**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="Shon";

    private static final String VALID\_PASSWORD="shon";

 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);

    }

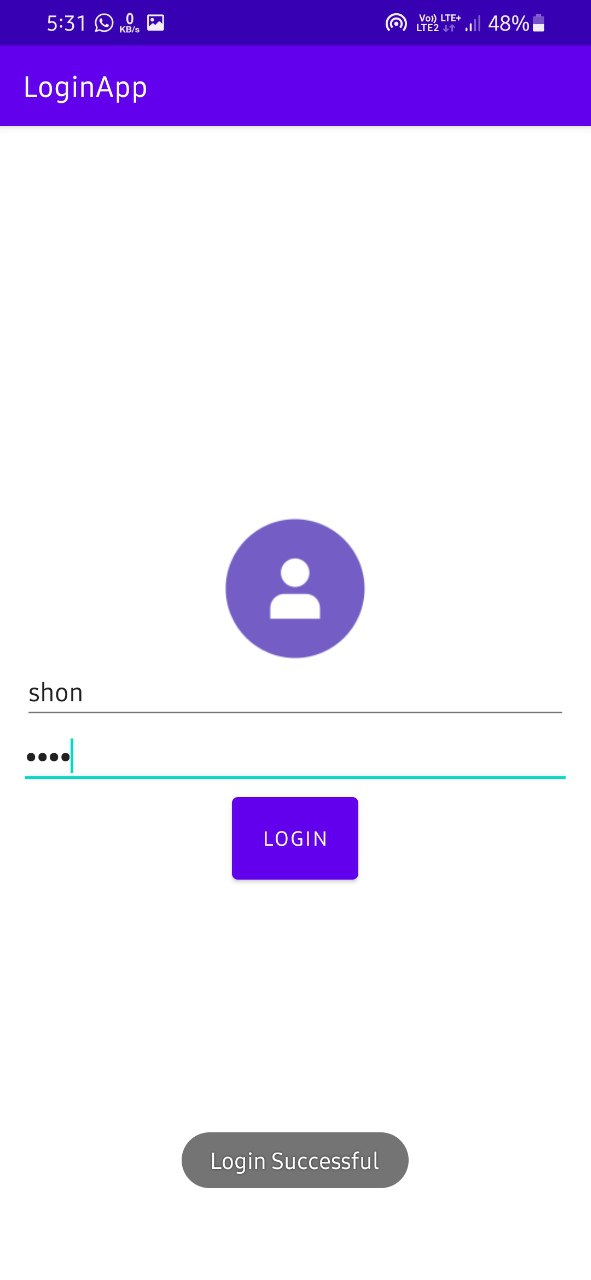
    private void showToast(String message){

