

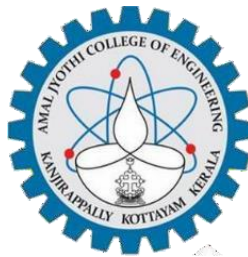
**MASTER OF COMPUTER APPLICATIONS (MCA) APJ
ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

RLMCA234-MOBILE APPLICATION DEVELOPMENT LAB

Lab Record Submitted by

ANANTHALAKSHMI A G

Reg. No: AJC19MCA-I014



AMAL JYOTHI COLLEGE OF ENGINEERING KANJIRAPPALLY

[Affiliated to APJ Abdul Kalam Technological University, Kerala. Approved by AICTE, Accredited by NAAC with 'A' grade. Koovappally, Kanjirappally, Kottayam, Kerala - 686518]

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Course Outcome

- CO1 Setup Android Platform and Android Studio IDE
- CO2 Mange UIDesignWidget and Layouts, UI Events, Event Liseners
- CO3 Experiment Android Components, Activities, Intents and Services
- CO4 Debug Android Applications using different tools
- CO5 Develop application with SQLite DB
- CO6 Design and build functional Android applications

RLMCA234 – MOBILE APPLICATION DEVELOPMENT LAB

Sl No.	Program	Page No	Date	CO
1.	Simple Calculator	6-10	20-12-2022	CO2
2.	Temperature Converter	11-13	17-01-2023	CO2
3.	Explicit Indent	14-16	17-01-2023	CO3
4.	Implicit Indent	17-19	24-01-2023	CO2
5.	Changing background of layout	20-22	17-01-2023	CO3
6.	Factorial, Palindrome, Armstrong	23-26	31-01-2023	CO2
7.	Registration form	27-36	24-01-2023	CO3
8.	Application to demonstrate Date Picker	37-38	07-02-2023	CO2
9.	Application to illustrate Android lifecycle	39-40	21-02-2023	CO1
10.	Application to perform arithmetic operations with Options Menu	41-43	28-02-2023	CO3,CO2
11.	Application to illustrate Popup Menu	44-45	28-02-2023	CO3,CO2
12.	Application to illustrate Context Menu	46-47	28-02-2023	CO3,CO2
13.	Shared Preferences – FM Radio	48-52	28-03-2023	CO6
14.	Shared Preferences – Calculator	53-60	28-03-2023	CO6
15.	Develop an alert dialog for confirmation on exit.	61-63	14-02-2023	CO2
16.	Application to developed using Tabbed Activity	64-66	11-04-2023	CO2
17.	Create and apply style in your sample UI.	67-68	04-04-2023	CO2
18.	Apply a style as a theme in your project	69	04-04-2023	CO2
19.	SQLite Database	70-73	14-03-2023	CO5
20.	Micro Project – Expense Tracker	74-85	12-04-2023	

Notes:**i) Android UI Layouts**

Android Layout is used to define the user interface that holds the UI controls or widgets that will appear on the screen of an android application or activity screen. Each activity contains multiple user interface components and those components are the instances of the View and ViewGroup. All the elements in a layout are built using a hierarchy of View and ViewGroup objects.

A **View** is defined as the user interface which is used to create interactive UI components such as TextView, ImageView, EditText, RadioButton, etc., and is responsible for event handling and drawing. **ViewGroup** act as a base class for layouts and layouts parameters that hold other Views or ViewGroups and to define the layout properties. They are Generally Called layouts.

Types of Android Layout

- **Android Linear Layout:** LinearLayout is a ViewGroup subclass, used to provide child View elements one by one either in a particular direction either horizontally or vertically based on the orientation property.
- **Android Relative Layout:** RelativeLayout is a ViewGroup subclass, used to specify the position of child View elements relative to each other like (A to the right of B) or relative to the parent (fix to the top of the parent).
- **Android Constraint Layout:** ConstraintLayout is a ViewGroup subclass, used to specify the position of layout constraints for every child View relative to other views present. A ConstraintLayout is similar to a RelativeLayout, but having more power.
- **Android Frame Layout:** FrameLayout is a ViewGroup subclass, used to specify the position of View elements it contains on the top of each other to display only a single View inside the FrameLayout.
- **Android Table Layout:** TableLayout is a ViewGroup subclass, used to display the child View elements in rows and columns.
- **Android Web View:** WebView is a browser that is used to display the web pages in our activity layout.
- **Android ListView:** ListView is a ViewGroup, used to display scrollable lists of items in a single column.
- **Android Grid View:** GridView is a ViewGroup that is used to display a scrollable list of items in a grid view of rows and columns.

ii) Launching Emulator/Editing Emulator S

The **Android emulator** is an Android Virtual Device (AVD), which represents a specific Android device. We can use the Android emulator as a target device to execute and test our Android application on our PC. The Android emulator provides

almost all the functionality of a real device.

To start the Android Emulator and run an application in our project:

1. In Android Studio, we need to create an Android Virtual Device (AVD) that the emulator can use to install and run your app. To create a new AVD:-
 - i. Open the AVD Manager by clicking Tools > AVD Manager.
 - ii. Click on Create Virtual Device, at the bottom of the AVD Manager dialog. Then Select Hardware page appears.
 - iii. Select a hardware profile and then click Next. If we don't see the hardware profile we want, then we can create or import a hardware profile. The System Image page appears.
 - iv. Select the system image for the particular API level and click Next. This leads to open a Verify Configuration page.
 - v. Change AVD properties if needed, and then click Finish.
2. In the toolbar, choose the AVD, which we want to run our app from the target device from the drop-down menu.
3. Click Run.

iii) Emulator Shortcuts

1. Main Device Keys

Keyboard Key Emulated Device Key

Esc	Back Button
F2	Left Softkey / Menu / Settings button or Page up
F3	Call/ dial Button
F4	Hang up / end call button
F5	Search Button
Home	Home Button
Shift+f2	Right Softkey / Star button or Page down

2. Other Device Keys

Keyboard Key Emulated Device Key

4/8/6/2	DPad left/up/right/down note
5	DPad center click note
Alt+Enter	Toggle fullscreen mode
Ctrl+F11	Switch layout orientation portrait/landscape backwards or 7
Ctrl+F12	Switch layout orientation portrait/landscape forwards or 9
Ctrl+F3	Camera Button or Ctrl+5 on note
Ctrl+F5	Volume up or + on note
Ctrl+F6	Volume down or - on note
Del	Enter trackball mode while key is pressed
F6	Toggle trackball mode
F7	Power Button
F8	Toggle cell network
F9	Toggle code profiling requires –trace startup option

PROGRAM NO: 1**DATE:20/12/22****AIM:**

To create an application of a simple calculator

PROGRAM:**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"
android:background="#D5CDDC39"
tools:context=".MainActivity">

<TextView android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:text="Enter
    first number"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.147"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.129" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:text="Enter
    second number"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.129"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.231" />

<Button android:id="@+id/btnsum"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:backgroundTint="#FF9800"
    android:onClick="sum" android:text="+"
```

```

app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.272"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.355" />

```

```

<Button android:id="@+id/btnmultiply"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:backgroundTint="#FF9800"
    android:onClick="multiply" android:text="*"
    app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.789" app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.355" />

```

```

<Button android:id="@+id/btnsubtract"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:backgroundTint="#FF9800"
    android:onClick="subtract" android:text="-"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.272"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.446" />

```

```

<EditText
    android:id="@+id/ed_firstno"
    android:layout_width="179dp"
    android:layout_height="38dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.797"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.105" />

```

```

<EditText android:id="@+id/ed_secno"
    android:layout_width="174dp"
    android:layout_height="45dp"
    android:ems="10"
    android:inputType="textPersonName" app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.801"
    app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.231" />

```

```

<EditText android:id="@+id/ed_result"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:ems="10"
    android:inputType="textPersonName"
    android:text="RESULT" android:textAlignment="center"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.542"
    app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.575" />

<Button android:id="@+id/btndivide"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:backgroundTint="#FF9800"
    android:onClick="divide" android:text="/"
    app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.789" app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.446" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="CALCULATOR"
    android:textAlignment="center"
    android:textColor="#E91E63" android:textSize="24sp"
    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="0.022" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:

```

package com.test.sum_app;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View; import
android.widget.EditText;

```

```

public class MainActivity extends AppCompatActivity {

```

```

    Override

```

```

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

```



```

    }

    public void sum(View v)
    {
        EditText t1 = (EditText)findViewById(R.id.ed_firstno);EditText
        t2 = (EditText)findViewById(R.id.ed_secno);
        int x = Integer.parseInt(t1.getText().toString());int y =
        Integer.parseInt(t2.getText().toString());
        int z = x+y;
        EditText t3 = (EditText)findViewById(R.id.ed_result);
        t3.setText(""+z);
    }

    public void subtract(View v)
    {
        EditText t1 = (EditText)findViewById(R.id.ed_firstno);EditText
        t2 = (EditText)findViewById(R.id.ed_secno);
        int x = Integer.parseInt(t1.getText().toString());int y =
        Integer.parseInt(t2.getText().toString());
        int z = x-y;
        EditText t3 = (EditText)findViewById(R.id.ed_result);
        t3.setText(""+z);
    }

    public void multiply(View v)
    {
        EditText t1 = (EditText)findViewById(R.id.ed_firstno);EditText
        t2 = (EditText)findViewById(R.id.ed_secno);
        int x = Integer.parseInt(t1.getText().toString());int y =
        Integer.parseInt(t2.getText().toString());
        int z = x*y;
        EditText t3 = (EditText)findViewById(R.id.ed_result);
        t3.setText(""+z);
    }

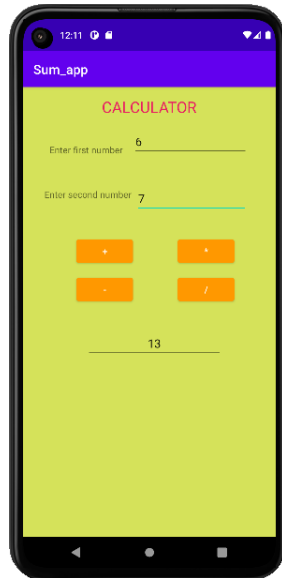
    public void divide(View v)
    {
        EditText t1 = (EditText)findViewById(R.id.ed_firstno);EditText
        t2 = (EditText)findViewById(R.id.ed_secno);
        int x = Integer.parseInt(t1.getText().toString());int y =
        Integer.parseInt(t2.getText().toString());
        int z = x/y;

    }
}

```

```
EditText t3 = (EditText)findViewById(R.id.ed_result);  
t3.setText(""+z);
```

OUTPUT:



PROGRAM NO: 2**DATE:17/01/23****AIM:**

To create an application for converting temperature

PROGRAM:**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"
    android:background="#F1BCAC"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/ed1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.442"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.747" />

    <Button
        android:id="@+id/b1"
        android:layout_width="124dp"
        android:layout_height="41dp"
        android:backgroundTint="#E91E63"
        android:onClick="Converc"
        android:text="Celcius"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.439"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.549" />

    <Button
        android:id="@+id/b2"
        android:layout_width="124dp"
        android:layout_height="41dp"
        android:backgroundTint="#E91E63"
        android:onClick="ConverF"
        android:text="Farenheit"
```

```

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.439"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.447" />

<EditText
    android:id="@+id/ed2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.407"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.316" />

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Enter Temperature:"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.369"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.248" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="TEMPERATURE CONVERTER"
    android:textSize="24sp"
    android:textStyle="bold"
    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="0.058" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:

```

package com.example.temperature;

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

