

Experiment No. 1

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

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

Procedure:

Activity_main.xml

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

<LinearLayout

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:orientation="vertical"

    android:padding="16dp">

    <TextView

        android:id="@+id/textView"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:text="LOGIN FORM"

        android:textAlignment="center" />

    <TextView

        android:id="@+id/textView1"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="USERNAME" />

    <EditText

        android:id="@+id/usernameEditText"

        android:layout_width="213dp"
```

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

Main.activity.java

```
package com.example.firstapp;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Button;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
```

```
public class MainActivity extends AppCompatActivity {

    private static final String VALID_USERNAME="user";
    private static final String VALID_PASSWORD="password";

    private EditText usernameEditText;
    private EditText passwordEditText;
    private Button loginButton;

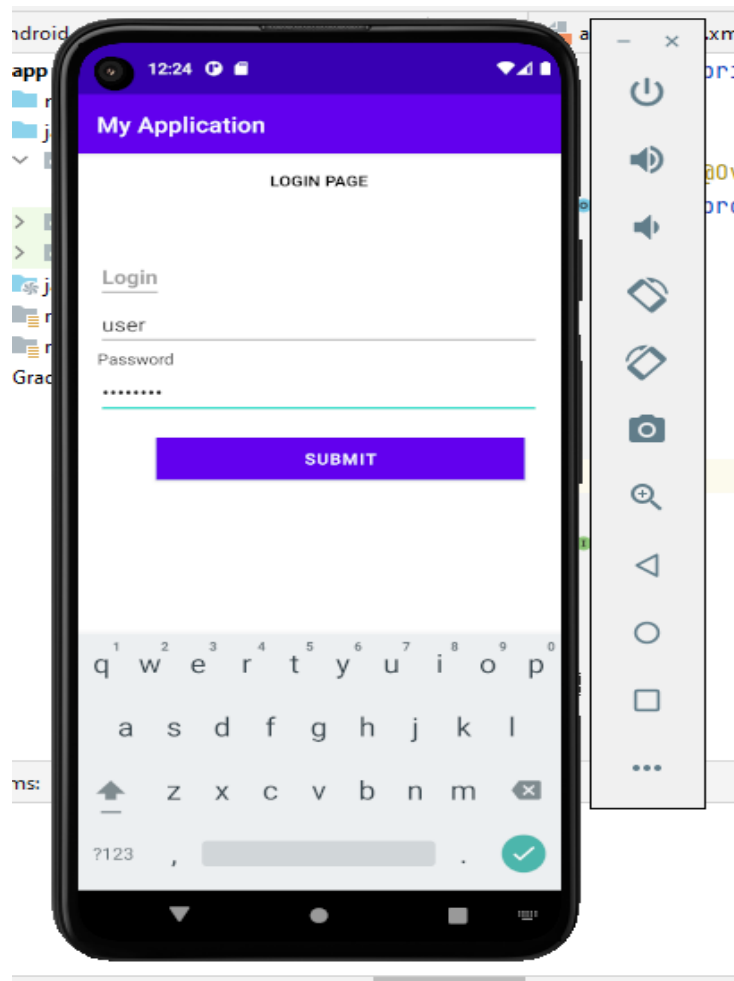
    @Override

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        usernameEditText=findViewById(R.id.usernameEditText);
        passwordEditText=findViewById(R.id.passwordEditText);
        loginButton=findViewById(R.id.loginButton);
        loginButton.setOnClickListener(v -> {
            String enteredUsername=usernameEditText.getText().toString();
            String enteredPassword=passwordEditText.getText().toString();
            if(isValidCredentials(enteredUsername,enteredPassword)) {
                showToast("Login Successful");
            }
            else{
                showToast("Invalid Credentials");
            }
        });
    }

    private boolean isValidCredentials(String enteredUsername, String enteredPassword){
        return VALID_USERNAME.equals(enteredUsername) &&
        VALID_PASSWORD.equals(enteredPassword);
    }

    private void showToast(String message){
        Toast.makeText(this,message,Toast.LENGTH_SHORT).show();
    }
}
```

Output Screenshot



Result

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

Experiment No. 2

Aim: Implementing basic arithmetic operations of a simple calculator

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

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

Procedure:

Activity main.xml

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

<LinearLayout

    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="30dp"
    android:gravity="center_horizontal">

    <!-- Text View -->

    <TextView

        android:id="@+id/TextView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Simple Calculator"
        android:textColor="@color/black"
        android:textSize="24sp"
        android:layout_gravity="center"
        android:layout_marginBottom="16dp"
```

```
        android:textStyle="bold"/>
<!-- Edit Text-->
<EditText
    android:id="@+id/EditText1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="30dp"
    android:layout_marginStart="50dp"
    android:layout_marginTop="50dp"
    android:layout_marginEnd="50dp"
    android:layout_marginBottom="50dp" />
<GridLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:rowCount="4"
    android:columnCount="4"
    android:layout_gravity="center"
    android:layout_marginTop="40dp">
    <Button
        android:id="@+id/button1"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="1"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
    <Button
        android:id="@+id/button2"
```

```
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        style="?android:attr/buttonStyleSmall"
        android:layout_columnWeight="1"
        android:text="2"
        android:textSize="18sp"
        android:onClick="onDigitClick"/>
<Button
    android:id="@+id/button3"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    style="?android:attr/buttonStyleSmall"
    android:layout_columnWeight="1"
    android:text="3"
    android:textSize="18sp"
    android:onClick="onDigitClick"/>
<Button
    android:id="@+id/buttonDiv"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    style="?android:attr/buttonStyleSmall"
    android:layout_columnWeight="1"
    android:text="/"
    android:textSize="18sp"
    android:onClick="onOperatorClick"/>
<Button
    android:id="@+id/button4"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
```

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

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

```
        android:onClick="onDigitClick"/>

<Button
    android:id="@+id/buttonSub"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    style="?android:attr/buttonStyleSmall"
    android:layout_columnWeight="1"
    android:text="-"
    android:textSize="18sp"
    android:onClick="onOperatorClick"/>

<Button
    android:id="@+id/button0"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    style="?android:attr/buttonStyleSmall"
    android:layout_columnWeight="1"
    android:text="0"
    android:textSize="18sp"
    android:onClick="onDigitClick"/>

<Button
    android:id="@+id/buttonDot"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    style="?android:attr/buttonStyleSmall"
    android:layout_columnWeight="1"
    android:text="C"
    android:textSize="18sp"
    android:onClick="onClearClick"/>

<Button
```

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

Main.activity.java

```
package com.example.calc;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    private TextView TextView1;
    private Button button1;
```

```
private Button button2;
private Button button3;
private Button buttonDiv;
private Button button4;
private Button button5;
private Button button6;
private Button buttonMul;
private Button button7;
private Button button8;
private Button button9;
private Button buttonSub;
private Button button0;
private Button buttonDot;
private Button buttonEqual;
private Button buttonAdd;
private String currentInput = "";
private double operand1 = 0;
private String operator = "";
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    TextView1 = findViewById(R.id.TextView1);
}
public void onDigitClick(View view) {
    Button button = (Button) view;
    currentInput += button.getText().toString();
    updateDisplay();
}
public void onOperatorClick(View view){
```

```
        if (!currentInput.isEmpty()){
            operand1 = Double.parseDouble(currentInput);
            operator = ((Button) view).getText().toString();
            currentInput = "";
        } }

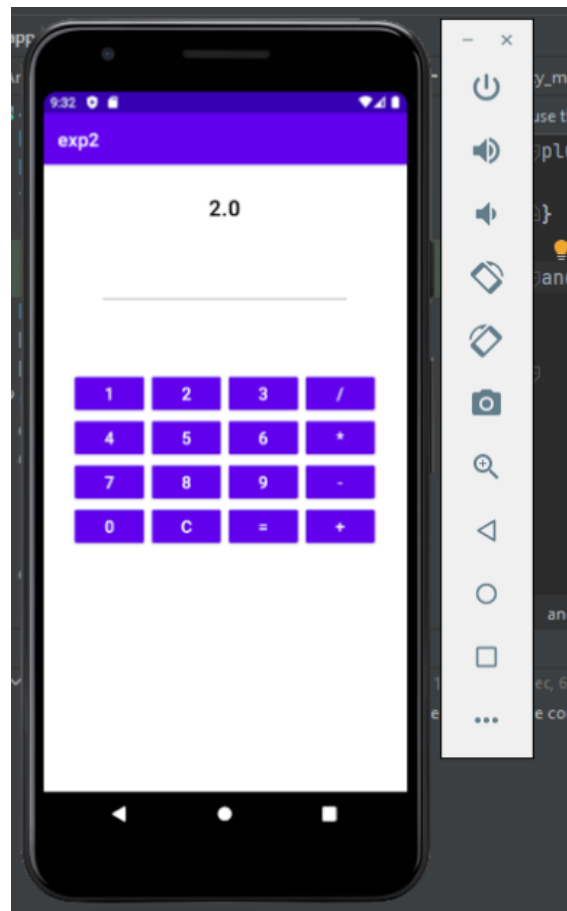
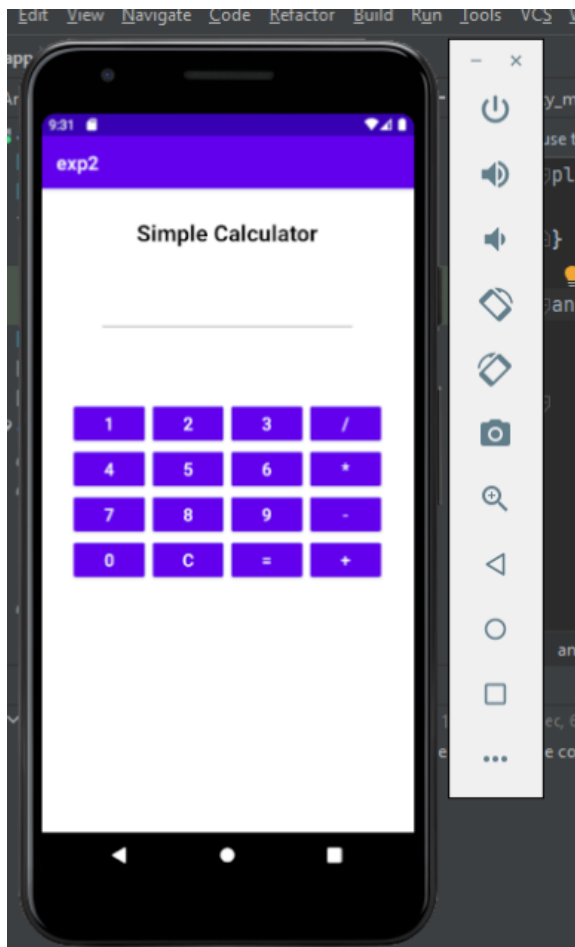
    public void onEqualsClick(View view){
        if (!currentInput.isEmpty()){
            double operand2 = Double.parseDouble(currentInput);
            double result = performOperation(operand1,operand2,operator);
            currentInput = String.valueOf(result);
            updateDisplay();
        } }

    public void onClearClick(View view){
        currentInput = "";
        operand1 = 0;
        operator = "";
        updateDisplay();
    }

    private double performOperation(double operand1, double operand2, String operator){
        switch (operator){
            case "+":
                return operand1 + operand2;
            case "-":
                return operand1 - operand2;
            case "*":
                return operand1 * operand2;
            case "/":
                if (operand2 !=0) {
                    return operand1 / operand2;
```

```
    } else {  
        return Double.NaN;  
    }  
    default:  
        return 0;  
    } }  
  
    public void updateDisplay(){  
        TextView1.setText(currentInput);  
    }  
}
```