        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**

A screenshot of a phone

Description automatically generated

**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;

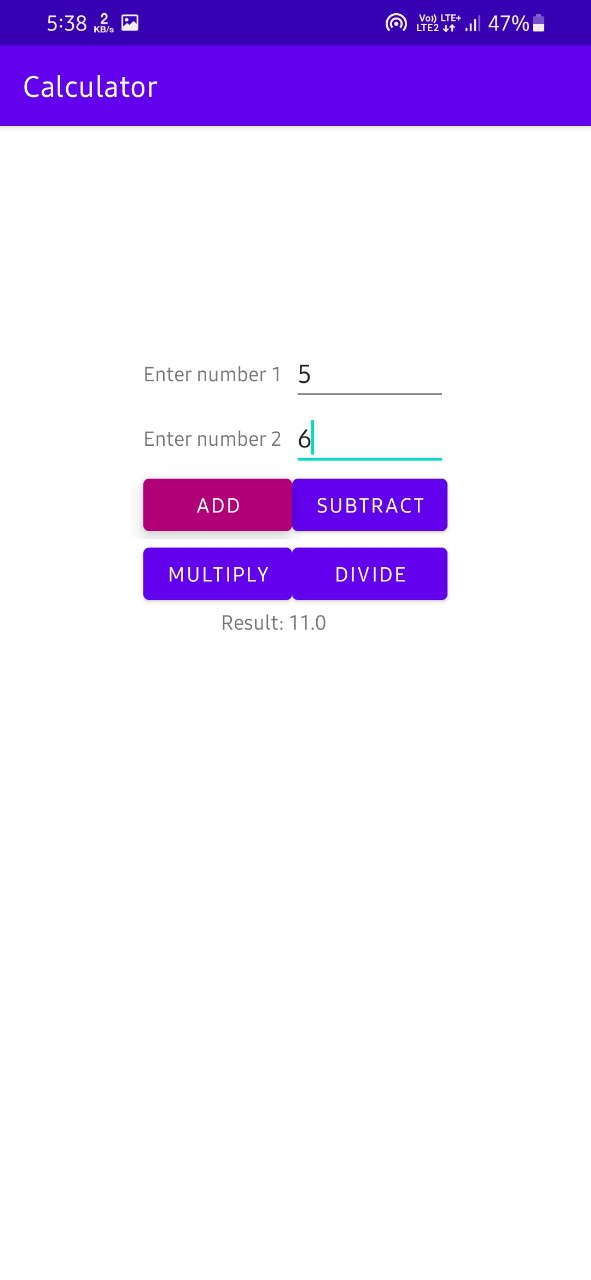
        }

        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);

    }

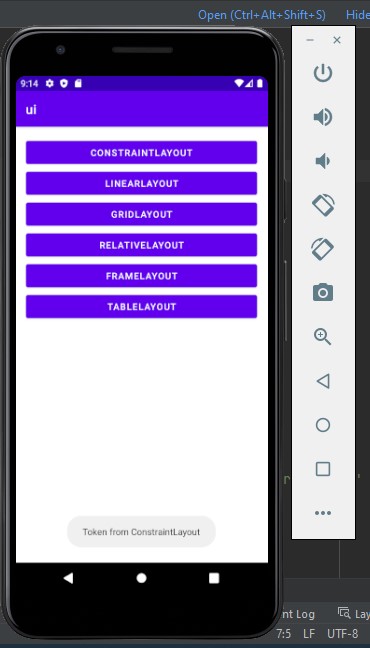
    private void displayToken(String layoutName) {

