# Experiment No.1

**Aim:**

Design a Login Form with username and password using LinearLayout and toast valid credentials.

# CO1:

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

# Procedure:

**MainActivity.java**

package com.example.login;

import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle;

import android.view.View; import android.widget.Button; import android.widget.TextView; import android.widget.Toast;

public class MainActivity extends AppCompatActivity { TextView t1;

TextView t2; Button b;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*); t1=findViewById(R.id.*id1*); t2=findViewById(R.id.*id2*); b=findViewById(R.id.*id3*); b.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

if(t1.getText().toString().equals("admin") && t2.getText().toString().equals("admin"))

{

Toast.*makeText*(MainActivity.this, "Login successful", Toast.*LENGTH\_SHORT*).show();

}

else {

Toast.*makeText*(MainActivity.this, "Login failed", Toast.*LENGTH\_SHORT*).show();

}

}

}); }

}

**activity\_main.xml**

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

<androidx.constraintlayout.widget.ConstraintLayout 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>" android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

<TextView android:id="@+id/textView3" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Username"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.143" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.255" />

<TextView android:id="@+id/textView" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:text="Password" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.135" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.344" />

<TextView android:id="@+id/textView2" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Login"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.405" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent"

app:layout\_constraintVertical\_bias="0.164" />

<EditText android:id="@+id/id1"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:ems="10" android:inputType="text" android:text=""

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.733" app:layout\_constraintStart\_toEndOf="@+id/textView3" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.253" />

<EditText android:id="@+id/id2"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_marginEnd="20dp" android:ems="10" android:inputType="text" android:text=""

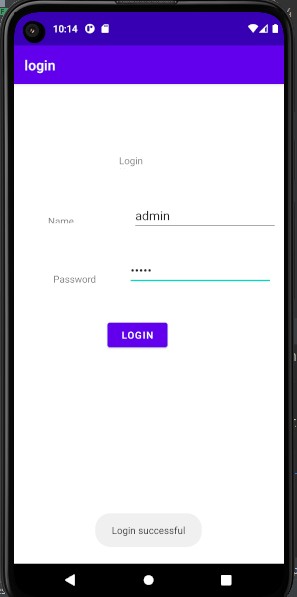
app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.335" />

<Button

android:id="@+id/id3" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Login" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

# Output



**Result**

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

# Experiment No. 2

**Aim:**

Write a program that demonstrates Activity Lifecycle.

# CO1:

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

# Procedure:

**activity\_main.xml**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="[http://schemas.android.com/apk/res/android"](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>" android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

<TextView android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Hello World!"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

**MainActivity.java**

package com.example.activity;

import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle;

import android.util.Log;

public class MainActivity extends AppCompatActivity { @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*); Log.*d*("Lifecycle", "onCreate invoked");

}

@Override

protected void onStart() { super.onStart();

Log.*d*("Lifecycle", "onStart invoked");

}

@Override

protected void onResume() { super.onResume(); Log.*d*("Lifecycle","onResume invoked");

}

@Override

protected void onPause() { super.onPause(); Log.*d*("Lifecycle","onPause");

}

@Override

protected void onStop() { super.onStop(); Log.*d*("Lifecycle","onStop");

}

@Override

protected void onRestart() { super.onRestart(); Log.*d*("Lifecycle","onRestart");

}

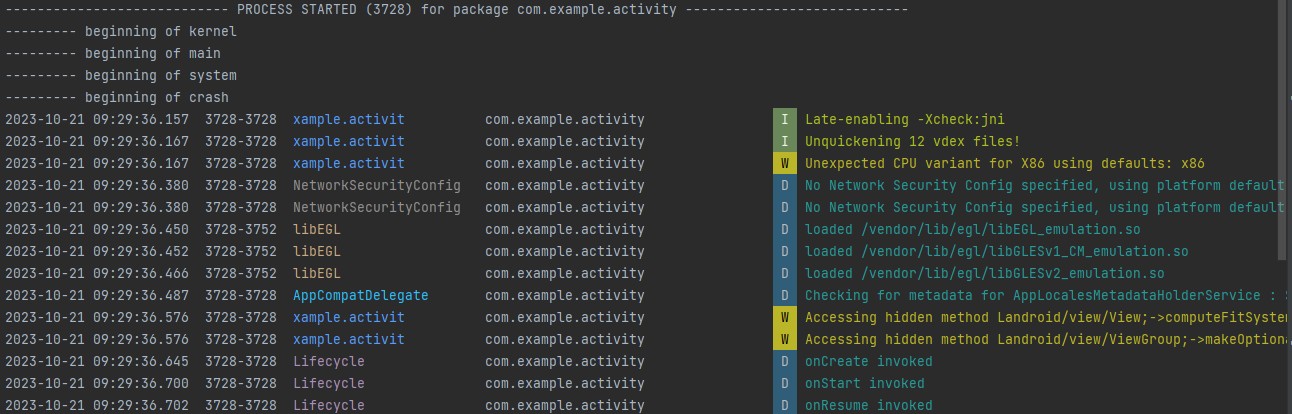
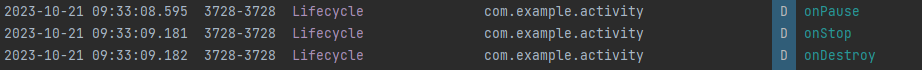
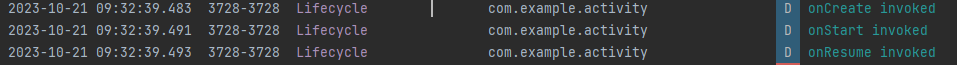
@Override

protected void onDestroy() { super.onDestroy(); Log.*d*("Lifecycle","onDestroy");

}

}

# Output



**Result**

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

# Experiment No.3

**Aim:**

Implementing basic arithmetic operations of a simple calculator.