Output Screenshot



Result

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

Experiment No. 3

Aim: Write a program that demonstrates Activity Lifecycle.

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

Procedure:

Activity main.xml

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

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

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView

        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Activity Life Cycle"
        android:textAlignment="center"
        android:layout_marginTop="50dp"
        android:textSize="30dp"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.cycle;

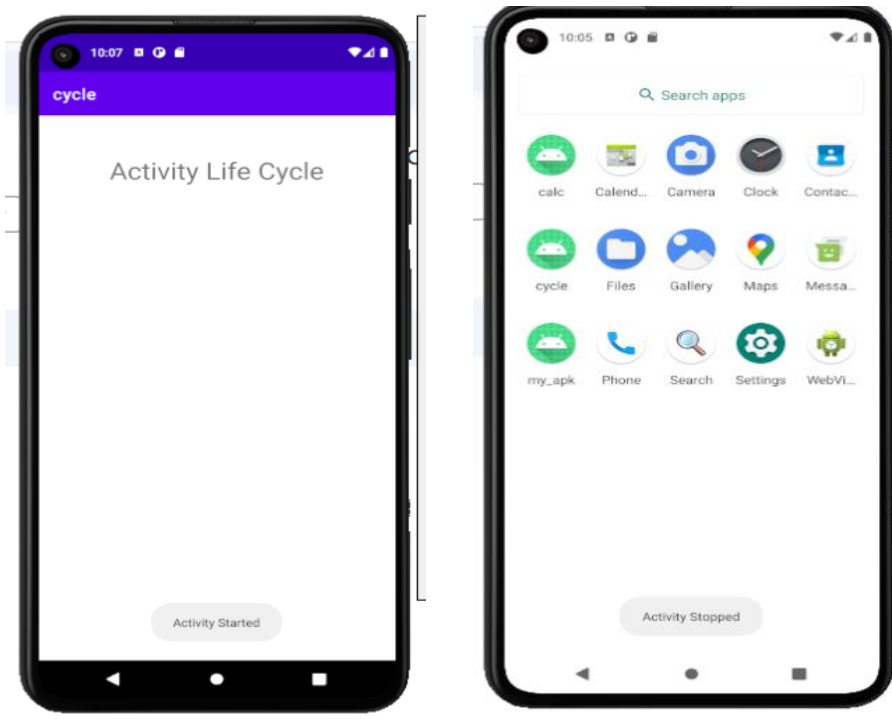
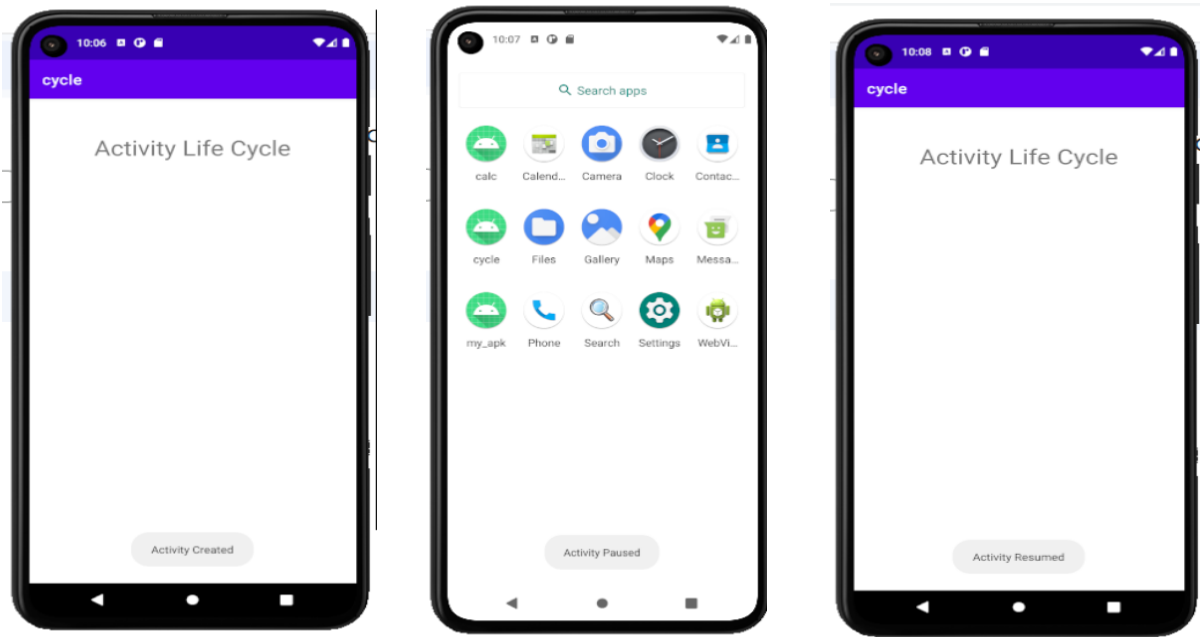
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    @Override
```

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


Output Screenshot



Result

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

Experiment No. 4

Aim: Implement validations on various UI controls.

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

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

Procedure:

Activity_main.xml

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/constraintButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="ConstraintLayout" />

    <Button
        android:id="@+id/linearButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="LinearLayout" />

    <Button
        android:id="@+id/gridButton"
```