        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**

A screenshot of a phone

Description automatically generated

**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**

A screenshot of a phone

Description automatically generated

**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);

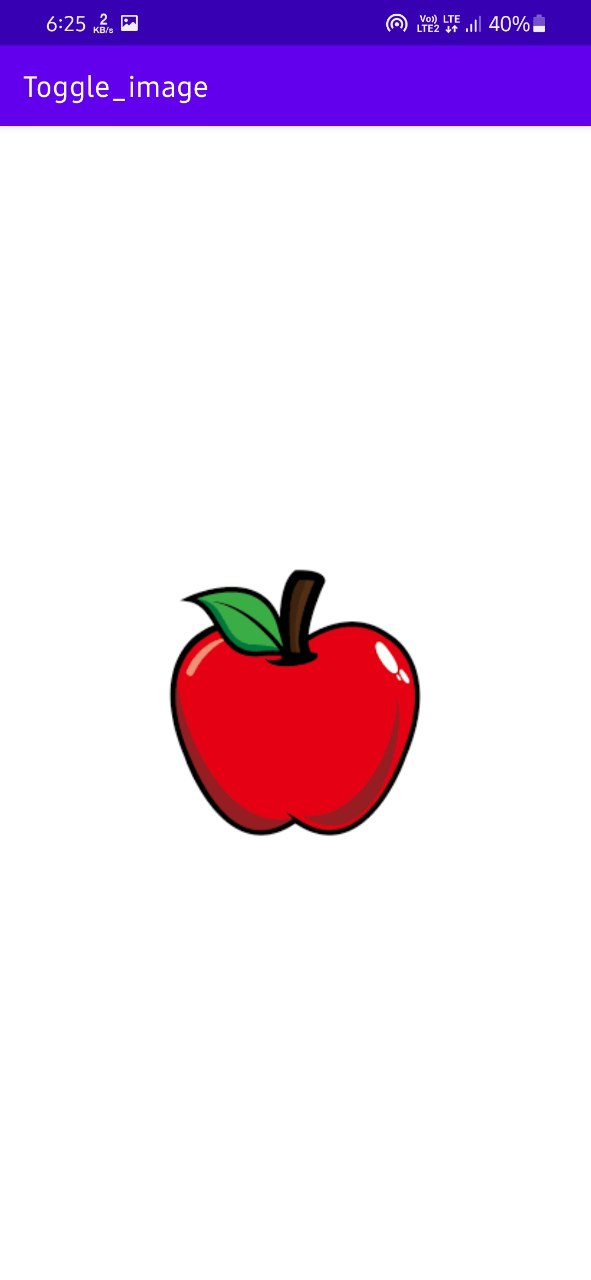
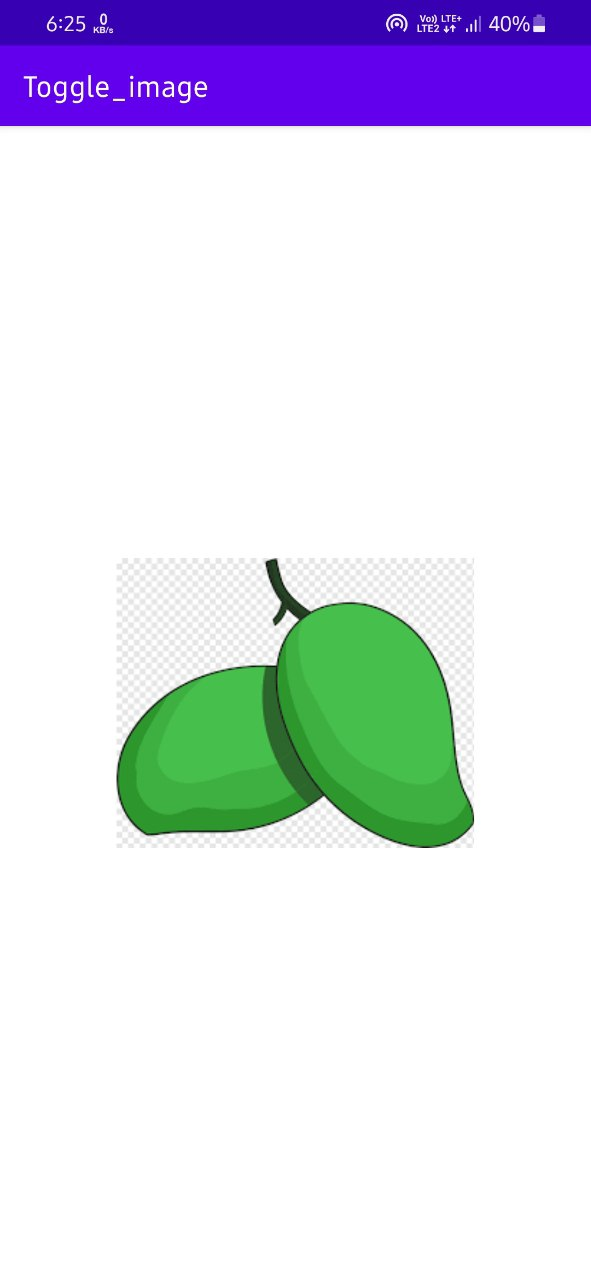
}

});

}

}

**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"

    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**

**A cell phone with a white screen

Description automatically generated**

**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](http://www.amazon.in/).amazon.in/"));

startActivity(i);

}

});

}

# activity\_main.xml

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

<LinearLayout [xmlns:android="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) [xmlns:app="http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) [xmlns:tools="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

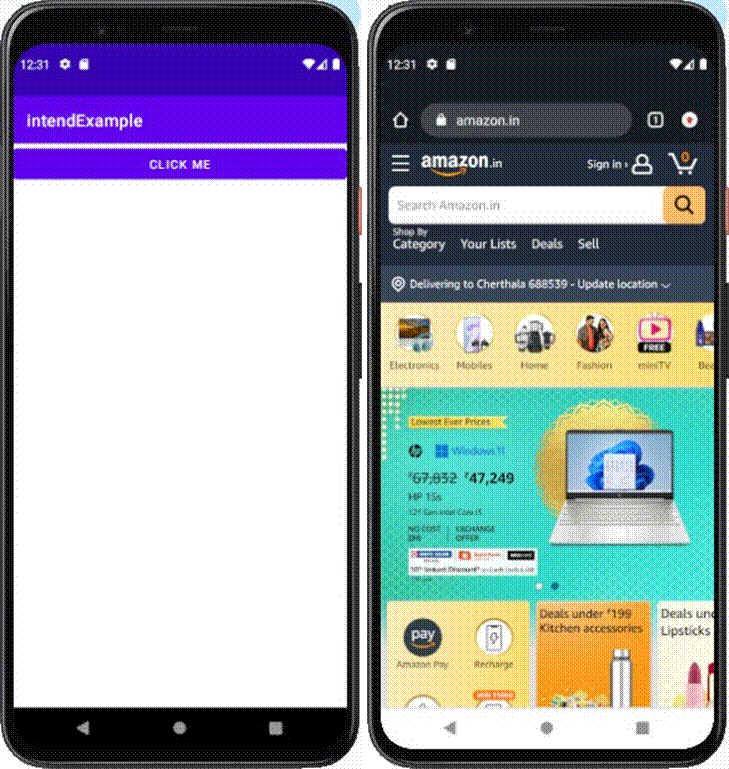
android:orientation="horizontal" tools:context=".MainActivity">

