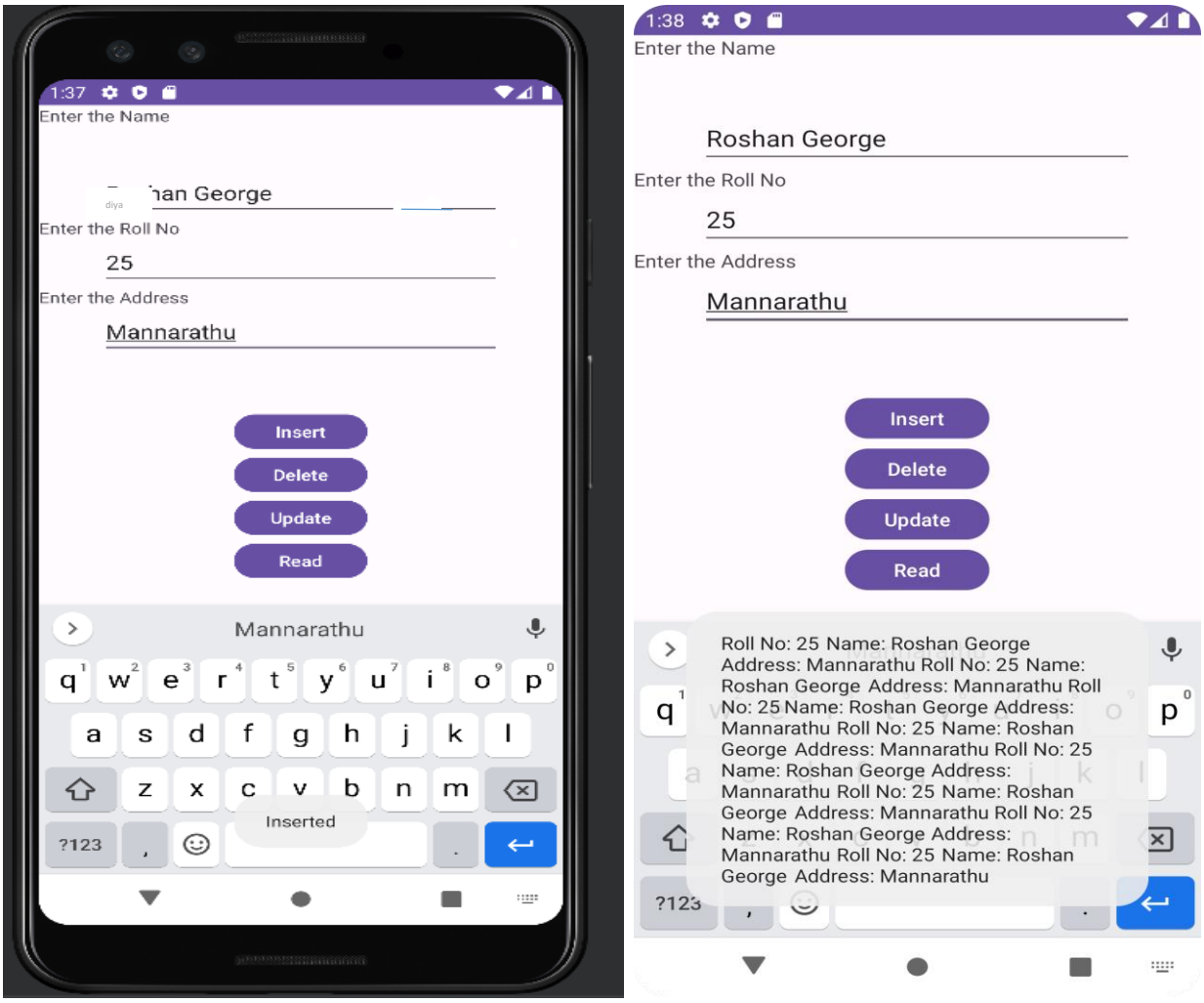
```
    public void read(View view) {
        StringBuffer buff = new StringBuffer();
        Cursor csr = sqlDB.rawQuery("select * from stud_table", null);
        while(csr.moveToNext()){
            buff.append("Roll No: "+ csr.getString(0)+"\t");
            buff.append("Name: "+ csr.getString(1)+"\t");
            buff.append("Address: "+ csr.getString(2)+"\t");
        }
        Toast.makeText(this, buff.toString(), Toast.LENGTH_LONG).show();
    }
}
```

DBHelper code

```
package com.example.crudd_jaimol;
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, "Stud_DB", null, 1);
    }
    @Override
    public void onCreate(SQLiteDatabase sqLiteDatabase) {
        sqLiteDatabase.execSQL("create table stud_table (rollno int, name varchar(20), address
varchar(40))");
    }
    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {
```

```
    }
}
```

Output Screenshot



Result:

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

Experiment No.: 18

Aim: Perform UPDATE and DELETE on SQLite database.