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

MainActivity.java

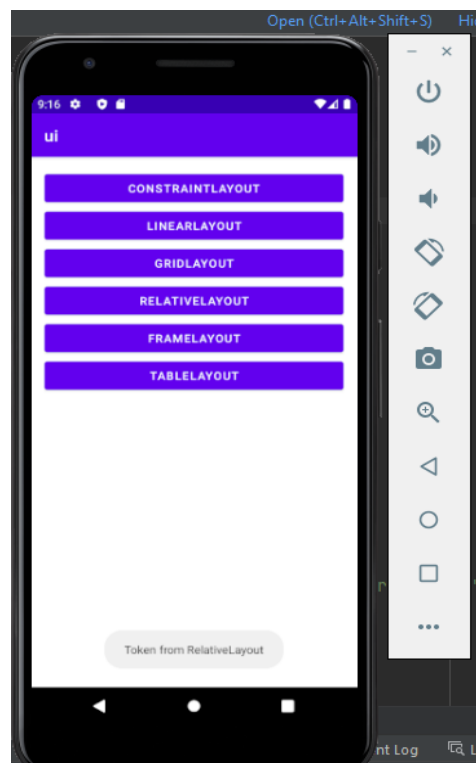
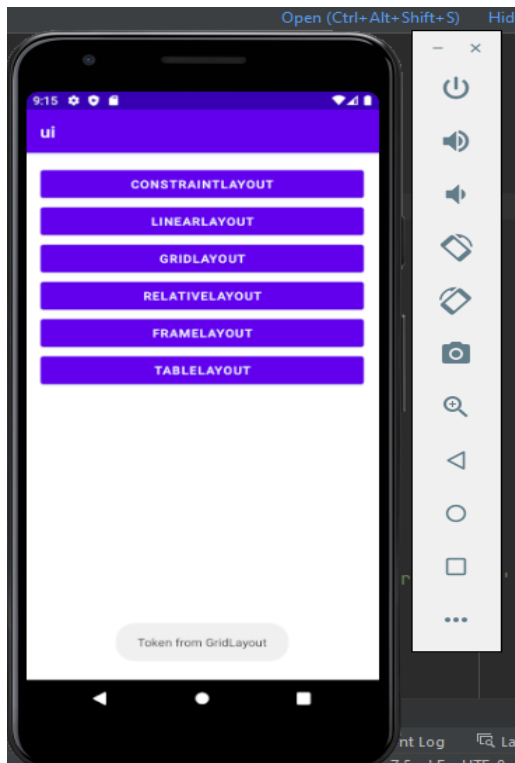
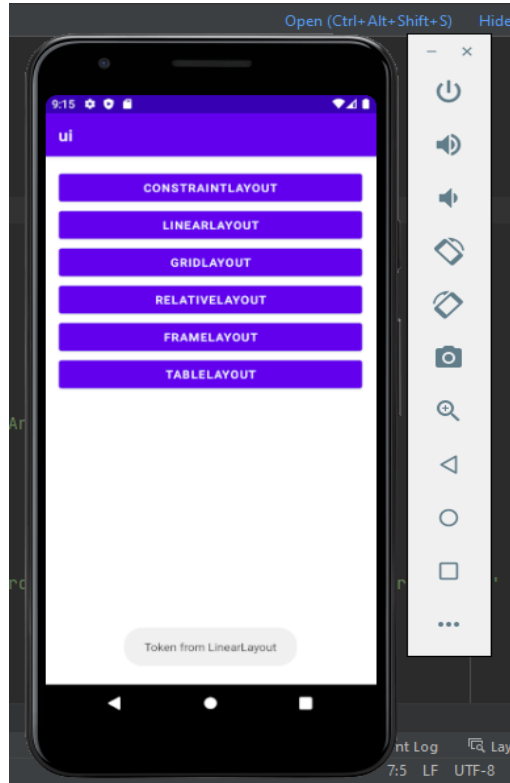
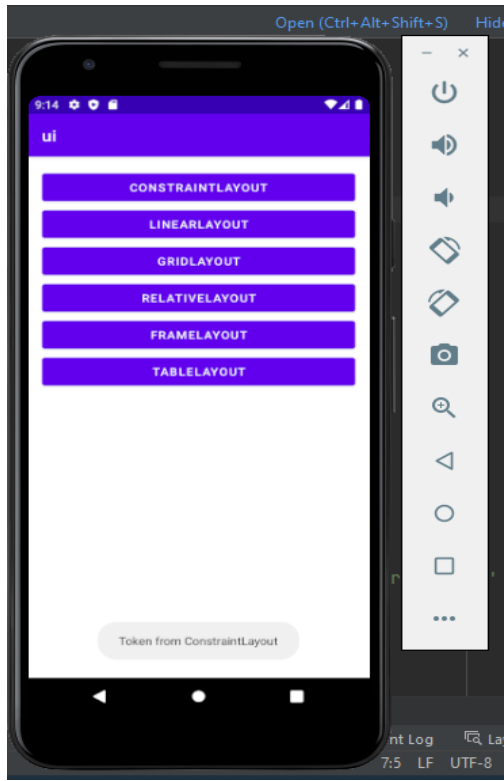
```
package com.example.ui;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState)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

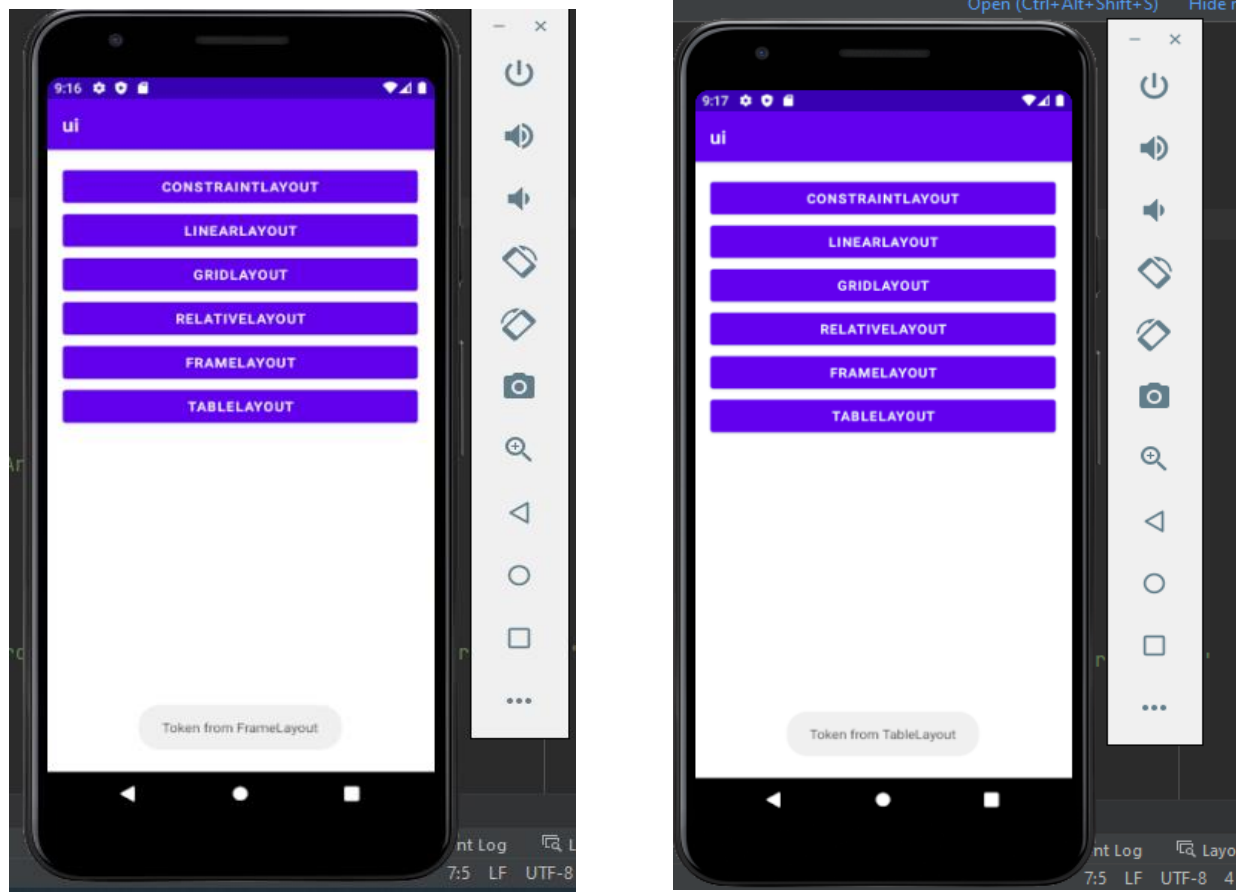
```
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);

Button constraintButton = findViewById(R.id.constraintButton);
Button linearButton = findViewById(R.id.linearButton);
Button gridButton = findViewById(R.id.gridButton);
Button relativeButton = findViewById(R.id.relativeButton);
Button frameButton = findViewById(R.id.frameButton);
Button tableButton = findViewById(R.id.tableButton);
View.OnClickListener buttonClickListener = new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String layoutName = ((Button) v).getText().toString();
        displayToken(layoutName);
    }
};
constraintButton.setOnClickListener(buttonClickListener);
linearButton.setOnClickListener(buttonClickListener);
gridButton.setOnClickListener(buttonClickListener);
relativeButton.setOnClickListener(buttonClickListener);
frameButton.setOnClickListener(buttonClickListener);
tableButton.setOnClickListener(buttonClickListener);
}

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

Output Screenshot





Result

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

Experiment No. 5

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

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

Procedure:

Activity main.xml

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:paddingLeft="16dp"
    android:paddingRight="16dp" >

    <ScrollView
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <LinearLayout
            android:layout_width="fill_parent"
            android:layout_height="fill_parent"
            android:orientation="vertical">

            <ImageView
                android:id="@+id/facebookView"
                android:layout_width="200dp"
                android:layout_height="80dp"
                android:layout_gravity="center"
                android:src="@drawable/facebook" />

            <ImageView
```

```
        android:id="@+id/imageView4"
        android:layout_width="match_parent"
        android:layout_height="281dp"
        android:src="@drawable/post" />
<GridLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_marginTop="40dp"
    android:columnCount="4"
    android:rowCount="4">
    <!-- Like ImageView -->
    <ImageView
        android:id="@+id/likeImageView"
        android:layout_width="110dp"
        android:layout_height="83dp"
        android:layout_gravity="center"
        android:clickable="true"
        android:onClick="onLikeClick"
        android:src="@drawable/like" />
    <!-- Comment ImageView -->
    <ImageView
        android:id="@+id/commentImageView"
        android:layout_width="111dp"
        android:layout_height="66dp"
        android:layout_row="0"
        android:layout_column="1"
        android:layout_gravity="center"
        android:clickable="true"
```

```
        android:onClick="onCommentClick"
        android:src="@drawable/comment" />
    <ImageView
        android:id="@+id/shareImageView"
        android:layout_width="93dp"
        android:layout_height="86dp"
        android:layout_row="0"
        android:layout_column="3"
        android:layout_gravity="center"
        android:clickable="true"
        android:onClick="onShareClick"
        android:src="@drawable/share" />
</GridLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical">
    <ImageView
        android:id="@+id/imageView7"
        android:layout_width="match_parent"
        android:layout_height="281dp"
        android:src="@drawable/dog" />
    <GridLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="40dp"
        android:columnCount="4"
        android:rowCount="4">
```

```
<!-- Like ImageView -->

<ImageView
    android:id="@+id/likeImageView2"
    android:layout_width="110dp"
    android:layout_height="83dp"
    android:layout_gravity="center"
    android:clickable="true"
    android:onClick="onLikeClick"
    android:src="@drawable/like" />

<!-- (Your existing ImageView code) -->

<!-- Comment ImageView -->

<ImageView
    android:id="@+id/commentImageView2"
    android:layout_width="111dp"
    android:layout_height="66dp"
    android:layout_row="0"
    android:layout_column="1"
    android:layout_gravity="center"
    android:clickable="true"
    android:onClick="onCommentClick"
    android:src="@drawable/comment" />

<ImageView
    android:id="@+id/shareImageView2"
    android:layout_width="93dp"
    android:layout_height="86dp"
    android:layout_row="0"
    android:layout_column="3"
    android:layout_gravity="center"
    android:clickable="true"
```

```
        android:onClick="onShareClick"