<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");

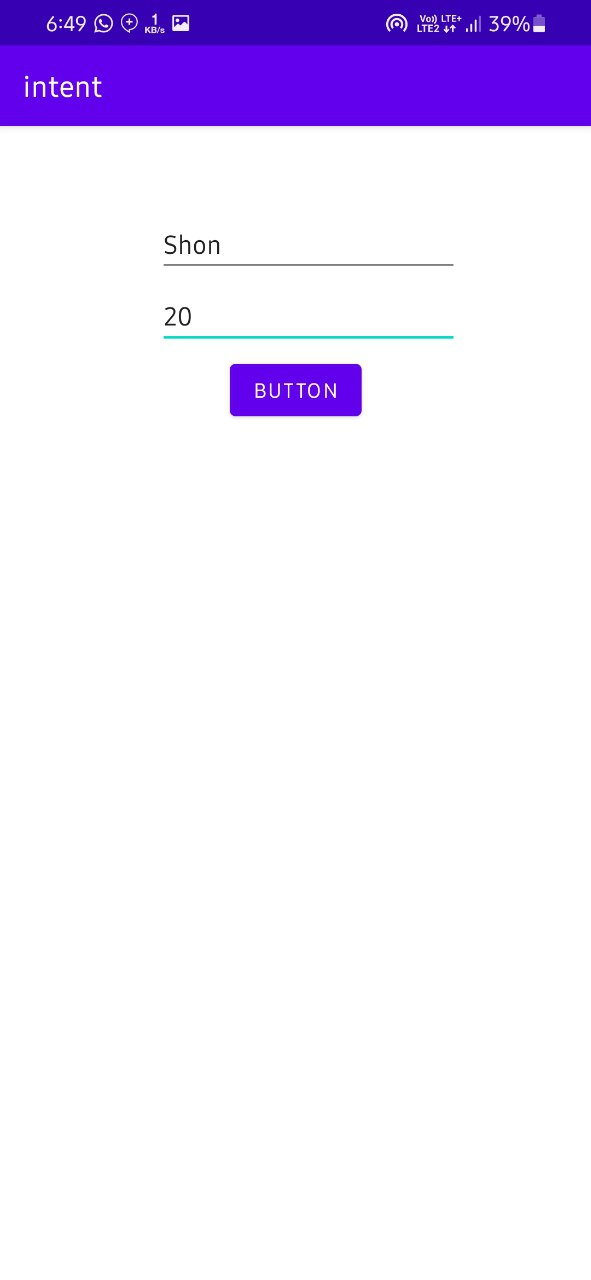
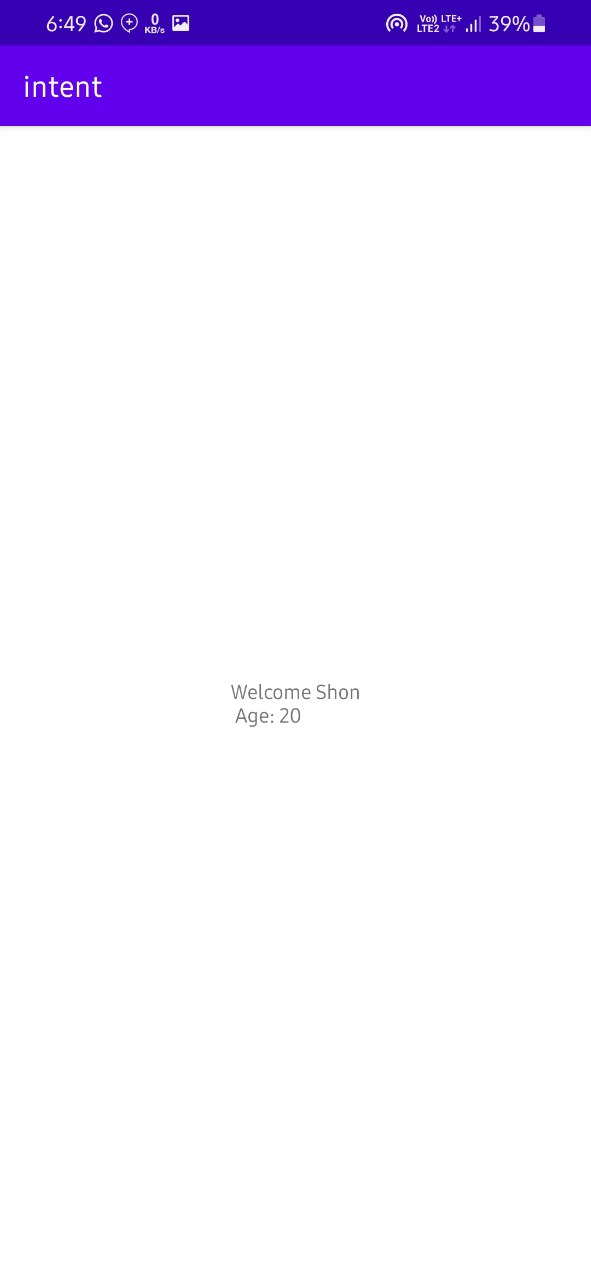
        tv=findViewById(R.id.textView1);