```

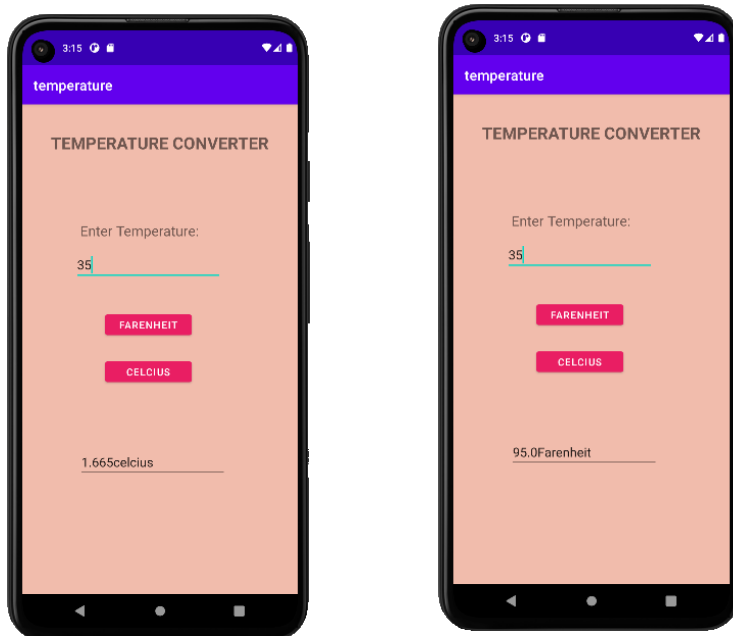
```
import android.view.View;
//import android.widget.Button;
import android.widget.EditText;

import java.text.CollationElementIterator;

public class MainActivity extends AppCompatActivity {
    // Button b1,b2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

    }
    public void ConverF(View v)
    {
        EditText t1 =(EditText)findViewById(R.id.ed2);
        int a=Integer.parseInt(String.valueOf(t1.getText()));
        double y=(a*1.8)+32;
        EditText t2 =(EditText)findViewById(R.id.ed1);
        t2.setText(y+"Fahrenheit");
    }
    public void Converc(View v)
    {
        EditText t1 =(EditText)findViewById(R.id.ed2);
        int a=Integer.parseInt(String.valueOf(t1.getText()));
        double y=(a-32)*0.555;
        EditText t2 =(EditText)findViewById(R.id.ed1);
        t2.setText(y+"celcius");
    }
}
```

OUTPUT:



PROGRAM NO: 3**DATE:17/01/23****AIM:**

To create application using explicit intent

PROGRAM:**XML:****First Activity:**

```
<?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/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:text="Next"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Second Activity:

```
<?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=".SecondActivity">

    <Button
        android:id="@+id/b2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Previous"
        app:layout_constraintBottom_toBottomOf="parent"
```

```

app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:**First Activity:**

```

package com.test.firstactivity;
import android.content.Intent;
import android.os.Bundle; import
android.view.View; import
android.widget.Button;

import androidx.appcompat.app.AppCompatActivity; public

class MainActivity extends AppCompatActivity {
    Button btn;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);
        btn = (Button) findViewById(R.id.b1);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i = new Intent(MainActivity.this,SecondActivity.class);startActivity(i);
            }
        });
    }
}

```

Second Activity:

```

package com.test.firstactivity;

import android.content.Intent;
import android.os.Bundle; import
android.view.View; import
android.widget.Button;

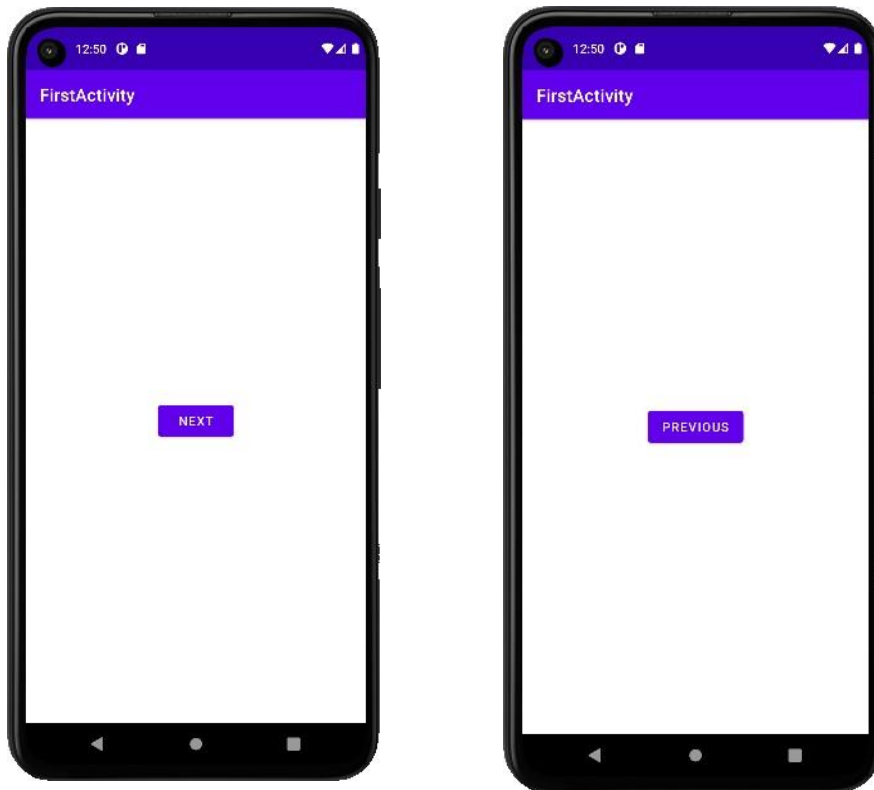
import androidx.appcompat.app.AppCompatActivity; public

class SecondActivity extends AppCompatActivity {
    Button prev;
    @Override
    protected void onCreate(Bundle savedInstanceState) {

```

```
super.onCreate(savedInstanceState); setContentView(R.layout.activity_second);
prev = (Button) findViewById(R.id.b2);
prev.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Intent i2 = new Intent(SecondActivity.this, MainActivity.class);startActivity(i2);
    }
});
}
```

OUTPUT:



PROGRAM NO: 4**DATE:24/01/23****AIM:**

To demonstrate Implicit Intent

PROGRAM:**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"
    android:background="#CDDC39"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/b2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Dial"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.426" />

    <Button
        android:id="@+id/b3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Message"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.532" />

    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Google"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.306" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:

```

package com.example.implicitindent;

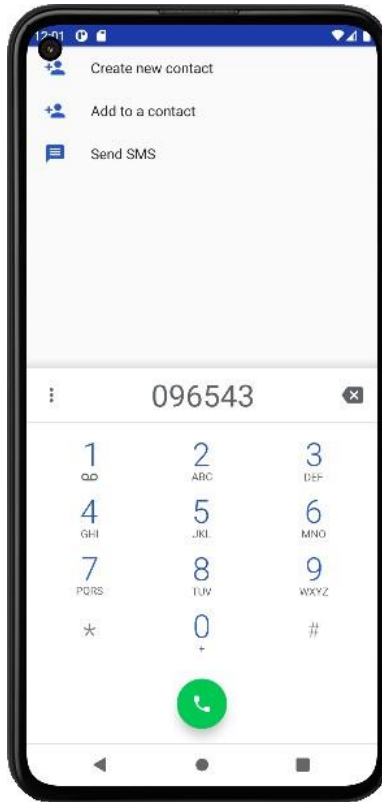
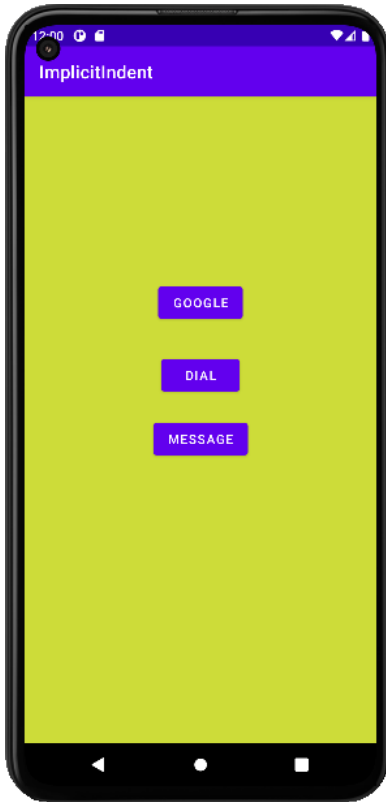
import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    Button btn1, btn2, btn3;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btn1=(Button) findViewById(R.id.b1);
        btn2=(Button) findViewById(R.id.b2);
        btn3=(Button) findViewById(R.id.b3);
        btn1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent in= new Intent(Intent.ACTION_VIEW,
Uri.parse("https://www.google.com"));
                startActivity(in);
            }
        });
        btn2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent in=new Intent(Intent.ACTION_DIAL,
Uri.parse("tel:096543"));
                startActivity(in);
            }
        });
        btn3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent in=new Intent(Intent.ACTION_SEND);
                in.setType("text/plain");
                in.putExtra(Intent.EXTRA_TEXT, "hello");
                startActivity(in);
            }
        });
    }
}

```

OUTPUT:



PROGRAM NO: 5**DATE:****AIM:**

To change color of layout

PROGRAM:**XML:**

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/rlVar1"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/white"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/tvVar1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="240dp"
        android:text="Color Changing"
        android:textSize="20sp"
        android:textStyle="bold" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/tvVar1"
        android:layout_centerVertical="true"
        android:layout_marginTop="70dp"
        android:orientation="horizontal"
        android:padding="10dp">

        <Button
            android:id="@+id/btnblack"
            android:layout_width="183dp"
            android:layout_height="wrap_content"
            android:padding="20dp"
            android:text="Black"
            android:textSize="25dp" />

        <Button
            android:id="@+id/btnblue"
            android:layout_width="193dp"
            android:layout_height="wrap_content"
            android:padding="20dp"
            android:text="Blue"
            android:textSize="25dp" />

    </LinearLayout>

</RelativeLayout>
```

```

    </LinearLayout>
</RelativeLayout>

```

JAVA:

```

package com.example.colorchanging;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RelativeLayout;
import androidx.appcompat.app.AppCompatActivity;
import com.example.implicitindent.R;

public class MainActivity extends AppCompatActivity {

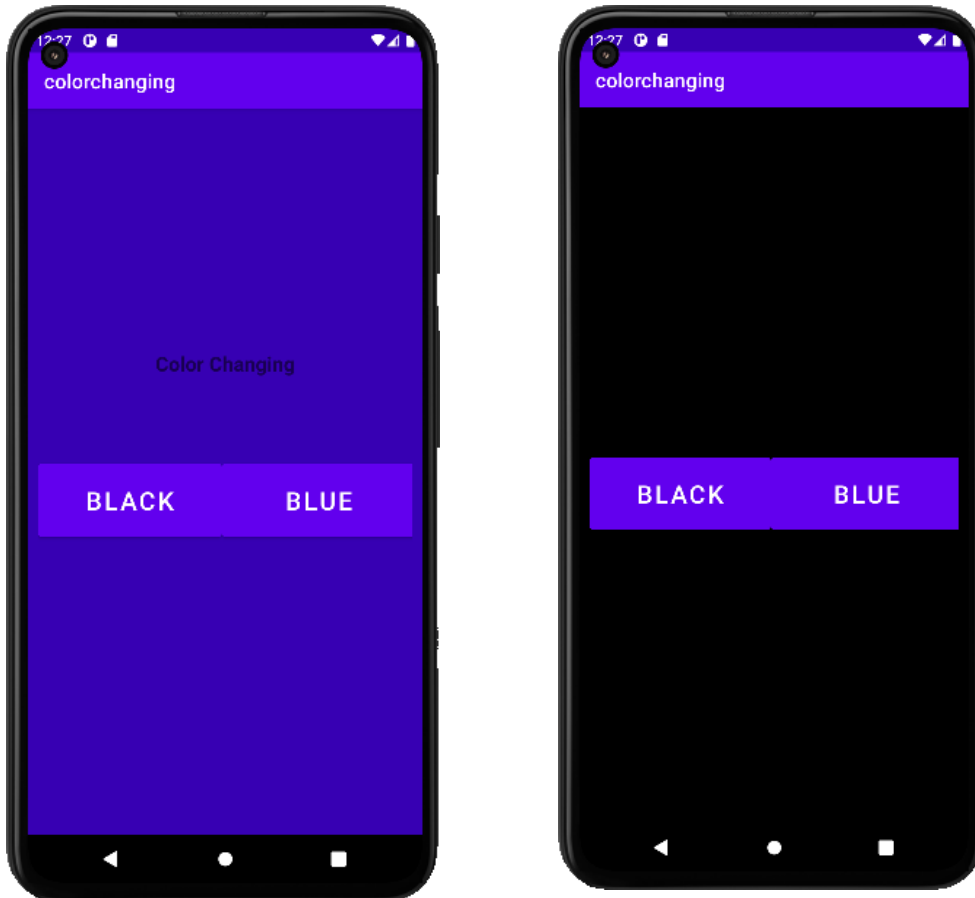
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button button1, button2;
        final RelativeLayout relativeLayout;
        button1 = findViewById(R.id.btnblack);
        button2 = findViewById(R.id.btnblue);
        relativeLayout = findViewById(R.id.rlVar1);
        button1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                // set the color to relative layout
                relativeLayout.setBackgroundResource(R.color.black);
            }
        });

        button2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                relativeLayout.setBackgroundResource(R.color.purple_700);
            }
        });
    }
}

```

OUTPUT:



PROGRAM NO: 6**DATE:31/01/23****AIM:**

To find Factorial of a number and check whether it is palindrome and Armstrong or not

PROGRAM:**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"
    android:background="#A2DBE3"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView2"
        android:layout_width="101dp"
        android:layout_height="23dp"
        android:text="Number"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.151"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.343"
        tools:ignore="MissingConstraints" />

    <EditText
        android:id="@+id/ed"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.681"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.322"
        tools:ignore="MissingConstraints" />

    <Button
        android:id="@+id/btn1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Factorial"
```

```

        app:backgroundTint="#4CAF50"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.454"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.483"
        tools:ignore="MissingConstraints" />

<Button
    android:id="@+id/btn2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Odd or Even"
    app:backgroundTint="#4CAF50"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.465"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.585"
    tools:ignore="MissingConstraints" />

<Button
    android:id="@+id/btn3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Armstrong"
    app:backgroundTint="#4CAF50"
    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="0.685"
    tools:ignore="MissingConstraints" />

<EditText
    android:id="@+id/edres"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    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="0.838" />

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Number Checking"
    android:textSize="34sp"