CO5: To what extent you understood to create applications with SQLite

Procedure:

XML code

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

    <TextView
        android:id="@+id/textVi"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Enter the Name" />

    <EditText
        android:layout_marginTop="40dp"
        android:layout_gravity="center"
        android:layout_width="300dp"
        android:layout_height="wrap_content"
        android:id="@+id/name"
        android:hint=""
        />
```

```
<TextView
    android:id="@+id/textV"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter the Roll No" />

<EditText
    android:layout_gravity="center"
    android:layout_width="300dp"
    android:layout_height="wrap_content"
    android:id="@+id/roll_no"
    android:hint=""
    />
<TextView
    android:id="@+id/text"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter the Address" />

<EditText
    android:layout_gravity="center"
    android:layout_width="300dp"
    android:layout_height="wrap_content"
    android:id="@+id/address"
    android:hint=""
    />
<Button
    android:layout_gravity="center"
    android:layout_marginTop="50dp"
    android:layout_width="100dp"
    android:layout_height="40dp"
    android:id="@+id/insert"
```

```
        android:text="Insert"
        android:onClick="insert"
        tools:ignore="UsingOnClickInXml" />
    <Button
        android:layout_gravity="center"
        android:id="@+id/delete"
        android:layout_width="100dp"
        android:layout_height="40dp"
        android:text="Delete"
        android:onClick="delete"
        tools:ignore="UsingOnClickInXml" />
    <Button
        android:layout_gravity="center"
        android:layout_width="100dp"
        android:layout_height="40dp"
        android:id="@+id/update"
        android:text="Update"
        android:onClick="update"
        tools:ignore="OnClick" />
    <Button
        android:layout_gravity="center"
        android:layout_width="100dp"
        android:layout_height="40dp"
        android:id="@+id/read"
        android:text="Read"
        android:onClick="read"
        tools:ignore="OnClick" />

</LinearLayout>
```

JAVA code

```
package com.example.crudd_jaimol;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.CursorWrapper;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
   EditText name, address, rollno;
   SQLiteDatabase sqlDB;
   dbHelper helper = new dbHelper(this);

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

      sqlDB = helper.getReadableDatabase();
      name = findViewById(R.id.namee);
      rollno = findViewById(R.id.roll_no);
      address = findViewById(R.id.address);
   }

   public void insert(View view) {
```

```
        sqlDB = helper.getWritableDatabase();
        String sn = name.getText().toString();
        String srn = rollno.getText().toString();
        String sa = address.getText().toString();
        ContentValues info = new ContentValues();
        info.put("rollno",srn);
        info.put("name", sn);
        info.put("address", sa);
        sqlDB.insert("stud_table", null, info);
        Toast.makeText(this, "Inserted", Toast.LENGTH_SHORT).show();
    }

    public void delete(View view) {
        String srn = rollno.getText().toString();
        ContentValues info = new ContentValues();
        info.put("rollno",srn);
        sqlDB.delete("stud_table","rollno="+srn, null);
        Toast.makeText(this, "Delete", Toast.LENGTH_SHORT).show();
    }