        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"/>

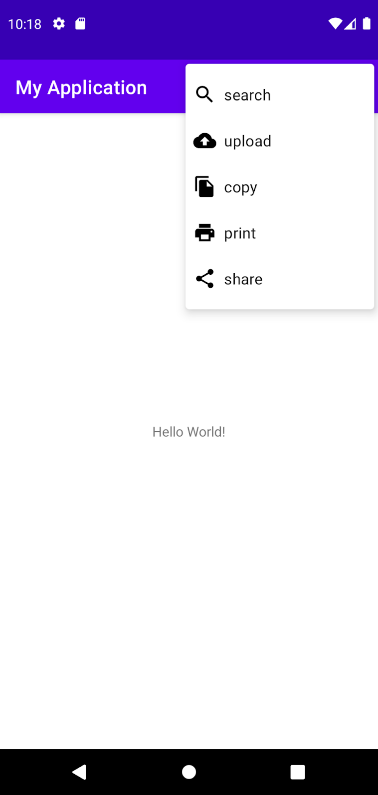
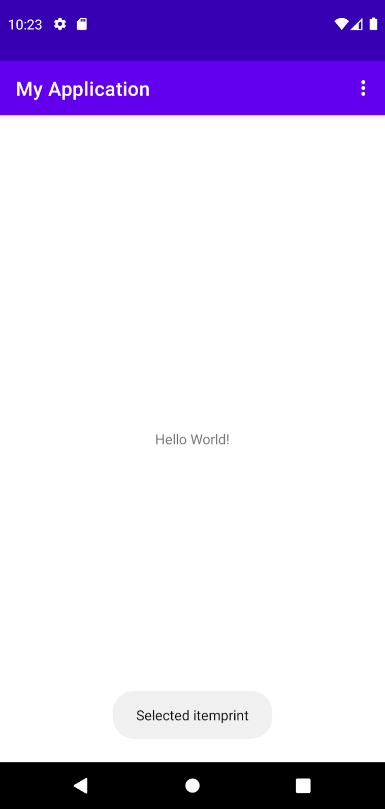
    <item android:id="@+id/share"

        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"

   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.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);}

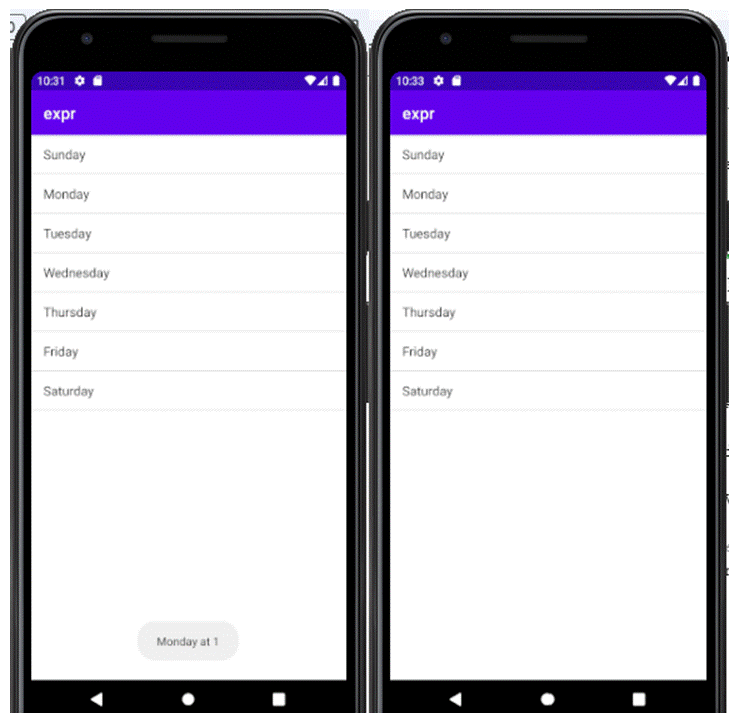
   public void onItemClick(AdapterView<?> adapterView, View view, int position, long id) {