```



```

        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="0.08" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:

```

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

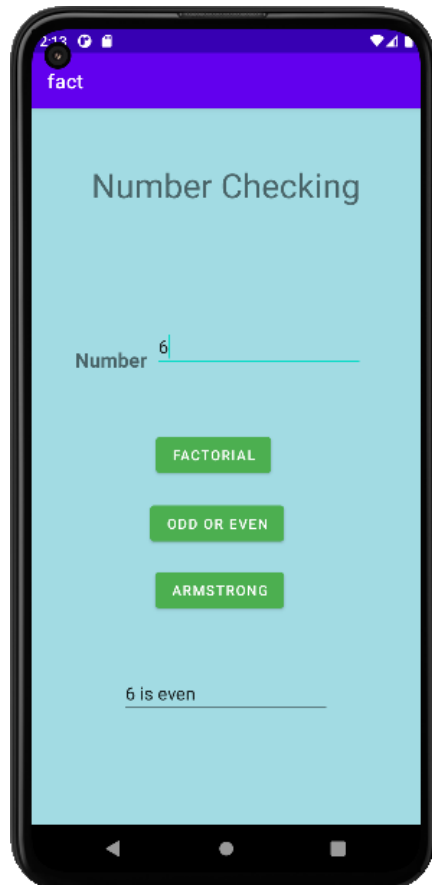
public class MainActivity extends AppCompatActivity {
    Button b1,b2,b3;
    EditText ed1,ed2;
    int a;
    int fact=1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1= (Button) findViewById(R.id.btn1);
        b2= (Button) findViewById(R.id.btn2);
        b3= (Button) findViewById(R.id.btn3);
        ed1= (EditText) findViewById(R.id.ed);
        ed2= (EditText) findViewById(R.id.edres);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                a=Integer.parseInt(ed1.getText().toString());
                for(int i = 1; i<=a; i++){
                    fact= i * fact;
                    ed2.setText("Result is "+fact);
                }
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                a=Integer.parseInt(ed1.getText().toString());
                if (a%2==0)
                    ed2.setText(a+ " is even");
                else
                    ed2.setText(a+ " is odd");
            }
        });
        b3.setOnClickListener(new View.OnClickListener() {
            @Override

```

```

public void onClick(View view) {
    a=Integer.parseInt(ed1.getText().toString());
    int temp = a;
    int result=0;
    int n=0;
    int rem;
    for(;temp!=0;temp/=10)
    {
        n++;
    }
    temp=a;
    for(;temp!=0;temp/=10)
    {
        rem=temp%10;
        result +=Math.pow(rem,n);
    }
    if(result==a)
        ed2.setText(a+ " is armstrong");
    else
        ed2.setText(a+ " is not armstrong");
    }
}
}

```

OUTPUT:

PROGRAM NO: 7**DATE:24/01/23****AIM:**

To create a Registration form

PROGRAM:**XML:****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"
    android:background="#C4E69C"
    tools:context=".MainActivity" >
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="@font/amaranth"
        android:text="Registration Form"
        android:textColor="#EA0C0C"
        android:textSize="34sp"
        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="0.053" />

    <TextView
        android:id="@+id/textView2"
        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="0.124"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.212" />

    <TextView
        android:id="@+id/textView3"

```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Email id"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.124"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.283" />

<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="0.124"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.362" />

<TextView
    android:id="@+id/textView5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Course"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.123"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.566" />

<EditText
    android:id="@+id/edname"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Enter name"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.736"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.182" />

<EditText
    android:id="@+id/edemail"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"

```

```

        android:hint="Enter Email"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.746"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.338" />

<EditText
    android:id="@+id/edphone"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="Enter phone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.741"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.256" />

<RadioGroup
    android:id="@+id/radioGroup"
    android:layout_width="230dp"
    android:layout_height="63dp"
    android:orientation="horizontal"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.524"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.458">

    <RadioButton
        android:id="@+id/rb1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Male" />

    <RadioButton
        android:id="@+id/rb2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Female" />
</RadioGroup>

<Button
    android:id="@+id/btnsubmit"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:backgroundTint="#009688"

```

```

        android:text="Submit"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.756" />

<Spinner
    android:id="@+id/course"
    android:layout_width="243dp"
    android:layout_height="24dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.69"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.562" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

Second_Reg.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"
    android:background="#EACC72"
    tools:context=".SecondReg">

    <TextView
        android:id="@+id/textView6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Form Details"
        android:textAlignment="center"
        android:textColor="#F44336"
        android:textSize="24sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.467"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.07" />

    <TextView
        android:id="@+id/textView9"
        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="0.152"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.228" />

<TextView
    android:id="@+id/textView10"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Gender"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.152"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.285" />

<EditText
    android:id="@+id/edname"
    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="0.646"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.186" />

<TextView
    android:id="@+id/textView11"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Email id"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.152"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.353" />

<EditText
    android:id="@+id/edrgender"
    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="0.646"

```

```

app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.278" />

<TextView
    android:id="@+id/textView12"
    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="0.164"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.433" />

<TextView
    android:id="@+id/textView13"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Course"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.166"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.54" />

<EditText
    android:id="@+id/edremail"
    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="0.641"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.365" />

<EditText
    android:id="@+id/edrcourse"
    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="0.641"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"

```



```

        app:layout_constraintVertical_bias="0.543" />

<EditText
    android:id="@+id/edrphone"
    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="0.641"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.448" />

<Button
    android:id="@+id/prev"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Previous"
    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="0.726" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:

MainActivity.java

```

package com.test.registration;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.Spinner;
import android.widget.Toast;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {
    Button b1;

```

```

EditText e1,e2,e3;
RadioButton r1,r2;
Spinner s1;
String name,email,ph,gender,course;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    e1 = (EditText) findViewById(R.id.edname);
    e2 = (EditText) findViewById(R.id.edemail);
    e3 = (EditText) findViewById(R.id.edphone);
    r1 = (RadioButton) findViewById(R.id.rb1);
    r2 = (RadioButton) findViewById(R.id.rb2);
    b1 = (Button) findViewById(R.id.btnsubmit);
    s1 = (Spinner) findViewById(R.id.course);

    ArrayList<String> list = new ArrayList<>();
    list.add("--select--");
    list.add("MCA");
    list.add("CSE");
    list.add("CE");
    list.add("FT");
    list.add("EEE");

    ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
    android.R.layout.simple_spinner_dropdown_item,list);
    s1.setAdapter(adapter);

    adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_i
    tem);

    s1.setAdapter(adapter);
    s1.setOnItemSelectedListener(new
    AdapterView.OnItemSelectedListener() {
        @Override
        public void onItemSelected(AdapterView<?> adapterView, View
    view, int i, long l) {
            course = list.get(i);

        }

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

        }

    });

    b1.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            name = e1.getText().toString();
            email = e2.getText().toString();

```

```

        ph = e3.getText().toString();
        if(r1.isChecked()){
            gender = r1.getText().toString();
        }
        else{
            gender = r2.getText().toString();
        }
        // Toast.makeText(getApplicationContext()," "+name +
        email+gender,Toast.LENGTH_SHORT).show();

        Intent in = new Intent(MainActivity.this,SecondReg.class);
        in.putExtra("key1",name);
        in.putExtra("key3",email);
        in.putExtra("key4",ph);
        in.putExtra("key2",gender);
        in.putExtra("key5",course);
        startActivity(in);
    }
    });
}

```

SecondReg.java

```

package com.test.registration;

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;
import android.widget.Toast;
public class SecondReg extends AppCompatActivity {
    Button b1;
    EditText name,email,phone,gender,course;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second_reg);
        b1 = (Button) findViewById(R.id.prev);
        name = (EditText) findViewById(R.id.edrname);
        gender = (EditText) findViewById(R.id.edrgender);
        email = (EditText) findViewById(R.id.edremail);
        phone = (EditText) findViewById(R.id.edrphone);
        course = (EditText) findViewById(R.id.edrcourse);

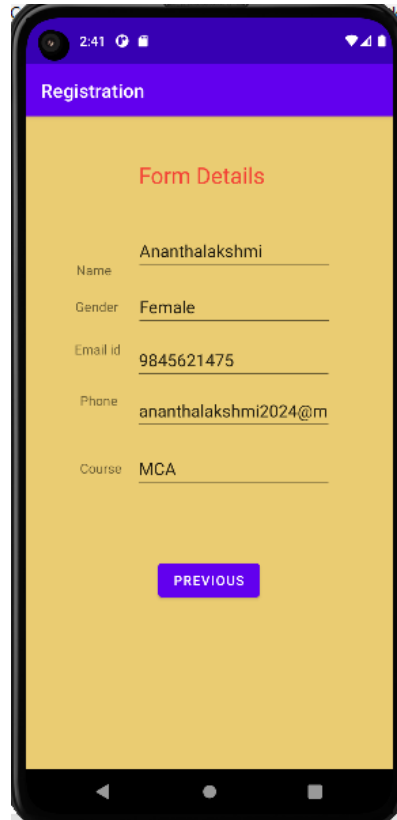
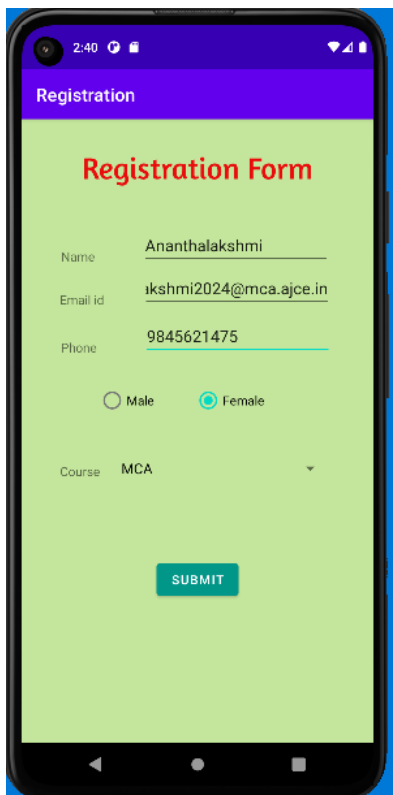
        Intent in = getIntent();
        String st1 = in.getStringExtra("key1");
        String st2 = in.getStringExtra("key2");
        String st3 = in.getStringExtra("key3");
    }
}

```

```
String st4 = in.getStringExtra("key4");
String st5 = in.getStringExtra("key5");

//
name.setText(st1);
gender.setText(st2);
email.setText(st3);
phone.setText(st4);
course.setText(st5);
// Toast.makeText(getApplicationContext(),"" +st1 + st2+
st3,Toast.LENGTH_SHORT).show();
//
Toast.makeText(getApplicationContext(),st2,Toast.LENGTH_SHORT).show();
//
Toast.makeText(getApplicationContext(),st3,Toast.LENGTH_SHORT).show();
b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Intent in = new Intent(SecondReg.this,MainActivity.class);
        startActivity(in);
    }
});
}
}
```

OUTPUT:



PROGRAM NO: 8**DATE: 07-02-2023****AIM:**

Demonstrate DatePicker widget.