    public void update(View view) {
        sqlDB = helper.getWritableDatabase();
        String sn = name.getText().toString();
        String srn = rollno.getText().toString();
        String sa = address.getText().toString();
        ContentValues info = new ContentValues();
        info.put("rollno",srn);
        info.put("name", sn);
        info.put("address", sa);
        sqlDB.update("stud_table", info,"rollno="+srn, null);
        Toast.makeText(this, "Updated", Toast.LENGTH_SHORT).show();
    }
```

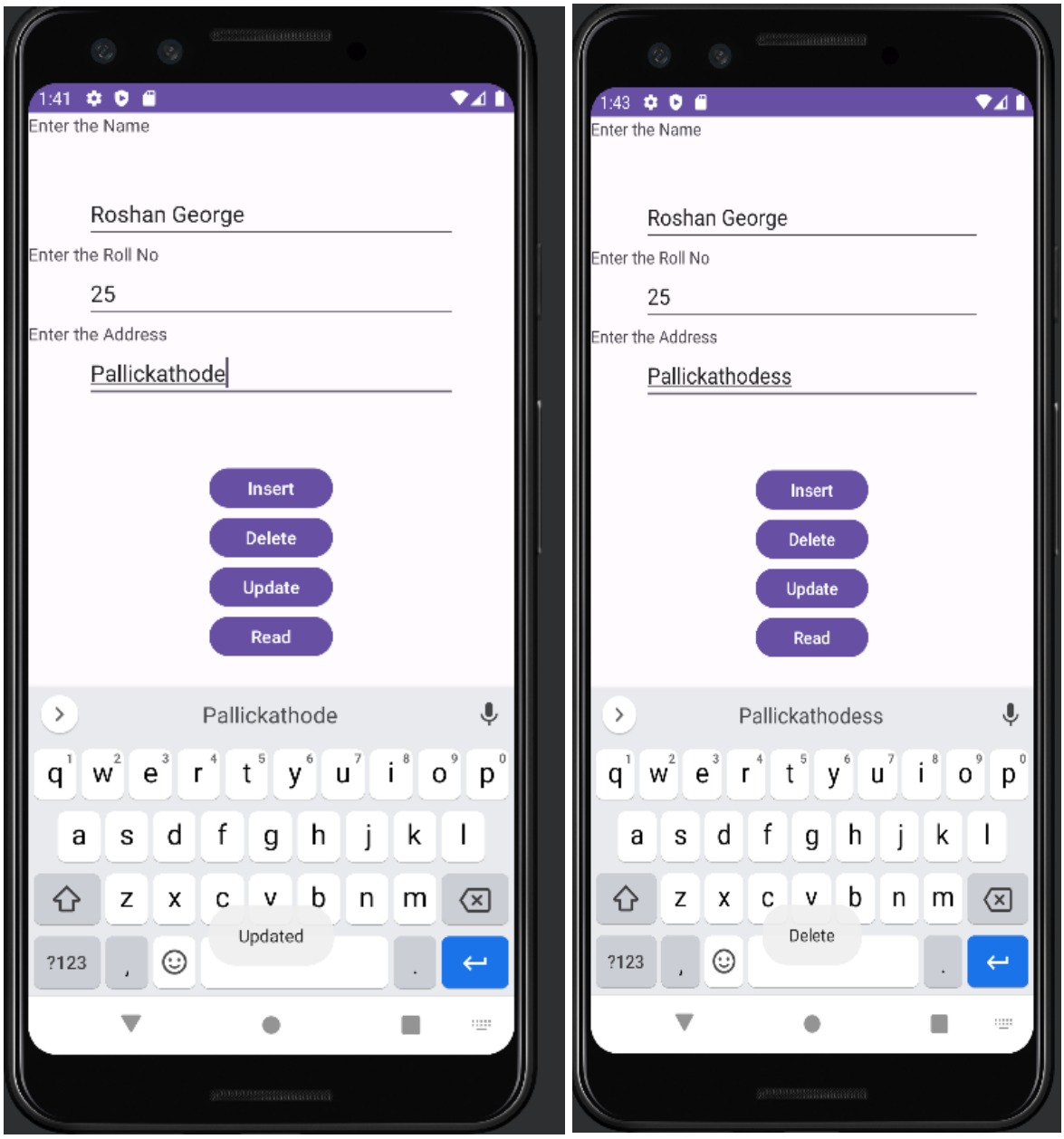
```
    public void read(View view) {
        StringBuffer buff = new StringBuffer();
        Cursor csr = sqlDB.rawQuery("select * from stud_table", null);
        while(csr.moveToNext()){
            buff.append("Roll No: "+ csr.getString(0)+"\t");
            buff.append("Name: "+ csr.getString(1)+"\t");
            buff.append("Address: "+ csr.getString(2)+"\t");
        }
        Toast.makeText(this, buff.toString(), Toast.LENGTH_LONG).show();
    }
}
```

DBHelper code

```
package com.example.crudd_jaimol;
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, "Stud_DB", null, 1);
    }
    @Override
    public void onCreate(SQLiteDatabase sqLiteDatabase) {
        sqLiteDatabase.execSQL("create table stud_table (rollno int, name varchar(20), address
varchar(40))");
    }
    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {
```

```
    }
}
```

Output Screenshot



Result:

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