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

        <!-- (Your existing ImageView code) -->

    </GridLayout>

</LinearLayout>

</LinearLayout>

</ScrollView>

</RelativeLayout>
```

MainActivity.java

```
package com.example.facebook;

import androidx.appcompat.app.AppCompatActivity;
import android.app.Activity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
import android.widget.Toast;

public class MainActivity extends Activity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        // Find the ImageView elements by their IDs
        ImageView facebookView = findViewById(R.id.facebookView );
        ImageView likeImageView = findViewById(R.id.likeImageView);
        ImageView commentImageView = findViewById(R.id.commentImageView);
        ImageView shareImageView = findViewById(R.id.shareImageView);
        // Set click listeners for the ImageViews
        likeImageView.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
```

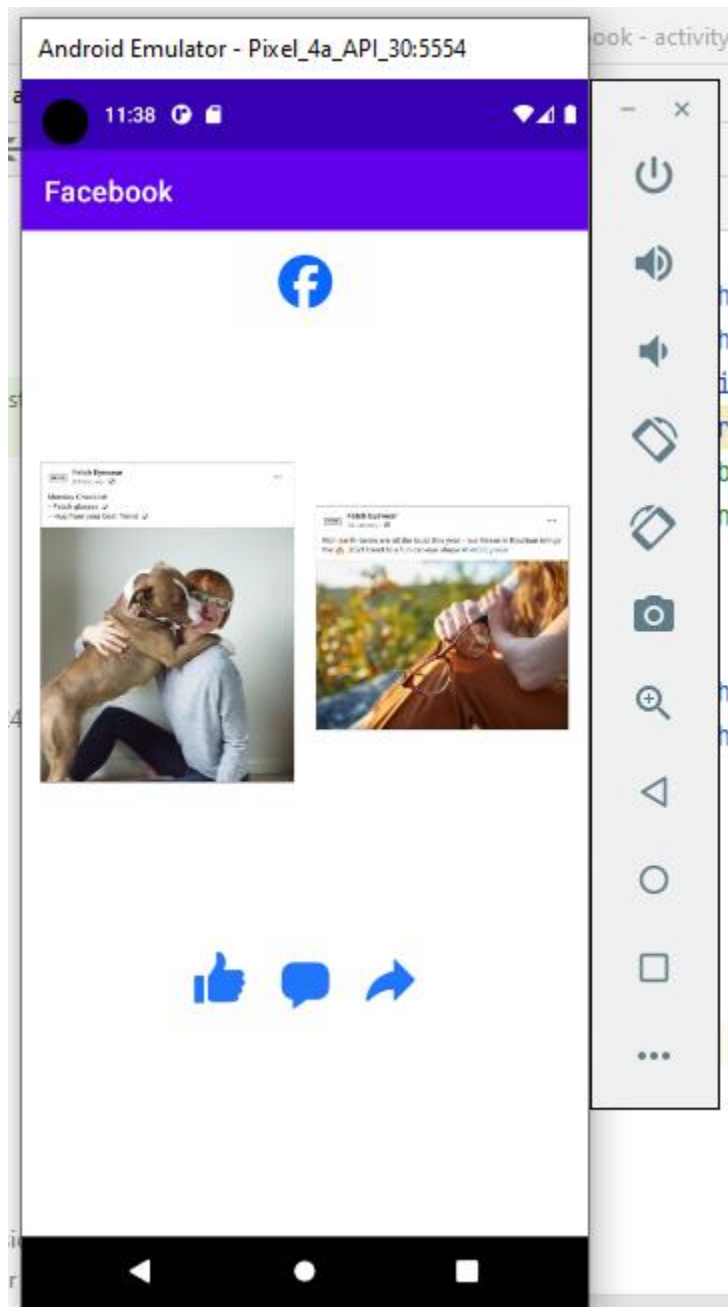
```
        showToast("You clicked the Like button");
    }
});

commentImageView.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        showToast("You clicked the Comment button");
    }
});

shareImageView.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        showToast("You clicked the Share button");
    }
});
}

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

Output Screenshot



Result

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

Experiment No. 6

Aim: Develop an application that toggles image using FrameLayout

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

Procedure:

Activity main.xml

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

<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#BDBABA"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/imageView1"
        android:layout_width="427dp"
        android:layout_height="wrap_content"
        android:layout_gravity="left|top"
        android:background="#CACAC8"
        app:srcCompat="@drawable/s1" />

    <ImageView
        android:id="@+id/imageView2"
        android:layout_width="396dp"
        android:layout_height="wrap_content"
        android:layout_gravity="left|top"
        android:visibility="gone"
        app:srcCompat="@drawable/f1" /></FrameLayout>
```

MainActivity.java

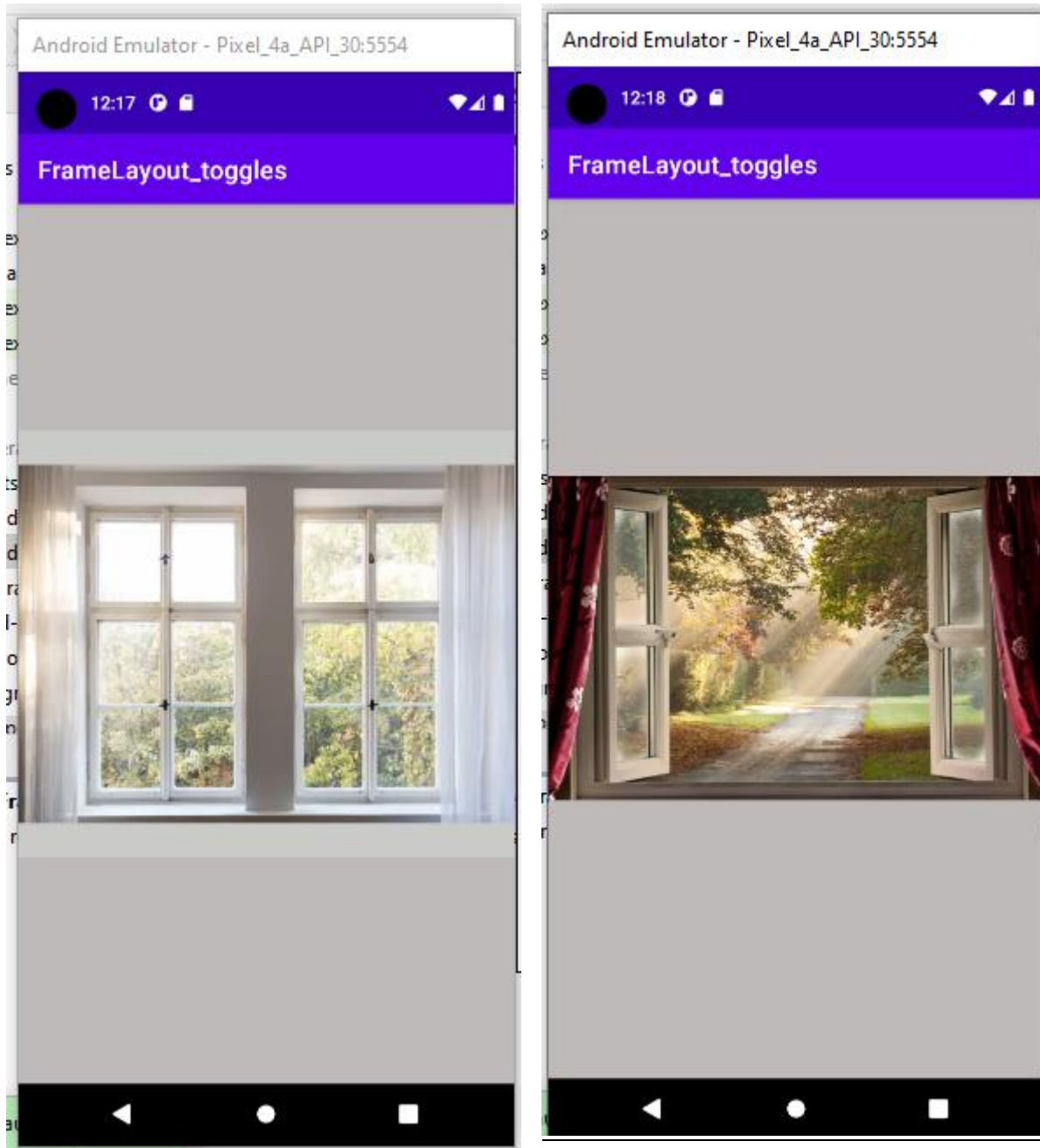
```
javapackage com.example.frame_layout;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    ImageView i1,i2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        i1=(ImageView) findViewById(R.id.imageView1);
        i2=(ImageView) findViewById(R.id.imageView2);
        i1.setOnClickListener(this);
        i2.setOnClickListener(this);
    }
    @Override
    public void onClick(View v) {
        if(v.getId()==R.id.imageView1)
        {
            i1.setVisibility(v.GONE);
            i2.setVisibility(v.VISIBLE);
        }
        else
        {
            i2.setVisibility(v.GONE);
            i1.setVisibility(v.VISIBLE);
        }
    }
}
```

}

}

Output Screenshot



Result

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

Experiment No. 7

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

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

Procedure:

Activity main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    android:gravity="center">
    <EditText
        android:id="@+id/usernameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username"
        android:inputType="text" />
    <EditText
        android:id="@+id/emailEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email"
```

```
        android:inputType="textEmailAddress" />

<EditText

    android:id="@+id/passwordEditText"

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:hint="Password"

    android:inputType="textPassword" />

<Button

    android:id="@+id/registerButton"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_gravity="center"

    android:text="Register" />

</LinearLayout>
```