PROGRAM:**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="com.example.datepicker.MainActivity">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/button1"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_marginBottom="102dp"
        android:layout_marginLeft="30dp"
        android:layout_marginStart="30dp"
        android:text="" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="20dp"
        android:text="Change Date" />

    <DatePicker
        android:id="@+id/datePicker"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/textView1"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="36dp" />

</RelativeLayout>

```

JAVA:

```
package com.example.datepicker;
```

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

```

import android.widget.DatePicker;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
    DatePicker picker;
    Button displayDate;
    TextView textview1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        textview1=(TextView)findViewById(R.id.textView1);
        picker=(DatePicker)findViewById(R.id.datePicker);
        displayDate=(Button)findViewById(R.id.button1);

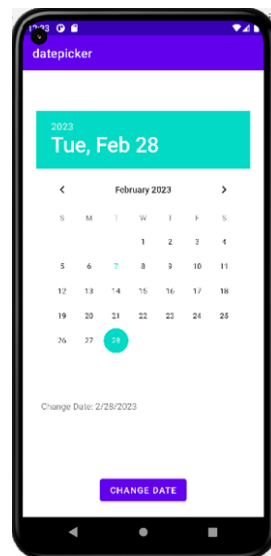
        textview1.setText("Current Date: "+getCurrentDate());

        displayDate.setOnClickListener(new View.OnClickListener(){
            @Override
            public void onClick(View view) {

                textview1.setText("Change Date: "+getCurrentDate());
            }

        });
    }
    public String getCurrentDate(){
        StringBuilder builder=new StringBuilder();
        builder.append((picker.getMonth() + 1)+"//month is 0 based");
        builder.append(picker.getDayOfMonth()+"//");
        builder.append(picker.getYear());
        return builder.toString();
    }
}

```

OUTPUT:

PROGRAM NO: 9**DATE: 21-02-2023****AIM:**

Application to illustrate Android lifecycle

PROGRAM:**JAVA:**

```
package com.example.lifecycle;
import static android.content.ContentValues.TAG;
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);
    }
    @Override
    protected void onStart() {
        super.onStart();
        Log.d(TAG, "onStart: app started");
    }
    @Override
    protected void onRestart() {
        super.onRestart();
        Log.d(TAG, "onRestart: app restarted");
    }
    @Override
    protected void onDestroy() {
        super.onDestroy();
        Log.d(TAG, "onDestroy: app destroyed");
    }
    @Override
    protected void onPause() {
        super.onPause();
        Log.d(TAG, "onPause: app paused");
    }
    @Override
    protected void onStop() {
        super.onStop();
        Log.d(TAG, "onStop: app stopped");
    }
    @Override
    protected void onResume() {
        super.onResume();
        Log.d(TAG, "onResume: app resumed");
    }
}
```

OUTPUT:

```
2023-02-21 14:34:50.543 4896-4896/com.example.demo D/lifecycle: onPause invoked
2023-02-21 14:34:56.322 4896-4896/com.example.demo D/lifecycle: onStop invoked
2023-02-21 14:34:56.325 4896-4896/com.example.demo D/lifecycle: onDestroy invoked
2023-02-21 14:35:00.683 4896-4896/com.example.demo D/lifecycle: onCreate invoked
2023-02-21 14:35:00.692 4896-4896/com.example.demo D/lifecycle: onStart invoked
2023-02-21 14:35:00.694 4896-4896/com.example.demo D/lifecycle: onResume invoked
```


PROGRAM NO: 10**DATE: 28-02-2023****AIM:**

Application to perform arithmetic operations with Options Menu

PROGRAM:**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">
    <EditText
        android:id="@+id/num1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.402"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.252" />
    <EditText
        android:id="@+id/num2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.402"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.46" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

menu.xml

```

<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/add"
        android:title="add" />
    <item
        android:id="@+id/sub"
        android:title="subtract" />
    <item
        android:id="@+id/mul"

```

```

        android:title="multiply" />
    <item
        android:id="@+id/div"
        android:title="divide" />
</menu>

```

Java

```

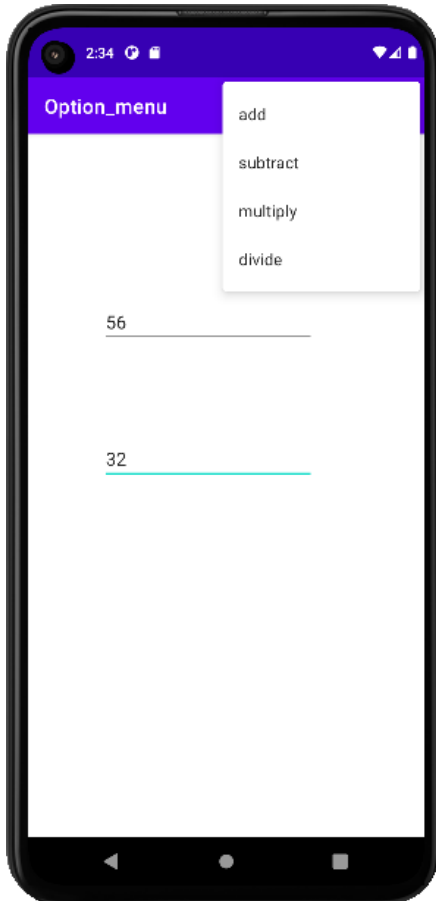
package com.example.menuadd;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    EditText ed1,ed2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu,menu);
        return true;
    }
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        //Toast.makeText(this, "Sum is "+item.getTitle(),
        Toast.LENGTH_SHORT).show();
        ed1=(EditText) findViewById(R.id.num1);
        int a=Integer.parseInt(ed1.getText().toString() );
        ed2=(EditText) findViewById(R.id.num2);
        int b=Integer.parseInt(ed2.getText().toString());
        switch (item.getItemId()){
            case R.id.add:
                int c=a+b;
                Toast.makeText(this, "Sum is "+c, Toast.LENGTH_SHORT).show();
                return true;
            case R.id.sub:
                int s=a-b;
                Toast.makeText(this, "Sum is "+s, Toast.LENGTH_SHORT).show();
                return true;
            case R.id.mul:
                int d=a*b;
                Toast.makeText(this, "Sum is "+d, Toast.LENGTH_SHORT).show();
                return true;
            case R.id.div:
                int m=a/b;
                Toast.makeText(this, "Sum is "+m, Toast.LENGTH_SHORT).show();
                return true;
            default:
                return super.onOptionsItemSelected(item);
        }
    }
}

```

```
}
```

```
}
```

OUTPUT:



PROGRAM NO: 11**DATE: 28-02-2023****AIM:**

Application to illustrate Popup Menu

PROGRAM:**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/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="popup"
        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.xml

```

<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/search"
        android:title="search" />
    <item
        android:id="@+id/print"
        android:title="print" />
    <item
        android:id="@+id/search"
        android:title="upload" />
</menu>

```

JAVA:

```

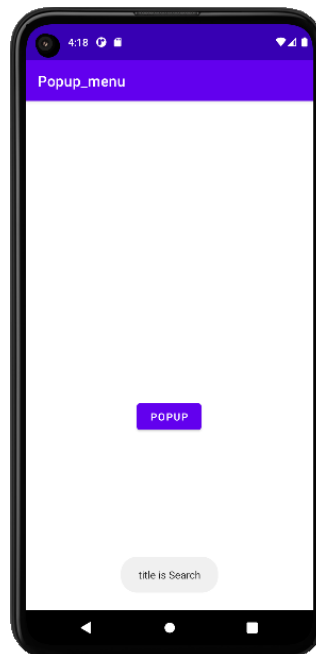
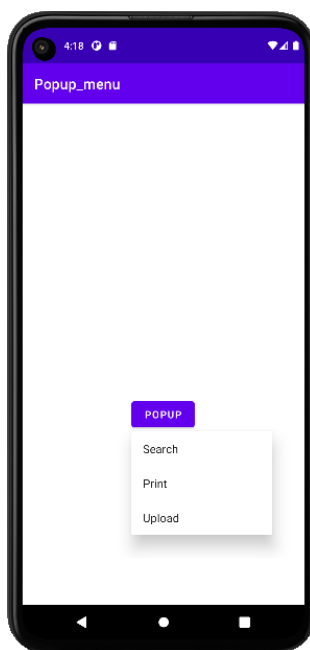
package com.example.popup_menu;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.MenuItem;
import android.view.View;
import android.widget.Button;
import android.widget.PopupMenu;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity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

```

```

super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
btn=(Button) findViewById(R.id.b1);
btn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        PopupMenu popup=new PopupMenu(MainActivity.this,btn);
        popup.getMenuInflater().inflate(R.menu.menu,popup.getMenu());
        popup.setOnMenuItemClickListener(new
PopupMenu.OnMenuItemClickListener() {
            @Override
            public boolean onMenuItemClick(MenuItem item) {
                Toast.makeText(MainActivity.this, "title is
"+item.getTitle(), Toast.LENGTH_LONG).show();
                return true;
            }
        });
        popup.show();
    }
});
}
    
```

OUTPUT



PROGRAM NO: 12**DATE: 28-02-2023****AIM:**

Application to demonstrate context menu

PROGRAM:**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">
<ListView
    android:id="@+id/list"
    android:layout_width="350dp"
    android:layout_height="478dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.495"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.232" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

menu.xml

```

<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/call"
        android:title="Call" />
    <item
        android:id="@+id/sms"
        android:title="SMS" />
</menu>

```

JAVA

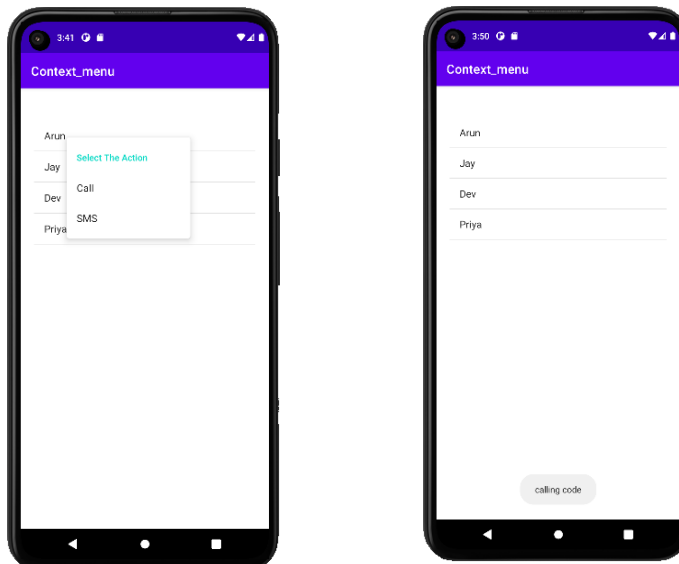
```

package com.example.context_menu;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    ListView listView;

```

```
String contacts[]={ "Arun", "Jay", "Dev", "Priya"};
@SuppressLint("MissingInflatedId")
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    listview = (ListView) findViewById(R.id.list);
    ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
    android.R.layout.simple_list_item_1, contacts);
    listview.setAdapter(adapter);
    //Register the listview for context menu
    registerForContextMenu(listview);
}
@Override
public void onCreateContextMenu(ContextMenu menu, View v,
    ContextMenu.ContextMenuInfo menuInfo)
{
    super.onCreateContextMenu(menu, v, menuInfo);
    MenuInflater inflater = getMenuInflater();
    inflater.inflate(R.menu.menu, menu);
    menu.setHeaderTitle("Select The Action");
}
@Override
public boolean onContextItemSelected(MenuItem item){
    if(item.getItemId()==R.id.call){
        Toast.makeText(getApplicationContext(), "calling code",
        Toast.LENGTH_LONG).show();
    }
    else if (item.getItemId()==R.id.sms){
        Toast.makeText(getApplicationContext(), "sending sms code",
        Toast.LENGTH_LONG).show();
    }
    else{
        return false;
    }
    return true;
}
}
```

OUTPUT:



PROGRAM NO: 13**DATE: 28-03-2023****AIM:**

To demonstrate Shared Preferences using a FM Radio frequency application

PROGRAM:**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/btn_pre"
    android:layout_width="90dp"
    android:layout_height="49dp"
    android:text="pre"
    android:textSize="16sp"
    app:backgroundTint="#FFC107"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.262"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.439" />
<Button
    android:id="@+id/btn_nxt"
    android:layout_width="90dp"
    android:layout_height="49dp"
    android:text="nxt"
    android:textSize="16sp"
    app:backgroundTint="#FFC107"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.681"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.438" />
<TextView
    android:id="@+id/head_txtv"
    android:layout_width="476dp"
    android:layout_height="89dp"
    android:background="#E91E63"
    android:gravity="center"
    android:text="FM Radio Frequency"
    android:textAlignment="gravity"
    android:textColor="#FFFFFF"
    android:textSize="24sp"