       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();

}

});

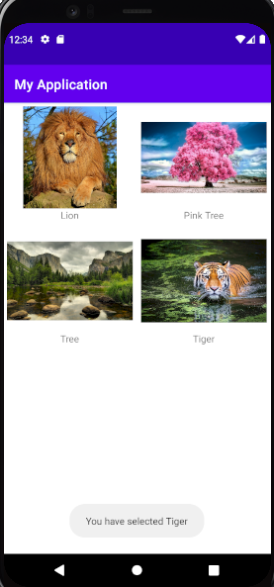
return view;

}

}

}

**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) {

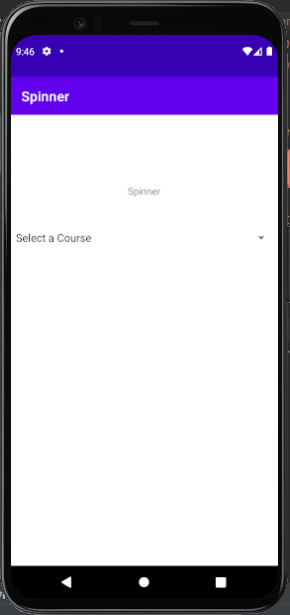
            }

        });

    }

}

**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);  }

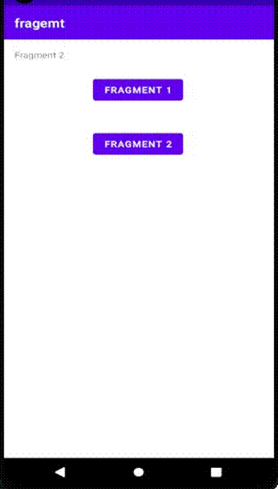
**Fragment2**

    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"

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.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

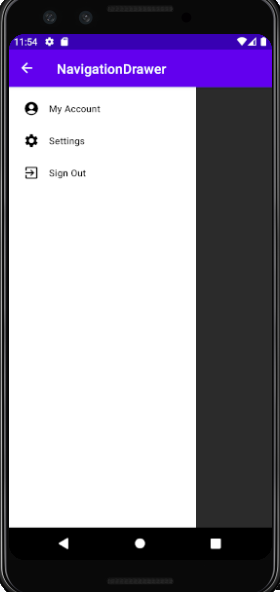
android:id="@+id/log"

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>

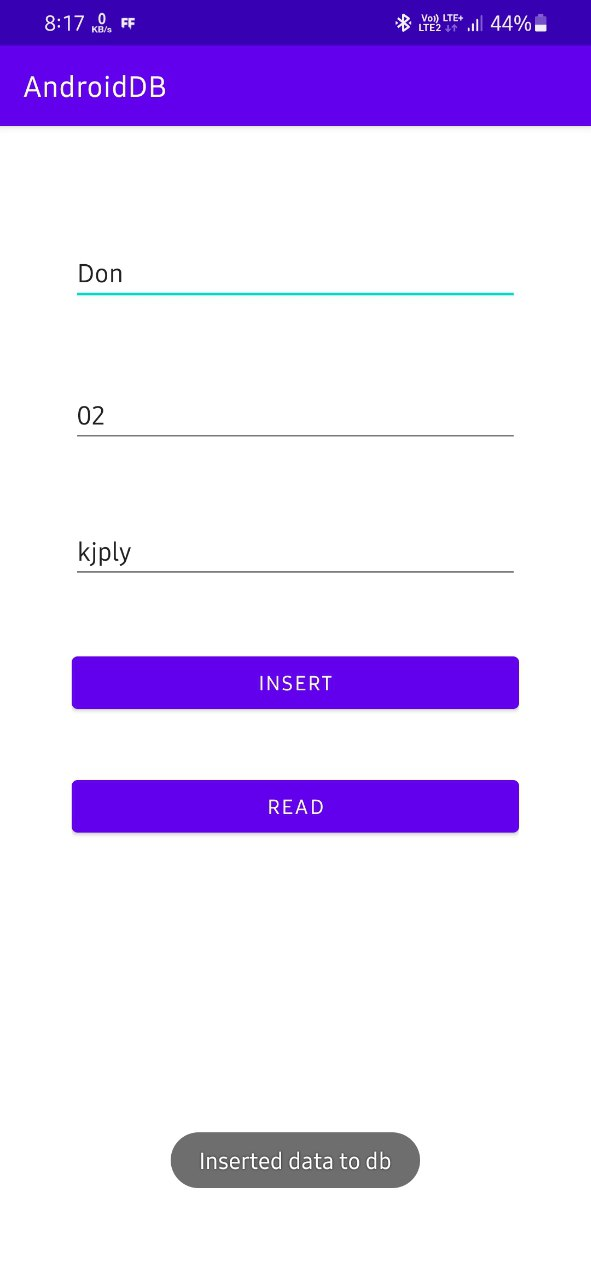
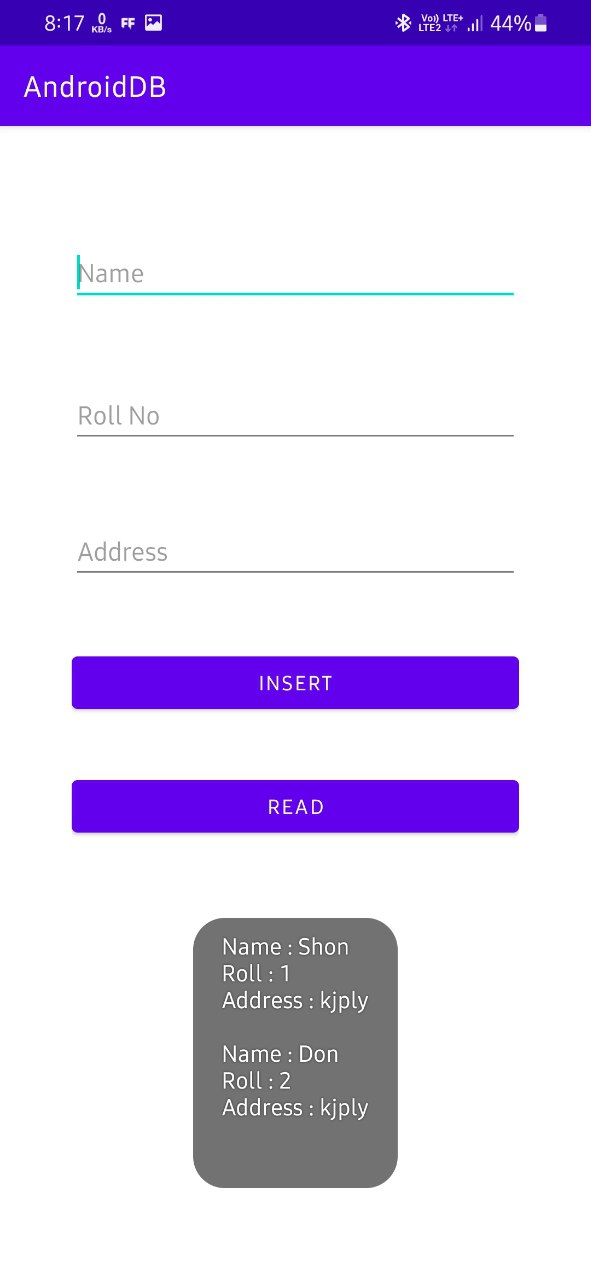
**JAVA code**