# CO1:

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

# Procedure:

## MainActivity.java

package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity; import android.annotation.SuppressLint;

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 et1, et2;

Button b1, b2, b3, b4, b5,b6; TextView res; @SuppressLint("MissingInflatedId") @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*);

et1 = findViewById(R.id.*num1*); et2 = findViewById(R.id.*num2*); b1 = findViewById(R.id.*plus*); b2= findViewById(R.id.*minus*); b3= findViewById(R.id.*mul*); b4= findViewById(R.id.*div*); b5= findViewById(R.id.*C*);

b6= findViewById(R.id.*equal*); res = findViewById(R.id.*result*);

b1.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { calculate('+');

}

});

b2.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { calculate('-');

}

});

b3.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { calculate('\*');

}

});

b4.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { calculate('/');

}

});

b5.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { et1.setText("");

et2.setText("");

res.setText("Result: ");

}

});

b6.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { calculate('=');

}

});

}

private void calculate(char operator) { String str1 = et1.getText().toString(); String str2 = et2.getText().toString(); if (str1.isEmpty() || str2.isEmpty()) {

res.setText("Result: Please enter both numbers.");

return;

}

double num1 = Double.*parseDouble*(str1); double num2 = Double.*parseDouble*(str2); double total = 0.0;

switch (operator) { case '+':

total = num1 + num2; break;

case '-':

total = num1 - num2; break;

case '\*':

total = num1 \* num2; break;

case '/':

if (num2 == 0) {

res.setText("Result: Cannot divide by zero."); return;

}

total = num1 / num2; break;

case '=':

break;

}

res.setText("Result: " + total);

}}

## activity\_main.xml

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

<TableLayout [xmlns:android="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) [xmlns:app="http://schemas.android.com/apk/res](http://schemas.android.com/apk/res-auto)-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="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/n1"

/>

<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/n2"

/>

<EditText android:id="@+id/num2"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"

/>

</TableRow>

<TableRow android:layout\_width="wrap\_content" android:layout\_height="wrap\_content">

<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="wrap\_content" android:layout\_height="wrap\_content">

<Button android:id="@+id/mul"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="\*" />

<Button android:id="@+id/div"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="/" />

</TableRow>

<TableRow android:layout\_width="wrap\_content" android:layout\_height="wrap\_content">

<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>

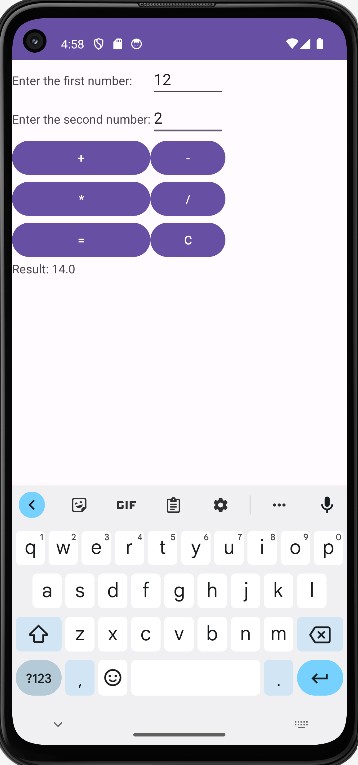
<TextView android:id="@+id/result"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Result: " />

</TableRow>

</TableLayout>

# Output



**Result**

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

# Experiment No.4

**Aim:**

Implement validations on various UI controls.

# CO1:

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

# Procedure:

## MainActivity.java

package com.example.validation;

import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle;

import android.view.View; import android.widget.EditText; import android.widget.Toast; import java.util.regex.Pattern;

public class MainActivity extends AppCompatActivity { private EditText usernameEditText;

private EditText emailEditText; private EditText phoneEditText; private EditText passwordEditText; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*); usernameEditText = findViewById(R.id.*id1*); emailEditText = findViewById(R.id.*id2*); phoneEditText = findViewById(R.id.*id3*); passwordEditText = findViewById(R.id.*id4*);

}

public void validateInputs(View view) {

String username = usernameEditText.getText().toString().trim(); String email = emailEditText.getText().toString().trim();

String phone = phoneEditText.getText().toString().trim(); String password = passwordEditText.getText().toString(); if (!isValidUsername(username)) {

showToast("Invalid username");

} else if (!isValidEmail(email)) {

showToast("Invalid email address");

} else if (!isValidPhoneNumber(phone)) { showToast("Invalid phone number");

} else if (!isValidPassword(password)) { showToast("Invalid password");

} else {

showToast("All inputs are valid");

}

}

private void showToast(String message) {

Toast.*makeText*(this, message, Toast.*LENGTH\_SHORT*).show();

}

private boolean isValidUsername(String username) { return username.matches("^[a-zA-Z]+$");

}

private boolean isValidEmail(String email) {

String emailPattern = "^[a-zA-Z0-9.\_%+-]+@[a-zA-Z0-9.-]+\\.[a-zA-Z]{2,}$"; return Pattern.*matches*(emailPattern, email);

}

private boolean isValidPhoneNumber(String phone) { String phonePattern = "^[0-9]{10}$";

return Pattern.*matches*(phonePattern, phone);

}

private boolean isValidPassword(String password) {

return password.matches("^(?=.\*[a-zA-Z])(?=.\*[0-9])(?=.\*[@#$%^&+=])");

}

}

## activity\_main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout [xmlns:android="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

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

<TextView android:id="@+id/textView" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:text="Username"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.144" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.143" />

<TextView android:id="@+id/textView3" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Email"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.144" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.234" />

<TextView android:id="@+id/textView4" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Phone"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.144" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.321" />

<TextView android:id="@+id/textView2" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Password"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.144" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.417" />

<EditText android:id="@+id/id1"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:ems="10" android:inputType="text" android:text=""

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.81" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.132" />

<EditText android:id="@+id/id2"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:ems="10" android:inputType="text" android:text=""

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.586" app:layout\_constraintStart\_toEndOf="@+id/textView3" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.22" />

<EditText android:id="@+id/id3"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:ems="10" android:inputType="text" android:text=""

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.586" app:layout\_constraintStart\_toEndOf="@+id/textView4" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.31" />

<EditText android:id="@+id/id4"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:ems="10" android:inputType="text"

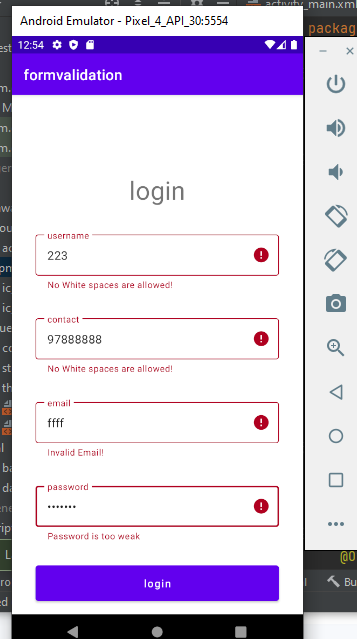
android:text="" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.586" app:layout\_constraintStart\_toEndOf="@+id/textView2" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.395" />

<Button android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_below="@id/id4" android:onClick="validateInputs" android:text="Validate Inputs"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.498" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.534" />

</androidx.constraintlayout.widget.ConstraintLayout>

# Output



**Result**

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

# Experiment No.5

**Aim:**

Design a registration activity and store registration details in local memory of phone using Intents and Shared Preferences.