```



```

        android:textStyle="bold|italic"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.011"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.003" />
<EditText
    android:id="@+id/freq_edtxt"
    android:layout_width="253dp"
    android:layout_height="52dp"
    android:ems="10"
    android:gravity="center"
    android:hint="FM Frequency"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.452"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/head_txtv"
    app:layout_constraintVertical_bias="0.072" />
<Button
    android:id="@+id/btn_scan"
    android:layout_width="135dp"
    android:layout_height="53dp"
    android:text="Scan"
    app:backgroundTint="#FFC107"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.318" />
<TextView
    android:id="@+id/list_txt"
    android:layout_width="149dp"
    android:layout_height="230dp"
    android:gravity="center|top"
    android:textSize="14sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.9"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.952" />
<TextView
    android:id="@+id/txt_channel"
    android:layout_width="149dp"
    android:layout_height="38dp"
    android:gravity="bottom|center"
    android:text="Channel List"
    android:textStyle="bold|italic"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"

```

```

app:layout_constraintHorizontal_bias="0.9"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.627" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:

```

package com.example.fmradio;
import androidx.appcompat.app.AppCompatActivity;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import java.util.ArrayList;
import java.util.List;
import java.util.HashSet;
import java.util.Set;
public class MainActivity extends AppCompatActivity {
    EditText e1;
    Button b1,b2,b3;
    TextView t1;
    int counter = 0;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1 = (EditText) findViewById(R.id.freq_edtxt);
        b1 = (Button) findViewById(R.id.btn_scan);
        b2 = (Button) findViewById(R.id.btn_pre);
        b3 = (Button) findViewById(R.id.btn_nxt);
        t1 = (TextView) findViewById(R.id.list_txt);

        SharedPreferences sp = getSharedPreferences("mychannel",MODE_PRIVATE);
        List<String> items = new ArrayList<String>();
        items.add("89.15");
        items.add("89.45");
        items.add("90.00");
        items.add("98.75");
        items.add("99.15");
        items.add("102.3");
        Set<String> itemsSet = new HashSet<String>(items);
        SharedPreferences.Editor ed = sp.edit();
        ed.putStringSet("items", itemsSet);
        ed.apply();

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                SharedPreferences sp = getSharedPreferences("mychannel",MODE_PRIVATE);
                Set<String> itemsSet = sp.getStringSet("items", new HashSet<String>());

```

```

List<String> itemsList = new ArrayList<String>(itemsSet);

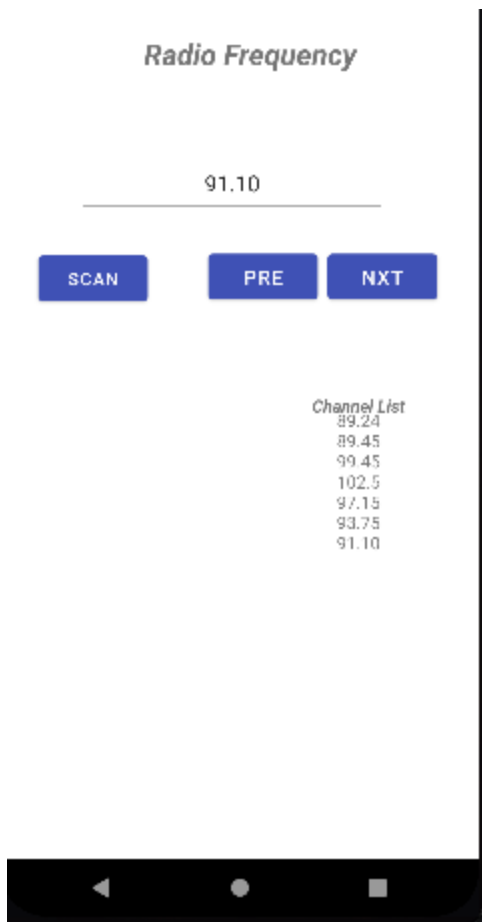
// Loop through the items and add them to the TextView
StringBuilder stringBuilder = new StringBuilder();
for (String item : itemsList) {
    stringBuilder.append(item).append("\n");
}
t1.setText(stringBuilder.toString());
if (itemsList.size() > 0) {
    e1.setText(itemsList.get(counter));
}
}
});

b2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        SharedPreferences sp = getSharedPreferences("mychannel",MODE_PRIVATE);
        Set<String> itemsSet = sp.getStringSet("items", new HashSet<String>());
        List<String> itemsList = new ArrayList<String>(itemsSet);
        counter--;
        if (counter < 0) {
            counter = itemsList.size() - 1;
        }
        e1.setText(itemsList.get(counter));
    }
});

b3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        SharedPreferences sp = getSharedPreferences("mychannel",MODE_PRIVATE);
        Set<String> itemsSet = sp.getStringSet("items", new HashSet<String>());
        List<String> itemsList = new ArrayList<String>(itemsSet);
        counter++;
        if (counter >= itemsList.size()) {
            counter = 0;
        }
        e1.setText(itemsList.get(counter));
    }
});
}
}
}

```

OUTPUT:



PROGRAM NO: 14**DATE: 28-03-2023****AIM:**

To demonstrate Shared Preferences using Calculator application

PROGRAM:**XML:**

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_marginBottom="1pt"
        android:layout_height="wrap_content"
        android:ems="10"
        android:layout_weight="1"
        android:background="@color/black"
        android:gravity="right|center"
        android:textColor="@color/white"
        android:textSize="20pt"
        android:inputType="textPersonName"
        android:text="0" />
    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        >
        <TableRow
            android:layout_marginBottom="1pt"
            android:layout_width="match_parent"
            android:layout_height="match_parent">
            <Button
                android:id="@+id/btnSeven"
                android:text="@string/_7"
                android:onClick="numberEvent"
                android:layout_marginRight="1pt"
                android:layout_height="30pt"
                android:layout_weight="1"
                android:textColor="@color/white"
                android:layout_width="30pt"
                android:background="@color/purple_200"
            ></Button>
            <Button
                android:id="@+id/btnEight"
                android:text="@string/_8"
                android:layout_marginRight="1pt"

```

```

        android:onClick="numberEvent"
        android:layout_height="30pt"
        android:layout_weight="1"
        android:textColor="@color/white"
        android:layout_width="30pt"
        android:background="@color/purple_200"
    ></Button>
<Button
    android:id="@+id/btnNine"
    android:text="@string/_9"
    android:layout_marginRight="1pt"
    android:onClick="numberEvent"
    android:layout_height="30pt"
    android:layout_weight="1"
    android:textColor="@color/white"
    android:layout_width="30pt"
    android:background="@color/purple_200"
    ></Button>
<Button
    android:id="@+id/btnDivide"
    android:text="@string/div"
    android:onClick="operatorEvent"
    android:layout_marginRight="1pt"
    android:layout_height="30pt"
    android:textColor="@color/white"
    android:layout_weight="1"
    android:layout_width="30pt"
    android:background="@color/purple_200"
    ></Button>
</TableRow>
</TableLayout>
<TableLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    >
    <TableRow
        android:layout_marginBottom="1pt"
        android:layout_width="match_parent"
        android:layout_height="match_parent">
        <Button
            android:id="@+id/btnFour"
            android:text="@string/_4"
            android:layout_marginRight="1pt"
            android:onClick="numberEvent"
            android:textColor="@color/white"
            android:layout_height="30pt"
            android:layout_weight="1"
            android:layout_width="30pt"
            android:background="@color/purple_200"
            ></Button>
        <Button
            android:id="@+id/btnFive"
            android:text="@string/_5"

```

```

        android:layout_marginRight="1pt"
        android:layout_height="30pt"
        android:textColor="@color/white"
        android:onClick="numberEvent"
        android:layout_weight="1"
        android:layout_width="30pt"
        android:background="@color/purple_200"
    ></Button>
<Button
    android:id="@+id/btnSix"
    android:text="@string/_6"
    android:layout_marginRight="1pt"
    android:onClick="numberEvent"
    android:layout_height="30pt"
    android:textColor="@color/white"
    android:layout_weight="1"
    android:layout_width="30pt"
    android:background="@color/purple_200"
></Button>
<Button
    android:id="@+id/btnMultiply"
    android:text="@string/multiply"
    android:onClick="operatorEvent"
    android:layout_marginRight="1pt"
    android:layout_height="30pt"
    android:textColor="@color/white"
    android:layout_weight="1"
    android:layout_width="30pt"
    android:background="@color/purple_200"
></Button>
</TableRow>
</TableLayout>
<TableLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    >
    <TableRow
        android:layout_width="match_parent"
        android:layout_marginBottom="1pt"
        android:layout_height="match_parent">
        <Button
            android:id="@+id/btnOne"
            android:text="@string/one"
            android:layout_marginRight="1pt"
            android:layout_height="30pt"
            android:layout_weight="1"
            android:textColor="@color/white"
            android:onClick="numberEvent"
            android:layout_width="30pt"
            android:background="@color/purple_200"
            ></Button>
        <Button
            android:id="@+id/btnTwo"

```

```

        android:text="@string/two"
        android:layout_marginRight="1pt"
        android:layout_height="30pt"
        android:textColor="@color/white"
        android:layout_weight="1"
        android:onClick="numberEvent"
        android:layout_width="30pt"
        android:background="@color/purple_200"
    ></Button>
    <Button
        android:id="@+id/btnThree"
        android:text="@string/three"
        android:layout_marginRight="1pt"
        android:layout_height="30pt"
        android:layout_weight="1"
        android:layout_width="30pt"
        android:textColor="@color/white"
        android:onClick="numberEvent"
        android:background="@color/purple_200"
    ></Button>
    <Button
        android:id="@+id/btnMinus"
        android:text="@string/minus"
        android:layout_marginRight="1pt"
        android:layout_height="30pt"
        android:onClick="operatorEvent"
        android:textColor="@color/white"
        android:layout_weight="1"
        android:layout_width="30pt"
        android:background="@color/purple_200"
    ></Button>
</TableRow>
</TableLayout>
<TableLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    >
    <TableRow
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginBottom="1pt">
        <Button
            android:id="@+id/btnZero"
            android:text="@string/zero"
            android:layout_marginRight="1pt"
            android:layout_height="30pt"
            android:layout_weight="1"
            android:textColor="@color/white"
            android:layout_width="30pt"
            android:onClick="numberEvent"
            android:background="@color/purple_200"
        ></Button>
        <Button

```



```

        android:id="@+id/btnDot"
        android:text="."
        android:layout_marginRight="1pt"
        android:layout_height="30pt"
        android:onClick="numberEvent"
        android:layout_weight="1"
        android:textColor="@color/white"
        android:layout_width="30pt"
        android:background="@color/purple_200"
    ></Button>
<Button
    android:id="@+id/btnPlus"
    android:text="@string/plus"
    android:layout_marginRight="1pt"
    android:layout_height="30pt"
    android:layout_weight="1"
    android:textColor="@color/white"
    android:onClick="operatorEvent"
    android:layout_width="30pt"
    android:background="@color/purple_200"
    ></Button>
</TableRow>
</TableLayout>
<TableLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <TableRow
        android:layout_width="match_parent"
        android:layout_marginBottom="1pt"
        android:layout_height="match_parent">
        <Button
            android:id="@+id/btnC"
            android:layout_width="30pt"
            android:layout_height="match_parent"
            android:layout_marginRight="1pt"
            android:layout_weight="1"
            android:background="@color/purple_200"
            android:onClick="clearEvent"
            android:text="@string/cancel"></Button>
        <Button
            android:id="@+id/btnEqual"
            android:layout_width="30pt"
            android:layout_height="60dp"
            android:layout_marginRight="1pt"
            android:layout_weight="1"
            android:background="@color/purple_200"
            android:onClick="equalEvent"
            android:text="@string/equal"
            android:textColor="@color/white">
        </Button>
    </TableRow>
    <TableRow>
        <Button

```

```

        android:id="@+id/btnMemoryPlus"
        android:layout_width="122dp"
        android:layout_height="wrap_content"
        android:onClick="memoryPlusEvent"
        android:text="M+"></Button>
<Button
    android:id="@+id/btnMemoryMinus"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="M-"
    android:onClick="memoryMinusEvent">
</Button>

<Button
    android:id="@+id/btnMemoryRecall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="MR"
    android:onClick="memoryRecallEvent" >
</Button>
<Button
    android:id="@+id/btnMemoryClear"
    android:layout_width="139dp"
    android:layout_height="wrap_content"
    android:onClick="memoryClearEvent"
    android:text="MC">
</Button>
</TableRow>
</TableLayout>
</LinearLayout>

```

JAVA:

```

package com.example.calculatorsharedpreference;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    private double memory = 0.0;
    boolean isNewOperator = true;
    EditText edt1;
    String operator = "+";
    String initialNumber = "";

    // Shared preferences keys
    private static final String PREFS_NAME = "MyPrefsFile";
    private static final String MEMORY_KEY = "memory";
    @Override