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**



diya



**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>

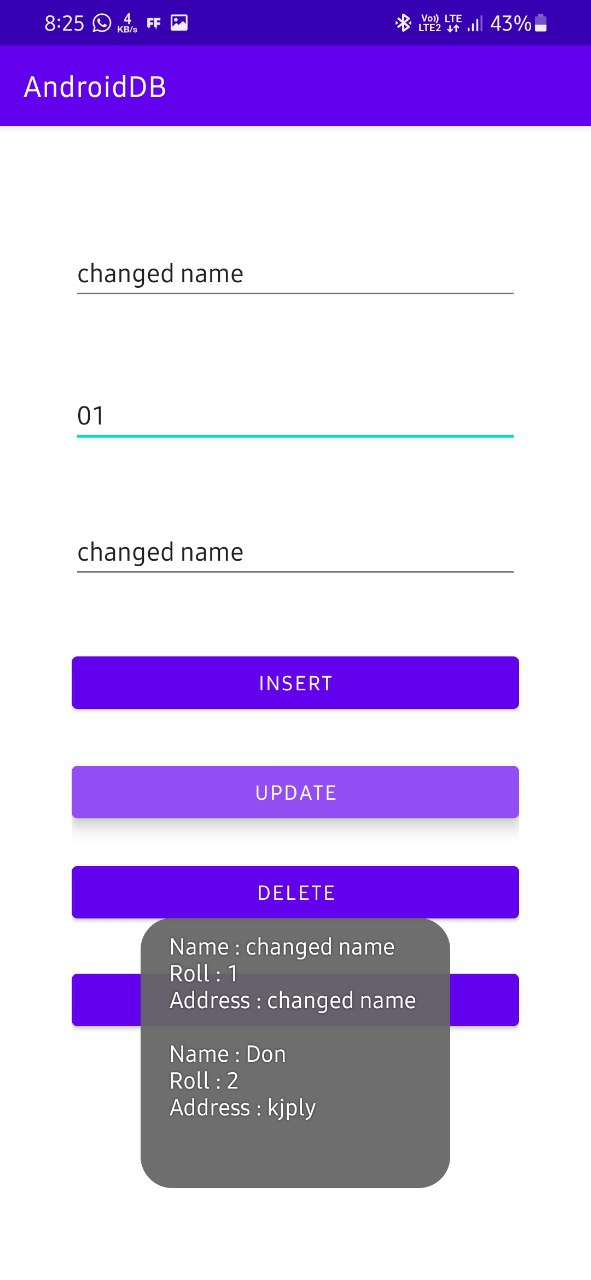
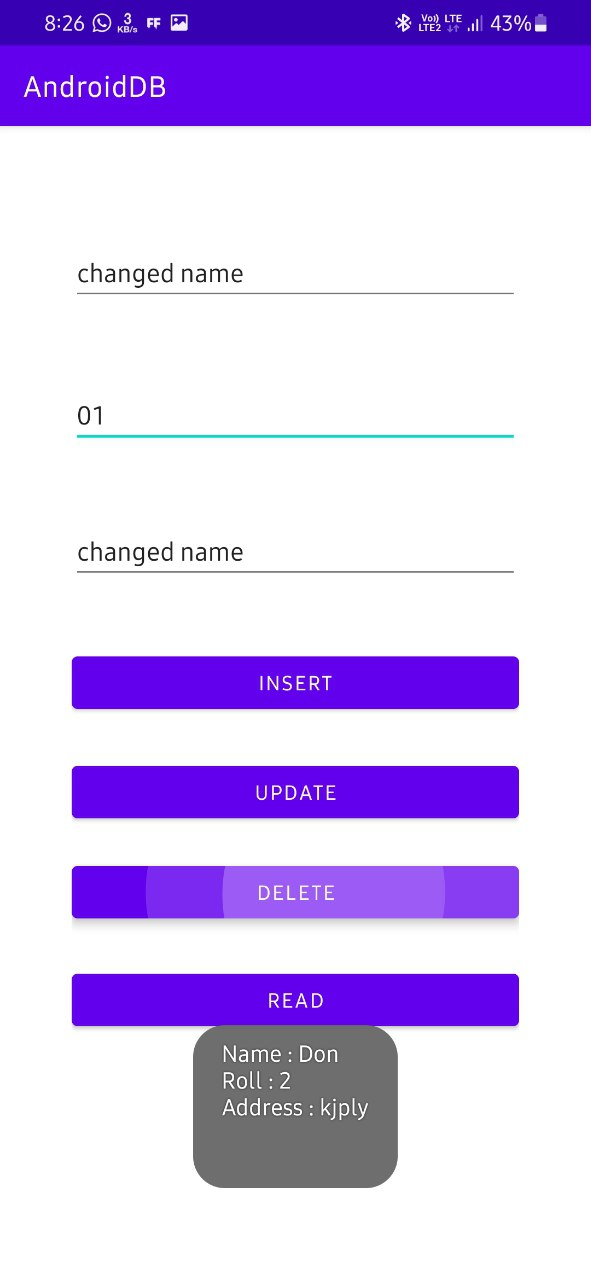
**JAVA code**

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.