# CO2:

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

# Procedure:

## MainActivity.java

package com.example.sharedpreference;

import androidx.appcompat.app.AppCompatActivity; 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;

public class MainActivity extends AppCompatActivity { EditText username, pass;

Button Login\_Button; SharedPreferences Shared\_pref; Intent intent;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*);

username = findViewById(R.id.*Name*); pass = findViewById(R.id.*password*); Login\_Button = findViewById(R.id.*Login*);

Shared\_pref = getSharedPreferences("user\_details", *MODE\_PRIVATE*); intent = new Intent(MainActivity.this, SecondActivity.class);

if (Shared\_pref.contains("username") && Shared\_pref.contains("password")) { startActivity(intent);

}

Login\_Button.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

String username = MainActivity.this.username.getText().toString(); String password = pass.getText().toString();

if (username.equals("Rijul") && password.equals("123")) { SharedPreferences.Editor editor = Shared\_pref.edit(); editor.putString("username", username); editor.putString("password", password);

editor.commit(); Toast.*makeText*(getApplicationContext(), "Logged in",

Toast.*LENGTH\_SHORT*).show();

startActivity(intent);

}else {

Toast.*makeText*(getApplicationContext(), "Enter Right Credentials", Toast.*LENGTH\_SHORT*).show();

}

}

});

}

}

## activity\_main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout [xmlns:android="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

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

<TextView android:id="@+id/textView2" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Username"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.2" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.206" />

<TextView android:id="@+id/textView" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:text="Password" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.22" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.285" />

<EditText android:id="@+id/Name"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:ems="10" android:inputType="text" android:text=""

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.561" app:layout\_constraintStart\_toEndOf="@+id/textView2" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.176" />

<EditText android:id="@+id/password"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:ems="10" android:inputType="text" android:text=""

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.615" app:layout\_constraintStart\_toEndOf="@+id/textView" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.258" />

<Button android:id="@+id/Login"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Login" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.537"

app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.428" />

</androidx.constraintlayout.widget.ConstraintLayout>

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

tools:context=".SecondActivity">

<TextView android:id="@+id/res\_text"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_gravity="center" android:layout\_marginTop="170dp" android:textSize="22dp" />

<Button android:id="@+id/LogOut"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_gravity="center" android:layout\_marginTop="25dp" android:text="Log Out" />

</LinearLayout>

## SecondActivity.java

package com.example.sharedpreference;

import androidx.appcompat.app.AppCompatActivity; import android.content.Intent;

import android.content.SharedPreferences; import android.os.Bundle;

import android.view.View; import android.widget.Button; import android.widget.TextView;

public class SecondActivity extends AppCompatActivity { SharedPreferences newPreference;

Intent newIntent; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_second*); TextView result = findViewById(R.id.*res\_text*); Button LogOut\_btn = findViewById(R.id.*LogOut*);

SharedPreferences newPreference = getSharedPreferences("user\_details", *MODE\_PRIVATE*); newIntent = new Intent(SecondActivity.this, MainActivity.class);

result.setText("Welcome, " + newPreference.getString("username", null)); LogOut\_btn.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) { SharedPreferences.Editor edit = newPreference.edit(); edit.clear();

edit.commit(); startActivity(newIntent);

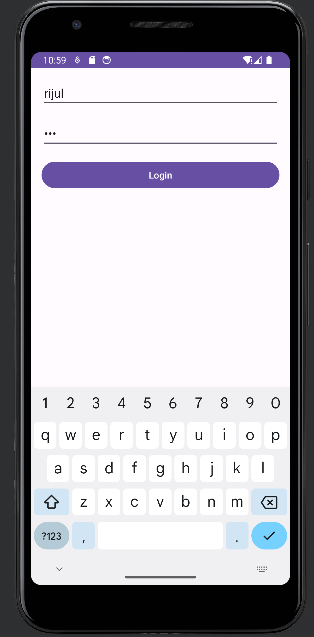
}

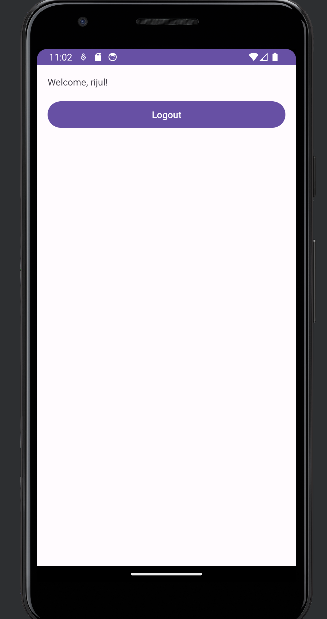
});

}

}

# Output

****

****

**Result**

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

# Experiment No.6

**Aim:**

Create a Facebook page using RelativeLayout; set properties using .xml file.

# CO2:

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

# Procedure:

ativity\_main.xml

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

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

android:paddingLeft="16dp" android:paddingTop="16dp" android:paddingRight="16dp" android:paddingBottom="16dp" android:background="#1877f2" tools:context=".MainActivity">

<ImageView android:id="@+id/profileImage" android:layout\_width="100dp" android:layout\_height="100dp" android:src="@drawable/fb" android:layout\_centerHorizontal="true" android:layout\_marginTop="16dp"/>

<TextView android:id="@+id/username" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Amal Thomson" android:textColor="#ffffff" android:textSize="18sp"

android:layout\_below="@id/profileImage" android:layout\_centerHorizontal="true" android:layout\_marginTop="8dp"/>

<Button android:id="@+id/postButton"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Create Post" android:textColor="#ffffff" android:layout\_below="@id/username" android:layout\_centerHorizontal="true" android:layout\_marginTop="16dp"/>

<EditText android:id="@+id/postEditText" android:layout\_width="match\_parent" android:layout\_height="wrap\_content"

android:layout\_below="@id/postButton" android:hint="What's on your mind?" android:textColor="#ffffff" android:layout\_marginTop="16dp" android:padding="8dp"/>

<Button android:id="@+id/photoButton" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:text="Add Photo" android:textColor="#ffffff" android:layout\_below="@id/postEditText" android:layout\_marginTop="8dp"/>

<Button android:id="@+id/checkInButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Check In" android:textColor="#ffffff"

android:layout\_below="@id/photoButton" android:layout\_marginTop="8dp"/>

</RelativeLayout>

MainActivity.java

package com.example.facebookui; 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 postEditText; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

Button postButton = findViewById(R.id.postButton); Button photoButton = findViewById(R.id.photoButton);

Button checkInButton = findViewById(R.id.checkInButton); postEditText = findViewById(R.id.postEditText); postButton.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) { createPost();

}

});

photoButton.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { addPhoto();