```

```

protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    edt1 = findViewById(R.id.editText);

    SharedPreferences sharedPrefs = getSharedPreferences(PREFS_NAME, Context.MODE_PRIVATE);
    memory = sharedPrefs.getFloat(MEMORY_KEY, 0);
    edt1.setText(String.valueOf(memory));
}

public void numberEvent(View view) {
    if (isNewOperator)
        edt1.setText("");
    isNewOperator = false;
    String number = edt1.getText().toString();
    if (view.getId() == R.id.btnOne) {
        number += "1";
    } else if (view.getId() == R.id.btnTwo) {
        number += "2";
    } else if (view.getId() == R.id.btnThree) {
        number += "3";
    } else if (view.getId() == R.id.btnFour) {
        number += "4";
    } else if (view.getId() == R.id.btnFive) {
        number += "5";
    } else if (view.getId() == R.id.btnSix) {
        number += "6";
    } else if (view.getId() == R.id.btnSeven) {
        number += "7";
    } else if (view.getId() == R.id.btnEight) {
        number += "8";
    } else if (view.getId() == R.id.btnNine) {
        number += "9";
    } else if (view.getId() == R.id.btnZero) {
        number += "0";
    } else if (view.getId() == R.id.btnDot) {
        number += ".";
    }
    edt1.setText(number);
}

public void operatorEvent(View view) {
    isNewOperator = true;
    initialNumber = edt1.getText().toString();
    if (view.getId() == R.id.btnMultiply) {
        operator = "*";
    } else if (view.getId() == R.id.btnMinus) {
        operator = "-";
    } else if (view.getId() == R.id.btnDivide) {
        operator = "/";
    } else if (view.getId() == R.id.btnPlus) {
        operator = "+";
    }
}

```

```

public void equalEvent(View view) {
    String newNumber = edt1.getText().toString();
    double output = 0.0;
    if (operator == "+")
        output = Double.parseDouble(initialNumber) + Double.parseDouble(newNumber);
    if (operator == "/")
        output = Double.parseDouble(initialNumber) / Double.parseDouble(newNumber);
    if (operator == "*")
        output = Double.parseDouble(initialNumber) * Double.parseDouble(newNumber);
    if (operator == "-")
        output = Double.parseDouble(initialNumber) - Double.parseDouble(newNumber);
    edt1.setText(output + "");

    // Save memory to shared preferences
    SharedPreferences sharedPrefs = getSharedPreferences(PREFS_NAME, Context.MODE_PRIVATE);
    SharedPreferences.Editor editor = sharedPrefs.edit();
    editor.putFloat(MEMORY_KEY, (float) output);
    editor.apply();
}

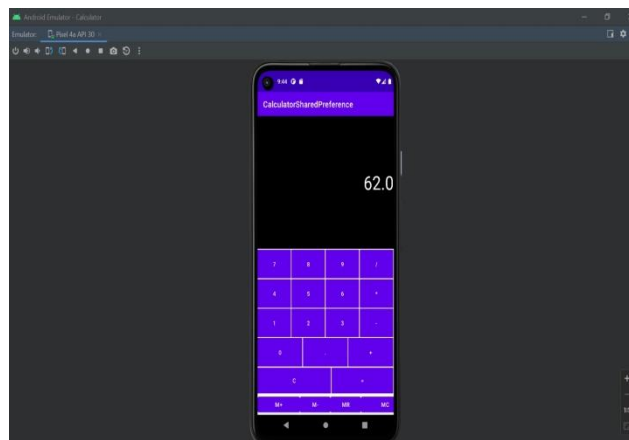
public void memoryPlusEvent(View view) {
    String number = edt1.getText().toString();
    double value = Double.parseDouble(number);
    memory += value;
}

public void memoryMinusEvent(View view) {
    String number = edt1.getText().toString();
    double value = Double.parseDouble(number);
    memory -= value;
}

public void memoryRecallEvent(View view) {
    edt1.setText(String.valueOf(memory));
}

public void memoryClearEvent(View view) {
    memory = 0.0;
}
}

```

OUTPUT:

PROGRAM NO: 15**DATE: 14-02-2023****AIM:**

Develop an alert dialog for confirmation on exit.

PROGRAM:**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"
    android:textAlignment="center"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/textView"
        android:layout_width="110dp"
        android:layout_height="24dp"
        android:fontFamily="cursive"
        android:text="Alert Window"
        android:textColor="#2C5EB6"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.422"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.11" />
    <Button
        android:id="@+id/btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Click"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:

```

package com.example.alert;

import androidx.appcompat.app.AppCompatActivity;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.app.AlertDialog;
import android.widget.Toast;

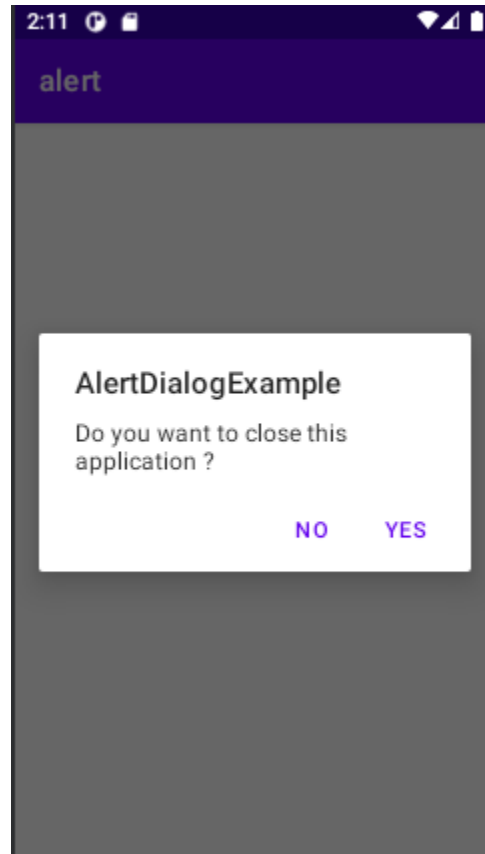
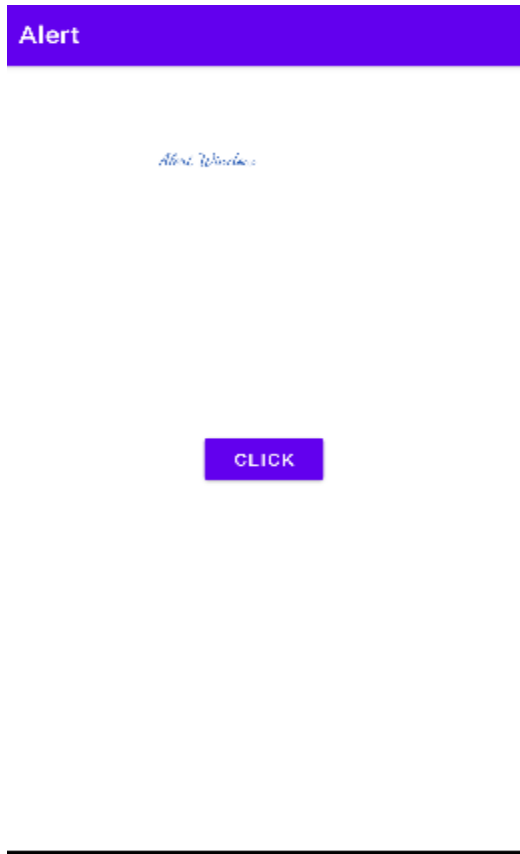
```

```

public class MainActivity extends AppCompatActivity {
    Button closeButton;
    AlertDialog.Builder builder;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        closeButton = (Button) findViewById(R.id.button);
        builder = new AlertDialog.Builder(this);
        closeButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                //Uncomment the below code to Set the message and title from the strings.xml file
                builder.setMessage(R.string.dialog_message) .setTitle(R.string.dialog_title);
                //Setting message manually and performing action on button click
                builder.setMessage("Do you want to close this application ?")
                    .setCancelable(false)
                    .setPositiveButton("Yes", new DialogInterface.OnClickListener() {
                        public void onClick(DialogInterface dialog, int id) {
                            finish();
                            Toast.makeText(getApplicationContext(),"you choose yes action for alertbox",
                                Toast.LENGTH_SHORT).show();
                        }
                    })
                    .setNegativeButton("No", new DialogInterface.OnClickListener() {
                        public void onClick(DialogInterface dialog, int id) {
                            // Action for 'NO' Button
                            dialog.cancel();
                            Toast.makeText(getApplicationContext(),"you choose no action for alertbox",
                                Toast.LENGTH_SHORT).show();
                        }
                    });
                //Creating dialog box
                AlertDialog alert = builder.create();
                //Setting the title manually
                alert.setTitle("AlertDialogExample");
                alert.show();
            }
        });
    }
}

```

OUTPUT:



PROGRAM NO: 16**DATE: 11-04-2023****AIM:**

Application to developed using Tabbed Activity

PROGRAM:**ActivityMain.XML:**

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.coordinatorlayout.widget.CoordinatorLayout
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">

    <com.google.android.material.appbar.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:theme="@style/Theme.Tab.AppBarOverlay">
        <TextView
            android:id="@+id/title"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:minHeight="?actionBarSize"
            android:padding="@dimen/appbar_padding"
            android:text="@string/app_name"
            android:textAppearance="@style/TextAppearance.Widget.AppCompat.Toolbar.Title" />
        <com.google.android.material.tabs.TabLayout
            android:id="@+id/tabs"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" />
    </com.google.android.material.appbar.AppBarLayout>
    <androidx.viewpager.widget.ViewPager
        android:id="@+id/view_pager"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        app:layout_behavior="@string/appbar_scrolling_view_behavior" />
    <com.google.android.material.floatingactionbutton.FloatingActionButton
        android:id="@+id/fab"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="bottom|end"
        android:layout_marginEnd="@dimen/fab_margin"
        android:layout_marginBottom="16dp"
        app:srcCompat="@android:drawable/ic_dialog_email" />
</androidx.coordinatorlayout.widget.CoordinatorLayout>

```

Fragment.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:id="@+id/constraintLayout"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".ui.main.PlaceholderFragment">
<TextView
    android:id="@+id/section_label"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="@dimen/activity_horizontal_margin"
    android:layout_marginTop="@dimen/activity_vertical_margin"
    android:layout_marginEnd="@dimen/activity_horizontal_margin"
    android:layout_marginBottom="@dimen/activity_vertical_margin"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintTop_toTopOf="@+id/constraintLayout"
    tools:layout_constraintLeft_creator="1"
    tools:layout_constraintTop_creator="1" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA

```

package com.example.tab;
import android.os.Bundle;
import com.google.android.material.floatingactionbutton.FloatingActionButton;
import com.google.android.material.snackbar.Snackbar;
import com.google.android.material.tabs.TabLayout;
import androidx.viewpager.widget.ViewPager;
import androidx.appcompat.app.AppCompatActivity;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import com.example.tab.ui.main.SectionsPagerAdapter;
import com.example.tab.databinding.ActivityMainBinding;
public class MainActivity extends AppCompatActivity {
    private ActivityMainBinding binding;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        binding = ActivityMainBinding.inflate(getLayoutInflater());
        setContentView(binding.getRoot());
        SectionsPagerAdapter sectionsPagerAdapter = new SectionsPagerAdapter(this,
getSupportFragmentManager());
        ViewPager viewPager = binding.viewPager;
        viewPager.setAdapter(sectionsPagerAdapter);
        TabLayout tabs = binding.tabs;
        tabs.setupWithViewPager(viewPager);
        FloatingActionButton fab = binding.fab;
        fab.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