MainActivity.java

```
package com.example.registration;

import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText usernameEditText, emailEditText, passwordEditText;

    private Button registerButton;

    @Override

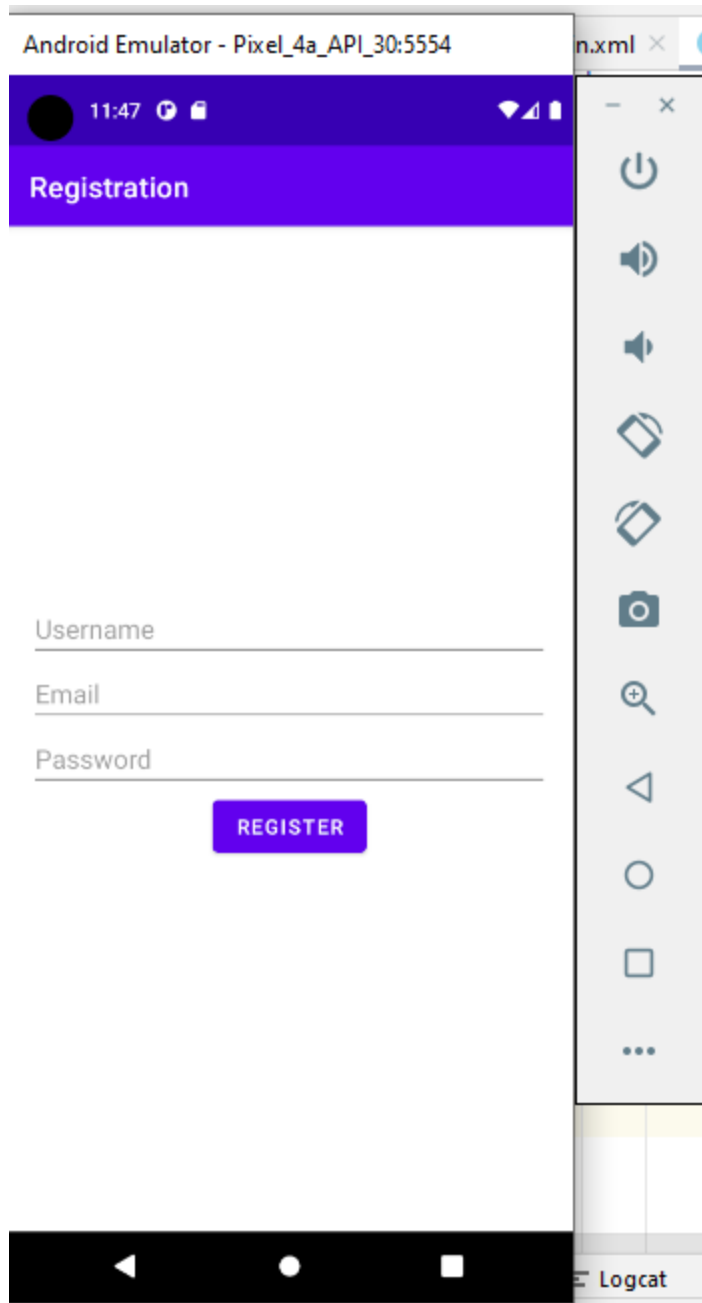
    protected void onCreate(Bundle savedInstanceState) {
```

```
super.onCreate(savedInstanceState);

setContentView(R.layout.activity_main);

usernameEditText = findViewById(R.id.usernameEditText);
emailEditText = findViewById(R.id.emailEditText);
passwordEditText = findViewById(R.id.passwordEditText);
registerButton = findViewById(R.id.registerButton);
registerButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String username = usernameEditText.getText().toString();
        String email = emailEditText.getText().toString();
        String password = passwordEditText.getText().toString();
        // Store registration details in SharedPreferences
        SharedPreferences preferences = getSharedPreferences("MyPrefs",
MODE_PRIVATE);
        SharedPreferences.Editor editor = preferences.edit();
        editor.putString("username", username);
        editor.putString("email", email);
        editor.putString("password", password);
        editor.apply();
        Toast.makeText(MainActivity.this, "Registration successful",
Toast.LENGTH_SHORT).show();
        // Start another activity, e.g., MainActivity, using an Intent
        Intent intent = new Intent(MainActivity.this, MainActivity.class);
        startActivity(intent);
    }
});
}}
```

Output Screenshot



Result

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

Experiment No:8

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"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity" >

    <ListView
        android:id="@+id/MyLists"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />

</RelativeLayout>
```

Main_Activity.java

```
package com.example.adapt2;

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

```
public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemClickListener {

    ListView l;

    String[] days = { "Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday",
"Saturday" };

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        l = findViewById(R.id.MyLists);

        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
androidx.appcompat.R.layout.support_simple_spinner_dropdown_item, days);

        l.setAdapter(adapter);

        l.setOnItemClickListener(this);

    }

    @Override

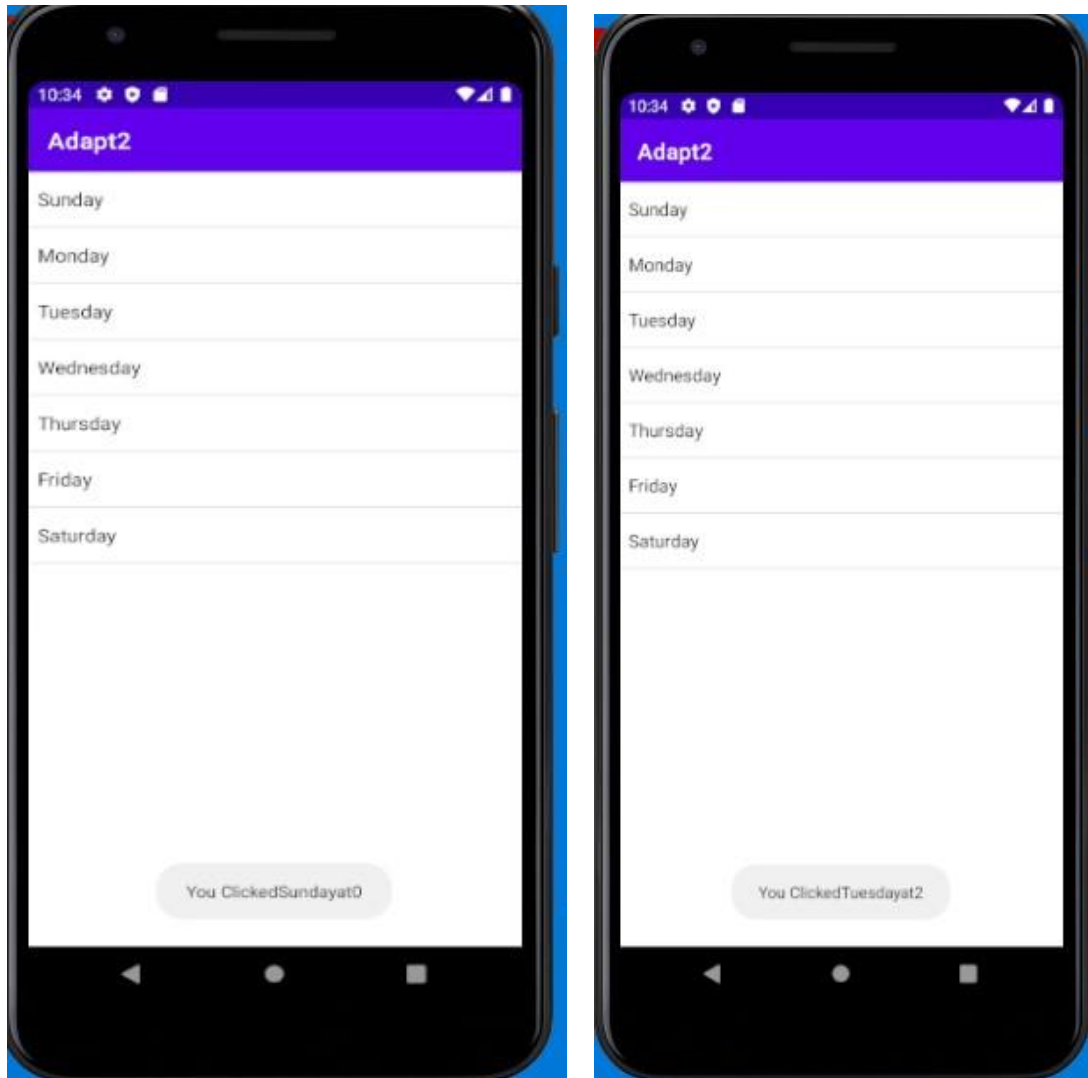
    public void onItemClick(AdapterView<?> adapterView, View view, int position, long id) {

        TextView temp = (TextView) view;

        Toast.makeText(this, "You Clicked" +temp.getText()+
"at"+position,Toast.LENGTH_SHORT).show();

    }}
}
```

Output Screenshot



Result

The program was executed successfully and the output was obtained. Thus CO3 was attained.

Experiment No:9

Aim: Implements Options Menu to navigate to 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"

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView

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

//menu_main.xml

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

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

<item

    android:id="@+id/settings"

    android:title="settings"/>
```



```
<item
    android:id="@+id/about"
    android:title="about"/>

<item
    android:id="@+id/messages"
    android:title="starred messages"/>

</menu>

//activity_settingspage.xml

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

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

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".settingspage">

    <TextView

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello!"

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

//settingspage.java

package com.example.option;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class settingspage extends AppCompatActivity {
```

@Override

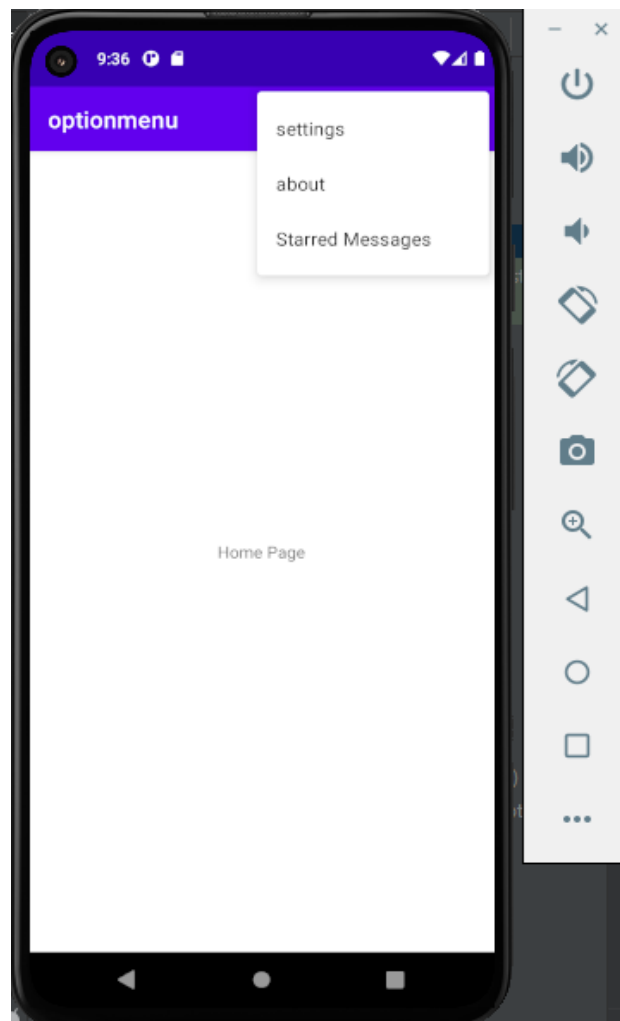
```
protected void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.activity_settingspage);  
}  
}
```

//MainActivity.jav

```
package com.example.option;  
  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.Menu;  
import android.view.MenuInflater;  
import android.view.MenuItem;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);}  
  
    public boolean onCreateOptionsMenu(Menu menu) {  
        MenuInflater inflater = getMenuInflater();  
        inflater.inflate(R.menu.menu_main,menu);  
        return super.onCreateOptionsMenu(menu);  
    }  
  
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {  
        switch(item.getItemId()) {  
            case R.id.settings:  
                Intent intent = new Intent(MainActivity.this,settingspage.class);
```

```
startActivity(intent);  
  
break;  
  
case R.id.about:  
    Toast.makeText(this,"you clicked about",Toast.LENGTH_LONG).show();  
  
break;  
  
case R.id.msgs:  
    Toast.makeText(this,"you clicked starred messages",Toast.LENGTH_LONG).show();  
  
    Break;  }  
  
return super.onOptionsItemSelected(item); } }
```

Output Screenshot



Result

The program was executed successfully and the output was obtained. Thus CO3 was 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:**Activity Main1.xml**

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

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

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="switchActivity"
        android:text="Button"
        app:layout_constraintBottom_toTopOf="@+id/editText1"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.5" />

    <EditText
        android:id="@+id/editText1"
```

```
android:layout_width="0dp"
android:layout_height="wrap_content"
android:ems="10"
android:text="Enter Your Name"
app:layout_constraintTop_toBottomOf="@+id/button"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent" />
```

```
<EditText
```

```
    android:id="@+id/editText2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:ems="10"
    android:text="Enter age"
    app:layout_constraintTop_toBottomOf="@+id/editText1"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent" />
```

```
</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity main1.java

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
    EditText name;
    EditText age;
    @Override
```

```
protected void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.activity_main);  
    name=findViewById(R.id.editText1);  
    age=findViewById(R.id.editText2);  
}  
  
public void switchActivity(View view){  
    Intent intent=new Intent(this,MainActivity2.class);  
    intent.putExtra("user",name.getText().toString());  
    intent.putExtra("age",age.getText().toString());  
    startActivity(intent);  
}}
```

Activity Main2.xml

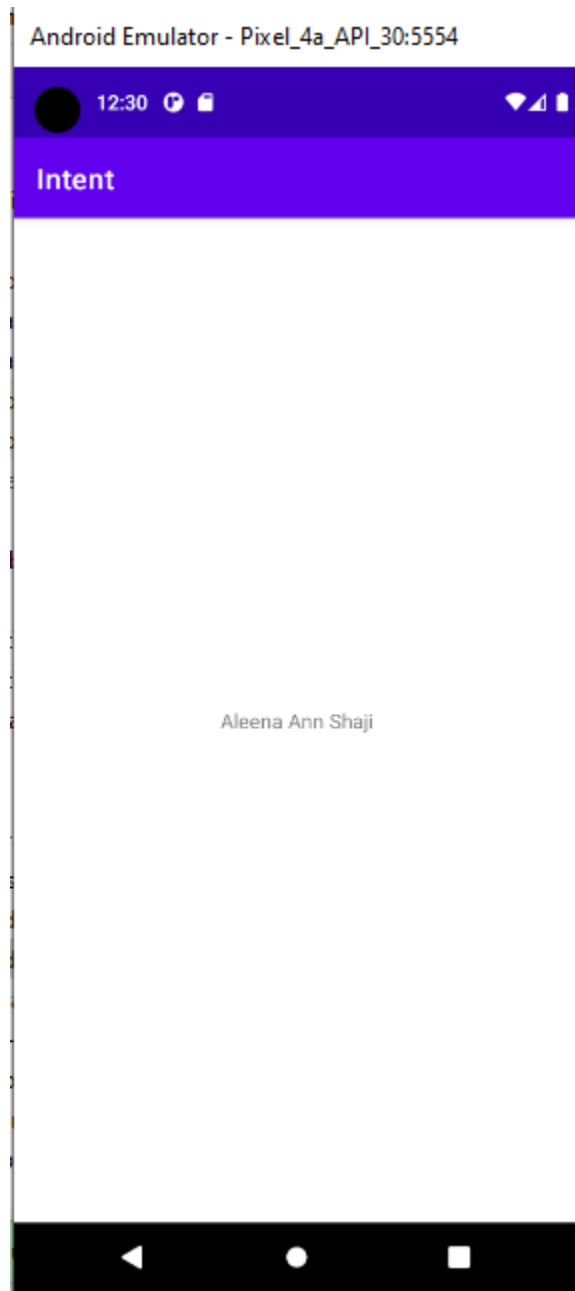
```
<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout  
    xmlns:android="http://schemas.android.com/apk/res/android"  
    xmlns:app="http://schemas.android.com/apk/res-auto"  
    xmlns:tools="http://schemas.android.com/tools"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    tools:context=".MainActivity2">  
    <TextView  
        android:id="@+id/textView"  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:text="Activity 2"  
        app:layout_constraintTop_toTopOf="parent"  
        app:layout_constraintStart_toStartOf="parent"  
        app:layout_constraintEnd_toEndOf="parent"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
        android:layout_margin="16dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity Main2.java

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

Output Screenshot



Result

The program was executed successfully and the output was obtained. Thus CO3 was attained.

Experiment No:11

Aim: Develop an application that implement 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"?>

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textview1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        android:layout_marginTop="50dp"
        android:layout_marginLeft="150dp"/>

    <Spinner
        android:id="@+id/spinner2"
        android:layout_height="50dp"
        android:layout_width="200dp"
        android:layout_marginTop="100dp"
        android:layout_marginLeft="110dp"/>

</RelativeLayout>
```

Main_activity.java

```
package com.example.spin;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    String []names = {"values1","values2","values3","value4","value5"};
    String []text = {"values1 text","values2 text","values3 text","value4 text","value5 text"};
    ArrayAdapter<String> adapter;
    Spinner spinner;
    TextView textView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        spinner = findViewById(R.id.spinner2);
        textView = findViewById(R.id.textview1);
        adapter = new ArrayAdapter<String>(getApplicationContext(),
        android.R.layout.simple_list_item_1,names);
        spinner.setAdapter(adapter);
        spinner.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> adapterView, View view, int i, long l) {
                switch (i)
                {
                    {
```

```
        case 0:
            textView.setText(""+text[i]);
            break;
        case 1:
            textView.setText(""+text[i]);
            break;
        case 2:
            textView.setText(""+text[i]);
            break;
        case 3:
            textView.setText(""+text[i]);
            break;
        case 4:
            textView.setText(""+text[i]);
            break;
    }
}

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

Output Screenshot



Result

The program was executed successfully and the output was obtained. Thus CO4 was attained.

Experiment No:12

Aim: Develop an application using fragments

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

Procedure:

Activity main.xml

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

<FrameLayout

    android:id="@+id/fragment_container"

    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button

        android:id="@+id/fragment1"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_marginStart="200dp"
        android:layout_marginTop="100"
```

```
        android:layout_marginEnd="100dp"
        android:text="Fragment1"
        android:textSize="10dp"
        tools:layout_editor_absoluteX="16dp"
        tools:layout_editor_absoluteY="16dp" />
<Button
    android:id="@+id/fragment2"
    android:layout_width="100dp"
    android:layout_height="50dp"
    android:layout_marginStart="200dp"
    android:layout_marginTop="150"
    android:layout_marginEnd="300dp"
    android:text="Fragment2"
    android:textSize="10dp"
    tools:ignore="MissingConstraints"
    tools:layout_editor_absoluteX="17dp"
    tools:layout_editor_absoluteY="67dp" />
</FrameLayout>
```

Activity main.java

```
package com.example.fragment;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {

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

```
Button buttonFragment1 = findViewById(R.id.fragment1);
Button buttonFragment2 = findViewById(R.id.fragment2);
buttonFragment1.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        getSupportFragmentManager().beginTransaction()
            .replace(R.id.fragment_container, new firstfragment())
            .commit();
    }
});
buttonFragment2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        getSupportFragmentManager().beginTransaction()
            .replace(R.id.fragment_container, new secondfragment())
            .commit();
    }
});
}}
```

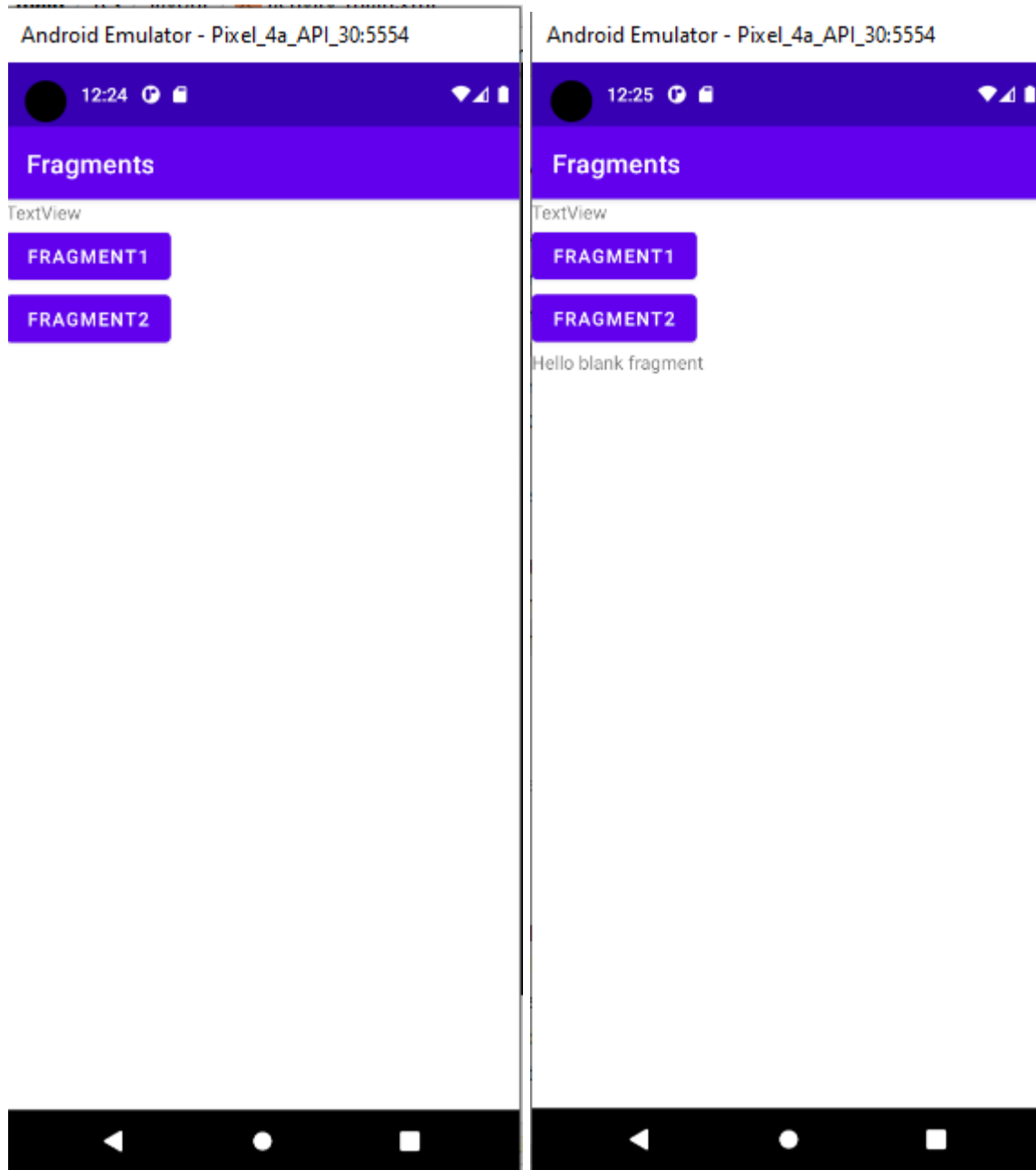
FirstFragment.xml

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

SecondFragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".secondfragment">
    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Second fragment" />
</FrameLayout>
```


Output Screenshot



Result

The program was executed successfully and the output was obtained. Thus CO4 was attained.

Experiment No:13

Aim: Implement Adapters and perform exception handling

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

Procedure:

Activity main.xml

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <ListView
        android:id="@+id/listview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</RelativeLayout>
```

Activity main.java

```
package com.example.exception2;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Toast;
import java.util.ArrayList;
import java.util.List;

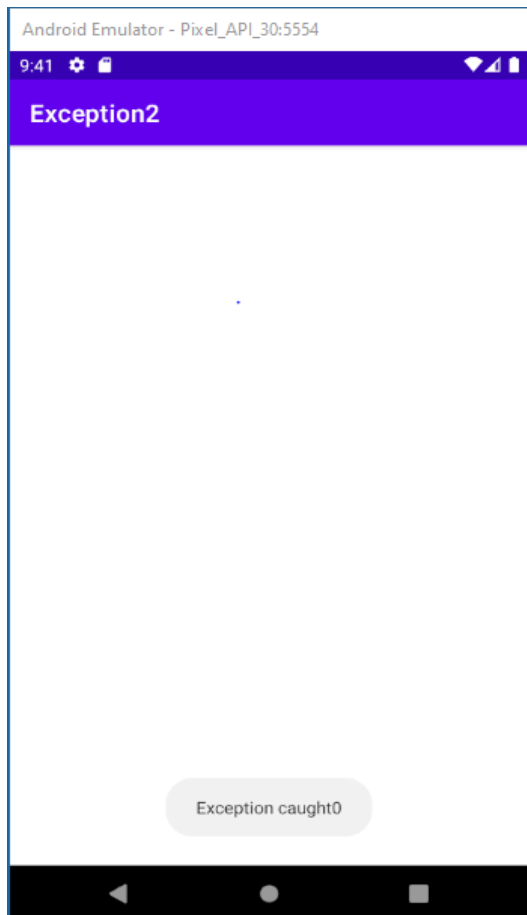
public class MainActivity extends AppCompatActivity {

    List<String> list=new ArrayList();

    protected void onCreate(Bundle savedInstanceState) {
```

```
super.onCreate(savedInstanceState);  
setContentView(R.layout.activity_main);  
list.add("Item1");  
list.add("Item2");  
list.add("Item3");  
list.add("Item4");  
for(int i=0;i<5;i++){  
    try{list.get(i); }  
    catch (Exception e){  
        Toast.makeText(this,"Exception caught0",Toast.LENGTH_LONG).show(); } } }
```

Output Screenshot



Result

The program was executed successfully and the output was obtained. Thus CO4 was attained.

Experiment No:14

Aim: Create database using SQLite and perform INSERT and SELECT

CO5: Develop mobile applications using SQLite.

Procedure:**Activity main.xml**

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

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

    xmlns:app=http://schemas.android.com/apk/res-auto

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">

    <TextView

        android:id="@+id/tv1"

        android:layout_centerHorizontal="true"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:textColor="@color/black"

        android:text="Student Details"

        android:textSize="15sp" />

    <EditText

        android:id="@+id/et1"

        android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"

    android:hint="Enter rollno"

    android:layout_centerHorizontal="true"

    android:layout_margin="18dp"

    android:layout_below="@+id/tv1"/>

<EditText

    android:id="@+id/et2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:hint="Enter name"

    android:layout_centerHorizontal="true"

    android:layout_margin="18dp"

    android:layout_below="@+id/et1"/>

<EditText

    android:id="@+id/et3"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_below="@+id/et2"

    android:layout_centerHorizontal="true"

    android:layout_marginStart="18dp"

    android:layout_marginTop="22dp"

    android:layout_marginEnd="18dp"

    android:layout_marginBottom="18dp"

    android:hint="Enter department" />
```

<Button

```
    android:id="@+id/bt1"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Insert"

    android:onClick="onInsert"

    android:layout_centerHorizontal="true"

    android:layout_margin="10dp"

    android:layout_below="@+id/et3"/>
```

<Button

```
    android:id="@+id/bt2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Update"

    android:onClick="onUpdate"

    android:layout_centerHorizontal="true"

    android:layout_margin="10dp"

    android:layout_below="@+id/bt1"/>
```

<Button

```
    android:id="@+id/bt3"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Read"

    android:onClick="onRead"
```

```
        android:layout_centerHorizontal="true"

        android:layout_margin="10dp"

        android:layout_below="@+id/bt2"/>

<Button

        android:id="@+id/bt4"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Delete"

        android:onClick="onDelete"

        android:layout_centerHorizontal="true"

        android:layout_margin="10dp"

        android:layout_below="@+id/bt3"/>

</RelativeLayout>
```

Main_Activity.java

```
package com.example.sqlite;

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.Button;

import android.widget.EditText;

import android.widget.TextView;
```

```
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    TextView tv1;

    EditText et1,et2,et3;

    Button bt1,bt2,bt3,bt4;

    String rno;

    String name;

    String dept;

    SQLiteDatabase db;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        tv1 = findViewById(R.id.tv1);

        et1 = findViewById(R.id.et1);

        et2 = findViewById(R.id.et2);

        et3 = findViewById(R.id.et3);

        bt1 = findViewById(R.id.bt1);

        bt2 = findViewById(R.id.bt2);

        bt3 = findViewById(R.id.bt3);

        bt4 = findViewById(R.id.bt4);

        DbHelper dbHelper = new DbHelper(this);

        db = dbHelper.getWritableDatabase();

        db = dbHelper.getReadableDatabase();
```

```
}

public void onInsert(View view) {

    rno = et1.getText().toString();

    name = et2.getText().toString();

    dept = et3.getText().toString();

    if (rno.equals("") || name.equals("") || dept.equals("")) {

        Toast.makeText(this,"please enter values",Toast.LENGTH_LONG).show();

    }

    else {

        ContentValues values = new ContentValues();

        values.put("rollno",rno);

        values.put("name",name);

        values.put("dept",dept);

        db.insert("student",null,values);

        Toast.makeText(this,"Inserted",Toast.LENGTH_LONG).show()}}

public void onRead(View view) {

    StringBuffer buffer = new StringBuffer();

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

    while (c.moveToNext())

    {

        buffer.append("\n"+c.getString(0));

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

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

    }

}
```

```
Toast.makeText(this,buffer.toString(), Toast.LENGTH_SHORT).show();
```

```
}
```

DBHelper code

```
package com.example.sqlite;
```

```
import android.content.Context;
```

```
import android.database.sqlite.SQLiteDatabase;
```

```
import android.database.sqlite.SQLiteOpenHelper;
```

```
import androidx.annotation.Nullable;
```

```
public class DBHelper extends SQLiteOpenHelper {
```

```
    public DBHelper(@Nullable Context context) {
```

```
        super(context, "student.db", null, 1);
```

```
    }
```

```
    @Override
```

```
    public void onCreate(SQLiteDatabase sqLiteDatabase) {
```

```
        sqLiteDatabase.execSQL("create table student(rollno int,name varchar(20),dept  
varchar(5))");}
```

```
    @Override
```

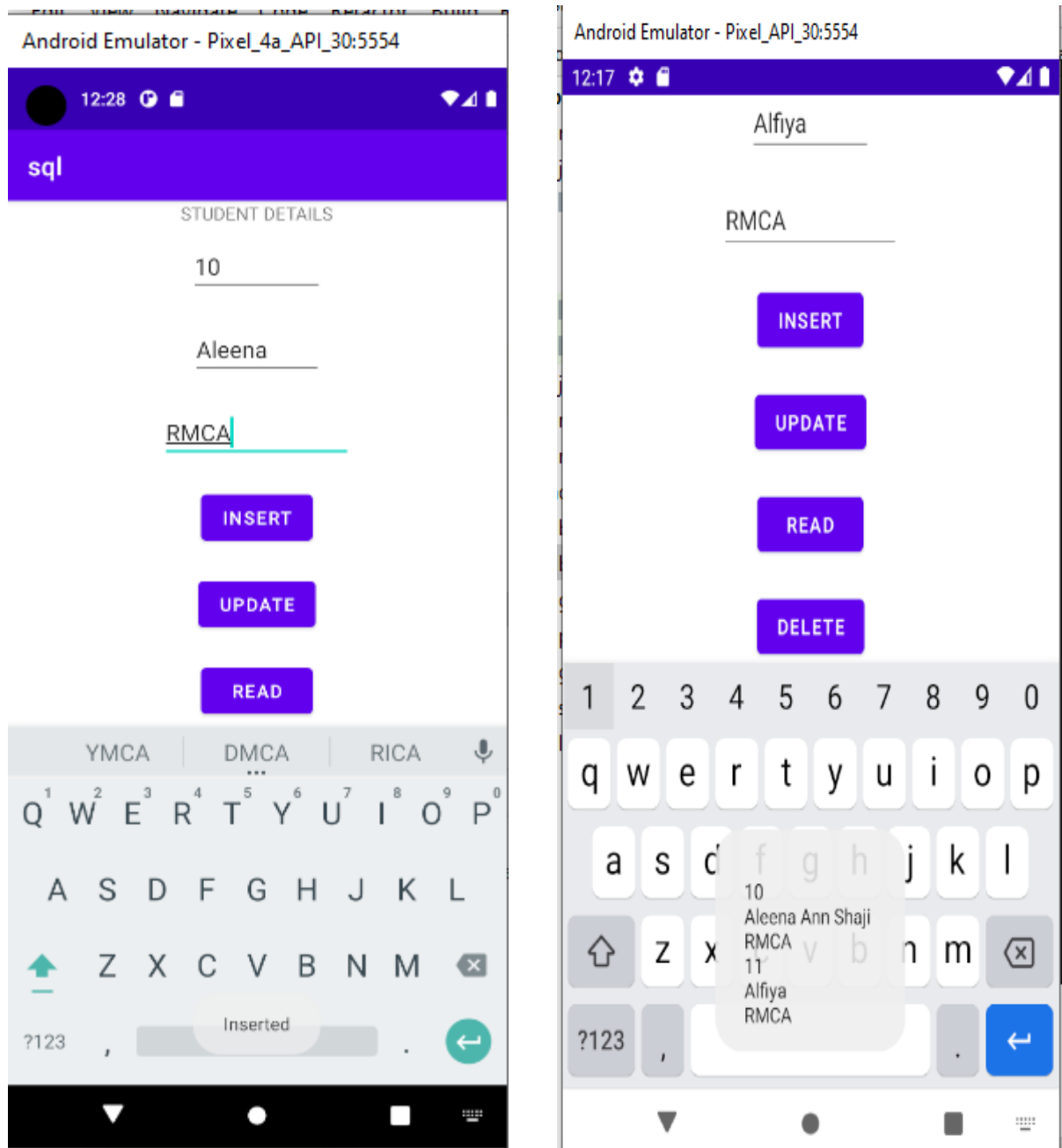
```
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {
```

```
        sqLiteDatabase.execSQL("drop table if exists student");
```

```
        onCreate(sqLiteDatabase);
```

```
    }
```

```
}
```

Output Screenshot:**Result**

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

Experiment No:15

Aim: Perform UPDATE and DELETE on SQLite database

CO5: Develop mobile applications using SQLite.

Procedure:

Activity main.xml

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/tv1"
        android:layout_centerHorizontal="true"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="@color/black"
        android:text="Student Details"
        android:textSize="15sp" />

    <EditText
        android:id="@+id/et1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter rollno"
        android:layout_centerHorizontal="true"
        android:layout_margin="18dp"
        android:layout_below="@+id/tv1"/>
```

<EditText

```
    android:id="@+id/et2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:hint="Enter name"
    android:layout_centerHorizontal="true"
    android:layout_margin="18dp"
    android:layout_below="@+id/et1"/>
```

<EditText

```
    android:id="@+id/et3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/et2"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="18dp"
    android:layout_marginTop="22dp"
    android:layout_marginEnd="18dp"
    android:layout_marginBottom="18dp"
    android:hint="Enter department" />
```

<Button

```
    android:id="@+id/bt1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Insert"
    android:onClick="onInsert"
    android:layout_centerHorizontal="true"
    android:layout_margin="10dp"
```

```
    android:layout_below="@+id/et3"/>
```

```
<Button
```

```
    android:id="@+id/bt2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Update"
    android:onClick="onUpdate"
    android:layout_centerHorizontal="true"
    android:layout_margin="10dp"
    android:layout_below="@+id/bt1"/>
```

```
<Button
```

```
    android:id="@+id/bt3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Read"
    android:onClick="onRead"
    android:layout_centerHorizontal="true"
    android:layout_margin="10dp"
    android:layout_below="@+id/bt2"/>
```

```
<Button
```

```
    android:id="@+id/bt4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Delete"
    android:onClick="onDelete"
    android:layout_centerHorizontal="true"
    android:layout_margin="10dp"
    android:layout_below="@+id/bt3"/>
```

```
</RelativeLayout>
```

Main_Activity.java

```
package com.example.sqlite;

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.Button;

import android.widget.EditText;

import android.widget.TextView;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    TextView tv1;

    EditText et1,et2,et3;

    Button bt1,bt2,bt3,bt4;

    String rno;

    String name;

    String dept;

    SQLiteDatabase db;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        tv1 = findViewById(R.id.tv1);
```

```
et1 = findViewById(R.id.et1);
et2 = findViewById(R.id.et2);
et3 = findViewById(R.id.et3);
bt1 = findViewById(R.id.bt1);
bt2 = findViewById(R.id.bt2);
bt3 = findViewById(R.id.bt3);
bt4 = findViewById(R.id.bt4);

DbHelper dbHelper = new DbHelper(this);
db = dbHelper.getWritableDatabase();
db = dbHelper.getReadableDatabase();
}

public void onUpdate(View view) {
    rno = et1.getText().toString();
    name = et2.getText().toString();
    dept = et3.getText().toString();

    if (rno.equals("") || name.equals("") || dept.equals("")) {
        Toast.makeText(this, "please enter values", Toast.LENGTH_LONG).show();
    }
    else {
        ContentValues values = new ContentValues();
        values.put("rollno", rno);
        values.put("name", name);
        values.put("dept", dept);
        db.update("student", values, "rollno="+rno, null);
        Toast.makeText(this, "Updated", Toast.LENGTH_LONG).show();
    }
}
```

```
}

public void onDelete(View view) {

    rno = et1.getText().toString();

    name = et2.getText().toString();

    dept = et3.getText().toString();

    if (rno.equals(""))

    {

        Toast.makeText(this, "Pls enter value", Toast.LENGTH_LONG).show();

    }

    else

    {

        db.delete("student", "rollno="+rno,null);

        Toast.makeText(this, "Deleted", Toast.LENGTH_LONG).show();  }}}}
```

DBHelper code

```
package com.example.sqlite;

import android.content.Context;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

public class DbHelper extends SQLiteOpenHelper {

    public DbHelper(@Nullable Context context) {

        super(context, "student.db", null, 1);}

    @Override

    public void onCreate(SQLiteDatabase sqLiteDatabase) {

        sqLiteDatabase.execSQL("create table student(rollno int,name varchar(20),dept

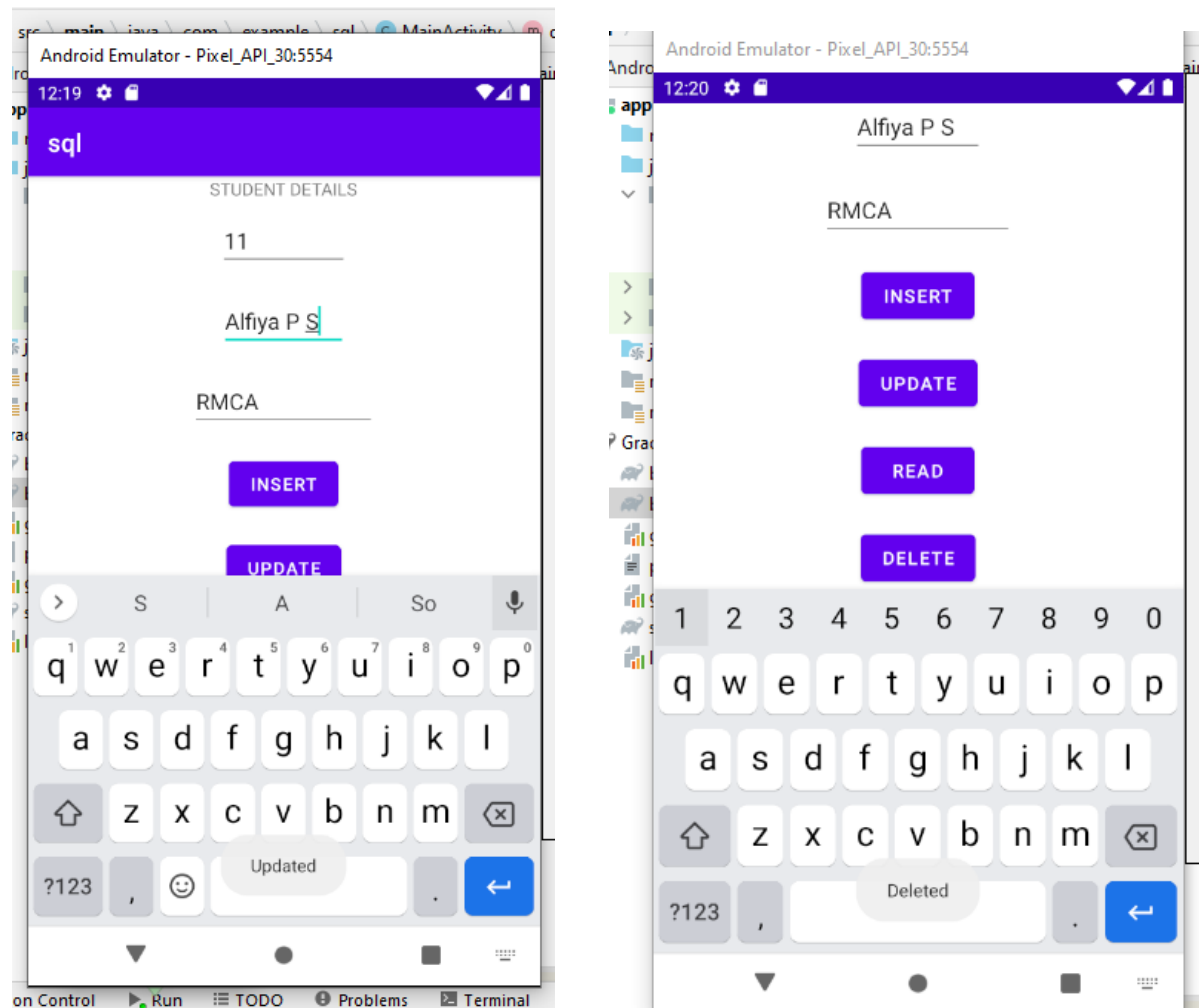
        varchar(5))"); }

}
```

@Override

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

Output Screenshot:



Result

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