}

});

checkInButton.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { checkIn();

}

});

}

private void createPost() {

String postText = postEditText.getText().toString().trim(); if (!postText.isEmpty()) {

Toast.makeText(this, "Post created: " + postText, Toast.LENGTH\_SHORT).show(); postEditText.getText().clear();

} else {

Toast.makeText(this, "Please enter something to post.", Toast.LENGTH\_SHORT).show();

}

}

private void addPhoto() {

Toast.makeText(this, "Adding a photo", Toast.LENGTH\_SHORT).show();

}

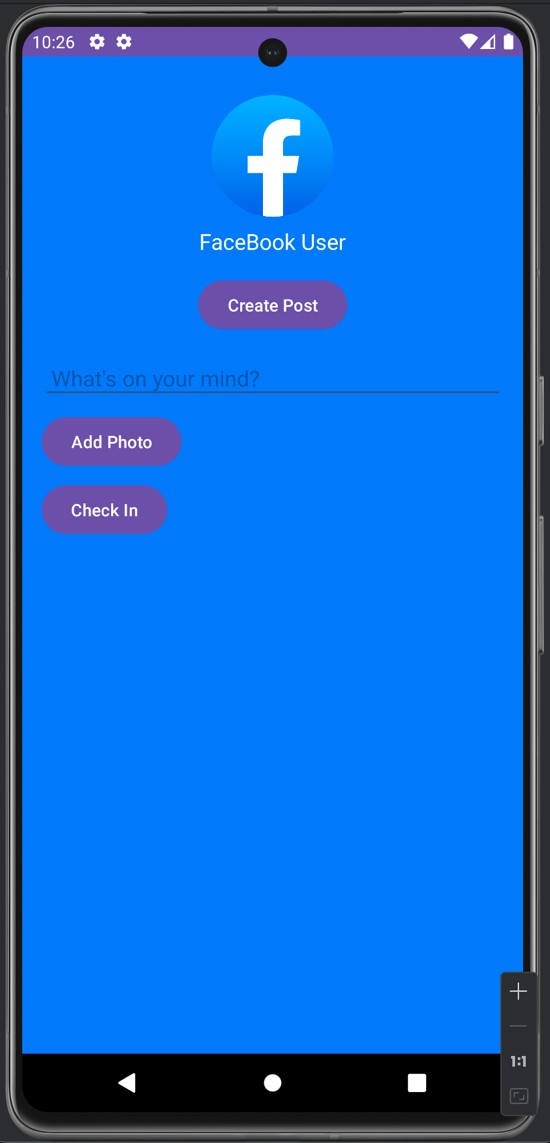
private void checkIn() {

Toast.makeText(this, "Checked In", Toast.LENGTH\_SHORT).show();

}

}

# Output



**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 FrameLayout.

# CO2:

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

# Procedure:

**Activity\_main.xml**

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

<FrameLayout xmlns:android="[http://schemas.android.com/apk/res/android"](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>" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

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

<ImageView android:id="@+id/id1"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:src="@drawable/sm3"

/>

<ImageView android:id="@+id/id2"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:src="@drawable/sm2"/>

</FrameLayout>

**MainActivity.java**

package com.example.frame;

import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle;

import android.view.View;

import android.widget.ImageView;

public class MainActivity extends AppCompatActivity { ImageView im1;

ImageView im2; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);

setContentView(R.layout.*activity\_main*); im1=findViewById(R.id.*id1*); im2=findViewById(R.id.*id2*); im1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) { im2.setVisibility(View.*VISIBLE*); im1.setVisibility(View.*GONE*);

}

});

im2.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { im1.setVisibility(View.*VISIBLE*); im2.setVisibility(View.*GONE*);

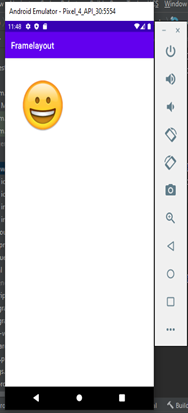
}

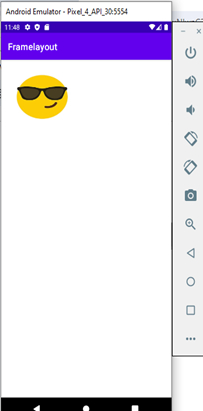
});

}

}

# Output





**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:

## MainActivity.java

package com.example.adapters\_eventhandling; 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 { private EditText Number1, Number2;

private Button Add; private TextView Result; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*);

Number1 = findViewById(R.id.*Number1*); Number2 = findViewById(R.id.*Number2*); Add = findViewById(R.id.*btnAdd*);

Result = findViewById(R.id.*Result*); Add.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) { try {

String strNumber1 = Number1.getText().toString(); String strNumber2 = Number2.getText().toString(); double num1 = Double.*parseDouble*(strNumber1); double num2 = Double.*parseDouble*(strNumber2); if (num1 >= 0 && num2 >= 0) {

double result = num1 + num2; Result.setText("Result: " + result);

} else {

Result.setText("Please enter positive numbers.");

}

} catch (NumberFormatException e) {

Result.setText("Invalid input. Please enter valid numbers.");

} catch (Exception e) {

Result.setText("An error occurred. Please try again."); e.printStackTrace();

}

}

});

}

}

## activity\_main.xml

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

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

android:padding="16dp" tools:context=".MainActivity">

<EditText android:id="@+id/Number1"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Enter number 1"

/>

<EditText android:id="@+id/Number2"

android:layout\_below="@id/Number1" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_marginTop="16dp" android:hint="Enter number 2"

/>

<Button android:id="@+id/btnAdd"

android:layout\_below="@id/Number2" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_marginTop="16dp"

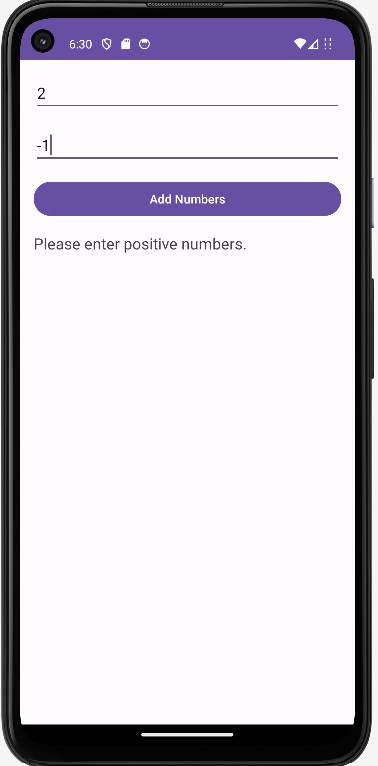
android:text="Add Numbers" />

<TextView android:id="@+id/Result"

android:layout\_below="@id/btnAdd" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_marginTop="16dp" android:text="Result: " android:textSize="18sp" />

</RelativeLayout>

# Output



**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.

# CO3:

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

# Procedure:

Activity\_main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout [xmlns:android="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

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

<TextView android:id="@+id/textView" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:text="Name" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.127" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.176" />

<EditText android:id="@+id/id1"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:ems="10" android:inputType="textPersonName" android:text="" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.337"

app:layout\_constraintStart\_toEndOf="@+id/textView"

app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.157" />

<Button android:id="@+id/id2"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Button" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.429" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.3" />

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.intent;

import androidx.appcompat.app.AppCompatActivity; import android.content.Intent;

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

public class MainActivity extends AppCompatActivity { Button b;

EditText t; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); b=findViewById(R.id.id2); t=findViewById(R.id.id1); b.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) { String val=t.getText().toString();

Intent i=new Intent(MainActivity.this,second\_activity.class); i.putExtra("Name",val);

startActivity(i);

}

});

}

}

activity\_second.xml

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

<androidx.constraintlayout.widget.ConstraintLayout [xmlns:android="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

xmlns:app[="http://schemas.android.com/apk/res](http://schemas.android.com/apk/res-auto)-[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" tools:context=".second\_activity">

<EditText android:id="@+id/id3"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:ems="10" android:inputType="textPersonName" android:text="" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.497" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.26" />

</androidx.constraintlayout.widget.ConstraintLayout>

SecondACTIVITY.JAVA

package com.example.intent;

import androidx.appcompat.app.AppCompatActivity; import android.content.Intent;

import android.os.Bundle; import android.widget.EditText;

public class second\_activity extends AppCompatActivity { EditText t;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_second); t=findViewById(R.id.id3);

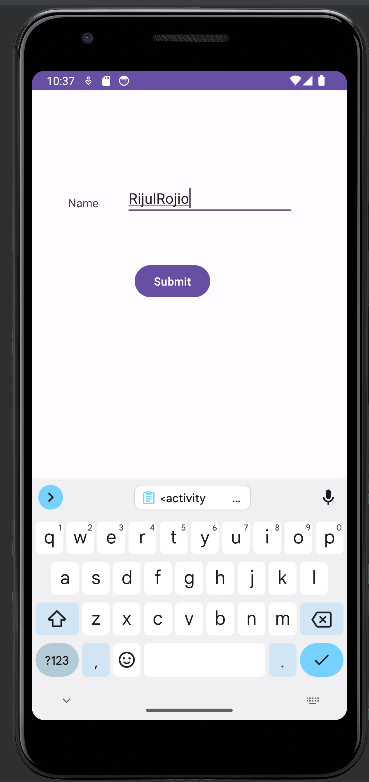
Intent i=getIntent();

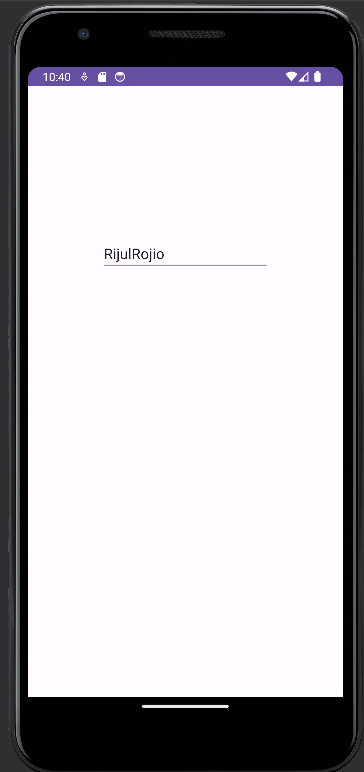
String nam=i.getStringExtra("Name"); t.setText(nam);

}

}

# Output



****

**Result**

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

# 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:

## ativity\_main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout 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>" android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

<Button

android:id="@+id/btn" android:layout\_width="150dp" android:layout\_height="50dp" android:text="Go to Google"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.498" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.499" />

</androidx.constraintlayout.widget.ConstraintLayout>

## MainActivity.java

package com.example.intent;

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 {

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

Button btn = findViewById(R.id.btn); btn.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

Intent i = new Intent(Intent.ACTION\_VIEW, Uri.parse("https://[www.google.com](http://www.google.com/)")); startActivity(i);

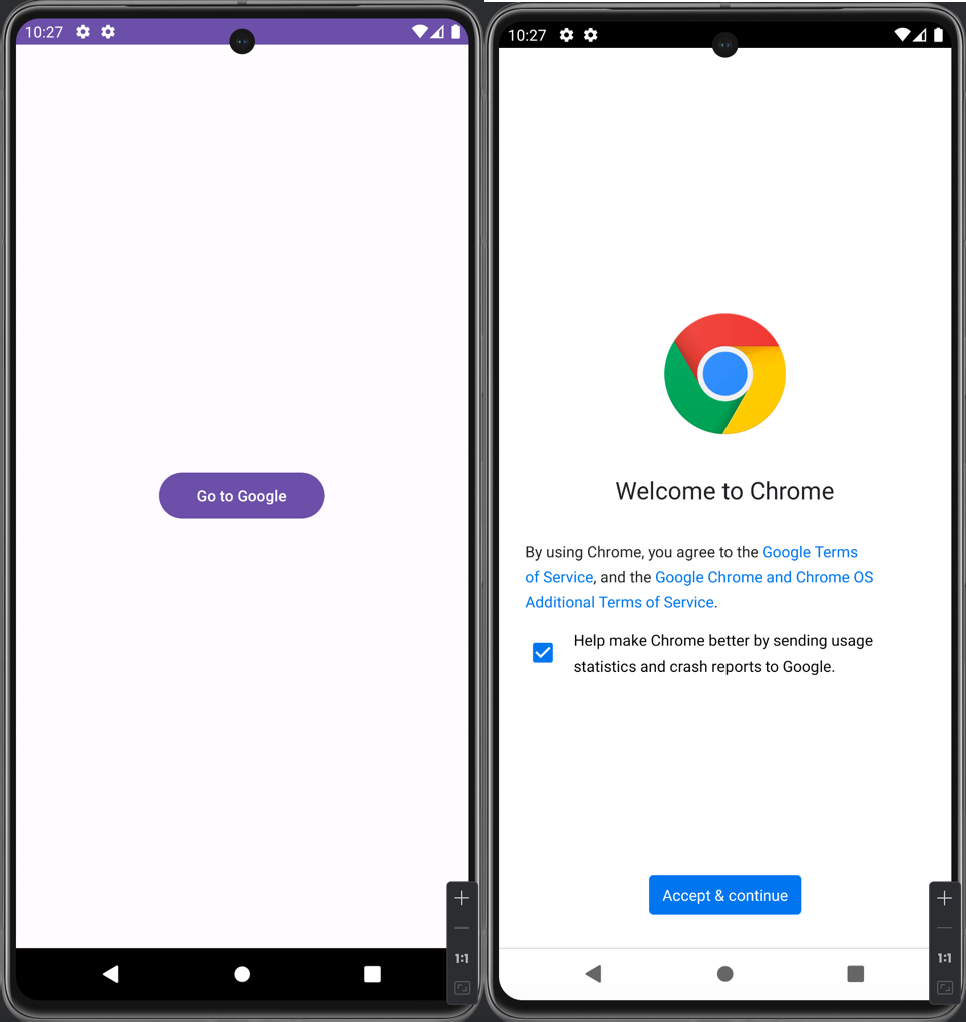
}

});

}

}

# Output



**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:

MainActivity.java

package com.example.menus;

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.*option\_menu*,menu); if(menu instanceof MenuBuilder)

{

MenuBuilder n=(MenuBuilder) menu; n.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.*id1*:return true; case R.id.*id2*:return true; case R.id.*id3*:return true;

}

return super.onOptionsItemSelected(item);

}

}

**option\_menu.xml**

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

<menu xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:tools="http://schemas.android.com/tools"

tools:content=".MainActivity">

<item android:id="@+id/search\_item"

android:title="Search"

android:icon="@drawable/search"/>

<item android:id="@+id/upload\_item"

android:title="upload"

android:icon="@drawable/upload"/>

<item android:id="@+id/copy\_item"

android:title="copy"

android:icon="@drawable/copy"/>

<item android:id="@+id/print\_item"

android:title="print"

android:icon="@drawable/print"/>

<item android:id="@+id/share\_item"

android:title="share"

android:icon="@drawable/share"/>

<item android:id="@+id/bookmark\_item"

android:title="bookmark"

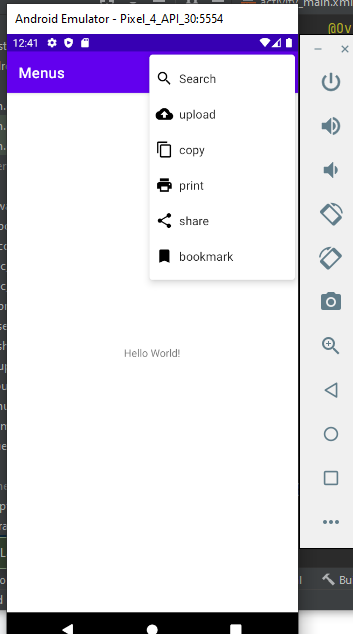
android:icon="@drawable/bookmark"/>

</menu>

:title="brightness"/>

</menu>

# Output



**Result**

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

# Experiment No.12

**Aim:**

Develop an application that uses ArrayAdapter with ListView.

# CO3:

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

# Procedure:

activity\_main.xml

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

<RelativeLayout 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>" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<ListView android:id="@+id/id1"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:divider="#000" android:dividerHeight="1dp"

/>

</RelativeLayout> activity\_list\_items.xml

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

<RelativeLayout 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>" android:layout\_width="match\_parent"

android:layout\_height="match\_parent" tools:context=".list\_items">

<TextView android:id="@+id/list1"

android:layout\_width="fill\_parent" android:layout\_height="wrap\_content" android:layout\_gravity="center"

/>

</RelativeLayout>

**MainActivity.java**

package com.example.adapter;

import androidx.appcompat.app.AppCompatActivity; import android.hardware.lights.LightState;

import android.os.Bundle; import android.view.View;

import android.widget.AdapterView; import android.widget.ArrayAdapter; import android.widget.ListView; import android.widget.Toast;

public class MainActivity extends AppCompatActivity { ListView simplelist;

String course[]={ "JAVA",

"PYTHON",

"C", "C++"

};

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); simplelist=(ListView) findViewById(R.id.id1); ArrayAdapter<String> ad=new

ArrayAdapter<String>(this,R.layout.activity\_list\_items,R.id.list1,course); simplelist.setAdapter(ad);

simplelist.setOnItemClickListener(new AdapterView.OnItemClickListener() { @Override

public void onItemClick(AdapterView<?> adapterView, View view, int i, long l) { String item=(String)simplelist.getItemAtPosition(i); Toast.makeText(getApplicationContext(), "YOUR SELECTED ITEMS ARE:",

Toast.LENGTH\_SHORT).show();

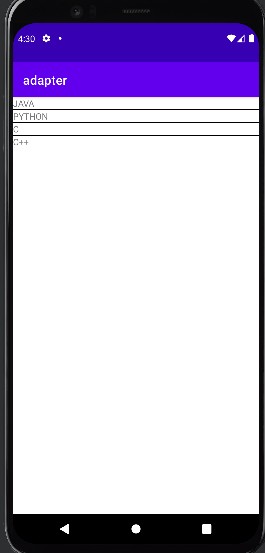
}

});

}

}

# Output



**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\_main.xml**

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

<RelativeLayout 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>" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<GridView android:id="@+id/gridview"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:padding="20dp" android:numColumns="auto\_fit" android:horizontalSpacing ="60dp" android:verticalSpacing="12dp" />

</RelativeLayout>

**activity\_grid\_view.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>" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:orientation="vertical" android:gravity="center" tools:context=".grid\_view">

<ImageView android:id="@+id/fruit\_img" android:layout\_width="120dp" android:layout\_height="120dp" android:scaleType="centerCrop" />

<TextView android:id="@+id/fruit\_name" android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:textSize="18sp" />

</LinearLayout>

**MainActivity.java**

package com.example.imagegridview; import androidx.annotation.NonNull;

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 fruit[]={"earth","mars","jupiter","saturn"};

int[] fruitimages={R.drawable.apple, R.drawable.mango,R.drawable.orange,R.drawable.grapes}; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

GridView g=(GridView)findViewById(R.id.gridview); CustomAdapter c=new CustomAdapter(); g.setAdapter(c);

}

private class CustomAdapter extends BaseAdapter{ @Override

public int getCount(){ return fruit.length;

}

@Override

public Object getItem(int position){ return fruitimages[position];}

@Override

public long getItemId(int position) { return position;

}

@Override

public View getView(int position, View convertView, ViewGroup parent) {

View gridViewItem = getLayoutInflater().inflate(R.layout.activity\_grid\_view, null); ImageView imageView = gridViewItem.findViewById(R.id.fruit\_img);

TextView textView = gridViewItem.findViewById(R.id.fruit\_name); imageView.setImageResource(fruitimages[position]); textView.setText(fruit[position]);

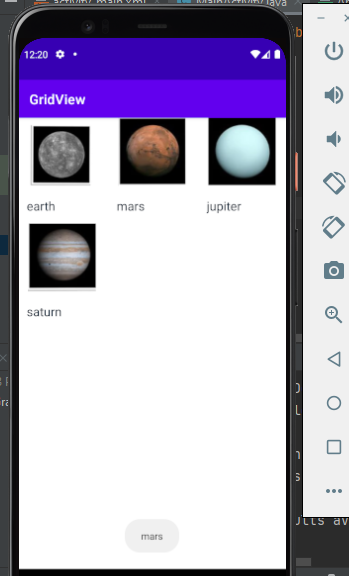
return gridViewItem;

}

};

}

# Output

****

**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:

**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>" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

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

<TextView android:id="@+id/textView" android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" android:gravity="center" android:text="Spinner"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintHorizontal\_bias="0.475" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintVertical\_bias="0.2" android:layout\_marginTop="20dp"/>/>

<Spinner android:id="@+id/spinner"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:orientation="vertical" android:layout\_marginTop="40dp"/>

</LinearLayout>

**MainActivity.java**

package com.example.spinner;

import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle;

import android.view.View;

import android.widget.AdapterView; import android.widget.ArrayAdapter; import android.widget.Spinner; import android.widget.Toast;

public class MainActivity extends AppCompatActivity { Spinner spinner;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); spinner=findViewById(R.id.spinner);

String[] courses={"Select a course","JAVA","PHP","PYTYHON","C","c#"}; ArrayAdapter<String> sp=new

ArrayAdapter<>(this,android.R.layout.simple\_spinner\_item,courses); sp.setDropDownViewResource(android.R.layout.simple\_spinner\_dropdown\_item); spinner.setAdapter(sp);

spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() { @Override

public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) { if(i !=0)

{

Toast.makeText(MainActivity.this, "Selected course is "+courses[i], Toast.LENGTH\_SHORT).show();

}

}

@Override

public void onNothingSelected(AdapterView<?> adapterView) {

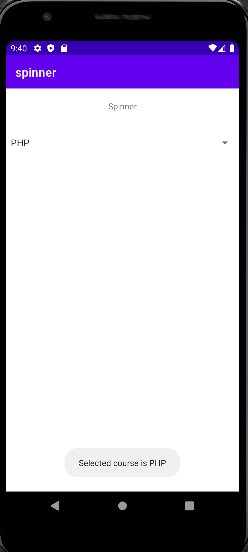
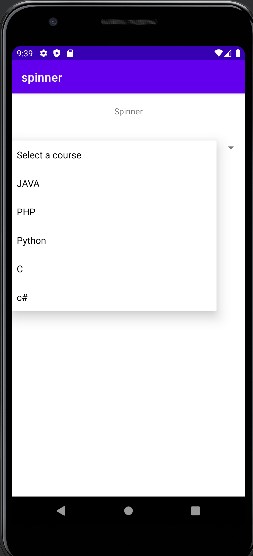
}

});

}

}

# Output



**Result**

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

# Experiment No. 15

**Aim:**

Develop application using Fragments.

# CO4:

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

# Procedure:

ativity\_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) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:padding="16dp">

<LinearLayout android:layout\_width="match\_parent" android:layout\_height="0dp" android:orientation="vertical" android:gravity="center">

<Button android:id="@+id/FragmentOne" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Fragment One" />

<Button android:id="@+id/FragmentTwo" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Fragment Two" />

</LinearLayout>

<FrameLayout android:id="@+id/fragment" android:layout\_width="match\_parent" android:layout\_height="0dp"/>

</LinearLayout>

fragment\_one.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)

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:gravity="center">

<TextView android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"

android:text="Active Fragment is FragmentOne" android:textSize="24sp"/>

</LinearLayout>

fragment\_two.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) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:gravity="center">

<TextView android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"

android:text="Active Fragment is FragmentTwo" android:textSize="24sp"/>

</LinearLayout>

MainActivity.java

package com.example.fragmemtandroid;

import androidx.appcompat.app.AppCompatActivity; import android.os.Bundle;

import android.view.View; import android.widget.Button;

public class MainActivity extends AppCompatActivity { @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

Button FragmentOne = findViewById(R.id.FragmentOne); Button FragmentTwo = findViewById(R.id.FragmentTwo); FragmentOne.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) { loadFragment(new FragmentOne());

}

});

FragmentTwo.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { loadFragment(new FragmentTwo());

}

});

}

private void loadFragment(androidx.fragment.app.Fragment fragment) { getSupportFragmentManager().beginTransaction()

.replace(R.id.fragment, fragment)

.commit();

}

}

FragmentOne.java

package com.example.fragmemtandroid; import android.os.Bundle;

import android.view.LayoutInflater; import android.view.View;

import android.view.ViewGroup;

import androidx.fragment.app.Fragment; public class FragmentOne extends Fragment {

public FragmentOne() {

}

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {

return inflater.inflate(R.layout.fragment\_one, container, false);

}

}

FragmentTwo.java

package com.example.fragmemtandroid; import android.os.Bundle;

import android.view.LayoutInflater; import android.view.View;

import android.view.ViewGroup;

import androidx.fragment.app.Fragment; public class FragmentTwo extends Fragment {

public FragmentTwo() {

}

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {

return inflater.inflate(R.layout.fragment\_two, container, false);

}

}

# Output

**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

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

<androidx.drawerlayout.widget.DrawerLayout 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>" 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="match\_parent" app:popupTheme="@style/ThemeOverlay.AppCompat.Light"

/>

<LinearLayout android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:orientation="horizontal"

>

</LinearLayout>

<com.google.android.material.navigation.NavigationView android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_gravity="start" app:menu="@menu/navigation\_menu"/>

</androidx.drawerlayout.widget.DrawerLayout>

## Navigation\_menu.xml

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

<menu xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)>

<item

android:id="@+id/ac" android:title="My Account"

android:icon="@drawable/ic\_baseline\_account\_circle\_24"

/>

<item

android:id="@+id/lc" android:title="Location"

android:icon="@drawable/ic\_baseline\_location\_on\_24"

/>

</menu>

## Strings.xml

<resources>

<string name="app\_name">navigation\_drawer</string>

<string name="nav\_open">Open</string>

<string name="nav\_close">Close</string>

</resources>

## MainActivity.java

package com.example.navigation\_drawer; import androidx.annotation.NonNull;

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 dd;

ActionBarDrawerToggle tt; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*); dd=findViewById(R.id.*drawerLayout*);

tt=new ActionBarDrawerToggle(this,dd,R.string.*nav\_open*,R.string.*nav\_open*); dd.addDrawerListener(tt);

tt.syncState();

getSupportActionBar().setDisplayHomeAsUpEnabled(true); getSupportActionBar().setHomeAsUpIndicator(R.drawable.*ic\_baseline\_auto\_awesome\_mo*

*saic\_24*);

}

@Override

public boolean onOptionsItemSelected(@NonNull MenuItem item) { if(tt.onOptionsItemSelected(item))

{

return true;

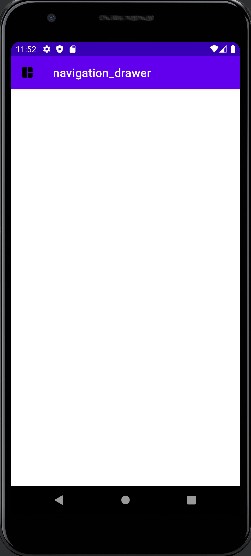
}

return super.onOptionsItemSelected(item);

}

}

# Output



**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:

Develop mobile applications using SQLite.

# Procedure:

## Dbhelper.java

package com.example.employeedb; 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, "employee", null, 1);

}

@Override

public void onCreate(SQLiteDatabase s) {

s.execSQL("create table tbl\_employee(empid integer primary key autoincrement,name varchar(10),department varchar(10),phone varchar(10))");

}

@Override

public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {

}

}

## activity\_main.xml

<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">

<EditText

android:id="@+id/Name"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Name"

android:inputType="text" />

<EditText

android:id="@+id/RollNo"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Roll Number"

android:inputType="number" />

<EditText

android:id="@+id/Address"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Address"

android:inputType="text" />

<Button

android:id="@+id/Insert"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Insert"

android:onClick="insertdb"/>

<Button

android:id="@+id/Update"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Update"

android:onClick="updatedb"/>

<Button

android:id="@+id/Delete"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Delete"

android:onClick="deletedb"/>

<Button

android:id="@+id/btnRead"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="View"

android:onClick="viewdb"/>

</LinearLayout>

## MainActivityjava

package com.example.crud;

import androidx.appcompat.app.AppCompatActivity;

import android.content.ContentValues;

import android.database.Cursor;

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 {

DbHelper helper=new DbHelper(this);

SQLiteDatabase db;

EditText sname,srollno,saddress;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

db=helper.getReadableDatabase();

db=helper.getWritableDatabase();

sname=findViewById(R.id.Name);

srollno=findViewById(R.id.RollNo);

saddress=findViewById(R.id.Address);

}

public void insertdb(View view) {

String n=sname.getText().toString();

String r=srollno.getText().toString();

String a=saddress.getText().toString();

if(n.equals("")||r.equals("")|| a.equals("")){

Toast.makeText(this, "please enter the data", Toast.LENGTH\_SHORT).show();

}

else {

ContentValues data=new ContentValues();

data.put("name",n);

data.put("rollno",r);

data.put("address",a);

db.insert("stud",null,data);

Toast.makeText(this, "Inserted...", Toast.LENGTH\_SHORT).show();

}}

else {

ContentValues data = new ContentValues();

data.put("name", n);

data.put("rollno", r);

data.put("address", a);

db.update("stud",data,"rollno="+r,null);

public void viewdb(View view) {

StringBuffer buffer=new StringBuffer();

Cursor c=db.rawQuery("select \* from stud",null);

while(c.moveToNext()){

buffer.append("ID:"+c.getString(0)+"\t");

buffer.append("Name"+c.getString(1)+"\t");

buffer.append("Address"+c.getString(2)+"\t");

}

Toast.makeText(this,buffer.toString(),Toast.LENGTH\_LONG).show();

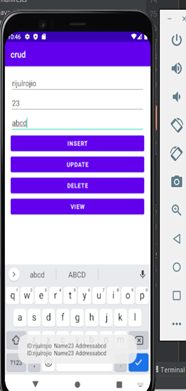
}

}

# Output

# 

# 



**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:

Develop mobile applications using SQLite.

# Procedure:

## Dbhelper.java

package com.example.employeedb; 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, "employee", null, 1);

}

@Override

public void onCreate(SQLiteDatabase s) {

s.execSQL("create table tbl\_employee(empid integer primary key autoincrement,name varchar(10),department varchar(10),phone varchar(10))");

}

@Override

public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {

}

}

## activity\_main.xml

<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">

<EditText

android:id="@+id/Name"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Name"

android:inputType="text" />

<EditText

android:id="@+id/RollNo"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Roll Number"

android:inputType="number" />

<EditText

android:id="@+id/Address"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Address"

android:inputType="text" />

<Button

android:id="@+id/Insert"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Insert"

android:onClick="insertdb"/>

<Button

android:id="@+id/Update"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Update"

android:onClick="updatedb"/>

<Button

android:id="@+id/Delete"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Delete"

android:onClick="deletedb"/>

<Button

android:id="@+id/btnRead"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="View"

android:onClick="viewdb"/>

</LinearLayout>

## MainActivityjava

package com.example.crud;

import androidx.appcompat.app.AppCompatActivity;

import android.content.ContentValues;

import android.database.Cursor;

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 {

DbHelper helper=new DbHelper(this);

SQLiteDatabase db;

EditText sname,srollno,saddress;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

db=helper.getReadableDatabase();

db=helper.getWritableDatabase();

sname=findViewById(R.id.Name);

srollno=findViewById(R.id.RollNo);

saddress=findViewById(R.id.Address);

}

public void updatedb(View view) {

String n=sname.getText().toString();

String r=srollno.getText().toString();

String a=saddress.getText().toString();

if(n.equals("")||r.equals("")|| a.equals("")){

Toast.makeText(this, "please enter the data", Toast.LENGTH\_SHORT).show();

}

else {

ContentValues data = new ContentValues();

data.put("name", n); data.put("rollno", r);

data.put("address", a);

db.update("stud",data,"rollno="+r,null);

Toast.makeText(this, "Updated...", Toast.LENGTH\_SHORT).show();

}

}

public void deletedb(View view) {

String r=srollno.getText().toString();



if(r.equals("")){

Toast.makeText(this, "please enter the data", Toast.LENGTH\_SHORT).show();

}

else {

ContentValues data = new ContentValues();

data.put("rollno", r);

db.delete("stud","rollno="+r,null);

Toast.makeText(this, "Deleted...", Toast.LENGTH\_SHORT).show();

}

}

# Output

# 

# 

# 

**Result**

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