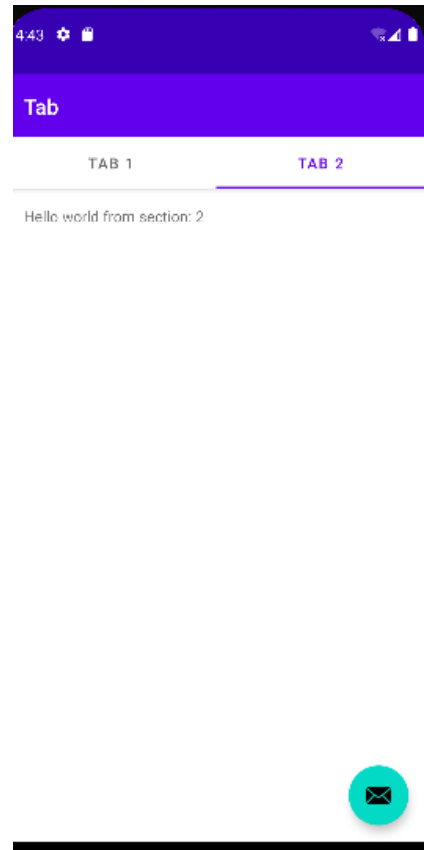
```

```

Snackbar.make(view, "Replace with your own action", Snackbar.LENGTH_LONG)
    .setAction("Action", null).show();
    }
    });
}
}

```

OUTPUT:



PROGRAM NO: 17**DATE: 04-04-2023****AIM:**

Create and apply style in your sample UI.

PROGRAM:**XML:****ActivityMain.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:id="@+id/myTextView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Styles And Themes!"
    android:theme="@style/MyCustomStyle"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

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

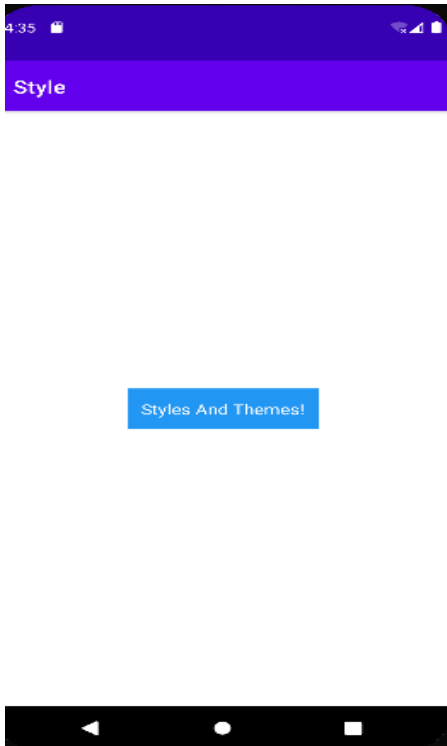
Style.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <style name="MyCustomStyle">
        <item name="android:textColor">#FFFFFF</item>
        <item name="android:background">#2196F3</item>
        <item name="android:padding">12dp</item>
        <item name="android:textSize">16sp</item>
    </style>
```

MainActivity.java

```
package com.example.style;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

OUTPUT:



PROGRAM NO: 18**DATE: 04-04-2023****AIM:**

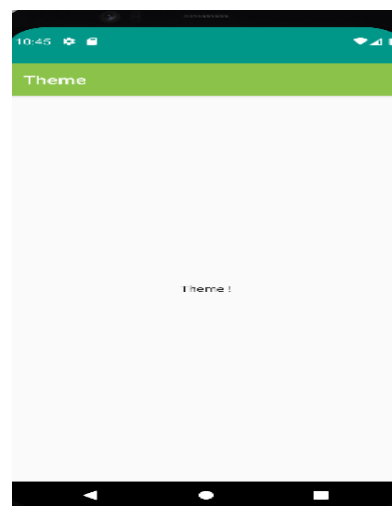
Apply a style as a theme in your project

PROGRAM:**style.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<resources xmlns:tools="http://schemas.android.com/tools">
  <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
    <!-- Customize your theme here. -->
    <item name="colorPrimary">@color/colorPrimary</item>
    <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
    <item name="colorAccent">@color/colorAccent</item>
  </style>
</resources>
```

Activitymain.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="This text is styled via textAppearance!"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    style="@style/AppTheme"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:

PROGRAM NO: 19**DATE: 14-03-2023****AIM:**

To demonstrate SQLite database

PROGRAM:**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/btn3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Update"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.705" />
<EditText
    android:id="@+id/ed1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    android:text="Id"
    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="0.201" />
<EditText
    android:id="@+id/ed2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    android:text="Name"
    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="0.341" />

```

```

<Button
    android:id="@+id/btninsert"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Insert"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.495"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.499" />
<Button
    android:id="@+id/btn2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="List"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.495"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.613" />
<Button
    android:id="@+id/btn4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Delete"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.485"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.803" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

JAVA:

```

package com.example.employee;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.SQLException;
import android.database.sqlite.SQLiteDatabase;
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 {
    SQLiteDatabase db;
    Button btninsert,btnlist,btnupdate,btndelete;
    @SuppressLint("WrongConstant")

```

```

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    btninsert=(Button) findViewById(R.id.btninsert);
    btnlist=(Button) findViewById(R.id.btn2);
    btnupdate=(Button) findViewById(R.id.btn3);
    btndelete=(Button) findViewById(R.id.btn4);
    EditText eid=(EditText) findViewById(R.id.ed1);
    EditText ename=(EditText) findViewById(R.id.ed2);
    try{
        db=openOrCreateDatabase("Studentdb",SQLiteDatabase.CREATE_IF_NECESSARY,null);
        db.execSQL("Create Table temp(id integer,name text)");
    }
    catch (SQLException e){}
    btninsert.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            ContentValues values=new ContentValues();
            values.put("id",eid.getText().toString());
            values.put("name",ename.getText().toString());
            if((db.insert("temp",null,values))!=-1){
                Toast.makeText(MainActivity.this, "Record succesfully inserted", Toast.LENGTH_SHORT).show();
            }
            else{
                Toast.makeText(MainActivity.this, "Not inserted", Toast.LENGTH_SHORT).show();
            }
            eid.setText("");
            ename.setText("");
        }
    });

    btnlist.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            Cursor c=db.rawQuery("SELECT * FROM temp",null);
            c.moveToFirst();
            while(!c.isAfterLast()){
                Toast.makeText(MainActivity.this,c.getString(0)+ " "+c.getString(1),1000).show();
                c.moveToNext();
            }
            c.close();
        }
    });

    btnupdate.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            int id = Integer.parseInt(eid.getText().toString());
            String name = ename.getText().toString();
            // Update the name of the record with the specified ID
            db.execSQL("UPDATE 'temp' SET name='"+ name + "' WHERE id=" + id);
            Toast.makeText(MainActivity.this, "Updated", Toast.LENGTH_SHORT).show();
        }
    });
}

```

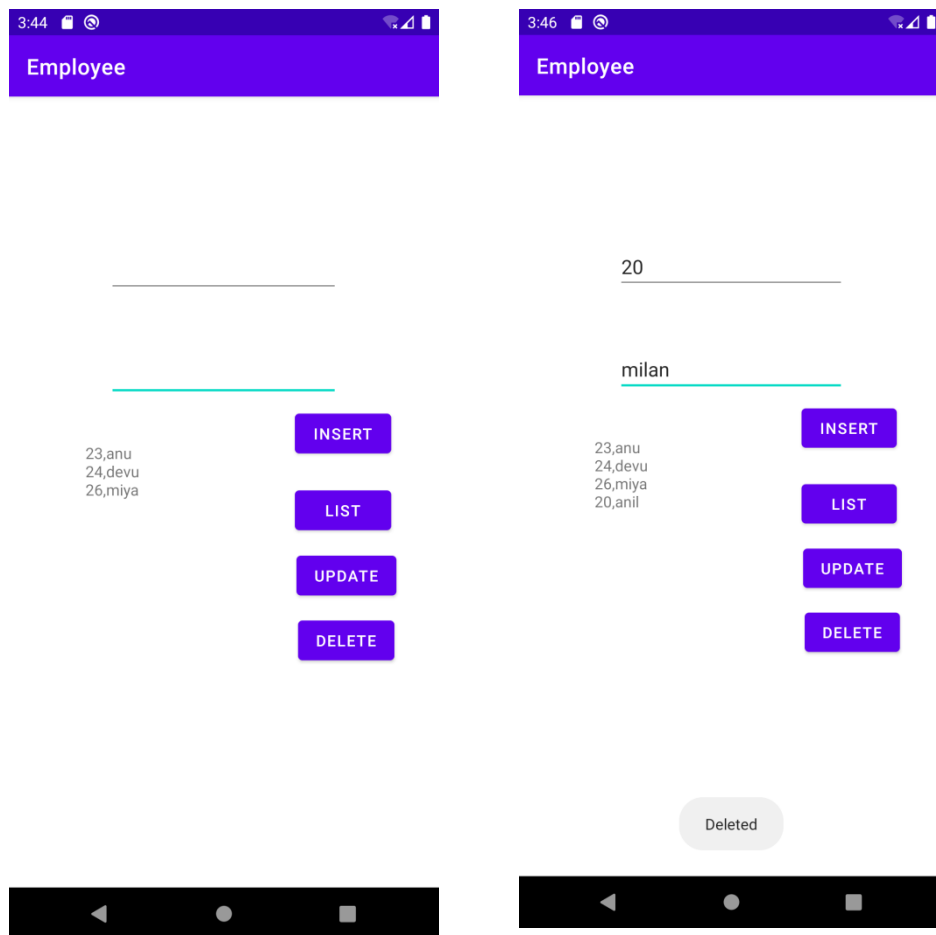


```

    }
    });
    btndelete.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            int id = Integer.parseInt(eid.getText().toString());
            db.execSQL("DELETE FROM 'temp' WHERE id=" + id);
            Toast.makeText(MainActivity.this, "Deleted", Toast.LENGTH_SHORT).show();
        }
    });
}
}

```

OUTPUT:



PROGRAM NO:20**DATE:12/04/2023****AIM:**

To demonstrate Expense Tracker Application – Micro Project

PROJECT:**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"
    android:background="@drawable/back1"
    tools:context=".MainActivity" >

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="sans-serif-medium"
        android:text="EXPENSE TRACKER"
        android:textColor="#E91E63"
        android:textSize="34sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.037" />

    <Button
        android:id="@+id/btnlog"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:backgroundTint="#8BC34A"
        android:text="LOGIN"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.873"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.926"
        app:strokeColor="#ECE7E7" />

    <Button
        android:id="@+id/btnregister"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:backgroundTint="#8BC34A"
        android:text="REGISTER"

```

```

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.131"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.926"
        app:strokeColor="#E1DBDB" />
</androidx.constraintlayout.widget.ConstraintLayout>
    
```

Activity_login.xml

```

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

    <!-- Image at the background -->
    <!-- <ImageView-->
    <!--     android:layout_width="80dp"-->
    <!--     android:layout_height="80dp"-->
    <!--     android:scaleType="centerCrop"-->
    <!--     android:layout_centerInParent="true"-->
    <!--     android:src="@drawable/login"/>-->

    <!-- Semi-transparent overlay on top of the image -->

    <!-- Heading at the top -->

    <View
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:layout_marginStart="3dp"
        android:layout_marginTop="1dp"
        android:layout_marginEnd="-2dp" />

    <!-- Text boxes and buttons at the bottom -->
    <TextView
        android:id="@+id/heading"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginTop="29dp"
        android:padding="16dp"
        android:textSize="36sp"
        android:textStyle="bold"
        android:text="LOGIN"
        android:textAlignment="center"
        android:textColor="@color/white"/>
    
```

```

<EditText
    android:id="@+id/username"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="0dp"
    android:textColorHint="@color/white"
    android:layout_marginBottom="340dp"
    android:hint="Username"
    android:shadowColor="@color/white"
    android:textColor="@color/white" />
<EditText
    android:id="@+id/password"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_centerVertical="true"
    android:textColor="@color/white"
    android:textColorHint="@color/white"
    android:shadowColor="@color/white"
    android:layout_marginStart="2dp"
    android:layout_marginBottom="275dp"
    android:hint="Password"
    android:inputType="textPassword" />
<Button
    android:id="@+id/login"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="199dp"
    android:background="@drawable/btn_bg"
    android:text="Login"
    android:textColor="@color/black"
    app:backgroundTint="#FFFFFF" />
<Button
    android:id="@+id/register"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="-2dp"
    android:layout_marginBottom="125dp"
    android:background="@drawable/btn_bg"
    android:text="Register"
    android:textColor="@color/black"
    app:backgroundTint="#FFFFFF" />
</RelativeLayout>

```

Activity_home.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"
  android:background="@drawable/cut_card_background"
  tools:context=".Home" >
```

```
<TextView
  android:id="@+id/textView"
  android:layout_width="217dp"
  android:layout_height="wrap_content"
  android:layout_alignParentStart="true"
  android:layout_alignParentTop="true"
  android:layout_alignParentEnd="true"
  android:layout_alignParentBottom="true"
  android:text="My Dashboard"
  android:textColor="@color/black"
  android:textSize="30sp"
  android:textStyle="bold"
  app:layout_constraintBottom_toBottomOf="parent"
  app:layout_constraintEnd_toEndOf="parent"
  app:layout_constraintHorizontal_bias="0.025"
  app:layout_constraintStart_toStartOf="parent"
  app:layout_constraintTop_toTopOf="parent"
  app:layout_constraintVertical_bias="0.012" />
```

```
<Button
  android:id="@+id/btnAddExpense"
  android:layout_width="241dp"
  android:layout_height="55dp"
  android:backgroundTint="@color/white"
  android:text="Add Expense"
  android:textColor="@color/black"
  android:textSize="26sp"
  app:layout_constraintBottom_toBottomOf="parent"
  app:layout_constraintEnd_toEndOf="parent"
  app:layout_constraintHorizontal_bias="0.6"
  app:layout_constraintStart_toStartOf="parent"
  app:layout_constraintTop_toTopOf="parent"
  app:layout_constraintVertical_bias="0.395" />
```

```
<Button
  android:id="@+id/btnViewExpenses"
  android:layout_width="wrap_content"
  android:layout_height="wrap_content"
  android:backgroundTint="@color/white"
  android:text="View Expenses"
  android:textColor="@color/black"
  android:textSize="26sp"
  app:layout_constraintBottom_toBottomOf="parent"
  app:layout_constraintEnd_toEndOf="parent"
```

```

app:layout_constraintHorizontal_bias="0.589"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.561" />

```

```

<Button
    android:id="@+id/btnLogout"
    android:layout_width="238dp"
    android:layout_height="55dp"
    android:backgroundTint="@color/white"
    android:text="Logout"
    android:textColor="@color/black"
    android:textSize="26sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.589"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.728" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Activity add_expense.xml

```

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

    <TextView
        android:id="@+id/expenseNameText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginTop="20dp"
        android:text="Expense Name"
        android:textSize="20sp"
        android:textStyle="bold" />

    <EditText
        android:id="@+id/expenseName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/expenseNameText"
        android:layout_marginStart="20dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="20dp"
        android:inputType="text" />

    <TextView
        android:id="@+id/expenseAmountText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

```

```

        android:layout_below="@+id/expenseName"
        android:layout_marginStart="20dp"
        android:layout_marginTop="20dp"
        android:text="Expense Amount"
        android:textSize="20sp"
        android:textStyle="bold" />
<EditText
    android:id="@+id/expenseAmount"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/expenseAmountText"
    android:layout_marginStart="20dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="20dp"
    android:inputType="numberDecimal" />
<Button
    android:id="@+id/saveButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/expenseAmount"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="20dp"
    android:text="Save" />
</RelativeLayout>

```

MainActivity.java

```

package com.example.expensetracker1;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    Button b1,b2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=(Button) findViewById(R.id.btnregister);
        b2=(Button) findViewById(R.id.btnlog);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i1 =new Intent(MainActivity.this,Login.class);
                startActivity(i1);
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i2 =new Intent(MainActivity.this,Login.class);
                startActivity(i2);
            }
        });
    }
}

```

```

    }
    });
}
}

```

Login.java

```
package com.example.expensetracker1;
```

```
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.content.Intent;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.content.ContentValues;
```

```
import android.database.Cursor;
```

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

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

```
import android.widget.Button;
```

```
import android.widget.EditText;
```

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

```
public class Login extends AppCompatActivity {
```

```
    private EditText usernameEditText, passwordEditText;
```

```
    private Button loginButton, registerButton;
```

```
    private SQLiteOpenHelper openHelper;
```

```
    private SQLiteDatabase db;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_login);
```

```
        usernameEditText = findViewById(R.id.username);
```

```
        passwordEditText = findViewById(R.id.password);
```

```
        loginButton = findViewById(R.id.login);
```

```
        registerButton = findViewById(R.id.register);
```

```
        openHelper = new DatabaseHelper(this);
```

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

```
            @Override
```

```
            public void onClick(View view) {
```

```
                db = openHelper.getReadableDatabase();
```

```
                String username = usernameEditText.getText().toString();
```

```
                String password = passwordEditText.getText().toString();
```

```
                Cursor cursor = db.rawQuery("SELECT * FROM " + DatabaseHelper.TABLE_NAME + " WHERE " + DatabaseHelper.COL_2 + " =?" AND " + DatabaseHelper.COL_3 + " =?", new String[]{username, password});
```

```
                if (cursor != null && cursor.getCount() > 0) {
```

```
                    cursor.moveToFirst();
```

```
                    Toast.makeText(Login.this, "Login successful", Toast.LENGTH_SHORT).show();
```

```
                    Intent intent = new Intent(Login.this, Home.class);
```

```
                    startActivity(intent);
```

```
                    finish();
```

```
                } else {
```

```
                    Toast.makeText(Login.this, "Invalid username or password", Toast.LENGTH_SHORT).show();
```

```
                }
```



```

    }
    });
    registerButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            db = openHelper.getWritableDatabase();
            String username = usernameEditText.getText().toString();
            String password = passwordEditText.getText().toString();
            if (username.isEmpty() || password.isEmpty()) {
                Toast.makeText(Login.this, "Please enter username and password", Toast.LENGTH_SHORT).show();
            } else {
                ContentValues contentValues = new ContentValues();
                contentValues.put(DatabaseHelper.COL_2, username);
                contentValues.put(DatabaseHelper.COL_3, password);
                long id = db.insert(DatabaseHelper.TABLE_NAME, null, contentValues);
                if (id == -1) {
                    Toast.makeText(Login.this, "Error creating account", Toast.LENGTH_SHORT).show();
                } else {
                    Toast.makeText(Login.this, "Account created successfully", Toast.LENGTH_SHORT).show();
                }
            }
        }
    });
}

```

Home.java

```

package com.example.expensetracker1;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
public class Home extends AppCompatActivity {
    Button btnAddExpense, btnViewExpenses, btnLogout;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_home);
        btnAddExpense = findViewById(R.id.btnAddExpense);
        btnViewExpenses = findViewById(R.id.btnViewExpenses);
        btnLogout = findViewById(R.id.btnLogout);
        // Set click listeners for buttons
        btnAddExpense.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                // Redirect to AddExpense activity
                Intent intent = new Intent(Home.this, AddExpense.class);
                startActivity(intent);
            }
        });
        btnViewExpenses.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

```

```

        // Redirect to ViewExpenses activity
        Intent intent = new Intent(Home.this, ViewExpenses.class);
        startActivity(intent);
    }
});
btnLogout.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        // Redirect to Login activity
        Intent intent = new Intent(Home.this, Login.class);
        startActivity(intent);
        finish(); // finish the activity to prevent going back to the first page with the back button
    }
});
}
}
}

```

AddExpense.java

```

package com.example.expensetracker1;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
public class AddExpense extends AppCompatActivity {
    EditText expenseName, expenseAmount;
    Button saveButton;
    DatabaseHelper db;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_add_expense);
        db = new DatabaseHelper(this);
        expenseName = (EditText) findViewById(R.id.expenseName);
        expenseAmount = (EditText) findViewById(R.id.expenseAmount);
        saveButton = (Button) findViewById(R.id.saveButton);
        saveButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String name = expenseName.getText().toString().trim();
                String amount = expenseAmount.getText().toString().trim();
                if (name.isEmpty() || amount.isEmpty()) {
                    Toast.makeText(AddExpense.this, "Please fill in all the fields", Toast.LENGTH_SHORT).show();
                } else {
                    Expense expense = new Expense(0, "", name, Double.parseDouble(amount), "");
                    boolean isInserted = db.addExpense(expense);
                    if (isInserted) {
                        Toast.makeText(AddExpense.this, "Expense saved successfully", Toast.LENGTH_SHORT).show();
                        finish();
                    } else {
                        Toast.makeText(AddExpense.this, "Error saving expense", Toast.LENGTH_SHORT).show();
                    }
                }
            }
        });
    }
}

```

```

    }
    });
}
}

```

DatabaseHelper.java

```

package com.example.expensetracker1;
import android.annotation.SuppressLint;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import java.util.ArrayList;
import java.util.List;
public class DatabaseHelper extends SQLiteOpenHelper {
    private static final String DATABASE_NAME = "home.db";
    private static final int DATABASE_VERSION = 1;
    public static final String TABLE_NAME = "users";
    private static final String TABLE_EXPENSES = "Expenses";
    public static final String COL_1 = "ID";
    public static final String COL_2 = "USERNAME";
    public static final String COL_3 = "PASSWORD";
    private static final String COLUMN_ID = "id";
    private static final String COLUMN_EMAIL = "email";
    private static final String COLUMN_PASSWORD = "password";
    private static final String EXPENSE_COLUMN_ID = "id";
    private static final String EXPENSE_COLUMN_DESCRIPTION = "description";
    private static final String EXPENSE_COLUMN_AMOUNT = "amount";
    private static final String EXPENSE_COLUMN_DATE = "date";
    private SQLiteDatabase db;
    public DatabaseHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }
    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("CREATE TABLE " + TABLE_NAME + " (ID INTEGER PRIMARY KEY AUTOINCREMENT, " +
            "USERNAME TEXT, PASSWORD TEXT)");
        String CREATE_EXPENSES_TABLE = "CREATE TABLE " + TABLE_EXPENSES + " (" +
            EXPENSE_COLUMN_ID + " INTEGER PRIMARY KEY AUTOINCREMENT, " +
            EXPENSE_COLUMN_DESCRIPTION + " TEXT, " +
            EXPENSE_COLUMN_AMOUNT + " REAL, " +
            EXPENSE_COLUMN_DATE + " TEXT)";
        db.execSQL(CREATE_EXPENSES_TABLE);
    }
    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_NAME);
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_EXPENSES);
        onCreate(db);
    }
    // Add a new expense to the database
    public boolean addExpense(Expense expense) {
        db = this.getWritableDatabase();

```

```

        ContentValues values = new ContentValues();
        values.put(EXPENSE_COLUMN_DESCRIPTION, expense.getDescription());
        values.put(EXPENSE_COLUMN_AMOUNT, expense.getAmount());
        values.put(EXPENSE_COLUMN_DATE, expense.getDate());
        db.insert(TABLE_EXPENSES, null, values);
        db.close();
        return false;
    }
    // Get a list of all expenses in the database
    public List<Expense> getAllExpenses() {
        List<Expense> expensesList = new ArrayList<>();
        SQLiteDatabase db = this.getReadableDatabase();
        Cursor cursor = db.rawQuery("SELECT * FROM " + TABLE_EXPENSES, null);
        if (cursor.moveToFirst()) {
            do {
                @SuppressWarnings("Range") int id = cursor.getInt(cursor.getColumnIndex(EXPENSE_COLUMN_ID));
                @SuppressWarnings("Range") String description =
                    cursor.getString(cursor.getColumnIndex(EXPENSE_COLUMN_DESCRIPTION));
                @SuppressWarnings("Range") double amount =
                    cursor.getDouble(cursor.getColumnIndex(EXPENSE_COLUMN_AMOUNT));
                @SuppressWarnings("Range") String date =
                    cursor.getString(cursor.getColumnIndex(EXPENSE_COLUMN_DATE));
                expensesList.add(new Expense(id, description, amount, date));
            } while (cursor.moveToNext());
        }
        cursor.close();
        db.close();
        return expensesList;
    }
    // Get a list of expenses for a given date range
    public List<Expense> getExpensesForDateRange(String startDate, String endDate) {
        List<Expense> expensesList = new ArrayList<>();
        db = this.getReadableDatabase();
        Cursor cursor = db.rawQuery("SELECT * FROM " + TABLE_EXPENSES + " WHERE " +
            EXPENSE_COLUMN_DATE + " BETWEEN ? AND ?", new String[]{startDate, endDate});
        if (cursor.moveToFirst()) {
            do {
                @SuppressWarnings("Range") int id = cursor.getInt(cursor.getColumnIndex(EXPENSE_COLUMN_ID));
                @SuppressWarnings("Range") String description =
                    cursor.getString(cursor.getColumnIndex(EXPENSE_COLUMN_DESCRIPTION));
                @SuppressWarnings("Range") double amount =
                    cursor.getDouble(cursor.getColumnIndex(EXPENSE_COLUMN_AMOUNT));
                @SuppressWarnings("Range") String date =
                    cursor.getString(cursor.getColumnIndex(EXPENSE_COLUMN_DATE));
                expensesList.add(new Expense(id, description, amount, date));
            } while (cursor.moveToNext());
        }
        cursor.close();
        db.close();
        return expensesList;
    }
    public Cursor getAllData() {
        SQLiteDatabase db = this.getWritableDatabase();
    }

```

```

Cursor res = db.rawQuery("SELECT * FROM " + TABLE_EXPENSES, null);
return res;
}
}

```

OUTPUT:

