



## **Dr. D. Y. Patil School of MCA**

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### **MCA II year III Semester**

#### **Course Code IT 31L – Practicals**

#### **Part - A**

#### **Mobile Application Development**

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## 1] Create a simple calculator.

### 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="#8BC34A"
    android:backgroundTint="@android:color/darker_gray"
    tools:context=".MainActivity">

    <!-- Text View to display our basic heading of "calculator"-->
    <TextView
        android:layout_width="194dp"
        android:layout_height="43dp"
        android:layout_marginStart="114dp"
        android:layout_marginLeft="114dp"
        android:layout_marginTop="58dp"
        android:layout_marginEnd="103dp"
        android:layout_marginRight="103dp"
        android:layout_marginBottom="502dp"
        android:scrollbarSize="30dp"
        android:text=" Calculator"
        android:textAppearance="@style/TextAppearance.AppCompat.Body1"
        android:textSize="30dp"    app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <!-- Edit Text View to input the values -->
    <EditText    android:id="@+id/num1"
        android:layout_width="364dp"
        android:layout_height="28dp"
        android:layout_marginStart="72dp"
        android:layout_marginTop="70dp"
        android:layout_marginEnd="71dp"
        android:layout_marginBottom="416dp"
        android:background="@android:color/white"
        android:ems="10" android:hint="Number1(0)"
        android:inputType="number"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
```

```

<!-- Edit Text View to input 2nd value-->
<EditText      android:id="@+id/num2"
android:layout_width="363dp"
android:layout_height="30dp"
android:layout_marginStart="72dp"
android:layout_marginTop="112dp"
android:layout_marginEnd="71dp"
android:layout_marginBottom="374dp"
android:background="@android:color/white"
      android:ems="10"      android:hint="number2(0)"
android:inputType="number"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />

<!-- Text View to display result -->
<TextView      android:id="@+id/result"
android:layout_width="356dp"
android:layout_height="71dp"
android:layout_marginStart="41dp"
android:layout_marginTop="151dp"
android:layout_marginEnd="48dp"
android:layout_marginBottom="287dp"
android:background="@android:color/white"
      android:text="result"
android:textColorLink="#673AB7"
android:textSize="25sp"
      app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />

<!-- A button to perform 'sum' operation -->
<Button      android:id="@+id/sum"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="16dp"
android:layout_marginTop="292dp"
android:layout_marginEnd="307dp"
android:layout_marginBottom="263dp"
android:backgroundTint="@android:color/holo_red_light"
android:onClick="doSum"
      android:text="+"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"

```

```

        app:layout_constraintTop_toTopOf="parent" />

<!-- A button to perform subtraction operation. -->
<Button        android:id="@+id/sub"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="210dp"
android:layout_marginTop="292dp"
android:layout_marginEnd="113dp"
android:layout_marginBottom="263dp"
android:backgroundTint="@android:color/holo_red_light"
android:onClick="doSub"
        android:text="-"
        app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

<!-- A button to perform division. -->
<Button        android:id="@+id/div"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="307dp"
android:layout_marginTop="292dp"
android:layout_marginEnd="16dp"
android:layout_marginBottom="263dp"
android:backgroundTint="@android:color/holo_red_light"
android:onClick="doDiv"
        android:text="/"
        app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

<!-- A button to perform multiplication. -->
<Button        android:id="@+id/mul"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="16dp"
android:layout_marginTop="356dp"
android:layout_marginEnd="307dp"
android:layout_marginBottom="199dp"
android:backgroundTint="@android:color/holo_red_light"
android:onClick="doMul"
        android:text="x"

```

```

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

<!-- A button to perform a modulus function. -->
<Button        android:id="@+id/button"
android:layout_width="92dp"
android:layout_height="48dp"
android:layout_marginStart="113dp"
android:layout_marginTop="356dp"
android:layout_marginEnd="206dp"
android:layout_marginBottom="199dp"
android:backgroundTint="@android:color/holo_red_light"
android:onClick="doMod"        android:text="%(mod)"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

<!-- A button to perform a power function. -->
<Button        android:id="@+id/pow"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="113dp"
android:layout_marginTop="292dp"
android:layout_marginEnd="210dp"
android:layout_marginBottom="263dp"
android:backgroundTint="@android:color/holo_red_light"
android:onClick="doPow"        android:text="n1^n2"
        app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

## MainActivity.java

```

package com.example.a1.calculator;

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

import androidx.appcompat.app.AppCompatActivity;

```

```

public class MainActivity extends AppCompatActivity {

    EditText e1, e2;
    TextView t1;
    int num1, num2;

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

    // a public method to get the input numbers
    public boolean getNumbers() {

        // defining the edit text 1 to e1
        e1 = (EditText) findViewById(R.id.num1);

        // defining the edit text 2 to e2
        e2 = (EditText) findViewById(R.id.num2);

        // defining the text view to t1    t1 =
        (TextView) findViewById(R.id.result);

        // taking input from text box 1
        String s1 = e1.getText().toString();

        // taking input from text box 2
        String s2 = e2.getText().toString();

        // condition to check if box is not empty
        if ((s1.equals(null) && s2.equals(null))
            || (s1.equals("") && s2.equals(""))) {

            String result = "Please enter a value";
            t1.setText(result);

            return false;
        } else {
            // converting string to int.
            num1 = Integer.parseInt(s1);

            // converting string to int.
            num2 = Integer.parseInt(s2);        }

        return true;
    }
}

```



```

    }

    // a public method to perform addition
    public void doSum(View v) {

        // get the input numbers
        if (getNumbers()) {            int
            sum = num1 + num2;
            t1.setText(Integer.toString(sum));
        }
    }

    // a public method to perform power function
    public void doPow(View v) {

        // get the input numbers        if
        (getNumbers()) {            double sum =
            Math.pow(num1, num2);
            t1.setText(Double.toString(sum));
        }
    }

    // a public method to perform subtraction
    public void doSub(View v) {

        // get the input numbers
        if (getNumbers()) {            int
            sum = num1 - num2;
            t1.setText(Integer.toString(sum));
        }
    }

    // a public method to perform multiplication
    public void doMul(View v) {

        // get the input numbers
        if (getNumbers()) {            int
            sum = num1 * num2;
            t1.setText(Integer.toString(sum));
        }
    }

    // a public method to perform Division
    public void doDiv(View v) {    if
        (getNumbers()) {            double sum =
            num1 / (num2 * 1.0);
            t1.setText(Double.toString(sum));
    }

```

```

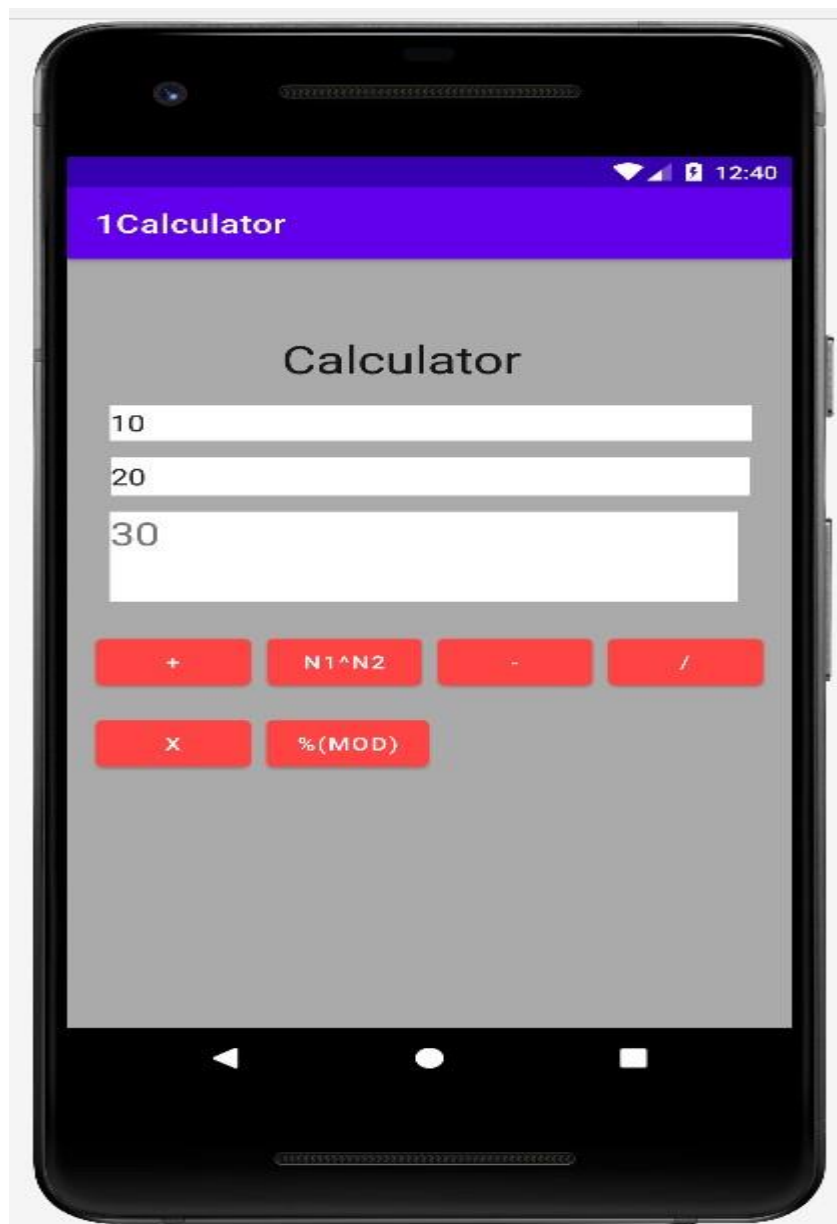
    }
}

// a public method to perform modulus function
public void doMod(View v) {

    // get the input numbers    if
    (getNumbers()) {          double sum
    = num1 % num2;
        t1.setText(Double.toString(sum));
    }
}
}

```

## Output



## 2 Write a program to find different views (buttons, Textview, Edittext etc.)

### activity\_main Text

```
<?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="com.example.ugonnaagharanya.firstapp.MainActivity">
    <Button
        android:id="@+id/button"
        android:background="@color/colorPrimaryDark"
        android:textColor="@android:color/white"
        android:textStyle="bold"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:text="@string/click_me" />
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="@android:color/holo_red_dark"
        android:layout_alignParentTop="true" android:textSize="40sp"
        android:layout_alignStart="@+id/button"
        android:layout_marginStart="1dp"
        android:layout_marginTop="28dp"
        android:text="@string/enter_name" />
    <EditText
        android:id="@+id/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textView"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="30dp" android:ems="15"
```

```

        android:inputType="textPersonName"
        android:text=""
        tools:ignore="LabelFor" />

```

```

</RelativeLayout>

```

## MainActivity

```

package com.example.ugonnaagharanya.firstapp;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle; import
android.view.View; import android.widget.Button;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    Button bt1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);        bt1 =
        (Button) findViewById(R.id.button);
        bt1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Toast.makeText(getApplicationContext(), "You Have Entered
                your name!", Toast.LENGTH_LONG).show();
            }
        });
    }
}

```

## Output :



**3 Write a program to show the intent (move from one activity to another activity).**

### **activity\_first\_activity.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=".first_activity">
```

```

<EditText
    android:id="@+id/send_text_id"
    android:layout_width="300dp"
    android:layout_height="wrap_content"
    android:textSize="25dp"
    android:hint="Input"
    android:textStyle="bold"
    android:layout_marginTop="20dp"
    android:layout_marginLeft="40dp"/>

```

```

<Button
    android:id="@+id/send_button_id"
    android:layout_width="wrap_content"
    android:layout_height="40dp"
    android:text="send"
    android:textStyle="bold"
    android:layout_marginTop="150dp"
    android:layout_marginLeft="150dp"/>

```

```

</RelativeLayout>

```

### **First\_Activity.java:**

```

package or.shubham.navedmalik.sendthedata;

import android.content.Intent; import
android.support.v7.app.AppCompatActivity; import
android.os.Bundle; import android.view.View;

import android.widget.Button; import
android.widget.EditText;

```

```

public class first_activity extends AppCompatActivity {

    // define the variable

    Button send_button;

    EditText send_text;    @Override    protected void
    onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_first_activity);    send_button
        = (Button)findViewById(R.id.send_button_id);    send_text =
        (EditText)findViewById(R.id.send_text_id);

        // add the OnClickListener in sender button

        // after clicked this button following Instruction will run    send_button.setOnClickListener(new
        View.OnClickListener() {

            @Override    public void
            onClick(View v)
            {
                // get the value which input by user in EditText

                // and convert it to string

                String str = send_text.getText().toString();

                // Create the Intent object of this class Context() to Second_activity class

                Intent intent = new Intent(getApplicationContext(), Second_activity.class);

                // now by putExtra method put the value in key, value pair

                // key is message_key by this key we will receive the value, and put the string

                intent.putExtra("message_key", str);

                // start the Intent
                startActivity(intent);
            }
        });
    }
}

```

## activity\_second\_activity.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="org.geeksforgeeks.navedmalik.sendthedata.Second_activity">

    <TextView
        android:id="@+id/received_value_id"
        android:layout_width="300dp"
        android:layout_height="50dp"
        android:textStyle="bold"
        android:textSize="40dp"
        android:layout_marginTop="20dp"
        android:layout_marginLeft="40dp"/>

</RelativeLayout>
```

## Filename: Second\_Activity.java

```
package org.geeksforgeeks.navedmalik.sendthedata;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle; import
android.widget.TextView;

public class Second_activity extends AppCompatActivity {

    TextView receiver_msg;    @Override    protected
void onCreate(Bundle savedInstanceState)    {
```



```

super.onCreate(savedInstanceState);

setContentView(R.layout.activity_second_activity);


receiver_msg = (TextView)findViewById(R.id.received_value_id);


// create the get Intent object

Intent intent = getIntent();


// receive the value by getStringExtra() method
// and key must be same which is send by first activity

String str = intent.getStringExtra("message_key");

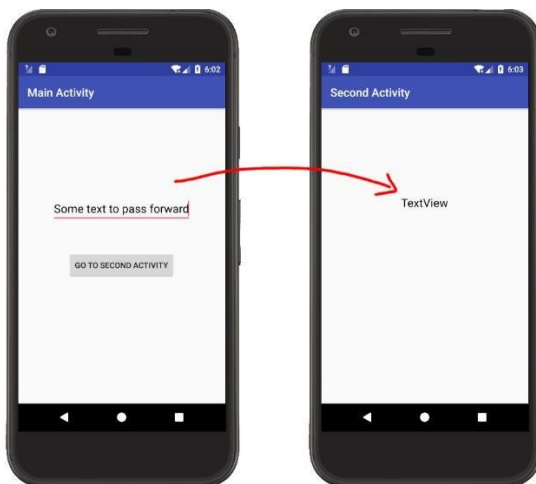
// display the string into textView

receiver_msg.setText(str);

}}

```

## OUTPUT:



## 4 Write a program to show simple Listview and Webview.

### Listview:

#### activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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="listview.example.com.listview.MainActivity">
```

### **<ListView**

```
    android:id="@+id/listView"
    android:layout_width="match_parent"
    android:layout_height="fill_parent"
    />
</android.support.constraint.ConstraintLayout>
```

### **mylist.xml**

```
<?xml version="1.0" encoding="utf8"?>

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

    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Medium Text"    android:textStyle="bold"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="5dp"    android:padding="2dp"
    android:textColor="#4d4d4d"
    />
```

### *strings.xml*

```
<resources>
    <string name="app_name">ListView</string>
    <string-array name="array_technology">
        <item>Android</item>
        <item>Java</item>
        <item>Php</item>
        <item>Hadoop</item>
        <item>Sap</item>
        <item>Python</item>
        <item>Ajax</item>
        <item>C++</item>
        <item>Ruby</item>
```

```

    <item>Rails</item>
    <item>.Net</item>
    <item>Perl</item>
</string-array> </resources>

```

### MainActivity.java package

```
listview.example.com.listview;
```

```

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle; import
android.view.View; import
android.widget.AdapterView; import
android.widget.AdapterView; import
android.widget.AdapterView; import
android.widget.AdapterView; import
android.widget.AdapterView;
import android.widget.Toast;

```

```

public class MainActivity extends AppCompatActivity {
    ListView listView;
    TextView textView;
    String[] listItem;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        listView=(ListView)findViewById(R.id.listView);
        textView=(TextView)findViewById(R.id.textView);        listItem =
        getResources().getStringArray(R.array.array_technology);        final
        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,

            android.R.layout.simple_list_item_1, android.R.id.text1, listItem);

        listView.setAdapter(adapter);

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

```

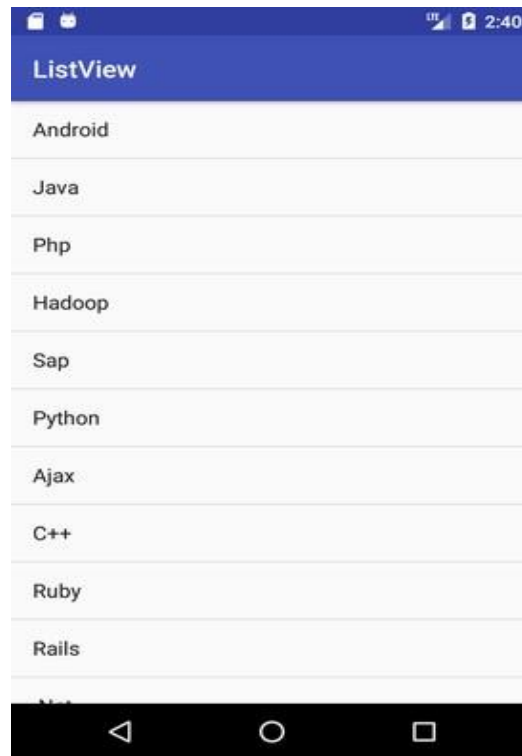
```

        public void onItemClick(AdapterView<?> adapterView, View view,
int position, long l) {
            // TODO Auto-generated method stub
            String value=adapter.getItem(position);
            Toast.makeText(getApplicationContext(),value,Toast.LENGTH_S
HORT).show();

        }
    });
} }

```

**OUTPUT:**



## WEBVIEW:

activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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="example.javatpoint.com.webview.MainActivity">
```

### <WebView

```
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:id="@+id/webView"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

**</android.support.constraint.ConstraintLayout>**

File: MainActivity.java

```
package example.javatpoint.com.webview;

import android.support.v7.app.AppCompatActivity; import
android.os.Bundle;
import android.webkit.WebView;

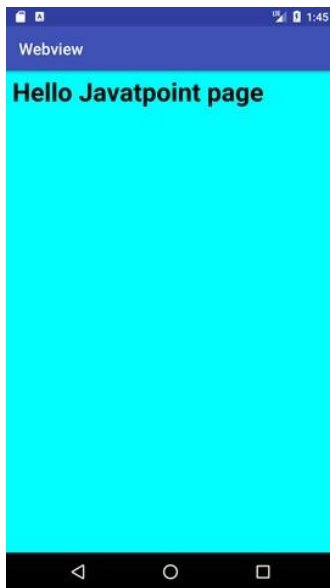
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        WebView mywebview = (WebView) findViewById(R.id.webView);
        // mywebview.loadUrl("https://www.javatpoint.com/");

        /*String data = "<html><body><h1>Hello, Javatpoint!</h1></body></html>";
        mywebview.loadData(data, "text/html", "UTF-8"); */

        mywebview.loadUrl("file:///android_asset/myresource.html");
    }
}
```

**OUTPUT:**



**6. Write a program to show checkbox and Radiobutton.**

### activity\_man.xml:

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

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button"
        app:layout_constraintBottom_toTopOf="@+id/radioButton"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.507"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.757" />

    <RadioButton
        android:id="@+id/radioButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="60dp"
        android:text="RadioButton"
        app:layout_constraintBottom_toTopOf="@+id/toggleButton"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent" />

    <ToggleButton
        android:id="@+id/toggleButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="232dp"
        android:text="ToggleButton"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent" />
```



```

        <ImageButton      android:id="@+id/imageButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/toggleButton"
        app:srcCompat="@android:drawable/btn_star_big_on" />

    </androidx.constraintlayout.widget.ConstraintLayout>

```

### MainActivity.java:

```

package com.example.togglebutton;

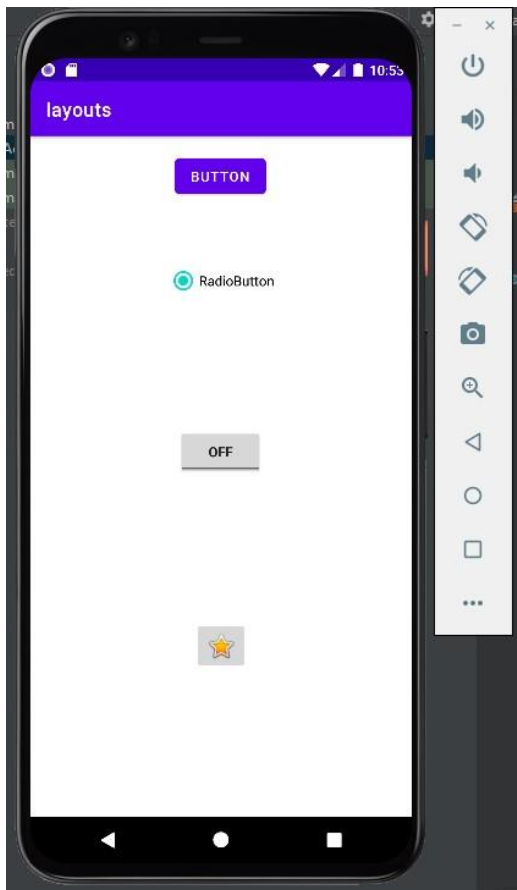
import androidx.appcompat.app.AppCompatActivity; import
android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

```

### Output:



7] write a Program create AlertDialog Box Activity\_main.xml:

```
<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=".MainActivity" >

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:text=" " />

</RelativeLayout>
```

**Mainactivity.java**

```
package com.example.alertdialog;
```

```

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle; import
android.app.AlertDialog; import
android.content.DialogInterface;
import android.view.Menu;

public class MainActivity extends AppCompatActivity {

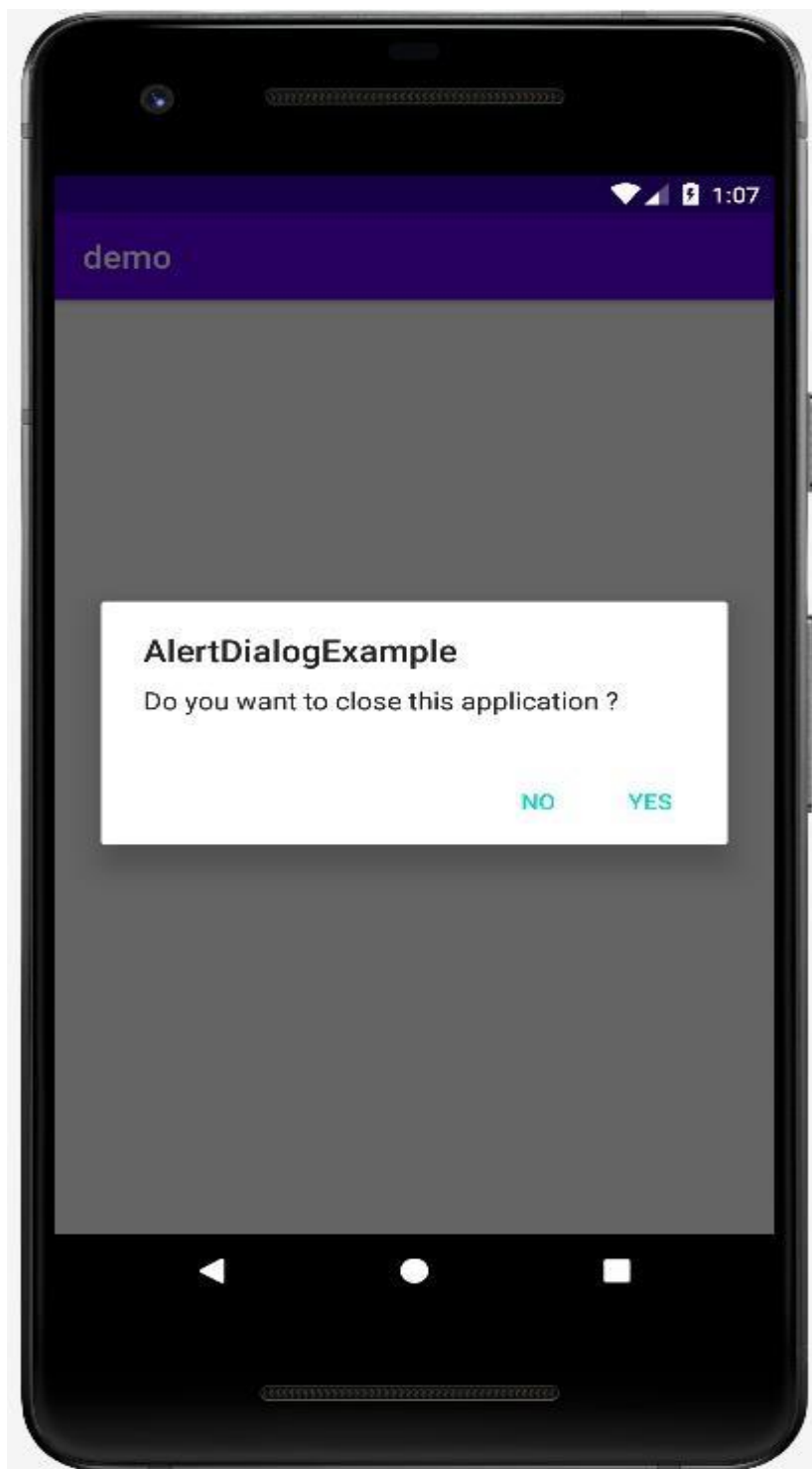
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);    setContentView(R.layout.activity_main);
        AlertDialog.Builder builder = new AlertDialog.Builder(this);
        //Uncomment the below code to Set the message and title from the strings.xml 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();
                }
            })
            .setNegativeButton("No", new DialogInterface.OnClickListener() {
                public void onClick(DialogInterface dialog, int id) {
                    // Action for 'NO' Button
                    dialog.cancel();
                }
            });

        //Creating dialog box
        AlertDialog alert = builder.create();
        //Setting the title manually
        alert.setTitle("AlertDialogExample");
        alert.show();
    }
}

```

## Output



## ProgressBar

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent" android:layout_height="match_parent">
    <ProgressBar
        android:id="@+id/pBar"
```

```

style="?android:attr/progressBarStyleHorizontal"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginLeft="100dp"
android:layout_marginTop="200dp"
android:minHeight="50dp"
android:minWidth="200dp"
android:max="100"
android:indeterminate="false"
android:progress="0" />
<TextView
android:id="@+id/tView"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignLeft="@+id/pBar"
android:layout_below="@+id/pBar" />
<Button
android:id="@+id/btnShow"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginLeft="130dp"
android:layout_marginTop="20dp"
android:text="Start Progress"
android:layout_below="@+id/tView"/>
</RelativeLayout>

```

## Mainactivity.java

```

package com.example.progressbar;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle; import
import android.os.Handler; import android.view.View;
import android.widget.Button; import
import android.widget.ProgressBar; import
import android.widget.TextView;

public class MainActivity extends AppCompatActivity
{
    private ProgressBar pgsBar;    private int i =
0;    private TextView txtView;    private Handler
hdlr = new Handler();

    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);    pgsBar =
(ProgressBar) findViewById(R.id.pBar);    txtView =
(TextView) findViewById(R.id.tView);    Button btn =
(Button) findViewById(R.id.btnShow);
btn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

```

```

        i = pgsBar.getProgress();
new Thread(new Runnable() {
public void run() {
while (i < 100) {
i += 1;

// Update the progress bar and display the
current value in text view
hdlr.post(new Runnable() {
public void run() {
pgsBar.setProgress(i);

txtView.setText(i+"/"+pgsBar.getMax());
}
});

try {

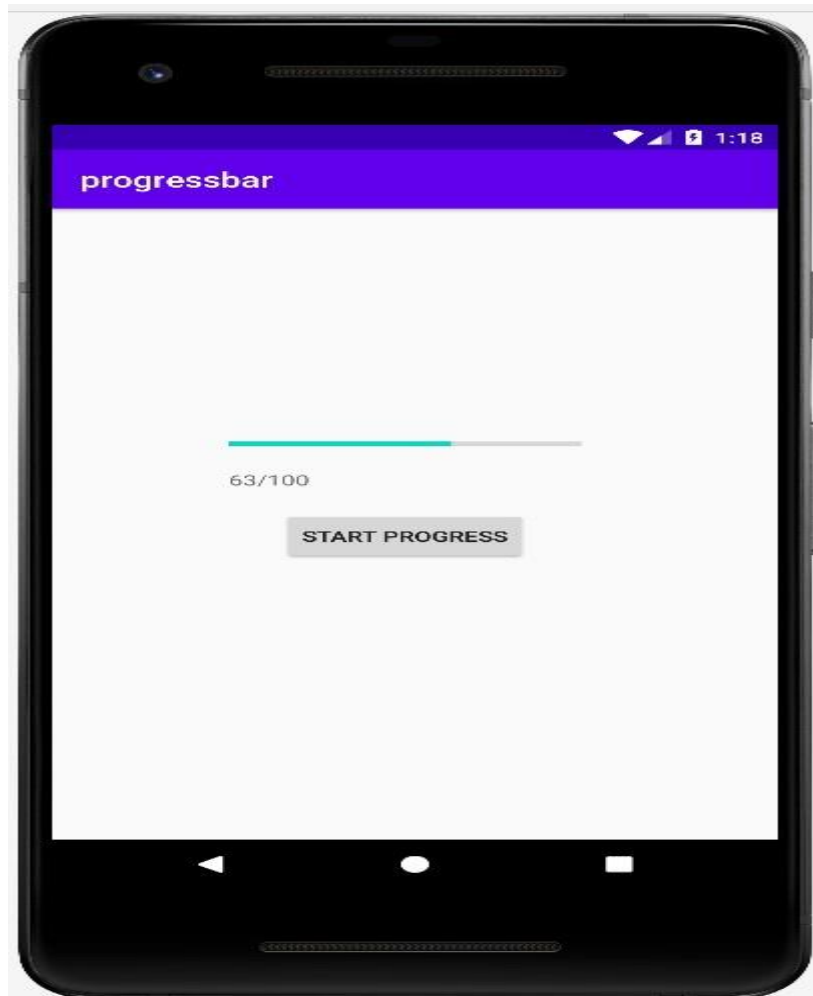
// Sleep for 100 milliseconds to show the
progress slowly.

Thread.sleep(100);
} catch (InterruptedException e) {
e.printStackTrace();
}

}

}).start();
}
});
}
}

```



8] Write a program to show Ratingbar and Googlemap on your screen.

Activity\_main.xml:

```
<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=".MainActivity" >

    <RatingBar
        android:id="@+id/ratingBar1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="44dp" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/ratingBar1"
```

```

android:layout_below="@+id/ratingBar1"
android:layout_marginLeft="92dp"
android:layout_marginTop="66dp"      android:text="submit"
/>

```

```

</RelativeLayout>

```

## Mainactivity.java

```

package com.example.ratingbar;

```

```

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle; import
android.view.Menu; import android.view.View;
import android.view.View.OnClickListener; import
android.widget.Button; import
android.widget.RatingBar;
import android.widget.Toast;

```

```

public class MainActivity extends AppCompatActivity {
    RatingBar ratingbar1;
    Button button;

```

```

    @Override

```

```

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

```

```

    public void addListnerOnButtonClick(){
        ratingbar1=(RatingBar)findViewById(R.id.ratingBar1);
        button=(Button)findViewById(R.id.button1);

```

```

        button.setOnClickListener(new OnClickListener(){

```

```

            @Override

```

```

            public void onClick(View arg0) {

```

```

                String rating=String.valueOf(ratingbar1.getRating());
                Toast.makeText(getApplicationContext(), rating, Toast.LENGTH_LONG).show();
            }

```

```

        });

```

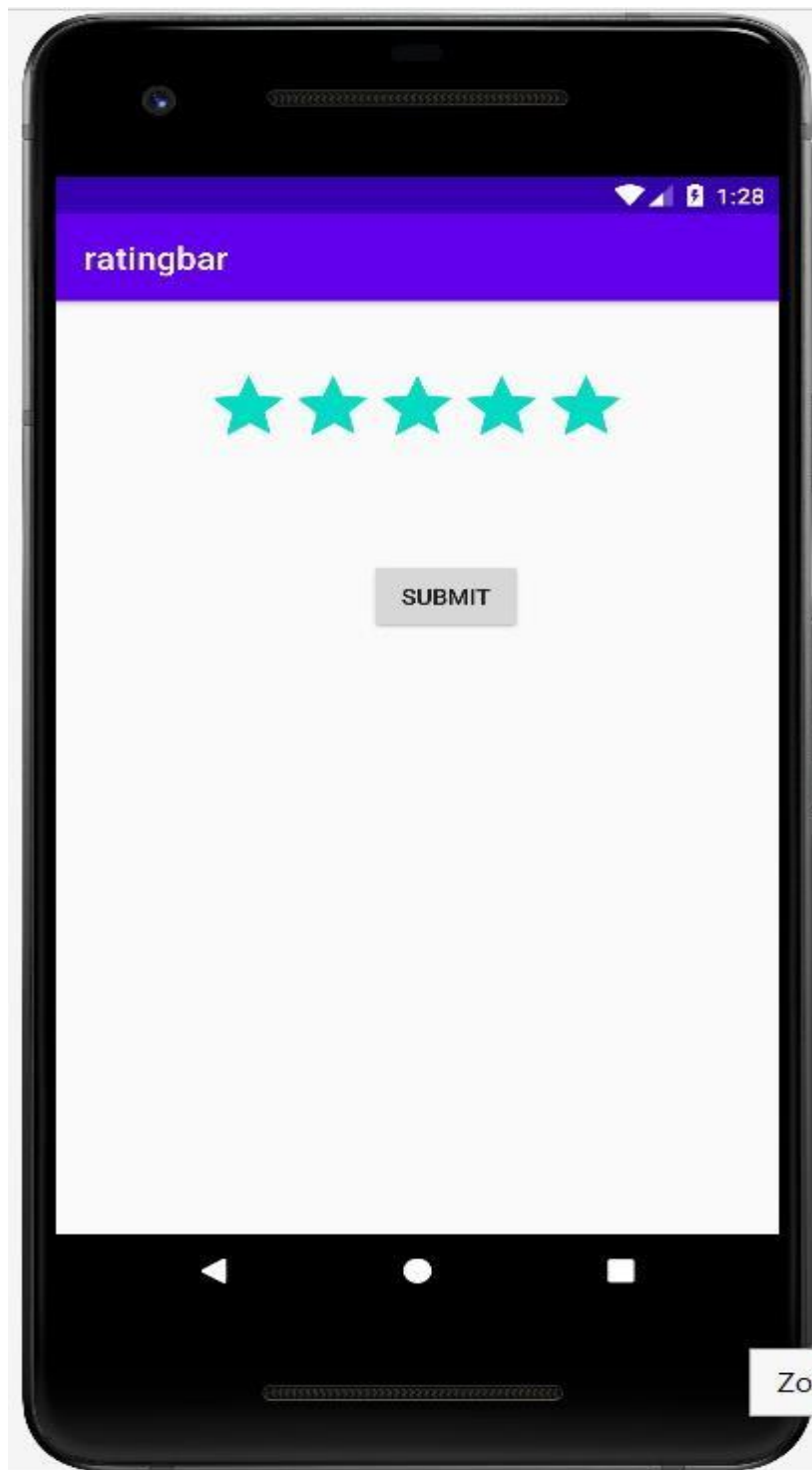
```

    }
}

```



**Output**



## Google Map

```
<?xml version="1.0" encoding="utf-8"?>
<fragment xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:map="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"    android:id="@+id/map"
    android:name="com.google.android.gms.maps.SupportMapFragment"
```

```

        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:context=".MapsActivity" />

```

## Mainactivity.java

```

package com.example.googlemap;

import androidx.fragment.app.FragmentActivity;

import android.os.Bundle;

import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap; import
com.google.android.gms.maps.OnMapReadyCallback; import
com.google.android.gms.maps.SupportMapFragment; import
com.google.android.gms.maps.model.LatLng; import
com.google.android.gms.maps.model.MarkerOptions; import
com.example.googlemap.databinding.ActivityMapsBinding;

public class MapsActivity extends FragmentActivity implements OnMapReadyCallback {

    private GoogleMap mMap;
    private ActivityMapsBinding binding;

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

        binding = ActivityMapsBinding.inflate(getLayoutInflater());
        setContentView(binding.getRoot());

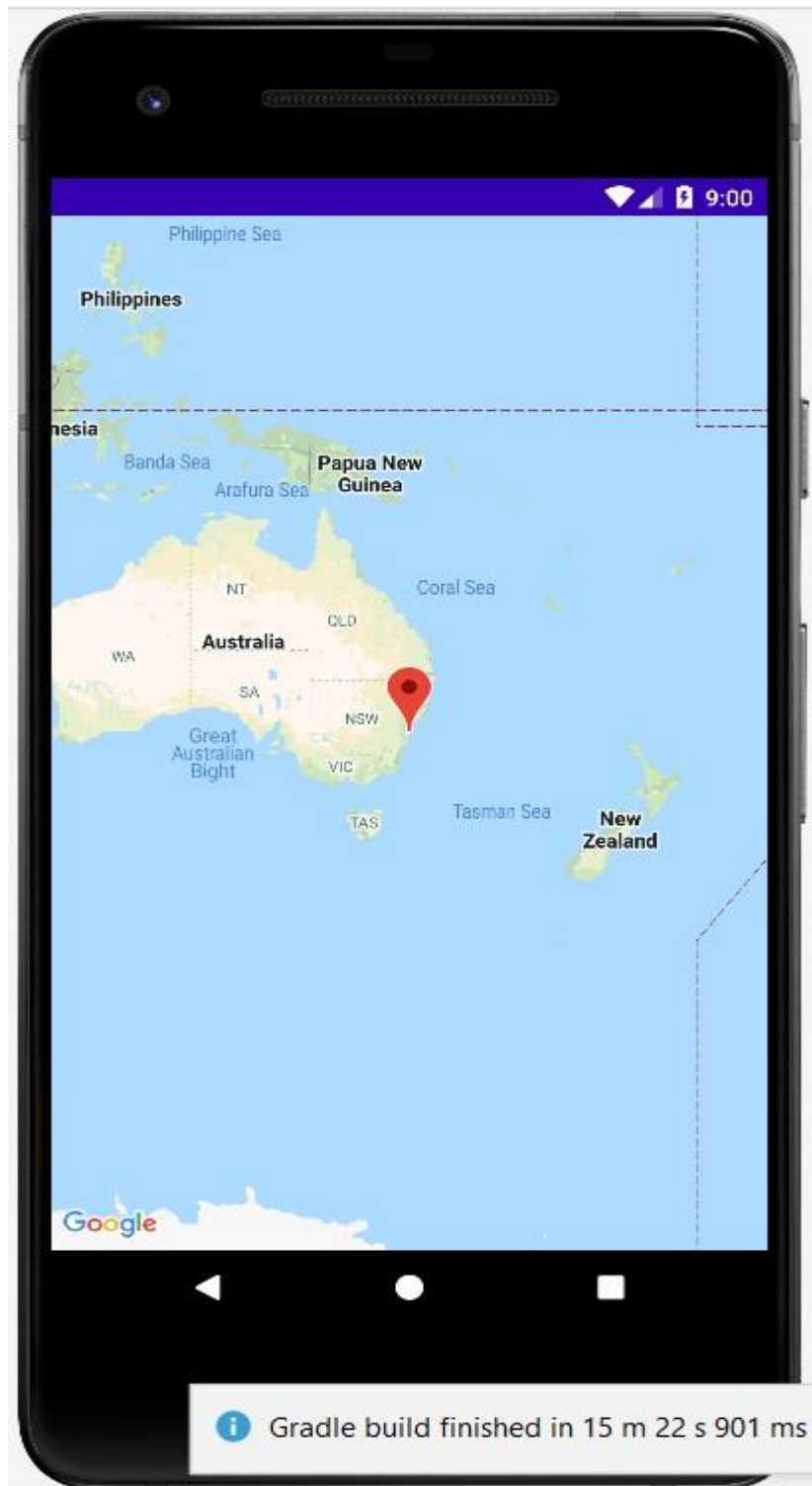
        // Obtain the SupportMapFragment and get notified when the map is ready to be used.
        SupportMapFragment mapFragment = (SupportMapFragment)
        getSupportFragmentManager()
            .findFragmentById(R.id.map);
        mapFragment.getMapAsync(this);
    }

    @Override
    public void onMapReady(GoogleMap googleMap) {
        mMap = googleMap;

        // Add a marker in Sydney and move the camera
        LatLng sydney = new LatLng(-34, 151);
        mMap.addMarker(new MarkerOptions().position(sydney).title("Marker in Sydney"));
        mMap.moveCamera(CameraUpdateFactory.newLatLng(sydney));
    }
}

```

}  
Output



## 9. Write a program to show bluetooth (on and off).

### Activity man.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/txtBTStatus"
        android:layout_width="272dp"
        android:layout_height="50dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:hint="Bluetooth Status"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.496"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.635"
        tools:ignore="MissingConstraints" />

    <Switch
        android:id="@+id/switchBT"
        android:layout_width="134dp"
        android:layout_height="44dp"
        android:layout_below="@+id/txtBTStatus"
        android:layout_alignParentStart="true"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:text="Switch"
        app:layout_constraintBottom_toTopOf="@+id/txtBTStatus"
        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="0.738"
        tools:ignore="MissingConstraints,UseSwitchCompatOrMaterialXml" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

## MainActivity.java ::

```
package com.example.bluetooth4; import
androidx.appcompat.app.AppCompatActivity; import
androidx.appcompat.widget.SwitchCompat; import
android.bluetooth.BluetoothAdapter; import
android.content.Intent; import android.os.Bundle;
import android.widget.CompoundButton;
import android.widget.Switch;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    Switch sw;
    TextView textView;
    BluetoothAdapter bt;
    Intent bluetoothIntent;
    int i = 1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);        sw =
        findViewById(R.id.switchBT);        textView =
        findViewById(R.id.txtBTStatus);

        bt = BluetoothAdapter.getDefaultAdapter();
        sw.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener()
        {
            @Override
            public void onCheckedChanged(CompoundButton buttonView, boolean isChecked) {
                if(isChecked){
                    bluetoothEnable();
                }
                else{
                    bluetoothDisable();
                }
            }
        });
    }
    public void bluetoothEnable(){
        bluetoothIntent = new Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);
        startActivityForResult(bluetoothIntent, i);
        textView.setText("Bluetooth is ON");
    }
}
```

```

    public void bluetoothDisable(){
bt.disable();      textView.setText("Bluetooth
is OFF");
    }
}

```

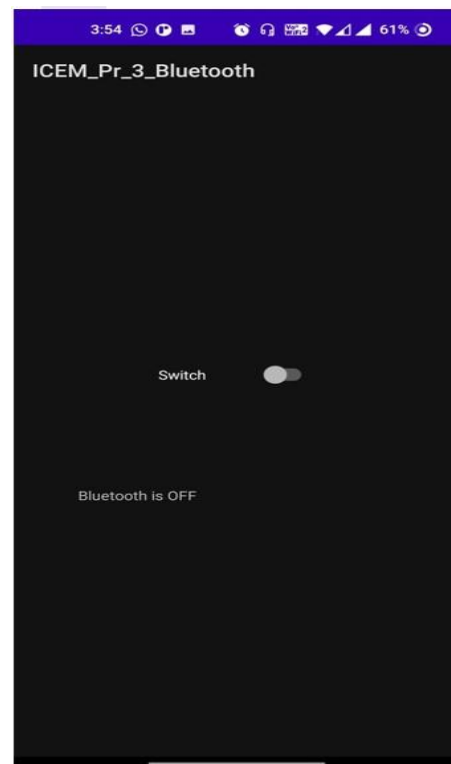
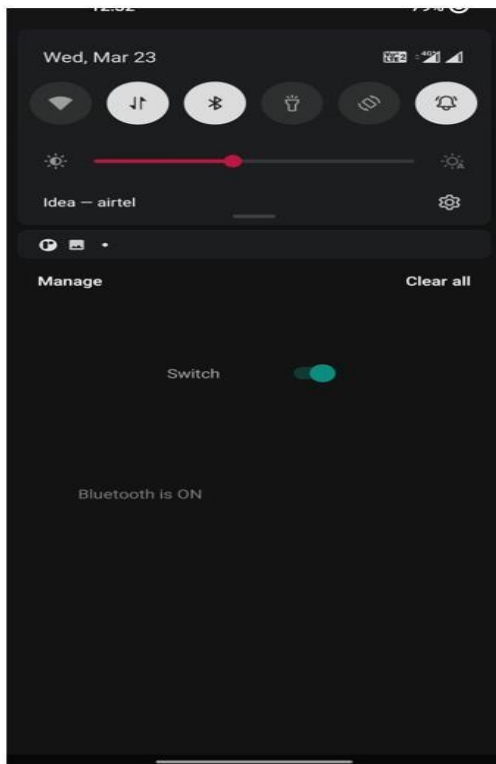
#### AndroidManifest.xml ::

```

<uses-permission android:name="android.permission.BLUETOOTH"/>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/>
<uses-permission android:name="android.permission.BLUETOOTH_CONNECT" />

```

#### Output



10. Write a program to show Audio and Video your screen.

#### MainActivity.java

on

```
package com.example.audioexample;
```

```
import android.app.Activity;
import android.net.Uri; import
android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.media.MediaPlayer; import
android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button; import
android.widget.MediaController;
import android.widget.VideoView;
```

```
public class MainActivity extends Activity {
    MediaPlayer media;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);    setContentView(R.layout.activity_main);
final VideoView myv = (VideoView) findViewById(R.id.videoView1);
myv.setVideoURI(Uri.parse("android.resource://" + getPackageName() + "/" +
R.raw.abc));    myv.setMediaController(new MediaController(this));
Button b= (Button) findViewById(R.id.button1);    Button b1= (Button)
findViewById(R.id.button2);
        media = new MediaPlayer().create(getApplicationContext(), R.raw.shree);
b.setOnClickListener(new OnClickListener() {    @Override
public void onClick(View arg0) {    // TODO Auto-generated
method stub        media.reset();
        media = new MediaPlayer().create(getApplicationContext(), R.raw.shree);
media.start();

    }
});
b1.setOnClickListener(new OnClickListener() {
    @Override
    public void onClick(View v) {
// TODO Auto-generated method stub
        media.stop();
    }
});
}
@Override    public boolean
onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
```



```

        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

    @Override    public boolean
onOptionsItemSelected(MenuItem item) {
    // Handle action bar item clicks here. The action bar will
    // automatically handle clicks on the Home/Up button, so long
    // as you specify a parent activity in AndroidManifest.xml.    int
id = item.getItemId();    if (id == R.id.action_settings) {
        return true;
    }
    return super.onOptionsItemSelected(item);
}
}

```

Activity\_main.xml

```

<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"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".MainActivity" >

    <VideoView
    android:id="@+id/videoView1"
    android:layout_width="match_parent"
        android:layout_height="200dp" />

    <Button
        android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button1"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="84dp"
        android:text="Stop" />

    <Button
        android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_above="@+id/button2"
    android:layout_alignLeft="@+id/videoView1"

```

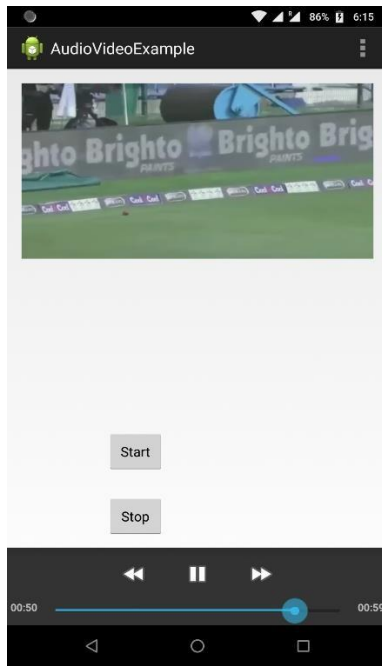
```

android:layout_marginBottom="26dp"
android:layout_marginLeft="95dp"      android:text="Start" />

</RelativeLayout>

```

Output:



### 11. Write a program to show Current date (Datepicker) and current time (Timepicker) on your screen. MainActivity.java

```
package com.example.datetimepicker;
```

```

import android.app.Activity; import
android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.app.DatePickerDialog; import
android.app.TimePickerDialog; import
android.view.MenuItem; import
android.view.View; import
android.widget.Button; import
android.widget.DatePicker; import
android.widget.EditText; import
android.widget.TimePicker; import
java.util.Calendar;

```

```

public class MainActivity extends Activity implements
View.OnClickListener {
    Button btnDatePicker, btnTimePicker;
    EditText txtDate, txtTime;

```

```

private int mYear, mMonth, mDay, mHour, mMinute;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);    setContentView(R.layout.activity_main);
btnDatePicker=(Button)findViewById(R.id.btn_date);
btnTimePicker=(Button)findViewById(R.id.btn_time);
txtDate=(EditText)findViewById(R.id.in_date);
txtTime=(EditText)findViewById(R.id.in_time);

    btnDatePicker.setOnClickListener(this);
    btnTimePicker.setOnClickListener(this);
}
@Override
public void onClick(View v) {

    if (v == btnDatePicker) {

        // Get Current Date
        final Calendar c = Calendar.getInstance();
        mYear = c.get(Calendar.YEAR);    mMonth
= c.get(Calendar.MONTH);
        mDay = c.get(Calendar.DAY_OF_MONTH);

        DatePickerDialog datePickerDialog = new DatePickerDialog(this,
new DatePickerDialog.OnDateSetListener() {

            @Override    public void
onDateSet(DatePicker view, int year,
int monthOfYear, int dayOfMonth) {

                txtDate.setText(dayOfMonth + "-" + (monthOfYear + 1) + "-" + year);

            }
        }, mYear, mMonth, mDay);
        datePickerDialog.show();
    }
    if (v == btnTimePicker) {

        // Get Current Time    final Calendar c
= Calendar.getInstance();    mHour =
c.get(Calendar.HOUR_OF_DAY);
        mMinute = c.get(Calendar.MINUTE);

        // Launch Time Picker Dialog
        TimePickerDialog timePickerDialog = new TimePickerDialog(this,
new TimePickerDialog.OnTimeSetListener() {

```

```

        @Override
        public void onTimeSet(TimePicker view, int hourOfDay,
                               int minute) {

            txtTime.setText(hourOfDay + ":" + minute);
        }
    }, mHour, mMinute, false);
    timePickerDialog.show();
}
}
}

```

### Activity\_main.xml

```

<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=".MainActivity">

    <EditText
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:id="@+id/in_date"
        android:layout_marginTop="82dp"
        android:layout_alignParentTop="true"
        android:layout_alignParentLeft="true"
        />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SELECT DATE"
        android:id="@+id/btn_date"
        android:layout_alignBottom="@+id/in_date"
        android:layout_toRightOf="@+id/in_date"
        />

    <EditText
        android:layout_width="200dp"
        android:layout_height="wrap_content"          android:id="@+id/in_time"
        android:layout_below="@+id/in_date"
        android:layout_alignParentLeft="true"
        />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SELECT TIME"          android:id="@+id/btn_time"

```

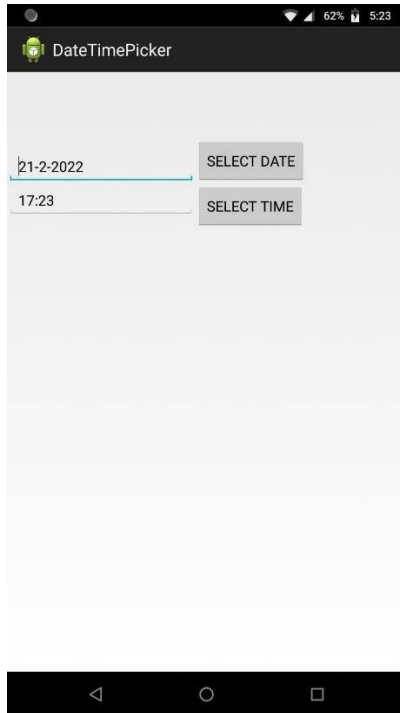
```

android:layout_below="@+id/btn_date"
android:layout_alignLeft="@+id/btn_date"    />

</RelativeLayout>

```

### Output:



**12. Write a program to on Camera on your screen and take a photograph.**

### MainActivity.java

```

package com.example.cameraexample;

import android.annotation.SuppressLint;
import android.app.Activity; import
android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.Manifest; import
android.app.Activity; import
android.app.AlertDialog; import
android.content.Context; import
android.content.DialogInterface; import
android.content.Intent; import
android.content.SharedPreferences; import
android.content.pm.PackageManager;
import android.net.Uri; import
android.os.Bundle;
import android.provider.Settings;

```

```

public class MainActivity extends Activity {
    public static final int MY_PERMISSIONS_REQUEST_CAMERA = 100;
    public static final String ALLOW_KEY = "ALLOWED";    public static final String
    CAMERA_PREF = "camera_pref";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);    setContentView(R.layout.activity_main);
        if (ContextCompat.checkSelfPermission(this, Manifest.permission.CAMERA) !=
        PackageManager.PERMISSION_GRANTED) {
            if (getFromPref(this, ALLOW_KEY)) {
                showSettingsAlert();
            } else if (ContextCompat.checkSelfPermission(this,
                Manifest.permission.CAMERA)

                != PackageManager.PERMISSION_GRANTED) {

                // Should we show an explanation?    if
                (ActivityCompat.shouldShowRequestPermissionRationale(this,
                    Manifest.permission.CAMERA)) {
                    showAlert();    } else {
                        // No explanation needed, we can request the permission.
                        ActivityCompat.requestPermissions(this,
                            new String[]{Manifest.permission.CAMERA},
                            MY_PERMISSIONS_REQUEST_CAMERA);
                    }
                }
            } else {
                openCamera();
            }
        }

        public static void saveToPreferences(Context context, String key, Boolean allowed) {
            SharedPreferences myPrefs = context.getSharedPreferences(CAMERA_PREF,
                Context.MODE_PRIVATE);
            SharedPreferences.Editor prefsEditor = myPrefs.edit();
            prefsEditor.putBoolean(key,    allowed);
            prefsEditor.commit();
        }

        public static Boolean getFromPref(Context context, String key) {
            SharedPreferences myPrefs = context.getSharedPreferences(CAMERA_PREF,
                Context.MODE_PRIVATE);
            return (myPrefs.getBoolean(key, false));
        }

        private void showAlert() {

```

```

        AlertDialog alertDialog = new AlertDialog.Builder(MainActivity.this).create();
        alertDialog.setTitle("Alert");
        alertDialog.setMessage("App needs to access the Camera.");
        alertDialog.setButton(AlertDialog.BUTTON_NEGATIVE, "DONT ALLOW",
new
        DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int which) {
                dialog.dismiss();
                finish();
            }
        });

        alertDialog.setButton(AlertDialog.BUTTON_POSITIVE, "ALLOW",
new DialogInterface.OnClickListener() {

            public void onClick(DialogInterface dialog, int which) {
                dialog.dismiss();
                ActivityCompat.requestPermissions(MainActivity.this,
                    new String[]{Manifest.permission.CAMERA},
                    MY_PERMISSIONS_REQUEST_CAMERA);
            }
        });
        alertDialog.show();
    }

    private void showSettingsAlert() {
        AlertDialog alertDialog = new AlertDialog.Builder(MainActivity.this).create();
        alertDialog.setTitle("Alert");
        alertDialog.setMessage("App needs to access the Camera.");

        alertDialog.setButton(AlertDialog.BUTTON_NEGATIVE, "DONT ALLOW",
new DialogInterface.OnClickListener() {

            public void onClick(DialogInterface dialog, int which) {
                dialog.dismiss();
                //finish();
            }
        });

        alertDialog.setButton(AlertDialog.BUTTON_POSITIVE, "SETTINGS",
new DialogInterface.OnClickListener() {

            public void onClick(DialogInterface dialog, int which) {
                dialog.dismiss();
                startInstalledAppDetailsActivity(MainActivity.this);
            }
        });

        alertDialog.show();
    }

```

```

    }

    @SuppressWarnings("Override") public void onRequestPermissionsResult(int requestCode,
String permissions[], int[] grantResults) {
switch (requestCode) {
    case MY_PERMISSIONS_REQUEST_CAMERA: {
        for (int i = 0, len = permissions.length; i < len; i++) {
            String permission = permissions[i];

            if (grantResults[i] == PackageManager.PERMISSION_DENIED) {
boolean                showRationale =
                ActivityCompat.shouldShowRequestPermissionRationale(
this, permission);

                if (showRationale) {
showAlert();
                } else if (!showRationale) {

                    saveToPreferences(MainActivity.this, ALLOW_KEY, true);
                } } }

            // other 'case' lines to check for other
            // permissions this app might request
        }
    }

    @Override    protected
void onResume() {
    super.onResume();
}

    public static void startInstalledAppDetailsActivity(final Activity context) {
if (context == null) {
    return;
}

    final Intent i = new Intent();
    i.setAction(Settings.ACTION_APPLICATION_DETAILS_SETTINGS);
    i.addCategory(Intent.CATEGORY_DEFAULT);
    i.setData(Uri.parse("package:" + context.getPackageName()));
    i.addFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
    i.addFlags(Intent.FLAG_ACTIVITY_NO_HISTORY);
    i.addFlags(Intent.FLAG_ACTIVITY_EXCLUDE_FROM_RECENTS);
context.startActivity(i);
}

    private void openCamera() {

```



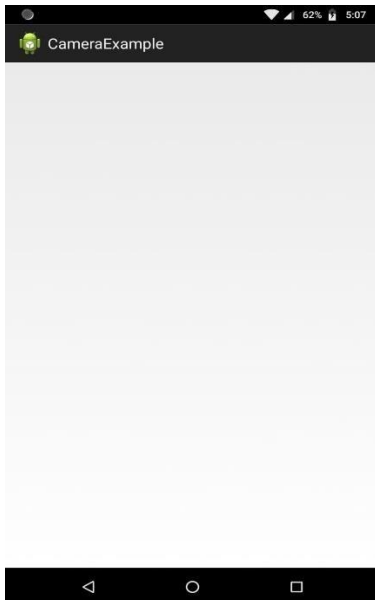
```
        Intent intent = new Intent("android.media.action.IMAGE_CAPTURE");
startActivity(intent);
    }
}
```

### **Activity\_main.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=".MainActivity">
</RelativeLayout>
```

### **Output:**



### 13. Write a program to show GPSTracker on your screen (Latitude and Longitude).

#### MainActivity.java

```
package com.example.gps;
```

```
import android.Manifest; import  
android.app.Activity; import android.os.Bundle;  
import android.view.Menu; import  
android.view.MenuItem; import  
android.test.mock.MockPackageManager; import  
android.view.View; import  
android.widget.Button; import  
android.widget.Toast;
```

```
public class MainActivity extends Activity {  
    Button btnShowLocation;  
    private static final int REQUEST_CODE_PERMISSION = 2;  
    String mPermission = Manifest.permission.ACCESS_FINE_LOCATION;  
  
    // GPSTracker class  
    GpsTracker gps;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
super.onCreate(savedInstanceState);    setContentView(R.layout.activity_main);  
  
try {
```

```

        if (ActivityCompat.checkSelfPermission(this, mPermission)
!= MockPackageManager.PERMISSION_GRANTED) {
    ActivityCompat.requestPermissions(this, new String[]{mPermission},

        REQUEST_CODE_PERMISSION);

    // If any permission above not allowed by user, this condition will
    //execute every time, else your else part will work
    }
    } catch (Exception e) {
e.printStackTrace();
    }

    btnShowLocation = (Button) findViewById(R.id.button);

    // show location button click event
    btnShowLocation.setOnClickListener(new View.OnClickListener() {

        @Override
        public void onClick(View arg0) {
            // create class object
            gps = new GpsTracker(MainActivity.this);

            // check if GPS enabled
            if(gps.canGetLocation()){

                double latitude = gps.getLatitude();
                double longitude = gps.getLongitude();

                // \n is for new line
                Toast.makeText(getApplicationContext(), "Your Location is - \nLat: "

```

```

        + latitude + "\nLong: " + longitude, Toast.LENGTH_LONG).show();
    }else{
        // can't get location
        // GPS or Network is not enabled
        // Ask user to enable GPS/network in settings
        gps.showSettingsAlert();
    }

    }
});
}
}

```

GpsRacker.java package

com.example.gps;

```

import android.app.Activity; import
android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.app.AlertDialog; import
android.app.Service; import
android.content.Context; import
android.content.DialogInterface; import
android.content.Intent; import
android.location.Location; import
android.location.LocationListener; import
android.location.LocationManager; import
android.os.Bundle; import
android.os.IBinder; import
android.provider.Settings;

```

```

import android.util.Log;

public class GpsTracker extends Service implements LocationListener{
    private final Context mContext;

    // flag for GPS status
    boolean isGPSEnabled = false;

    // flag for network status
    boolean isNetworkEnabled = false;

    // flag for GPS status
    boolean canGetLocation = false;

    Location location; // location
    double latitude; // latitude    double
    longitude; // longitude

    // The minimum distance to change Updates in meters
    private static final long MIN_DISTANCE_CHANGE_FOR_UPDATES = 10; // 10
meters

    // The minimum time between updates in milliseconds
    private static final long MIN_TIME_BW_UPDATES = 1000 * 60 * 1; // 1 minute

    // Declaring a Location Manager
    protected LocationManager locationManager;

    public GpsTracker(Context context) {
        this.mContext = context;    getLocation();

```

```

    }

    public Location getLocation() {
        try {
            locationManager = (LocationManager)
mContext.getSystemService(LOCATION_SERVICE);

            // getting GPS status
            isGPSEnabled =
locationManager.isProviderEnabled(LocationManager.GPS_PROVIDER);

            // getting network status
            isNetworkEnabled = locationManager
                .isProviderEnabled(LocationManager.NETWORK_PROVIDER);

            if (!isGPSEnabled && !isNetworkEnabled) {
                // no network provider is enabled
            } else {
                this.canGetLocation = true;
                // First get location from Network Provider
                if (isNetworkEnabled) {
                    locationManager.requestLocationUpdates(
                        LocationManager.NETWORK_PROVIDER,
                        MIN_TIME_BW_UPDATES,
                        MIN_DISTANCE_CHANGE_FOR_UPDATES, this);

                    Log.d("Network", "Network");
                    if (locationManager != null) {
                        location = locationManager
                            .getLastKnownLocation(LocationManager.NETWORK_PROVIDER);
                        if (location != null) {

```

```

        latitude = location.getLatitude();
longitude = location.getLongitude();
    }
}

// if GPS Enabled get lat/long using GPS
Services if (isGPSEnabled) { if
(location == null) {
    locationManager.requestLocationUpdates(
        locationManager.GPS_PROVIDER,
        MIN_TIME_BW_UPDATES,
        MIN_DISTANCE_CHANGE_FOR_UPDATES, this);

    Log.d("GPS Enabled", "GPS
Enabled"); if (locationManager != null) {
        location = locationManager
            .getLastKnownLocation(LocationManager.GPS_PROVIDER);

        if (location != null) {
latitude = location.getLatitude();
longitude = location.getLongitude();
        }
    }
}
}
} catch (Exception e) {
e.printStackTrace();
}

```

```

        return location;
    }

    /**
     * Stop using GPS listener
     * Calling this function will stop using GPS in your app
     * */

    public void stopUsingGPS(){
    if(locationManager != null){
        locationManager.removeUpdates(GpsTracker.this);
    }
    }

    /**
     * Function to get latitude
     * */

    public double getLatitude(){
    if(location != null){        latitude =
    location.getLatitude();
    }

    // return latitude
    return latitude;
    }

    /**
     * Function to get longitude
     * */

```



```

        public double getLongitude(){
if(location != null){
            longitude = location.getLongitude();
        }

        // return longitude
        return longitude;
    }

    /**
    * Function to check GPS/wifi enabled
    * @return boolean
    * */

    public boolean canGetLocation() {
        return this.canGetLocation;
    }

    /**
    * Function to show settings alert dialog
    * On pressing Settings button will lauch Settings Options
    * */

    public void showSettingsAlert(){
        AlertDialog.Builder alertDialog = new AlertDialog.Builder(mContext);
        // Setting Dialog Title
        alertDialog.setTitle("GPS is settings");

        // Setting Dialog Message
        alertDialog.setMessage("GPS is not
        enabled. Do you want to go to settings menu?");
    }

```

```

        // On pressing Settings button
        alertDialog.setPositiveButton("Settings", new DialogInterface.OnClickListener()
        {
            public void onClick(DialogInterface dialog,int which) {

                Intent intent = new
Intent(Settings.ACTION_LOCATION_SOURCE_SETTINGS);
mContext.startActivity(intent);

            }

        });

        // on pressing cancel button
        alertDialog.setNegativeButton("Cancel", new DialogInterface.OnClickListener()
        {
            public void onClick(DialogInterface dialog, int which) {
dialog.cancel();

            }

        });

        // Showing Alert Message
        alertDialog.show();

    }

    @Override
    public IBinder onBind(Intent arg0) {
return null;

    }

    @Override
    public void onLocationChanged(Location location) {

        // TODO Auto-generated method stub

```

```

    }

    @Override
    public void onStatusChanged(String provider, int status, Bundle extras) {
        // TODO Auto-generated method stub

    }

    @Override
    public void onProviderEnabled(String provider) {
        // TODO Auto-generated method stub

    }

    @Override
    public void onProviderDisabled(String provider) {
        // TODO Auto-generated method stub

    }
}

```

```

}

```

### **Activiy\_main.xml**

```

<?xml version = "1.0" encoding = "utf-8"?>
<LinearLayout xmlns:android = "http://schemas.android.com/apk/res/android"
    android:layout_width = "fill_parent"    android:layout_height = "fill_parent"
    android:orientation = "vertical" >

    <Button
        android:id = "@+id/button"
        android:layout_width = "fill_parent"
        android:layout_height = "wrap_content"
        android:text = "getlocation"/>

```

</LinearLayout>

## **AndroidManifest.xml**

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

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

```
package="com.example.gps"    android:versionCode="1"
```

```
android:versionName="1.0" >
```

```
    <uses-permission android:name = "android.permission.ACCESS_FINE_LOCATION" />
```

```
<uses-permission android:name = "android.permission.INTERNET" />
```

```
    <uses-sdk
```

```
        android:minSdkVersion="15"
```

```
    android:targetSdkVersion="15" />
```

```
    <application
```

```
        android:allowBackup="true"
```

```
    android:icon="@drawable/ic_launcher"
```

```
    android:label="@string/app_name"
```

```
    android:theme="@style/AppTheme" >
```

```
        <activity
```

```
            android:name=".MainActivity"
```

```
    android:label="@string/app_name" >
```

```
        <intent-filter>
```

```
            <action android:name="android.intent.action.MAIN" />
```

```
            <category android:name="android.intent.category.LAUNCHER" />
```

```
        </intent-filter>
```

```
        </activity>
```

```
    <activity
```

```
        android:name=".GpsTracker"
```

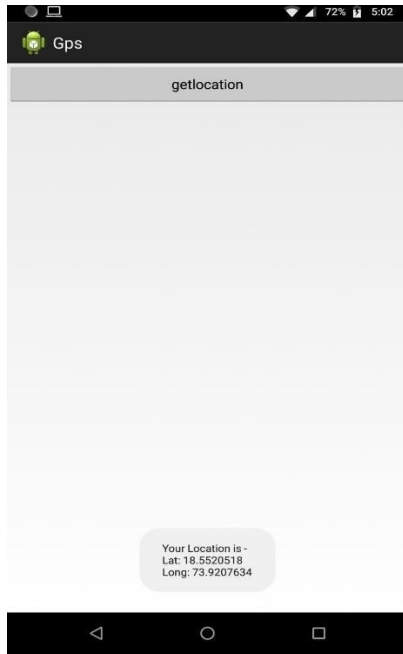
```

        android:label="@string/title_activity_gps_tracker" >

</activity>

</application>
</manifest> Output:

```



#### **14. Write a program to send SMS (Run this application on your actual android phone and show SMS received).**

```

MainActivit.java
package com.example.messagebox;

import android.app.Activity; import
android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.telephony.SmsManager; import
android.view.View; import
android.widget.Button; import
android.widget.EditText; import
android.widget.Toast;
public class MainActivity extends Activity {
    private EditText txtMobile;    private
    EditText txtMessage;          private
    Button btnSms;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

```

```

setContentView(R.layout.activity_main);    txtMobile
= (EditText)findViewById(R.id.mblTxt);    txtMessage
= (EditText)findViewById(R.id.msgTxt);    btnSms =
(Button)findViewById(R.id.btnSend);
    btnSms.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
try{
            SmsManager smgr = SmsManager.getDefault();

smgr.sendTextMessage(txtMobile.getText().toString(),null,txtMessage.getText().toString(),n
ull,null);
            Toast.makeText(MainActivity.this, "SMS Sent Successfully",
Toast.LENGTH_SHORT).show();
        }
        catch (Exception e){
            Toast.makeText(MainActivity.this, "SMS Failed to Send, Please try again",
Toast.LENGTH_SHORT).show();
        }
    }
});
}
}

```

### **Activity\_main.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:id="@+id/fstTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="150dp"
        android:text="Mobile No" />
    <EditText
        android:id="@+id/mblTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:ems="10"/>    <TextView
        android:id="@+id/secTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

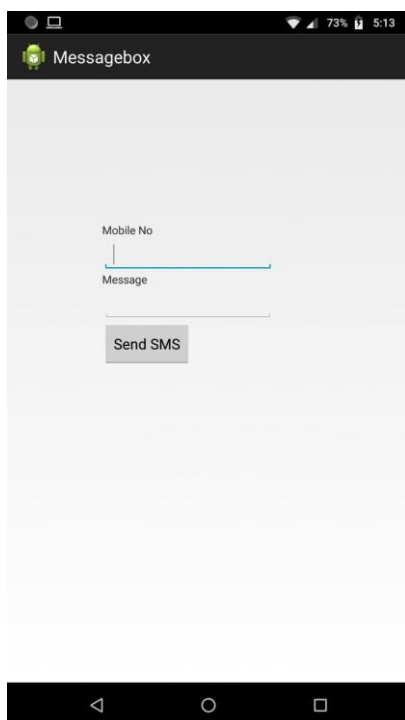
```

```

android:text="Message"
android:layout_marginLeft="100dp" />
    <EditText
        android:id="@+id/msgTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:ems="10" />    <Button
        android:id="@+id/btnSend"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:text="Send SMS" />
</LinearLayout>

```

### Output:



**15. Write a program to make a phone call. (Run this application on your actual android phone and show phone call on your screen).**

MainActivity.java  
 package com.example.phone2;

```

import android.app.Activity; import
android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.Manifest; import
android.content.Intent; import
android.content.pm.PackageManager;
import android.net.Uri; import
android.view.View; import
android.widget.Button;
import android.widget.EditText;

public class MainActivity extends Activity {
    private EditText phone;
        private Button call;
        @Override
        protected void onCreate(Bundle savedInstanceState) {
            super.onCreate(savedInstanceState);
            setContentView(R.layout.activity_main);    phone =
            (EditText) findViewById(R.id.number);    call =
            (Button) findViewById(R.id.call);
            call.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View v) {

                    String PhoneNumber = phone.getText().toString();

                    Intent intent = new Intent(Intent.ACTION_CALL);
                    intent.setData(Uri.parse("tel:"+PhoneNumber));

                    startActivity(intent);

                }
            });

        }
    }
}

```



## Activity\_main.xml

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

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/number" android:hint="Phone
        Number" android:inputType="phone"
        android:layout_margin="8dp">
    </EditText>

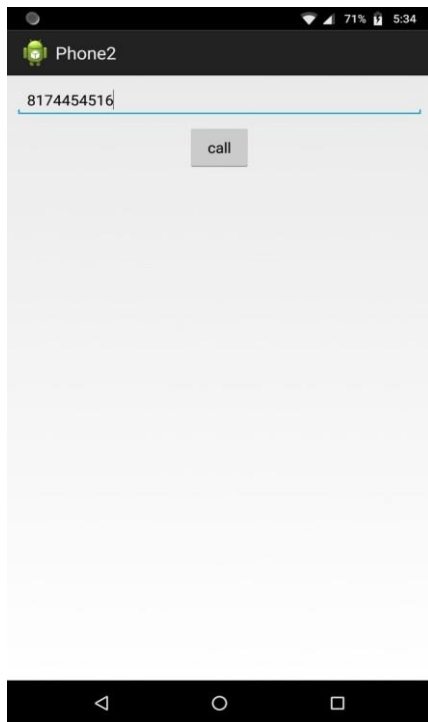
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="call" android:id="@+id/call"/>
</LinearLayout>
```

## AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.phone2"    android:versionCode="1"
    android:versionName="1.0" >
    <uses-sdk
        android:minSdkVersion="15"
        android:targetSdkVersion="15" />
    <uses-permission android:name="android.permission.CALL_PHONE"/>
    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name=".MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

## Output:



**16. Write a program to send mail and show the received mail from your mailbox.**

### MainActivity.java

```
package com.example.mailexample;

import android.app.Activity; import
android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.content.Intent; import
android.view.View; import
android.widget.Button; import
android.widget.EditText; public class
MainActivity extends Activity {    private
EditText eTo;
    private EditText eSubject;
private EditText eMsg;    private
Button btn;    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);    eTo =
(EditText)findViewById(R.id.txtTo);    eSubject =
(EditText)findViewById(R.id.txtSub);    eMsg =
(EditText)findViewById(R.id.txtMsg);    btn =
(Button)findViewById(R.id.btnSend);
    btn.setOnClickListener(new View.OnClickListener() {
```

```

        @Override
        public void onClick(View v) {
            Intent it = new Intent(Intent.ACTION_SEND);
            it.putExtra(Intent.EXTRA_EMAIL, new String[]{eTo.getText().toString()});
            it.putExtra(Intent.EXTRA_SUBJECT,eSubject.getText().toString());
            it.putExtra(Intent.EXTRA_TEXT,eMsg.getText());
            it.setType("message/rfc822");
            startActivity(Intent.createChooser(it,"Choose Mail App"));
        }
    });
}
}

```

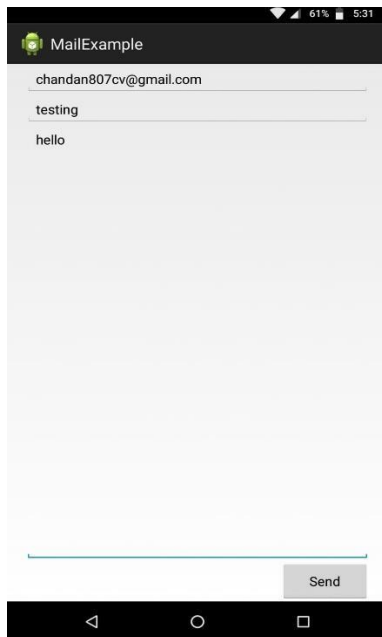
### Activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"    android:layout_height="match_parent"
    android:paddingLeft="20dp"    android:paddingRight="20dp"
    android:orientation="vertical" >
    <EditText    android:id="@+id/txtTo"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="To"/>    <EditText
    android:id="@+id/txtSub"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Subject"/>    <EditText
    android:id="@+id/txtMsg"
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1"
    android:gravity="top"
    android:hint="Message"/>
    <Button
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:layout_gravity="right"
    android:text="Send"
    android:id="@+id/btnSend"/>
</LinearLayout>

```

### Output:



**17. Write a program to show whether Wi-Fi connection is on or off from your screen**

### MainActivity.java

```
package com.example.wifiexample;
```

```
import android.app.Activity;
import android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.content.Context; import
android.view.View;
import android.view.View.OnClickListener; import
android.widget.Button;
import android.net.wifi.WifiManager;
```

```
public class MainActivity extends Activity {
    Button enableButton,disableButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);        setContentView(R.layout.activity_main);
        enableButton=(Button)findViewById(R.id.button1);
        disableButton=(Button)findViewById(R.id.button2);
        enableButton.setOnClickListener(new OnClickListener(){
            public void onClick(View v){
                WifiManager wifi = (WifiManager)
                getApplicationContext().getSystemService(Context.WIFI_SERVICE);
                wifi.setWifiEnabled(true);
            }
        });
        disableButton.setOnClickListener(new OnClickListener(){
```

```

        public void onClick(View v){
            WifiManager wifi =
            (WifiManager)
            getApplicationContext().getSystemService(Context.WIFI_SERVICE);
            wifi.setWifiEnabled(false);
        }
    });
}
}

```

### Activity\_main.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=".MainActivity">

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerVertical="true"
        android:layout_marginLeft="76dp" android:text="Enable
Wifi" />
    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_marginBottom="93dp" android:text="Disable
Wifi" />
</RelativeLayout>

```

### AndroidManifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.wifiexample" android:versionCode="1"
    android:versionName="1.0" >
    <uses-permission android:name="android.permission.ACCESS_WIFI_STATE" />
    <uses-permission android:name="android.permission.CHANGE_WIFI_STATE" />

    <uses-sdk
        android:minSdkVersion="15"
        android:targetSdkVersion="15" />

    <application

```

```

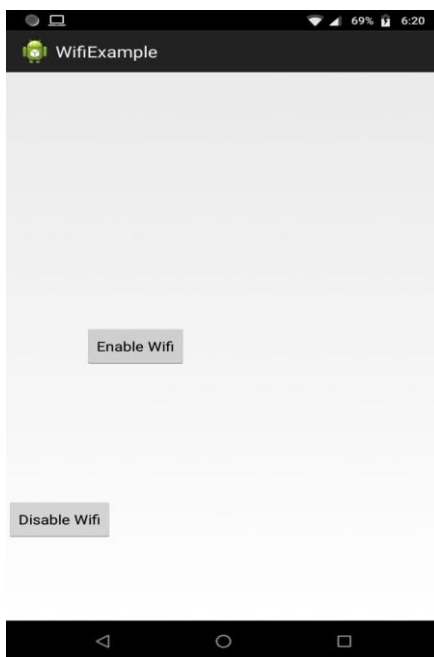
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name=".MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>

```

### Output:



### 18. Write a program to show Table layout and Toggle button.

MainActivity.java

```
package com.example.tablelayoutexample;
```

```

import android.app.Activity;
import android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.os.Bundle; import

```

```

android.view.Menu; import
android.view.MenuItem; import
android.view.View; import
android.widget.Button; import
android.widget.Toast;
public class MainActivity extends Activity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);      setContentView(R.layout.activity_main);
        // initiate a button
        Button loginButton = (Button) findViewById(R.id.loginBtn);
        // perform click event on the button      loginButton.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(getApplicationContext(), "Hello How are you..!!!",
Toast.LENGTH_LONG).show(); // display a toast message
            }
        });
    }
}

```

Activity\_main.xml

```

<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
android:layout_height="match_parent"      android:background="#000"
android:orientation="vertical"      android:stretchColumns="1">
<TableRow android:padding="5dip">
    <TextView
android:layout_height="wrap_content"
android:layout_marginBottom="20dp"
android:layout_span="2"
android:gravity="center_horizontal"
android:text="@string/loginForm"
android:textColor="#0ff"
android:textSize="25sp"
android:textStyle="bold" />
    </TableRow>
    <TableRow>
<TextView
        android:layout_height="wrap_content"
android:layout_column="0"
android:layout_marginLeft="10dp"

```

```

        android:text="@string/userName"
        android:textColor="#fff"          android:textSize="16sp"
    />
    <EditText
        android:id="@+id/userName"
        android:layout_height="wrap_content"
        android:layout_column="1"
        android:layout_marginLeft="10dp"
        android:background="#fff"
        android:hint="@string/userName"
        android:padding="5dp"          android:textColor="#000"
    />
</TableRow>
<TableRow>

    <TextView
        android:layout_height="wrap_content"
        android:layout_column="0"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="20dp"
        android:text="@string/password"
        android:textColor="#fff"
        android:textSize="16sp" />
    <EditText
        android:id="@+id/password"
        android:layout_height="wrap_content"
        android:layout_column="1"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="20dp"
        android:background="#fff"
        android:hint="@string/password"
        android:padding="5dp"
        android:textColor="#000" />
</TableRow>

<TableRow android:layout_marginTop="20dp">
    <Button
        android:id="@+id/loginBtn"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_span="2"
        android:background="#0ff"
        android:text="@string/login"

```

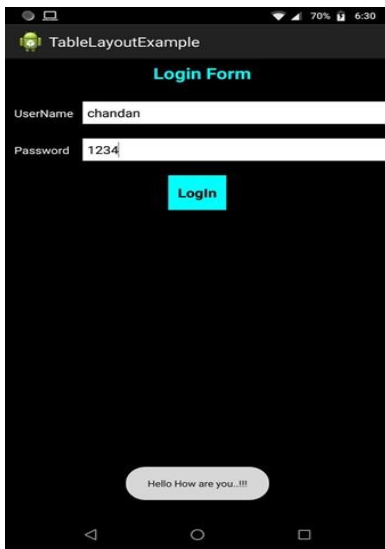


```

        android:textColor="#000"
        android:textSize="20sp"
        android:textStyle="bold" />
    </TableRow>
</TableLayout>

```

Output:



**Toggle:**

MainActivity.xml

```
package com.example.togleex;
```

```

import android.app.Activity;
import android.os.Bundle; import
android.view.Menu; import
android.view.MenuItem; import
android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button; import
android.widget.Toast;
import android.widget.ToggleButton;

```

```

public class MainActivity extends Activity {
    private ToggleButton toggleButton1, toggleButton2;
    private Button buttonSubmit;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);    addListenerOnButtonClick();
    }
}

```

```

    }
    public void addListenerOnButtonClick()
    {
        //Getting the ToggleButton and Button instance from the layout xml file
        toggleButton1 = (ToggleButton) findViewById(R.id.toggleButton1);
        toggleButton2 = (ToggleButton) findViewById(R.id.toggleButton2);
        buttonSubmit = (Button) findViewById(R.id.button1);    //Performing action on
        button click
        buttonSubmit.setOnClickListener(new OnClickListener()
        {
            public void onClick(View view)
            {
                StringBuilder result = new StringBuilder();
                result.append("ToggleButton1 : ").append(toggleButton1.getText());
                result.append("\nToggleButton2 : ").append(toggleButton2.getText());
                //Displaying the message in toast
                Toast.makeText(getApplicationContext(), result.toString(),
                Toast.LENGTH_LONG).show();
            }
        });
    }
}

```

```

@Override    public boolean
onOptionsItemSelected(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.main, menu);
    return true;
}

```

```

@Override    public boolean
onOptionsItemSelected(MenuItem item) {
    // Handle action bar item clicks here. The action bar will
    // automatically handle clicks on the Home/Up button, so long
    // as you specify a parent activity in AndroidManifest.xml.    int
    id = item.getItemId();    if (id == R.id.action_settings) {
        return true;
    }
    return super.onOptionsItemSelected(item);
}
}

```

Activity\_main.xml

```

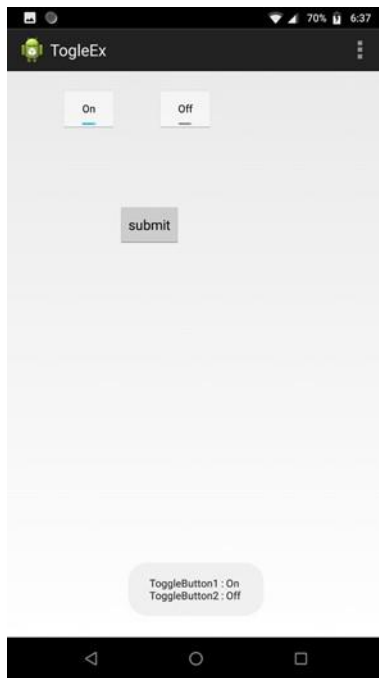
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"    tools:context=".MainActivity" >

```

```

    <ToggleButton
    android:id="@+id/toggleButton1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentLeft="true"
    android:layout_alignParentTop="true"
    android:layout_marginLeft="60dp"
    android:layout_marginTop="18dp"
    android:text="ToggleButton1"
    android:textOff="Off"                android:textOn="On"
/>    <ToggleButton
    android:id="@+id/toggleButton2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/toggleButton1"
    android:layout_alignBottom="@+id/toggleButton1"
    android:layout_marginLeft="44dp"
    android:layout_toRightOf="@+id/toggleButton1"
    android:text="ToggleButton2"
    android:textOff="Off"
        android:textOn="On" />
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/toggleButton2"
        android:layout_marginTop="82dp"
        android:layout_toRightOf="@+id/toggleButton1"
        android:text="submit" />
</RelativeLayout> Output:

```



## 19. Write a program to show SQLite database to perform CRUD operations (Create, Read, Update and Delete).

MainActivity.java

```
package com.example.sqliteoperations;
```

```
import android.app.Activity;
import android.os.Bundle; import
android.view.View;
import android.widget.EditText;
```

```
import android.view.Menu;
import android.view.MenuItem;
```

```
public class MainActivity extends Activity {
    EditText Name, Pass , updateold, updatenew, delete;
    myDbAdapter helper;
```

@Override

```
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);    Name=
(EditText) findViewById(R.id.editName);    Pass=
(EditText) findViewById(R.id.editPass);    updateold=
(EditText) findViewById(R.id.editText3);    updatenew=
(EditText) findViewById(R.id.editText5);    delete =
```

```

(EditText) findViewById(R.id.editText6);    helper =
new myDbAdapter(this);
    }
    public void addUser(View view)
    {
        String t1 = Name.getText().toString();
String t2 = Pass.getText().toString();
        if(t1.isEmpty() || t2.isEmpty())
        {
            Message.message(getApplicationContext(),"Enter Both Name and Password");
        }
    else
        {
            long id = helper.insertData(t1,t2);
            if(id<=0)
            {
                Message.message(getApplicationContext(),"Insertion Unsuccessful");
Name.setText("");
                Pass.setText("");
            } else
            {
                Message.message(getApplicationContext(),"Insertion Successful");
                Name.setText("");
                Pass.setText("");
            }
        }
    }
    public void viewdata(View view)
    {
        String data = helper.getData();
        Message.message(this,data);
    }
    public void update( View view)
    {
        String u1 = updateold.getText().toString();
String u2 = updatenew.getText().toString();
        if(u1.isEmpty() || u2.isEmpty())
        {
            Message.message(getApplicationContext(),"Enter Data");
        }
    else
        {
            int a= helper.updateName( u1, u2);
            if(a<=0)
            {
                Message.message(getApplicationContext(),"Unsuccessful");
updateold.setText("");        updatenew.setText("");
            } else {

```

```

        Message.message(getApplicationContext(),"Updated");
        updateold.setText("");
        updatenew.setText("");
    }
}
}
public void delete( View view)
{
    String uname = delete.getText().toString();
    if(uname.isEmpty())
    {
        Message.message(getApplicationContext(),"Enter Data");
    }
    else{
        int a= helper.delete(uname);
        if(a<=0)
        {
            Message.message(getApplicationContext(),"Unsuccessful");
        }
        delete.setText("");
    }
    else
    {
        Message.message(this, "DELETED");
        delete.setText("");
    }
}
}
}
}

```

myDbAdapter.java

```
package com.example.sqliteoperations;
```

```
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;
```

```
public class myDbAdapter {
    myDbHelper myhelper;
    public myDbAdapter(Context context)
    {
        myhelper = new myDbHelper(context);
    }
    public long insertData(String name, String pass)
    {

```

```

        SQLiteDatabase dbb = myhelper.getWritableDatabase();
        ContentValues contentValues = new ContentValues();
        contentValues.put(myDbHelper.NAME, name);
        contentValues.put(myDbHelper.MyPASSWORD, pass);
        long id;
        id = dbb.insert(myDbHelper.TABLE_NAME, null , contentValues);
        return id;
    }

    public String getData()
    {
        SQLiteDatabase db = myhelper.getWritableDatabase();
        String[] columns =
{myDbHelper.UID,myDbHelper.NAME,myDbHelper.MyPASSWORD};
        @SuppressWarnings("Recycle") Cursor cursor
=db.query(myDbHelper.TABLE_NAME,columns,null,null,null,null,null);
        StringBuffer buffer;
        buffer = new StringBuffer();
        while (cursor.moveToNext())
        {
            @SuppressWarnings("Range") int cid
=cursor.getInt(cursor.getColumnIndex(myDbHelper.UID));
            @SuppressWarnings("Range") String name
=cursor.getString(cursor.getColumnIndex(myDbHelper.NAME));
            @SuppressWarnings("Range") String password
=cursor.getString(cursor.getColumnIndex(myDbHelper.MyPASSWORD));
            buffer.append(cid).append(" ").append(name).append("
").append(password).append(" \n");
        }
        return buffer.toString();
    }

    public int delete(String uname)
    {
        SQLiteDatabase db = myhelper.getWritableDatabase();
        String[] whereArgs={uname};
        int count;
        count = db.delete(myDbHelper.TABLE_NAME ,myDbHelper.NAME+" =
?",whereArgs);
        return count;
    }

    public int updateName(String oldName , String newName)
    {
        SQLiteDatabase db = myhelper.getWritableDatabase();
        ContentValues contentValues = new ContentValues();
        contentValues.put(myDbHelper.NAME,newName);
        String[] whereArgs= {oldName};
        int count;
        count = db.update(myDbHelper.TABLE_NAME,contentValues, myDbHelper.NAME+"

```

```

= ?",whereArgs );
return count;
}
static class myDbHelper extends SQLiteOpenHelper
{
    private static final String DATABASE_NAME = "myDatabase"; // Database Name
    private static final String TABLE_NAME = "myTable"; // Table Name
    private static final int DATABASE_Version = 1; // Database Version
    private static final String UID="_id"; // Column I (Primary Key)
    private static final String NAME = "Name"; //Column II
    private static final String MyPASSWORD= "Password"; // Column III

    private static final String CREATE_TABLE = "CREATE TABLE "+TABLE_NAME+
        " (" +UID+" INTEGER PRIMARY KEY AUTOINCREMENT, "+NAME+"
        VARCHAR(255) ,"+ MyPASSWORD+" VARCHAR(225));";
    private static final String DROP_TABLE ="DROP TABLE IF EXISTS
        "+TABLE_NAME;
    private final Context context;
    public myDbHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_Version);
        this.context=context;
    }
    public void onCreate(SQLiteDatabase db) {
try {
        db.execSQL(CREATE_TABLE);
    } catch (Exception e) {
        Message.message(context,""+e);
    }
}
@Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
try {
        Message.message(context,"OnUpgrade");
        db.execSQL(DROP_TABLE);
        onCreate(db);
    }catch (Exception e) {
        Message.message(context,""+e);
    }
}
}
}

```

Activity\_main.java

```

<?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/activity_main" android:layout_width="match_parent"
    android:layout_height="match_parent"

```



```

tools:context="com.example.sqliteoperations.MainActivity"
android:background="@android:color/holo_blue_dark">
<TextView
    android:text="@string/username"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_marginTop="12dp"
    android:id="@+id/textView"    android:textSize="18sp"
    android:textStyle="bold|italic"
    android:layout_alignParentLeft="true"

    android:gravity="center" />
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="textPersonName"
    android:ems="10"    android:id="@+id/editName"
    android:textStyle="bold|italic"
    android:layout_below="@+id/textView"
    android:layout_alignParentRight="true"

    android:hint="Enter Name"
    android:gravity="center_vertical|center" />
<TextView android:text="@string/password"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="13dp"
    android:id="@+id/textView2"
    android:textStyle="bold|italic"
    android:textSize="18sp"
    android:layout_below="@+id/editName"
    android:layout_alignParentRight="true"

    android:gravity="center"
    android:hint="Enter Password" />
<Button    android:text="@string/view_data"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/button2"
    android:textSize="18sp"
    android:onClick="viewdata"
    android:textStyle="bold|italic"
    android:layout_alignBaseline="@+id/button"
    android:layout_alignBottom="@+id/button"
    android:layout_alignRight="@+id/button4"
    />

```

```

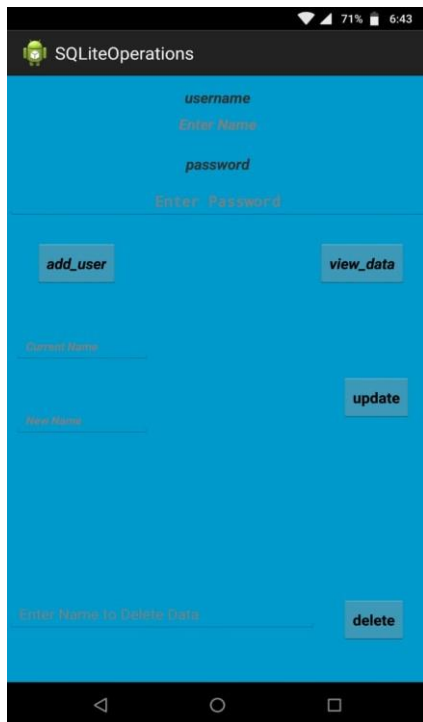
<Button
    android:text="@string/add_user"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/button"
    android:textStyle="bold|italic"
    android:textSize="18sp"
    android:onClick="addUser"
    android:layout_marginLeft="28dp"
    android:layout_below="@+id/editPass"
    android:layout_alignParentLeft="true"
    android:layout_marginTop="23dp" />
<Button    android:text="@string/update"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/button3"
    android:onClick="update"
    android:textStyle="normal|bold"
    android:layout_below="@+id/editText3"
    android:layout_alignLeft="@+id/button4"
    android:layout_marginTop="13dp" />
<EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"    android:inputType="textPersonName"
    android:ems="10"
    android:id="@+id/editText6"
    android:layout_alignTop="@+id/button4"
    android:layout_alignParentLeft="true"
    android:freezesText="false"
    android:hint="Enter Name to Delete Data"
    android:layout_toLeftOf="@+id/button2"
    />
<Button    android:text="@string/delete"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginRight="21dp"
    android:id="@+id/button4"
    android:onClick="delete"
    android:textStyle="normal|bold"
    tools:ignore="RelativeOverlap"
    android:layout_marginBottom="41dp"
    android:layout_alignParentBottom="true"
    android:layout_alignParentRight="true"
    />
<EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:inputType="textPersonName"

```

```

android:ems="10"
android:layout_marginTop="47dp"
android:id="@+id/editText3"
android:textStyle="bold|italic"
android:textSize="14sp"
android:layout_below="@+id/button"
android:layout_alignParentLeft="true"
android:layout_marginLeft="7dp"
android:hint="Current Name" />
<EditText
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:inputType="textPassword"
android:ems="10"
android:layout_marginTop="11dp"
android:id="@+id/editPass"
android:hint="Enter Password"
android:gravity="center_vertical|center"
android:textSize="18sp"
android:layout_below="@+id/textView2"
android:layout_alignParentLeft="true"
android:textAllCaps="false"
android:textStyle="normal|bold" />
    <EditText
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:inputType="textPersonName"
android:ems="10" android:id="@+id/editText5"
android:textStyle="bold|italic"
android:textSize="14sp" android:hint="New
Name"
    android:layout_alignTop="@+id/button3"
android:layout_alignLeft="@+id/editText3"
android:layout_marginTop="32dp" />
</RelativeLayout> Output:

```



**20] Write a program to show image gesture (touch screen events such as pinch, double tap, scrolls, long presses and flinch).**

**Activity\_main.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=".MainActivity">

    <TextView android:text=" Imageswitcher Example"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/textview"        android:textSize="35dp"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true" /> <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=" "
        android:id="@+id/textView"
        android:layout_below="@+id/textview"
        android:layout_centerHorizontal="true"
        android:textColor="#ff7aff24"
        android:textSize="35dp" />
```

```

<ImageSwitcher
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/imageSwitcher"
android:layout_below="@+id/textView"
android:layout_centerHorizontal="true"
    android:layout_marginTop="168dp" />

<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="@string/left"
android:id="@+id/button"
android:layout_below="@+id/textView"
    android:layout_centerHorizontal="true" />

<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="@string/right"
android:id="@+id/button2"
android:layout_alignParentBottom="true"
android:layout_alignLeft="@+id/button"
    android:layout_alignStart="@+id/button" />

</RelativeLayout>

```

### Mainactivity.java

```

package com.example.imagegeasture;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle; import
android.app.ActionBar.LayoutParams; import
android.view.View; import android.widget.Button;
import android.widget.ImageSwitcher; import
android.widget.ImageView; import
android.widget.Toast;
import android.widget.ViewSwitcher.ViewFactory;

public class MainActivity extends AppCompatActivity {
    private ImageSwitcher sw;
    private Button b1,b2;

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

```

```

setContentView(R.layout.activity_main);    b1 =
(Button) findViewById(R.id.button);
    b2 = (Button) findViewById(R.id.button2);

    sw = (ImageSwitcher) findViewById(R.id.imageSwitcher);
sw.setFactory(new ViewFactory() {
    @Override
    public View makeView() {
        ImageView myView = new ImageView(getApplicationContext());
myView.setScaleType(ImageView.ScaleType.FIT_CENTER);
        myView.setLayoutParams(new
            ImageSwitcher.LayoutParams(LayoutParams.WRAP_CONTENT,
                LayoutParams.WRAP_CONTENT));
        return myView;
    }
});

b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Toast.makeText(getApplicationContext(), "previous Image",
Toast.LENGTH_LONG).show();
        sw.setImageResource(R.drawable.pqr);
    }
});

b2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Toast.makeText(getApplicationContext(), "Next Image",
Toast.LENGTH_LONG).show();
        sw.setImageResource(R.drawable.xyz);
    }
});
}
}

```

## Output



21] Write a program to show internal storage demo by storing and reading file. E.g. code.txt

### activity\_main.xml

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

    <TextView
        android:id="@+id/textView2"
```

```

android:layout_width="337dp"
android:layout_height="28dp"
android:text=" File Content "
android:textAlignment="center"
    android:textColor="#000"
android:textSize="24sp"    android:textStyle="bold"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.52" />

```

```

<Button
android:id="@+id/write_button"
android:layout_width="wrap_content"
android:layout_height="48dp"
android:layout_marginStart="160dp"
android:layout_marginEnd="159dp"
android:layout_marginBottom="16dp"
    android:text="Write"
    app:layout_constraintBottom_toTopOf="@+id/read_button"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.904" />

```

```

<Button
android:id="@+id/read_button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="160dp"
android:layout_marginEnd="158dp"
android:layout_marginBottom="48dp"
    android:text="Read"
    app:layout_constraintBottom_toTopOf="@+id/textView2"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent" />

```

```

<EditText
android:id="@+id/userInput"
android:layout_width="319dp"
android:layout_height="50dp"
android:layout_marginStart="46dp"
android:layout_marginTop="91dp"
android:layout_marginEnd="46dp"
android:ems="10"

```



```

    android:inputType="textPersonName"
    android:text="Name"
        app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

    <TextView
    android:id="@+id/content"
    android:layout_width="332dp"
    android:layout_height="306dp"
    android:layout_marginStart="33dp"
    android:layout_marginTop="21dp"
    android:layout_marginEnd="33dp"
    android:layout_marginBottom="6dp"
        android:text=""        android:textAlignment="center"
    android:textColor="#000"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.461"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView2"
    app:layout_constraintVertical_bias="0.0" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

### Mainactivity.java

```

package com.example.calculator;

import android.content.Context;
import android.os.Bundle; import
android.view.View; import
android.widget.Button; import
android.widget.EditText; import
android.widget.TextView; import
android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import java.io.FileInputStream; import
java.io.FileOutputStream;
import java.io.IOException;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    // declare the variables
    Button read, write;
    EditText userInput;
    TextView fileContent;

```

```

private String filename = "code.txt";

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

    read = findViewById(R.id.read_button);
    write = findViewById(R.id.write_button);
    userInput = findViewById(R.id.userInput);
    fileContent = findViewById(R.id.content);

    read.setOnClickListener(this);
    write.setOnClickListener(this);
}

public void printMessage(String m) {
    Toast.makeText(this, m, Toast.LENGTH_LONG).show();
}

@Override public void
onClick(View view) {
    Button b = (Button) view;

    // get the button text : in out case either read or
    // write depending on the button pressed.
    String b_text = b.getText().toString();

    switch (b_text.toLowerCase()) {
        case "write": {
            writeData(); break;
        }
        case "read": {
            readData(); break;
        }
    }
}

private void writeData() {

    try {
        FileOutputStream fos = openFileOutput(filename, Context.MODE_PRIVATE);
        String data = userInput.getText().toString();
        fos.write(data.getBytes());
        fos.flush();
        fos.close();
    } catch (IOException e) {
        e.printStackTrace();
    }
}

```

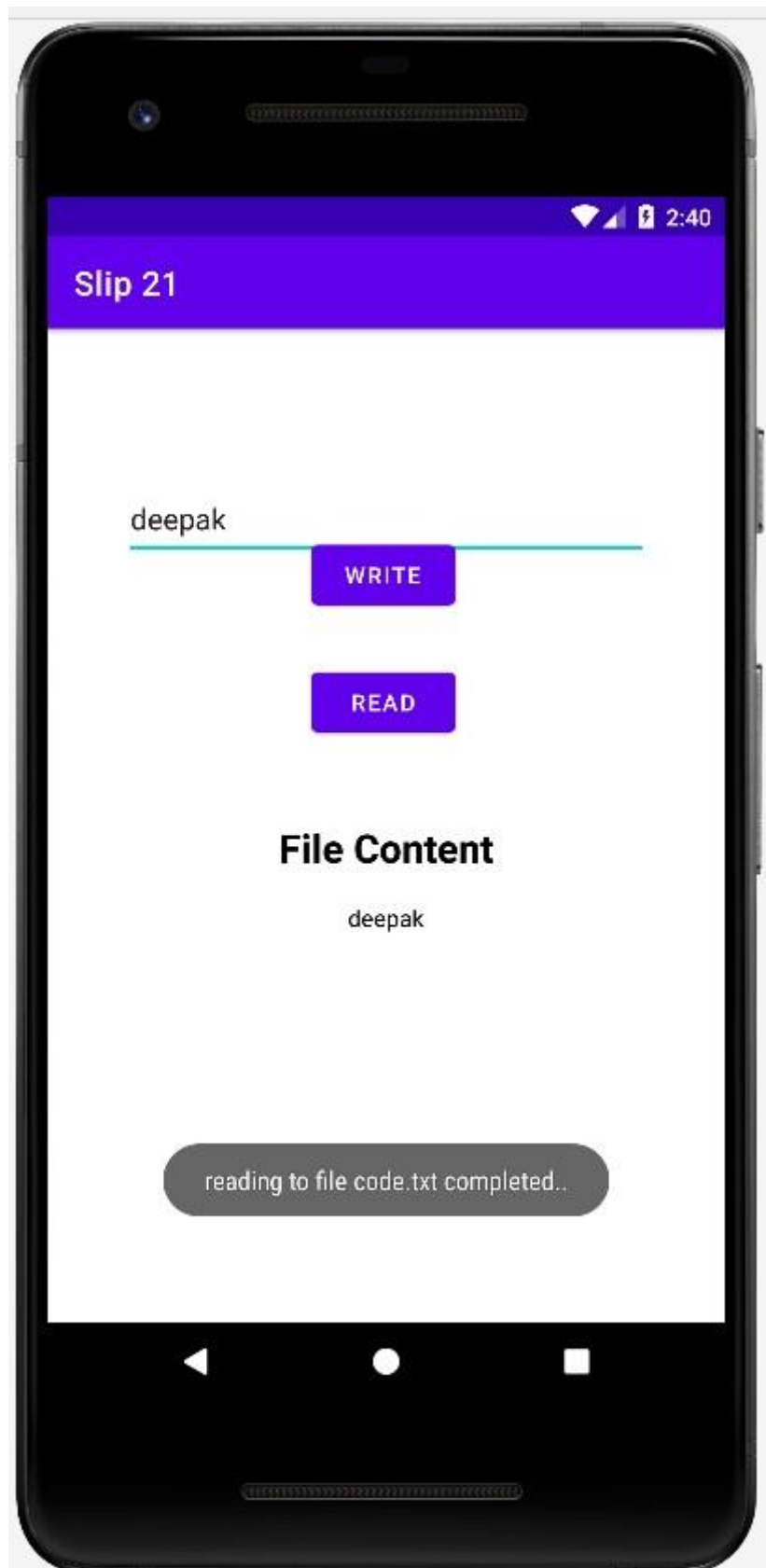
```

    }
    userInput.setText("");
    printMessage("writing to file " + filename + "completed...");
}

private void readData() {
    try {
        FileInputStream fin = openFileInput(filename);
int a;
        StringBuilder temp = new StringBuilder();
        while ((a = fin.read()) != -1) {
            temp.append((char) a);
        }
        // setting text from the file.
        fileContent.setText(temp.toString());
        fin.close();
    } catch (IOException e) {
e.printStackTrace();
    }
    printMessage("reading to file " + filename + " completed..");
}
}

```

## Output



## 22] Write a program to show Multiautocomplete Textview?

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    android:layout_margin="16dp"    android:orientation="vertical"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="Text Separated by Commas"
        android:textSize="18sp" />
    <MultiAutoCompleteTextView
        android:id="@+id/multiAutoCompleteTextViewDefault"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"    android:ems="10"
        android:hint="Enter Search Terms here" />
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="Text Separated by Custom Token"
        android:textSize="18sp" />
    <MultiAutoCompleteTextView
        android:id="@+id/multiAutoCompleteTextViewCustom"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"    android:ems="10"
        android:hint="Add your necessary tags here" />

</LinearLayout>
```

### Mainactivity.java

```
package com.example.slip22;

import android.os.Bundle; import
android.widget.ArrayAdapter; import
android.widget.MultiAutoCompleteTextView; import
androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {    MultiAutoCompleteTextView
multiAutoCompleteTextViewDefault;
    MultiAutoCompleteTextView multiAutoCompleteTextViewCustom;
```

```

String[] fewRandomSuggestedText = {"a", "ant", "apple", "asp", "android", "animation", "adobe",
    "chrome", "chromium", "firefox", "freeware", "fedora"};
String[] fewTags = {"Java", "JavaScript", "Spring", "Java EE", "Java 8", "Java 9", "Java 10",
    "MongoDB", "MarshMallow", "NoSQL", "NativeApp", "SQL", "SQLite"};

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

    multiAutoCompleteTextViewDefault =
        findViewById(R.id.multiAutoCompleteTextViewDefault);
    multiAutoCompleteTextViewCustom =
        findViewById(R.id.multiAutoCompleteTextViewCustom);

    ArrayAdapter<String> randomArrayAdapter = new ArrayAdapter<>(this,
        android.R.layout.simple_list_item_1, fewRandomSuggestedText);
    multiAutoCompleteTextViewDefault.setAdapter(randomArrayAdapter);

    multiAutoCompleteTextViewDefault.setThreshold(1);

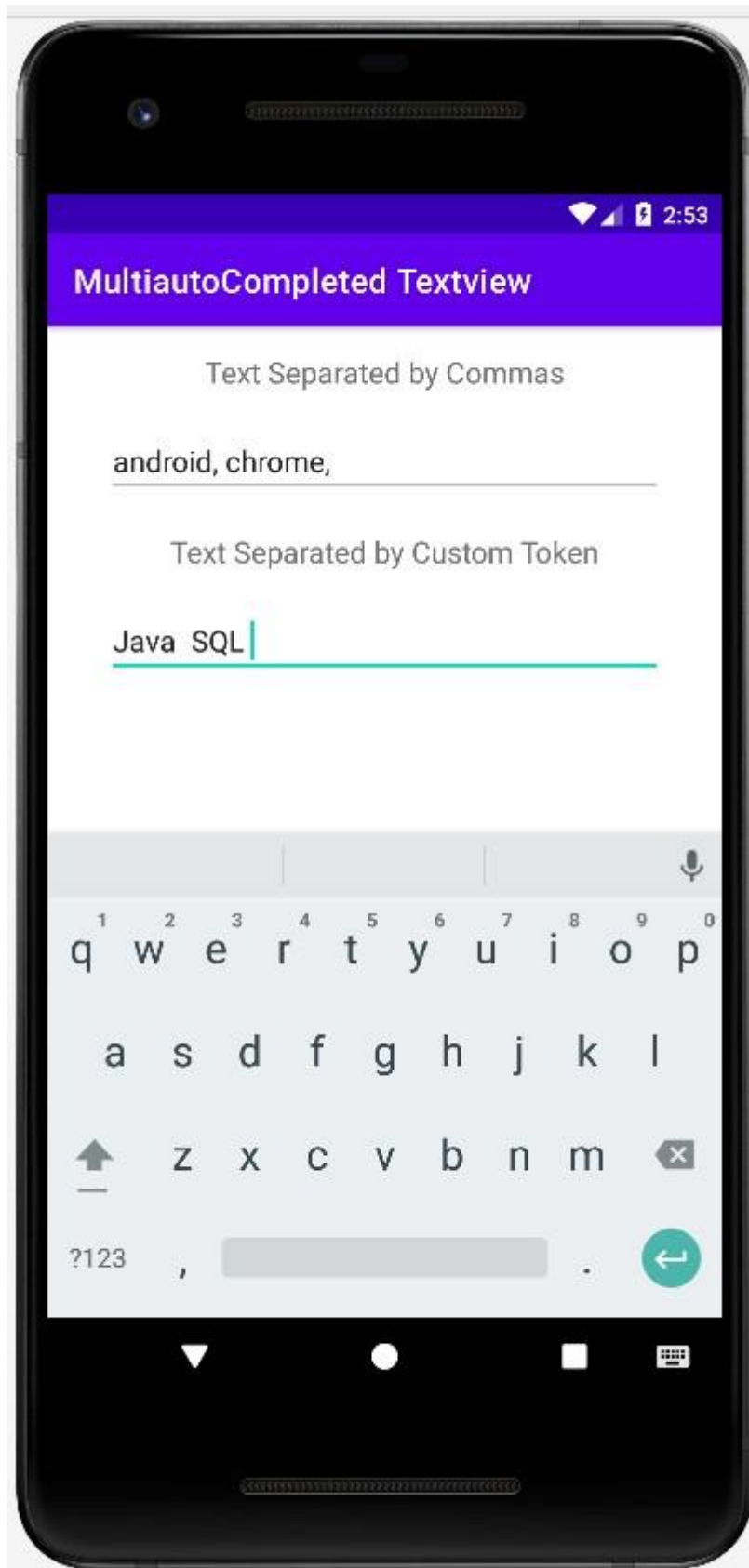
    multiAutoCompleteTextViewDefault.setTokenizer(new
        MultiAutoCompleteTextView.CommaTokenizer());
    ArrayAdapter<String> tagArrayAdapter = new ArrayAdapter<>(this,
        android.R.layout.simple_list_item_1, fewTags);
    multiAutoCompleteTextViewCustom.setAdapter(tagArrayAdapter);

    multiAutoCompleteTextViewCustom.setThreshold(2);

    multiAutoCompleteTextViewCustom.setTokenizer((MultiAutoCompleteTextView.Tokenizer)
        new SpaceTokenizer());
}

```

## Output



**23] Write a program to show Multitouch. (More than one touches the screen at the same time.) Activity\_main.xml**

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

    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="39dp"
        android:layout_marginTop="37dp"
        android:layout_marginEnd="64dp"
        android:layout_marginBottom="14dp"
        android:text="Multitouch example"        android:textSize="35dp"
        app:layout_constraintBottom_toTopOf="@+id/textView"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textview"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="94dp"
        android:layout_marginTop="14dp"
        android:layout_marginEnd="94dp"
        android:layout_marginBottom="25dp"
        android:text="Tutorials point"
        android:textColor="#ff7aff24"        android:textSize="35dp"
        app:layout_constraintBottom_toTopOf="@+id/imageView"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textview" />

    <ImageView android:id="@+id/imageView"
        android:layout_width="337dp"
        android:layout_height="149dp"
```



```

        android:layout_below="@+id/textView"
        android:layout_centerHorizontal="true"
        android:layout_marginStart="39dp"
    android:layout_marginTop="18dp"
    android:layout_marginEnd="35dp"
    android:layout_marginBottom="41dp"
    android:src="@drawable/abc"
    android:theme="@style/Base.TextAppearance.AppCompat"
    app:layout_constraintBottom_toTopOf="@+id/editText"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView" />

```

```

<EditText    android:id="@+id/editText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/imageView"
    android:layout_alignStart="@+id/textview"
    android:layout_alignLeft="@+id/textview"
    android:layout_alignEnd="@+id/textview"
    android:layout_alignRight="@+id/textview"
    android:layout_marginStart="86dp"
    android:layout_marginTop="29dp"
    android:layout_marginEnd="268dp"
    android:layout_marginBottom="14dp"
        android:hint="X-Axis"
    android:minHeight="48dp"
    android:textColorHint="#ff69ff0e"
        app:layout_constraintBottom_toTopOf="@+id/editText2"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView" />

```

```

<EditText
    android:id="@+id/editText2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editText"
    android:layout_alignStart="@+id/editText"
    android:layout_alignLeft="@+id/editText"
    android:layout_alignEnd="@+id/editText"
    android:layout_alignRight="@+id/editText"
    android:layout_marginStart="86dp"
    android:layout_marginEnd="268dp"
    android:layout_marginBottom="6dp"
        android:hint="Y-Axis" android:minHeight="48dp"
        android:textColorHint="#ff21ff11"
        app:layout_constraintBottom_toTopOf="@+id/edi

```

```

tText3"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/editText" />

<EditText      android:id="@+id/editText3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/editText2"
android:layout_alignStart="@+id/editText2"
android:layout_alignLeft="@+id/editText2"
android:layout_alignEnd="@+id/editText2"
android:layout_alignRight="@+id/editText2"
android:layout_marginStart="86dp"
android:layout_marginEnd="258dp"
android:layout_marginBottom="17dp"
android:hint="Move X"
android:minHeight="48dp"
android:textColorHint="#ff33ff20"
    app:layout_constraintBottom_toTopOf="@+id/editText4"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/editText2" />

<EditText      android:id="@+id/editText4"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/editText3"
android:layout_alignStart="@+id/editText3"
android:layout_alignLeft="@+id/editText3"
android:layout_alignEnd="@+id/editText3"
android:layout_alignRight="@+id/editText3"
android:layout_marginStart="86dp"
android:layout_marginTop="14dp"
android:layout_marginEnd="258dp"
android:layout_marginBottom="17dp"
android:hint="Move Y"
android:minHeight="48dp"
android:textColorHint="#ff31ff07"
    app:layout_constraintBottom_toTopOf="@+id/textView2"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/editText3" />

<TextView android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"

```

```

        android:layout_alignStart="@+id/imageView"
        android:layout_alignLeft="@+id/imageView"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="94dp"
        android:layout_marginTop="9dp"
        android:layout_marginEnd="144dp"
        android:layout_marginBottom="23dp"
        android:clickable="true"        android:focusable="true"
        android:minHeight="48dp"        android:text="Touch here"
        android:textColor="#ff5480ff"    android:textSize="35dp"
        android:typeface="sans"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText4" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

### Mainactivity.java

```

package com.example.a23slip;

import android.app.Activity;
import android.os.Bundle; import
android.view.MotionEvent; import
android.view.View; import
android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends Activity {
    float xAxis = 0f;
    float yAxis = 0f;

    float lastXAxis = 0f;
    float lastYAxis = 0f;

    EditText ed1, ed2, ed3, ed4;
    TextView tv1;

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

        ed1 = (EditText) findViewById(R.id.editText); ed2
        = (EditText) findViewById(R.id.editText2); ed3 =
        (EditText) findViewById(R.id.editText3);
    }
}

```

```

ed4 = (EditText) findViewById(R.id.editText4);

tv1=(TextView)findViewById(R.id.textView2);

tv1.setOnTouchListener(new View.OnTouchListener() {
    @Override    public boolean onTouch(View v,
MotionEvent event) {    final int actionPeformed =
event.getAction();

        switch(actionPeformed){
case MotionEvent.ACTION_DOWN:{
final float x = event.getX();    final
float y = event.getY();

            lastXAxis = x;
lastYAxis = y;

            ed1.setText(Float.toString(lastXAxis));
ed2.setText(Float.toString(lastYAxis));    break;
        }

        case MotionEvent.ACTION_MOVE:{
final float x = event.getX();    final
float y = event.getY();

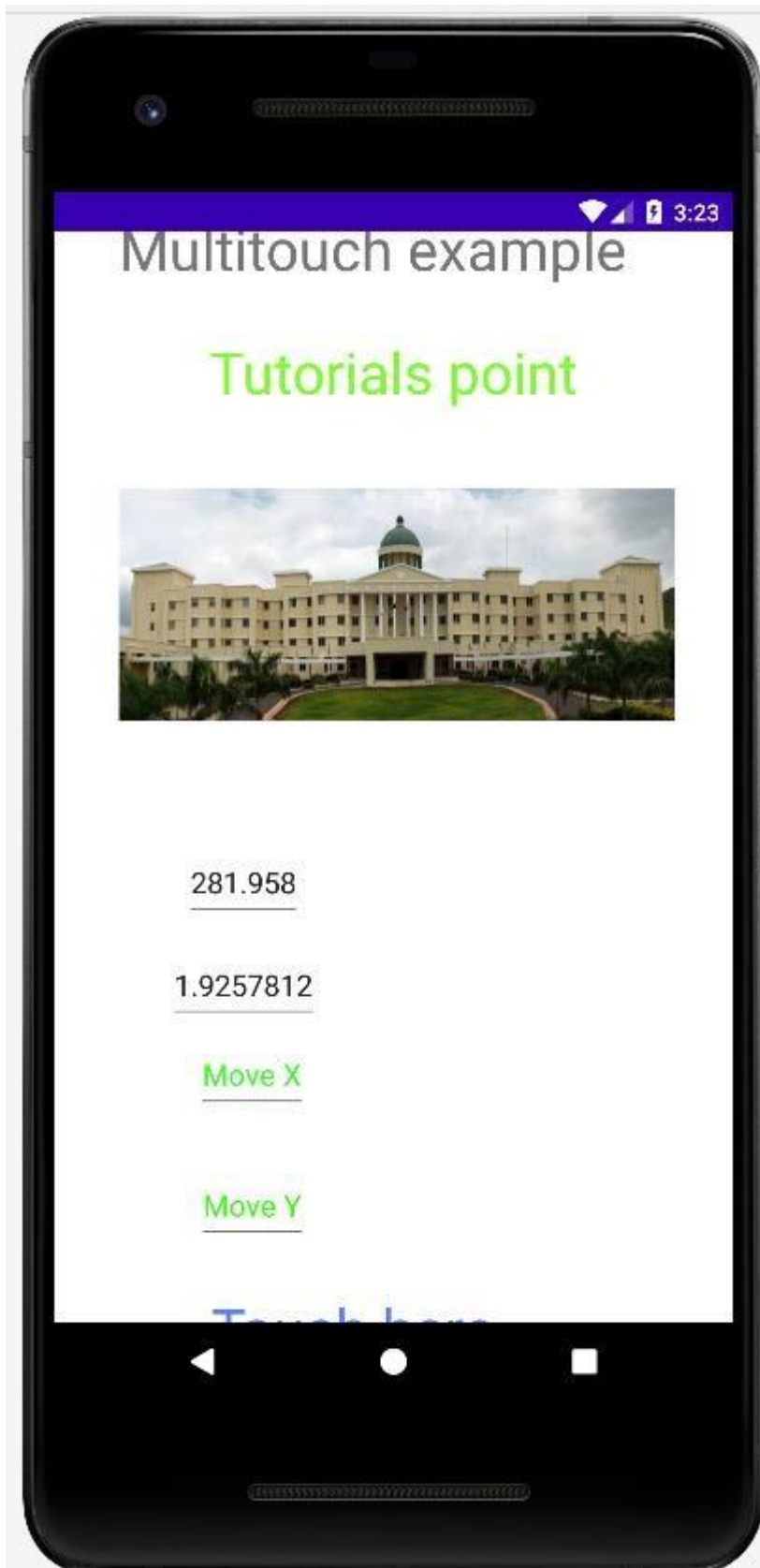
            final float dx = x - lastXAxis;
final float dy = y - lastYAxis;

            xAxis += dx;
yAxis += dy;

            ed3.setText(Float.toString(xAxis));
ed4.setText(Float.toString(yAxis));
            break;
        }
    }
    return
true;
    }
});
}
}

```

## Output



## 24] Write a program to show Push notification.

### 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">

    <TextView
android:id="@+id/textView2"
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:gravity="center"
    android:text="your detail of notification..."
    android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"
    app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.173"
tools:ignore="MissingConstraints"
    tools:layout_editor_absoluteX="16dp" />

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

    android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"
    app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.177"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView2"
    app:layout_constraintVertical_bias="0.229"
    tools:ignore="MissingConstraints" />

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

### Mainactivity.java

```
package com.example.a24notifiacion;

import static android.content.Context.NOTIFICATION_SERVICE;
```

```

import android.app.NotificationChannel ;
import android.app.NotificationManager ;
import android.graphics.BitmapFactory ;
import android.os.Bundle ; import
android.view.View ;
import androidx.appcompat.app.AppCompatActivity; import
androidx.core.app.NotificationCompat;

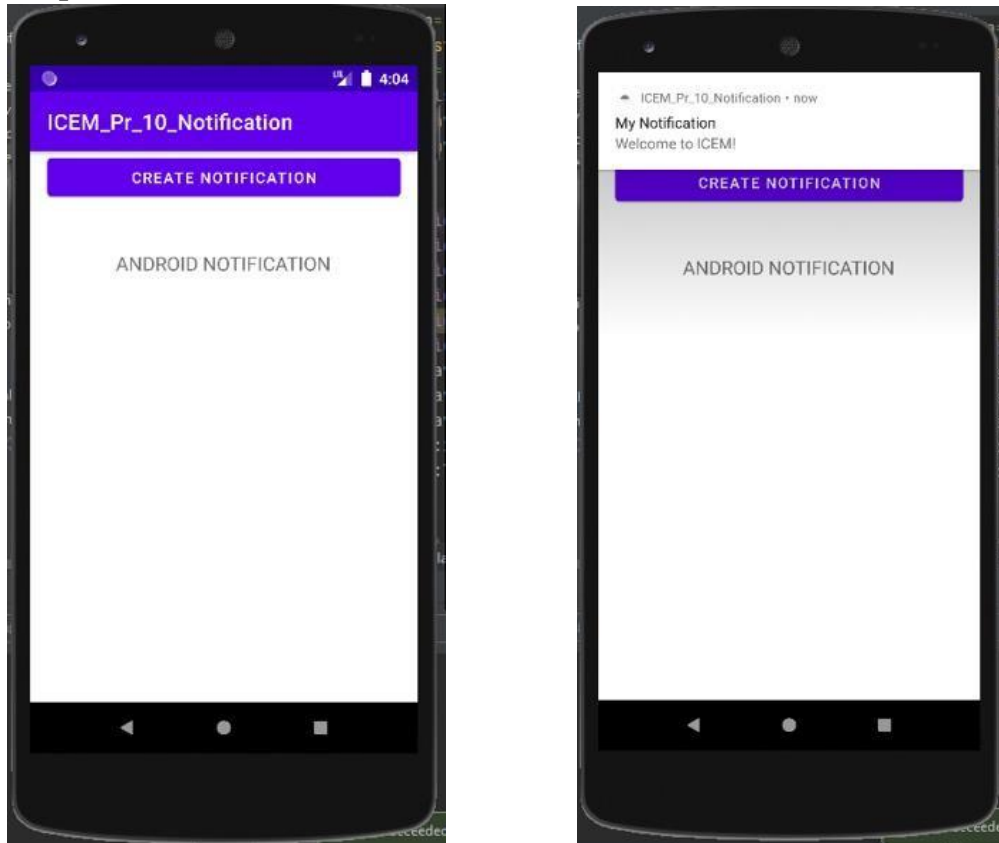
public class MainActivity extends AppCompatActivity { public static
final String NOTIFICATION_CHANNEL_ID = "10001"; private final
static String default_notification_channel_id = "default";

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

    public void createNotification(View view) {
        NotificationManager mNotificationManager = (NotificationManager)
getSystemService(NOTIFICATION_SERVICE);
        NotificationCompat.Builder mBuilder = new
NotificationCompat.Builder(MainActivity.this, default_notification_channel_id);
        mBuilder.setTitle("My Notification"); mBuilder.setText("Welcome
to ICEM!");
        mBuilder.setLargeIcon(BitmapFactory.decodeResource(getResources(),
R.drawable.ic_launcher_foreground));
        mBuilder.setSmallIcon(R.drawable.ic_launcher_foreground);
        mBuilder.setAutoCancel(true);
        if (android.os.Build.VERSION.SDK_INT >= android.os.Build.VERSION_CODES.O) {
            int importance = NotificationManager.IMPORTANCE_HIGH;
            NotificationChannel notificationChannel = new
NotificationChannel(NOTIFICATION_CHANNEL_ID,
"NOTIFICATION_CHANNEL_NAME", importance);
            mBuilder.setChannelId(NOTIFICATION_CHANNEL_ID);
            assert mNotificationManager != null;
            mNotificationManager.createNotificationChannel(notificationChannel);
        }
        assert mNotificationManager != null;
        mNotificationManager.notify((int) System.currentTimeMillis(), mBuilder.build());
    }
}

```

## Output



**25] Write a program to show how to use Location Services in your app to get the current location and its equivalent addresses etc**

### Activity\_main.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:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent" tools:context=".MainActivity">
    <TextView
        android:layout_marginTop="20dp"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Get
        Current Location and City Name"
        android:textAlignment="center"
        android:layout_centerHorizontal="true"
        android:textSize="20sp" />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/textView"
        android:layout_centerInParent="true"
        android:textSize="16sp"
        android:textStyle="bold"/>
</RelativeLayout>
```



## MainActivity.java

```
package com.example.location; import
androidx.annotation.NonNull; import
androidx.appcompat.app.AppCompatActivity; import
androidx.core.app.ActivityCompat; import
androidx.core.content.ContextCompat; import
android.Manifest; import android.content.Intent;
import android.content.pm.PackageManager; import
android.location.Geocoder; import
android.location.Location; import
android.os.Bundle; import android.os.Handler;
import android.os.ResultReceiver; import
android.util.Log; import
android.widget.TextView; import
android.widget.Toast;
import com.google.android.gms.location.FusedLocationProviderClient;
import com.google.android.gms.location.LocationCallback; import
com.google.android.gms.location.LocationRequest; import
com.google.android.gms.location.LocationResult; import
com.google.android.gms.location.LocationServices; public class
MainActivity extends AppCompatActivity { private
FusedLocationProviderClient fusedLocationClient; private static
final int LOCATION_PERMISSION_REQUEST_CODE = 2; private
LocationAddressResultReceiver addressResultReceiver; private
TextView currentAddTv; private Location currentLocation;
private LocationCallback locationCallback;

@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
addressResultReceiver = new LocationAddressResultReceiver(new
Handler());
currentAddTv = findViewById(R.id.textView);
fusedLocationClient =
LocationServices.getFusedLocationProviderClient(this);
locationCallback = new LocationCallback() {
@Override
public void onLocationResult(LocationResult locationResult) {
currentLocation = locationResult.getLocations().get(0);
getAddress();
}
};

startLocationUpdates();
}
@SuppressWarnings("MissingPermission")
private void startLocationUpdates() { if
(ContextCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
ActivityCompat.requestPermissions(this, new

String[]{Manifest.permission.ACCESS_FINE_LOCATION},
LOCATION_PERMISSION_REQUEST_CODE);
}
else {
LocationRequest locationRequest = new LocationRequest();
locationRequest.setInterval(2000);
locationRequest.setFastestInterval(1000);
```

```

locationRequest.setPriority(LocationRequest.PRIORITY_HIGH_ACCURACY);
fusedLocationClient.requestLocationUpdates(locationRequest,
locationCallback, null);
    }
    }
    @SuppressWarnings("MissingPermission")
private void getAddress() {
    if
    (!Geocoder.isPresent()) {
        Toast.makeText(MainActivity.this, "Can't find current address,
",
        Toast.LENGTH_SHORT).show();
return;
    }
    Intent intent = new Intent(this, GetaddressIntentService.class);
intent.putExtra("add_receiver", addressResultReceiver);
intent.putExtra("add_location", currentLocation);
startService(intent);
    }
@Override
    public void onRequestPermissionsResult(int requestCode, @NonNull
String[] permissions, @NonNull int[] grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions,
grantResults);
        if (requestCode == LOCATION_PERMISSION_REQUEST_CODE) {
if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
startLocationUpdates();
        } else {
            Toast.makeText(this, "Location permission not granted, " +
"restart the app if you want the feature", Toast.LENGTH_SHORT).show();
        }
    }
}
    private class LocationAddressResultReceiver extends ResultReceiver {
        LocationAddressResultReceiver(Handler handler) {
super(handler);
        }
@Override
        protected void onReceiveResult(int resultCode, Bundle resultData) {
if (resultCode == 0) {
            Log.d("Address", "Location null retrying");
getAddress();
        }
        if (resultCode == 1) {
            Toast.makeText(MainActivity.this, "Address not found, ",
Toast.LENGTH_SHORT).show();
        }
        String currentAdd = resultData.getString("address_result");
showResults(currentAdd);
        }
    }
}
    private void showResults(String currentAdd) {
currentAddTv.setText(currentAdd);
    }
@Override
    protected void onResume() {
super.onResume();
        startLocationUpdates();
    }
}

```

```

@Override
protected void onPause() {
super.onPause();
    fusedLocationClient.removeLocationUpdates(locationCallback);
} }

```

### GetAddressInstance.java

```

package com.example.location;
import android.app.IntentService;
import android.content.Intent;
import android.location.Address;
import android.location.Geocoder;
import android.location.Location;
import android.os.Bundle; import
android.os.ResultReceiver; import
android.util.Log; import
java.util.List; import
java.util.Locale; import
java.util.Objects; import
androidx.annotation.Nullable;
public class GetaddressIntentService extends IntentService {
private static final String IDENTIFIER = "GetAddressIntentService";
private ResultReceiver addressResultReceiver; public
GetaddressIntentService() { super(IDENTIFIER);
}
@Override
protected void onHandleIntent(@Nullable Intent intent) {
String msg;
    addressResultReceiver =
Objects.requireNonNull(intent).getParcelableExtra("add_receiver");
if (addressResultReceiver == null) {
    Log.e("GetAddressIntentService", "No receiver, not processing
the request further"); return;
}
    Location location = intent.getParcelableExtra("add_location");
if (location == null) {
    msg = "No location, can't go further without location";
sendResultsToReceiver(0, msg); return;
}
    Geocoder geocoder = new Geocoder(this, Locale.getDefault());
List<Address> addresses = null;
try {
    addresses = geocoder.getFromLocation(location.getLatitude(),
location.getLongitude(), 1);
}
    catch (Exception ioException) {
    Log.e("", "Error in getting address for the location");
}
    if (addresses == null || addresses.size() == 0) {
msg = "No address found for the location";
sendResultsToReceiver(1, msg);
}
    else {
        Address address = addresses.get(0);
        String addressDetails = address.getFeatureName() + "\n" +
address.getThoroughfare() + "\n" +
            "Locality: " + address.getLocality() + "\n" + "County: "
+ address.getSubAdminArea() + "\n" +
            "State: " + address.getAdminArea() + "\n" + "Country: "

```

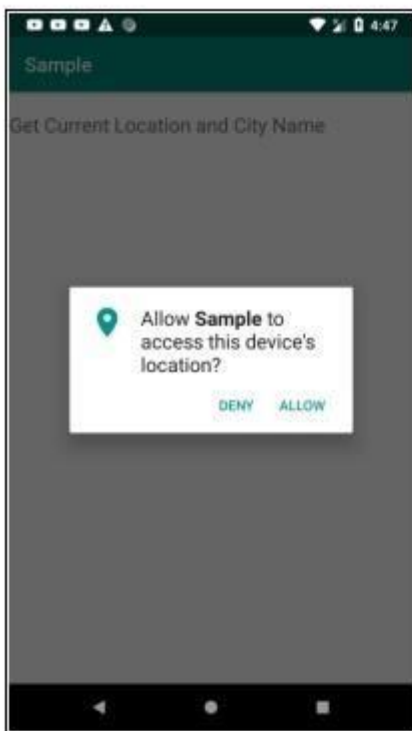
```

+ address.getCountryName() + "\n" +
        "Postal Code: " + address.getPostalCode() + "\n";
sendResultsToReceiver(2, addressDetails);
    }
}

private void sendResultsToReceiver(int resultCode, String message) {
Bundle bundle = new Bundle();
    bundle.putString("address_result", message);
addressResultReceiver.send(resultCode, bundle);
}
}

```

## Output



**26] Write a program to show Texture View. (It creates a basic application that allows you to view camera inside a texture view and change its angle, orientation etc.)**

### Activity\_main.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=".MainActivity">
</RelativeLayout>
```

### MainActivity.java

```
package com.example.camera;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle; import
android.Manifest; import
android.app.AlertDialog; import
android.content.Context; import
android.content.DialogInterface; import
android.content.Intent; import
android.content.SharedPreferences; import
android.content.pm.PackageManager; import
android.net.Uri; import
android.provider.Settings; import
android.support.v4.app.ActivityCompat; import
android.support.v4.content.ContextCompat;

public class MainActivity extends AppCompatActivity {    public
    static final int MY_PERMISSIONS_REQUEST_CAMERA = 100;    public
    static final String ALLOW_KEY = "ALLOWED";    public static
    final String CAMERA_PREF = "camera_pref";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);    if
        (ContextCompat.checkSelfPermission(this,
        Manifest.permission.CAMERA) != PackageManager.PERMISSION_GRANTED) {
            if (getFromPref(this, ALLOW_KEY)) {
                showSettingsAlert();
            } else if (ContextCompat.checkSelfPermission(this,
                Manifest.permission.CAMERA)
                != PackageManager.PERMISSION_GRANTED) {

                // Should we show an explanation?

                if
                (ActivityCompat.shouldShowRequestPermissionRationale(this,
                Manifest.permission.CAMERA)) {
                    showAlert();
                } else {
```

```

        // No explanation needed, we can request the
        permission.
        ActivityCompat.requestPermissions(this,
new String[]{Manifest.permission.CAMERA},
        MY_PERMISSIONS_REQUEST_CAMERA);
    }
}

else {
    openCamera();
}

}

    public static void saveToPreferences(Context context, String key,
Boolean allowed) {
        SharedPreferences myPrefs =
context.getSharedPreferences(CAMERA_PREF,
        Context.MODE_PRIVATE);
        SharedPreferences.Editor prefsEditor = myPrefs.edit();
prefsEditor.putBoolean(key, allowed);        prefsEditor.commit();
    }

    public static Boolean getFromPref(Context context, String key) {
SharedPreferences myPrefs =
context.getSharedPreferences(CAMERA_PREF,
Context.MODE_PRIVATE);        return (myPrefs.getBoolean(key,
false));
    }

    private void
showAlert() {
        AlertDialog alertDialog = new
AlertDialog.Builder(MainActivity.this).create();
        alertDialog.setTitle("Alert");
        alertDialog.setMessage("App needs to access the Camera.");

        alertDialog.setButton(AlertDialog.BUTTON_NEGATIVE, "DONT ALLOW",
new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int which)
            {
                dialog.dismiss();
                finish();
            }
        });

        alertDialog.setButton(AlertDialog.BUTTON_POSITIVE, "ALLOW",
new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int
which)
            {
                dialog.dismiss();
            }
        });

        ActivityCompat.requestPermissions(MainActivity.this,
new String[]{Manifest.permission.CAMERA},
        MY_PERMISSIONS_REQUEST_CAMERA);
    }

    private void showSettingsAlert()
    {
        AlertDialog alertDialog =
new
AlertDialog.Builder(MainActivity.this).create();
        alertDialog.setTitle("Alert");
    }
}

```

```

        alertDialog.setMessage("App needs to access the Camera.");

        alertDialog.setButton(AlertDialog.BUTTON_NEGATIVE, "DONT ALLOW",
new DialogInterface.OnClickListener() {

            public void onClick(DialogInterface dialog, int which)
{
    dialog.dismiss();

            //finish();
            }

        });

        alertDialog.setButton(AlertDialog.BUTTON_POSITIVE, "SETTINGS",
new DialogInterface.OnClickListener() {

            public void onClick(DialogInterface dialog, int which)
{
            dialog.dismiss();

startInstalledAppDetailsActivity(MainActivity.this);
            }

        });

        alertDialog.show();
    }

    @Override
    public void onRequestPermissionsResult(int requestCode, String
permissions[], int[] grantResults) {        switch (requestCode)
{
            case MY_PERMISSIONS_REQUEST_CAMERA: {
                for (int i = 0, len = permissions.length; i < len; i++) {
String permission = permissions[i];
                    if (grantResults[i]
==
PackageManager.PERMISSION_DENIED) {
boolean

                        showRationale =

ActivityCompat.shouldShowRequestPermissionRationale(
this, permission);

                        if (showRationale)
                            showAlert();
                        } else if (!showRationale) {
                            // user denied flagging NEVER ASK AGAIN
                            // you can either enable some fall back,
                            // disable features of your app
                            // or open another dialog explaining
                            // again the permission and directing to
                            // the app setting
                            saveToPreferences(MainActivity.this, ALLOW_KEY,
true);

                        }

                    }

                }

            }

        }
    }
}

```

```

        // other 'case' lines to check for other
        // permissions this app might request
    }
}

@Override
protected void onResume() {
super.onResume();
}

public static void startInstalledAppDetailsActivity(final MainActivity
context) {
    if (context == null) {
return;
    }
    final Intent i = new Intent();
    i.setAction(Settings.ACTION_APPLICATION_DETAILS_SETTINGS);
    i.addCategory(Intent.CATEGORY_DEFAULT);
    i.setData(Uri.parse("package:" + context.getPackageName()));
    i.addFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
    i.addFlags(Intent.FLAG_ACTIVITY_NO_HISTORY);
    i.addFlags(Intent.FLAG_ACTIVITY_EXCLUDE_FROM_RECENTS);
context.startActivity(i);
    }
    private void openCamera() {
        Intent intent = new Intent("android.media.action.IMAGE_CAPTURE");
startActivity(intent);
    }
}

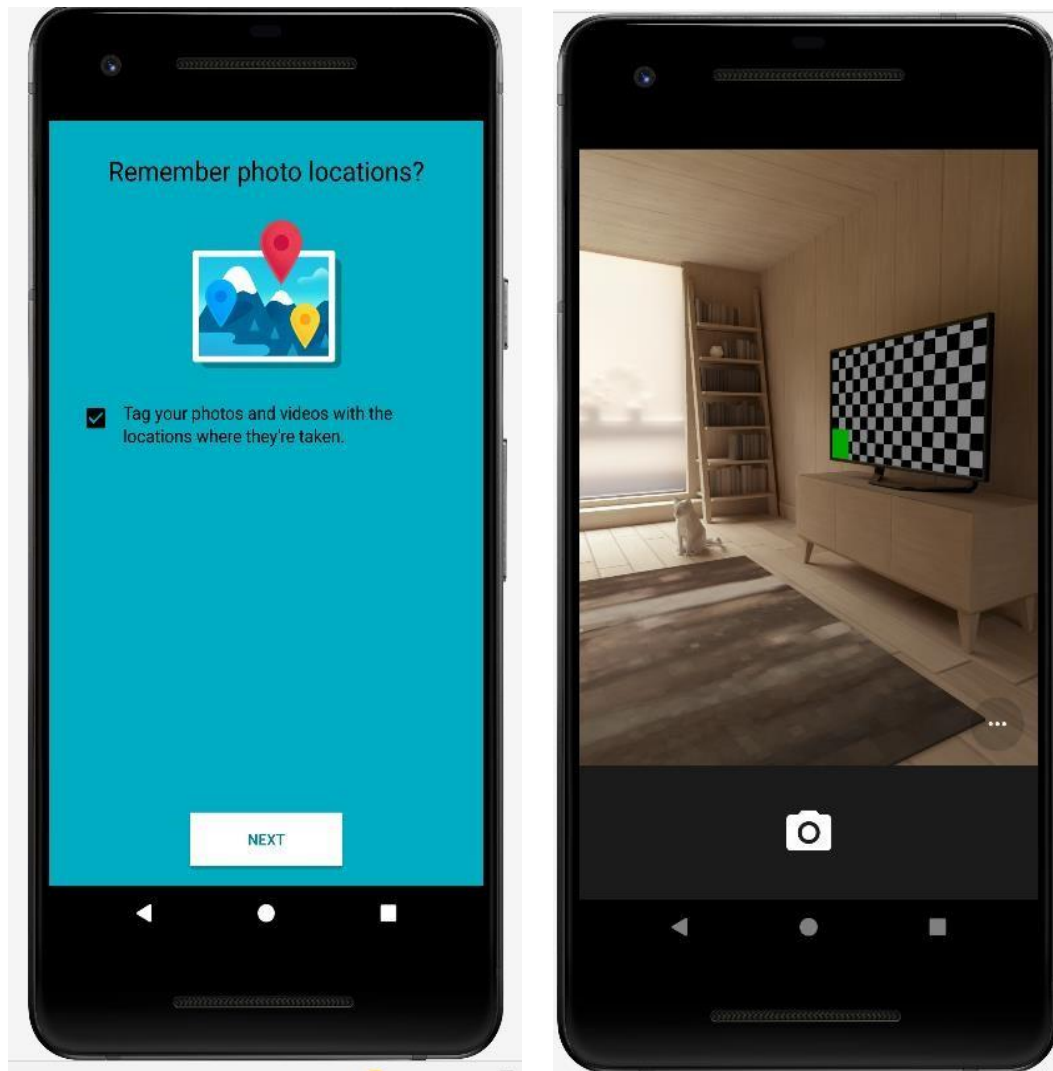
```

### **AndroidManifest.xml**

```
<uses-permission android:name="android.permission.CAMERA" />
```

### **Output**





**27] Write a program to show network connection. (It creates a basic application that allows you to download HTML from a given web page.)**

### Activity\_main.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=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"    android:text="Network
    Connection"    android:id="@+id/textView"
        android:textSize="25sp"
        android:layout_centerHorizontal="true" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```

        android:text=" "                android:id="@+id/textView2"
        android:layout_below="@+id/textView"
        android:layout_alignRight="@+id/textView"
        android:layout_alignEnd="@+id/textView"
        android:textColor="#ff36ff15"
        android:textIsSelectable="false"
        android:textSize="35dp" />

        <ImageView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"                android:id="@+id/imageView"
            android:layout_below="@+id/textView2"
            android:layout_centerHorizontal="true" />

        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Click"
            android:id="@+id/button"
            android:layout_below="@+id/imageView"
            android:layout_centerHorizontal="true"
            android:layout_marginTop="76dp" />

    </RelativeLayout>

```

### Mainactivity.java

```

package com.example.networkconnection;
import android.app.ProgressDialog;
import android.graphics.Bitmap; import
android.graphics.BitmapFactory; import
android.net.ConnectivityManager; import
android.os.Bundle; import
android.os.Handler; import
android.os.Message;
import android.support.v7.app.AppCompatActivity;
import android.view.View; import
android.widget.Button; import
android.widget.ImageView; import
android.widget.Toast;
import java.io.IOException; import
java.io.InputStream; import
java.net.HttpURLConnection; import
java.net.MalformedURLException; import
java.net.URL; import
java.net.URLConnection;
public class MainActivity extends AppCompatActivity
{
    private ProgressDialog progressDialog;
private Bitmap bitmap = null;
    Button b1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);                b1 =
(Button) findViewById(R.id.button);

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

```

```

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

downloadImage("http://www.tutorialspoint.com/green/images/logo.png");
        }
    });
}
private void downloadImage(String urlStr) {
    progressDialog = ProgressDialog.show(this, "", "Downloading Image
from " + urlStr);
    final String url = urlStr;

    new Thread() {
public void run() {
        InputStream in = null;

        Message msg = Message.obtain();
msg.what = 1;

        try {
            in = openHttpConnection(url);
            bitmap = BitmapFactory.decodeStream(in);
            Bundle b = new Bundle();
            b.putParcelable("bitmap", bitmap);
msg.setData(b);
            in.close();
        } catch (IOException e1) {
e1.printStackTrace();
        }
        messageHandler.sendMessage(msg);
    }
    }.start();
}
private InputStream openHttpConnection(String
urlStr) {
    InputStream in = null;
int resCode = -1;

    try {
        URL url = new URL(urlStr);
        URLConnection urlConn = url.openConnection();

        if (!(urlConn instanceof HttpURLConnection)) {
throw new IOException("URL is not an Http URL");
        }

        HttpURLConnection httpConn = (HttpURLConnection) urlConn;
httpConn.setAllowUserInteraction(false);
httpConn.setInstanceFollowRedirects(true);
httpConn.setRequestMethod("GET");
        httpConn.connect();
        resCode = httpConn.getResponseCode();
        if (resCode == HttpURLConnection.HTTP_OK)
        {
            in = httpConn.getInputStream();
        }
    } catch (MalformedURLException e) {
        e.printStackTrace();
    } catch (IOException e) {

```

```

e.printStackTrace();
return in;
}
private Handler mHandler = new
Handler() {
    public void
    handleMessage(Message msg) {
        super.handleMessage(msg);
        ImageView img = (ImageView) findViewById(R.id.imageView);
        img.setImageBitmap((Bitmap) msg.getData().getParcelable("bitmap"));
        progressDialog.show();
    }
};
private boolean checkInternetConenction() {
    // get Connectivity Manager object to check connection
    ConnectivityManager connec

= (ConnectivityManager) getSystemService(getBaseContext().CONNECTIVITY_SERVIC
E);

    // Check for network connections
    if (
    connec.getNetworkInfo(0).getState() ==
    android.net.NetworkInfo.State.CONNECTED ||
    connec.getNetworkInfo(0).getState() ==
    android.net.NetworkInfo.State.CONNECTING ||
    connec.getNetworkInfo(1).getState() ==
    android.net.NetworkInfo.State.CONNECTING ||
    connec.getNetworkInfo(1).getState() ==
    android.net.NetworkInfo.State.CONNECTED ) {
        Toast.makeText(this, " Connected ", Toast.LENGTH_LONG).show();
    } else if (
        connec.getNetworkInfo(0).getState() ==
        android.net.NetworkInfo.State.DISCONNECTED ||
        connec.getNetworkInfo(1).getState() ==
        android.net.NetworkInfo.State.DISCONNECTED
    ) {
        Toast.makeText(this, " Not Connected ",
        Toast.LENGTH_LONG).show();
    }
    return false;
}
}
}

```

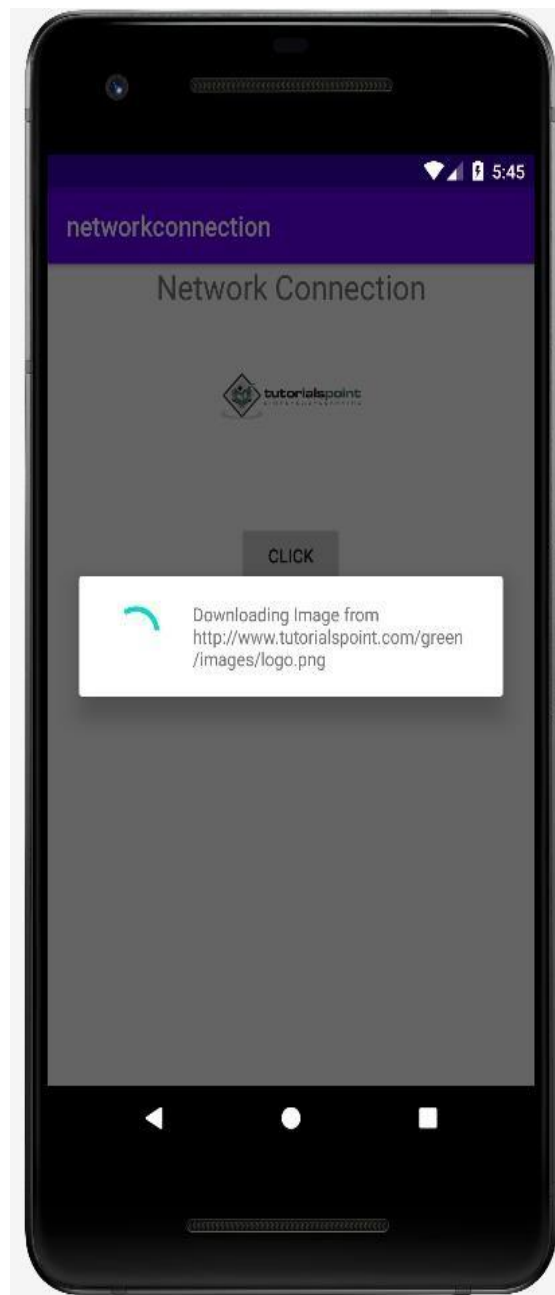
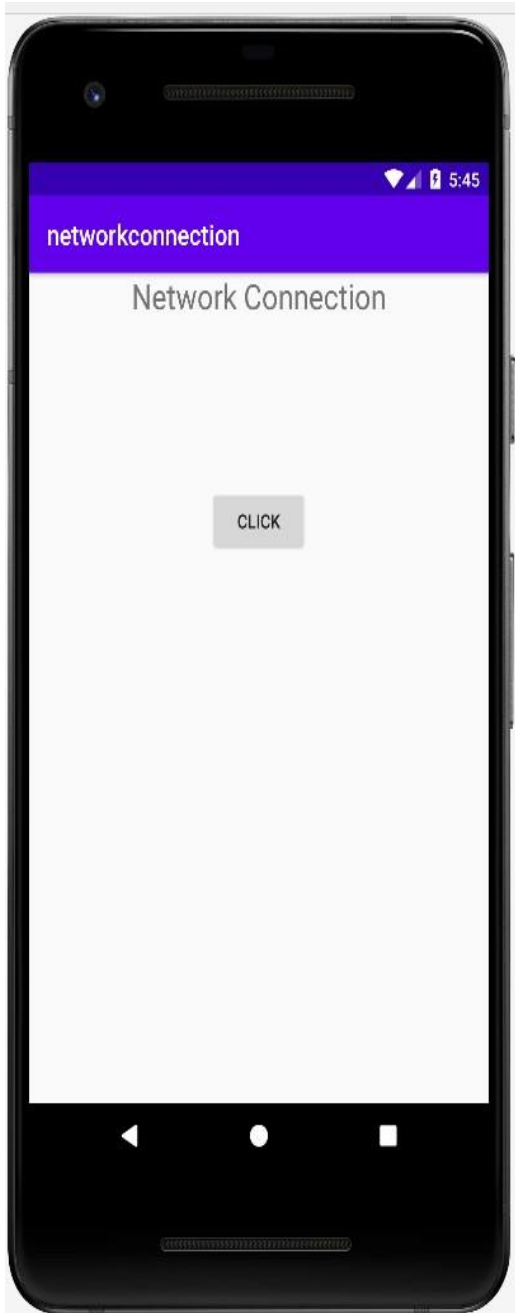
### AndroidManifest.xml

```

<uses-permission
android:name="android.permission.INTERNET"></uses-permission>
<uses-permission
android:name="android.permission.ACCESS_NETWORK_STATE"></uses-permission>

```

## Output



**28] Write a program to show Audio Capture (It provides demonstration of Media Recorder class to capture audio and then Media Player class to play that recorded audio.) Activity\_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<!--XML code for activity_main.xml-->
<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"    android:orientation="horizontal"
    tools:context=".MainActivity">

    <!--Heading Text View-->
    <TextView
        android:id="@+id/txtthead"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:text="@string/audio_recorder"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textSize="30sp" />

    <!--This will display the status of our app when
    we will record some audio and play that audio-->
    <TextView
        android:id="@+id/idTVstatus"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="150dp"
        android:text="@string/status"
        android:textAlignment="center"
        android:textSize="18sp" />

    <!--Linear Layout for adding textviews
    in horizontal manner-->
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:layout_marginTop="30dp"
        android:orientation="horizontal"    android:weightSum="4">

    <!--Textview to start audio recording
    drawableTop will add above mic image-->
```

```

<TextView
android:id="@+id/btnRecord"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_margin="5dp"
android:layout_weight="1"
android:background="@color/purple_500"
android:padding="5dp"
android:text="@string/start_recording"
android:textAlignment="center"
android:textColor="@color/white"
    app:drawableTopCompat="@drawable/ic_start_recording" />

```

*<!--Textview to stop audio recording  
drawableTop will add above mic image-->*

```

<TextView
android:id="@+id/btnStop"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_margin="5dp"
android:layout_weight="1"
android:background="@color/purple_500"
android:padding="5dp"
android:text="@string/stop_recording"
android:textAlignment="center"
android:textColor="@color/white"
    app:drawableTopCompat="@drawable/ic_stop_recording" />

```

*<!--Textview to play audio that is recorded  
drawableTop will add above mic image-->*

```

<TextView
    android:id="@+id/btnPlay"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_margin="5dp"        android:layout_weight="1"
android:background="@color/purple_500"
android:padding="5dp"
android:text="@string/play_recording"
android:textAlignment="center"
android:textColor="@color/white"
app:drawableTopCompat="@drawable/ic_start_recording" />

```

*<!--Textview to pause the play of audio recording  
drawableTop will add above mic image-->*

```

<TextView
    android:id="@+id/btnStopPlay"
    android:layout_width="0dp"
android:layout_height="wrap_content"

```

```

        android:layout_margin="5dp"            android:layout_weight="1"
        android:background="@color/purple_500"
            android:lines="2"
        android:padding="5dp"
        android:text="@string/stop_playing"
        android:textAlignment="center"
        android:textColor="@color/white"
        app:drawableTopCompat="@drawable/ic_stop_recording" />

    </LinearLayout>
</RelativeLayout>

```

### Mainactivity.java

```

package com.example.audiocapture;

import android.content.pm.PackageManager;
import android.media.MediaPlayer; import
android.media.MediaRecorder; import
android.os.Bundle; import
android.os.Environment; import
android.util.Log; import android.view.View;
import android.widget.TextView;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity; import
androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;

import java.io.IOException;

import static android.Manifest.permission.RECORD_AUDIO; import static
android.Manifest.permission.WRITE_EXTERNAL_STORAGE;

public class MainActivity extends AppCompatActivity {

    // Initializing all variables..
    private TextView startTV, stopTV, playTV, stopplayTV, statusTV;

    // creating a variable for medi recorder object class.
    private MediaRecorder mRecorder;

    // creating a variable for mediaplayer class
    private MediaPlayer mPlayer;

    // string variable is created for storing a file name
    private static String mFileName = null;

    // constant for storing audio permission

```



```

public static final int REQUEST_AUDIO_PERMISSION_CODE = 1;

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

// initialize all variables with their layout items.
statusTV = findViewById(R.id.idTVstatus);
startTV = findViewById(R.id.btnRecord);
stopTV = findViewById(R.id.btnStop);    playTV
= findViewById(R.id.btnPlay);    stopplayTV =
findViewById(R.id.btnStopPlay);
    stopTV.setBackgroundColor(getResources().getColor(R.color.gray));
playTV.setBackgroundColor(getResources().getColor(R.color.gray));
stopplayTV.setBackgroundColor(getResources().getColor(R.color.gray));

    startTV.setOnClickListener(new View.OnClickListener() {
        @Override    public void
onClick(View v) {    // start
// start
recording method will    // start
the recording of audio.
startRecording();
    }
});
    stopTV.setOnClickListener(new View.OnClickListener() {
        @Override    public void
onClick(View v) {    // pause
Recording method will    // pause
the recording of audio.
pauseRecording();
    }
});
    playTV.setOnClickListener(new View.OnClickListener() {
        @Override    public void
onClick(View v) {    // play audio
method will play    // the audio which
we have recorded
playAudio();
    }
});
    stopplayTV.setOnClickListener(new View.OnClickListener() {
        @Override    public void
onClick(View v) {    // pause
play method will    // pause
the play of audio
pausePlaying();

```

```

    }
    });
}

private void startRecording() {
    // check permission method is used to check
    // that the user has granted permission      // to
    // record and store the audio.
    if (CheckPermissions()) {

        // setBackgroundcolor method will change
        // the background color of text view.
        stopTV.setBackgroundColor(getResources().getColor(R.color.purple_200));
        startTV.setBackgroundColor(getResources().getColor(R.color.gray));
        playTV.setBackgroundColor(getResources().getColor(R.color.gray));
        stopplayTV.setBackgroundColor(getResources().getColor(R.color.gray));

        // we are here initializing our filename variable
        // with the path of the recorded audio file.
        mFileName = Environment.getExternalStorageDirectory().getAbsolutePath();
        mFileName += "/AudioRecording.3gp";

        // below method is used to initialize
        // the media recorder class
        mRecorder = new MediaRecorder();

        // below method is used to set the audio
        // source which we are using a mic.
        mRecorder.setAudioSource(MediaRecorder.AudioSource.MIC);

        // below method is used to set
        // the output format of the audio.
        mRecorder.setOutputFormat(MediaRecorder.OutputFormat.THREE_GPP);

        // below method is used to set the
        // audio encoder for our recorded audio.
        mRecorder.setAudioEncoder(MediaRecorder.AudioEncoder.AMR_NB);

        // below method is used to set the
        // output file location for our recorded audio
        mRecorder.setOutputFile(mFileName);
    try {
        // below method will prepare
        // our audio recorder class
        mRecorder.prepare();          } catch
        (IOException e) {
            Log.e("TAG", "prepare() failed");

```

```

    }
    // start method will start
    // the audio recording.
    mRecorder.start();
    statusTV.setText("Recording Started");
} else {
    // if audio recording permissions are
    // not granted by user below method will
    // ask for runtime permission for mic and storage.
    RequestPermissions();
}
}

@Override
public void onRequestPermissionsResult(int requestCode, String[] permissions, int[]
grantResults) {
    // this method is called when user will // grant the permission for audio
    recording. super.onRequestPermissionsResult(requestCode, permissions,
grantResults); super.onRequestPermissionsResult(requestCode, permissions,
grantResults); switch (requestCode) { case
REQUEST_AUDIO_PERMISSION_CODE:
    if (grantResults.length > 0) {
        boolean permissionToRecord = grantResults[0] ==
PackageManager.PERMISSION_GRANTED;
        boolean permissionToStore = grantResults[1] ==
PackageManager.PERMISSION_GRANTED;
        if (permissionToRecord && permissionToStore) {
            Toast.makeText(getApplicationContext(), "Permission Granted",
Toast.LENGTH_LONG).show();
        } else {
            Toast.makeText(getApplicationContext(), "Permission Denied",
Toast.LENGTH_LONG).show();
        }
    }
    break;
}

public boolean CheckPermissions() {
    // this method is used to check permission
    int result = ContextCompat.checkSelfPermission(getApplicationContext(),
WRITE_EXTERNAL_STORAGE);
    int result1 = ContextCompat.checkSelfPermission(getApplicationContext(),
RECORD_AUDIO);
    return result == PackageManager.PERMISSION_GRANTED && result1 ==
PackageManager.PERMISSION_GRANTED;
}

```

```

private void RequestPermissions() {
    // this method is used to request the
    // permission for audio recording and storage.
    ActivityCompat.requestPermissions(MainActivity.this, new
String[]{RECORD_AUDIO, WRITE_EXTERNAL_STORAGE},
REQUEST_AUDIO_PERMISSION_CODE);
}

public void playAudio() {
stopTV.setBackgroundColor(getResources().getColor(R.color.gray));
startTV.setBackgroundColor(getResources().getColor(R.color.purple_200));
playTV.setBackgroundColor(getResources().getColor(R.color.gray));
stopplayTV.setBackgroundColor(getResources().getColor(R.color.purple_200));

    // for playing our recorded audio
    // we are using media player class.
    mPlayer = new MediaPlayer();
    try {
        // below method is used to set the
        // data source which will be our file name
        mPlayer.setDataSource(mFileName);

        // below method will prepare our media player
        mPlayer.prepare();

        // below method will start our media player.
        mPlayer.start();
        statusTV.setText("Recording Started Playing");
    } catch (IOException e) {
        Log.e("TAG", "prepare() failed");
    }
}

public void pauseRecording() {
stopTV.setBackgroundColor(getResources().getColor(R.color.gray));
startTV.setBackgroundColor(getResources().getColor(R.color.purple_200));
playTV.setBackgroundColor(getResources().getColor(R.color.purple_200));
stopplayTV.setBackgroundColor(getResources().getColor(R.color.purple_200));

    // below method will stop
    // the audio recording.
    mRecorder.stop();

    // below method will release
    // the media recorder class.

```

```

        mRecorder.release();    mRecorder =
null;    statusTV.setText("Recording
Stopped");
    }

    public void pausePlaying() {
        // this method will release the media player
        // class and pause the playing of our recorded audio.
        mPlayer.release();
mPlayer = null;
        stopTV.setBackgroundColor(getResources().getColor(R.color.gray));
startTV.setBackgroundColor(getResources().getColor(R.color.purple_200));
playTV.setBackgroundColor(getResources().getColor(R.color.purple_200));
stopplayTV.setBackgroundColor(getResources().getColor(R.color.gray));
statusTV.setText("Recording Play Stopped");
    }
}

```

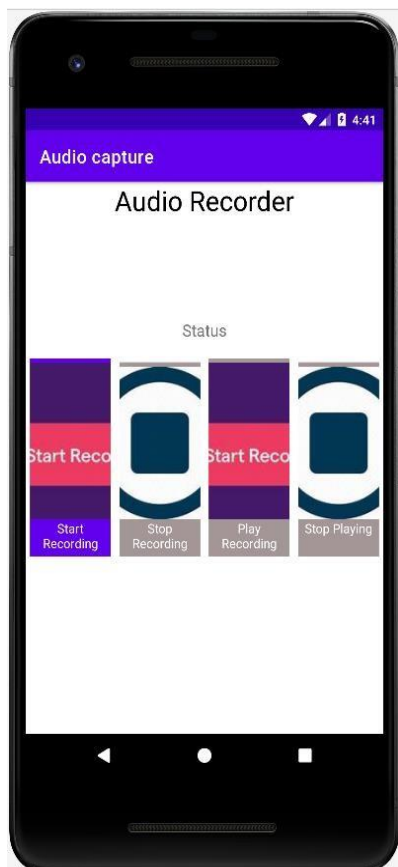
### AndroidManifest.xml

```

<uses-permission android:name="android.permission.RECORD_AUDIO"/>
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
<uses-permission android:name="android.permission.STORAGE"/>

```

### Output



**29] Write a program to show Image effects. (It demonstrates some of the image effects on the bitmap. It creates a basic application that allows you to convert the picture into grayscale and much more.**

### Activity\_main.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"
    android:paddingLeft="@dimen/cardview_default_radius"
    android:paddingRight="@dimen/cardview_default_radius"
    android:paddingTop="@dimen/cardview_default_radius"
    android:paddingBottom="@dimen/cardview_default_radius"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/textView"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:textSize="30dp"
        android:text="Image Effects" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Tutorials Point"
        android:id="@+id/textView2"
        android:layout_below="@+id/textView"
        android:layout_centerHorizontal="true"
        android:textSize="35dp"
        android:textColor="#ff16ff01" />

    <ImageView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textView2"
        android:layout_centerHorizontal="true"
        android:src="@drawable/ic_start_recording"/>
        android:id="@+id/imageView"

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Gray"
        android:onClick="gray"
        android:id="@+id/button"
        android:layout_alignParentBottom="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_marginBottom="97dp" />

    <Button
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="dark"
        android:onClick="dark"
        android:id="@+id/button2"
        android:layout_alignBottom="@+id/button"
        android:layout_alignParentRight="true"
        android:layout_alignParentEnd="true" />

<Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Bright"
        android:onClick="bright"
        android:id="@+id/button3"
        android:layout_alignTop="@+id/button2"
        android:layout_centerHorizontal="true" />

<Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Red"                android:onClick="gama"
        android:id="@+id/button4"
        android:layout_below="@+id/button3"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true" />

<Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Green"                android:onClick="green"
        android:id="@+id/button5"
        android:layout_alignTop="@+id/button4"
        android:layout_alignLeft="@+id/button3"
        android:layout_alignStart="@+id/button3" />

<Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="blue"
        android:onClick="blue"
        android:id="@+id/button6"
        android:layout_below="@+id/button2"
        android:layout_toRightOf="@+id/textView"
        android:layout_toEndOf="@+id/textView" />

</RelativeLayout>

```

### Mainactivity.java

```

package com.example.a29image_effect;

import android.graphics.Bitmap; import
android.graphics.Color;
import android.graphics.drawable.BitmapDrawable;

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

```

```

android.widget.Button; import
android.widget.ImageView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
    Button b1, b2, b3;
    ImageView im;

    private Bitmap bmp;
    private Bitmap operation;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1 = (Button) findViewById(R.id.button);
        b2 = (Button) findViewById(R.id.button2);        b3 =
        (Button) findViewById(R.id.button3);            im =
        (ImageView) findViewById(R.id.imageView);

        BitmapDrawable abmp = (BitmapDrawable) im.getDrawable();
        bmp = abmp.getBitmap();
    }
    public void gray(View view) {
        operation = Bitmap.createBitmap(bmp.getWidth(), bmp.getHeight(),
        bmp.getConfig());        double red = 0.33;        double green =
        0.59;        double blue = 0.11;
        for (int i = 0; i < bmp.getWidth(); i++) {
            for (int j = 0; j < bmp.getHeight(); j++) {
                int p = bmp.getPixel(i, j);                int r =
                Color.red(p);                int g = Color.green(p);
                int b = Color.blue(p);
                r = (int) red * r;
                g = (int) green * g;
                b = (int) blue * b;
                operation.setPixel(i, j, Color.argb(Color.alpha(p), r, g,
                b));
            }
        }
        im.setImageBitmap(operation);
    }
    public void bright(View view){
        operation= Bitmap.createBitmap(bmp.getWidth(),
        bmp.getHeight(), bmp.getConfig());
        for(int i=0; i<bmp.getWidth(); i++){
            for(int j=0; j<bmp.getHeight(); j++){
                int p = bmp.getPixel(i, j);                int r
                = Color.red(p);                int g =
                Color.green(p);                int b =
                Color.blue(p);                int alpha =
                Color.alpha(p);

                r = 100 + r;
                g = 100 + g;                b = 100
                + b;                alpha = 100 +
                alpha;

                operation.setPixel(i, j, Color.argb(alpha, r, g, b));
            }
        }
    }
}

```



```

        }
    }
    im.setImageBitmap(operation);
}
public void dark(View view){
operation=
Bitmap.createBitmap bmp.getWidth(), bmp.getHeight(), bmp.getConfig());

    for(int i=0; i<bmp.getWidth(); i++){
        for(int j=0; j<bmp.getHeight(); j++){
int p = bmp.getPixel(i, j);                int r
= Color.red(p);                            int g =
Color.green(p);                            int b =
Color.blue(p);                            int alpha =
Color.alpha(p);

                r = r - 50;
g = g - 50;                                b =
b - 50;                                    alpha =
alpha -50;

                operation.setPixel(i, j, Color.argb(Color.alpha(p), r, g,
b));
                }
        }
        im.setImageBitmap(operation);
    }
    public void gama(View view) {
        operation =
        Bitmap.createBitmap bmp.getWidth(), bmp.getHeight(), bmp.getConfig());
        for(int i=0; i<bmp.getWidth(); i++){
        for(int j=0; j<bmp.getHeight(); j++){
int p = bmp.getPixel(i, j);                int r
= Color.red(p);                            int g =
Color.green(p);                            int b =
Color.blue(p);                            int alpha =
Color.alpha(p);

                r = r + 150;
g = 0;                                    b =
0;                                        alpha = 0;
                operation.setPixel(i, j, Color.argb(Color.alpha(p), r, g,
b));
                }
        }
        im.setImageBitmap(operation);
    }
    public void green(View view) {
        operation = Bitmap.createBitmap bmp.getWidth(), bmp.getHeight(),
bmp.getConfig());
        int
i;
        for (i = 0; i<bmp.getWidth();
i++){
            for (int j = 0; j < bmp.getHeight(); j++) {
int p = bmp.getPixel(i, j);                int r =
Color.red(p);                            int g = Color.green(p);
int b = Color.blue(p);                    int alpha =
Color.alpha(p);

                r = 0;
g = g + 150;
b = 0;                                    alpha
= 0;

                operation.setPixel(i, j, Color.argb(Color.alpha(p), r, g,
b));

```

```

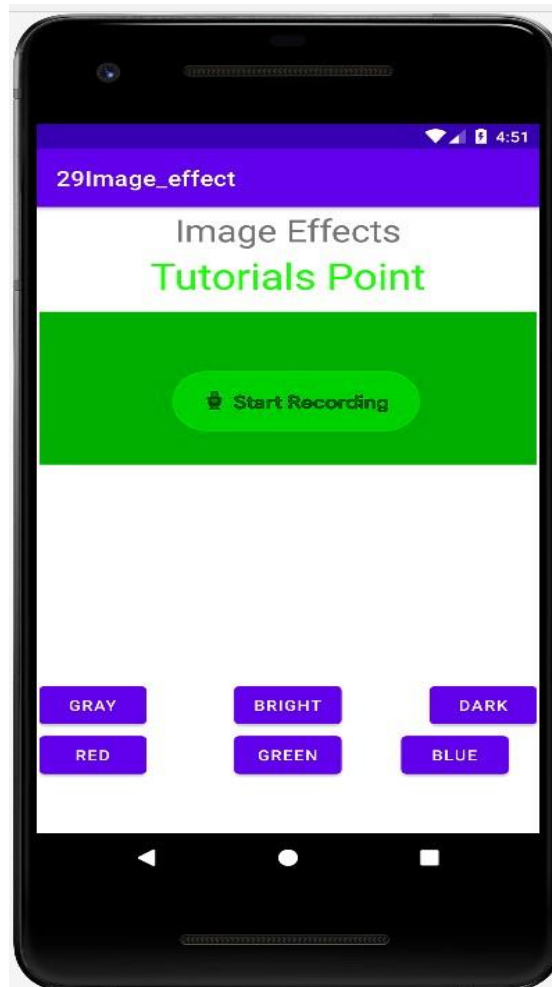
        }
    }
    im.setImageBitmap(operation);
}
public void blue(View view){
    operation = Bitmap.createBitmap bmp.getWidth(), bmp.getHeight(),
bmp.getConfig());
    for(int i=0; i<bmp.getWidth(); i++){
for(int j=0; j<bmp.getHeight(); j++){
int p = bmp.getPixel(i, j);                int r
= Color.red(p);                            int g =
Color.green(p);                            int b =
Color.blue(p);                            int alpha =
Color.alpha(p);

        r = 0;
g = 0;                b =
b+150;                alpha
= 0;

        operation.setPixel(i, j, Color.argb(Color.alpha(p), r, g,
b));
    }
    im.setImageBitmap(operation);
}
}

```

## Output



**30] Write a program to show custom Fonts (It creates a basic application that displays a custom font that you specified in the fonts file.)**

### 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">
    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="GeeksforGeeks"
        android:textColor="#006600"
        android:textSize="50dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

### Mainactivity.java

```
package com.example.custom_font;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.content.res.ResourcesCompat;
import android.graphics.Typeface; import
android.os.Bundle; import
android.widget.TextView;

public class MainActivity extends AppCompatActivity {

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

        TextView textView = findViewById(R.id.textview);

        Typeface typeface = Typeface.createFromAsset(
getAssets(),
        "WaterBrush-Regular.ttf");
        textView.setTypeface(typeface);
    }
}
```

### Output



**31] Write a program to show Progress Circle (It display a spinning progress dialog on pressing the button.)**

#### **Activity\_main.xml**

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

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="403dp"
        android:layout_height="173dp"
        android:src="@drawable/abc"
```

```

app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.0" />

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="44dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Name"
        app:layout_constraintBottom_toTopOf="@+id/editTextTextPersonName2"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView"
        app:layout_constraintVertical_bias="0.031" />

    <EditText
        android:id="@+id/editTextTextPersonName2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="28dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Name"
        app:layout_constraintBottom_toTopOf="@+id/button"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView"
        app:layout_constraintVertical_bias="0.992" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="300dp"
        android:text="Button"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

### Mainactivity.java

```

package com.example.progress_circle;
import
android.app.ProgressDialog; import
android.app.Activity; import
android.os.Bundle; import
android.os.Handler; import
android.view.View; import
android.widget.Button;

```

```

public class MainActivity extends Activity
{
    Button b1;
    private ProgressDialog progressBar;
private int progressBarStatus = 0;    private
Handler progressBarHandler = new Handler();
private long fileSize = 0;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
b1=(Button)findViewById(R.id.button);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                progressBar = new ProgressDialog(v.getContext());
progressBar.setCancelable(true);
                progressBar.setMessage("File downloading ...");
progressBar.setProgressStyle(ProgressDialog.STYLE_SPINNER);
progressBar.setProgress(0);                progressBar.setMax(100);
progressBar.show();                progressBarStatus = 0;

                fileSize = 0;
                new Thread(new Runnable() {
public void run() {
                    while (progressBarStatus < 100) {
progressBarStatus = downloadFile();

                        try {
                            Thread.sleep(1000);
                        } catch (InterruptedException e) {
                            e.printStackTrace();
                        }

                        progressBarHandler.post(new Runnable() {
public void run() {
                            progressBar.setProgress(progressBarStatus);
                                }
                            });
                        }
                    }

                    if (progressBarStatus >= 100) {
try {
                        Thread.sleep(2000);
                    } catch (InterruptedException e) {
                        e.printStackTrace();
                    }

                    progressBar.dismiss();
                }
            }
        }).start();
    }
});

```

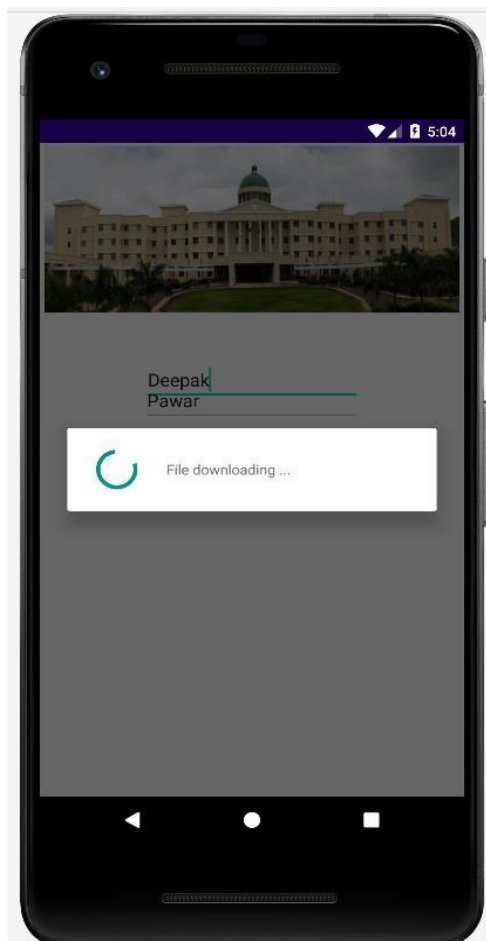
```

    }    public int downloadFile()
{    while (fileSize <= 1000000)
{    fileSize++;

        if (fileSize == 100000) {
return 10;
        }else if (fileSize == 200000) {
return 20;
        }else if (fileSize == 300000) {
return 30;
        }else if (fileSize == 400000) {
return 40;
        }else if (fileSize == 500000) {
return 50;
        }else if (fileSize == 700000) {
return 70;
        }else if (fileSize == 800000) {
return 80;
        }
    }
    return
100;
    } }

```

### Output



**32] Write a program to show Navigation (It creates a basic application that allows you to navigate within your application.)**



## Activity\_main.xml

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

<!--the root view must be the DrawerLayout-->
<androidx.drawerlayout.widget.DrawerLayout
    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/my_drawer_layout"    android:layout_width="match_parent"
    android:layout_height="match_parent"    tools:context=".MainActivity"
    tools:ignore="HardcodedText">

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

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="128dp"
            android:gravity="center"
            android:text="GeeksforGeeks"
            android:textSize="18sp" />

    </LinearLayout>

    <!--this the navigation view which draws
    and shows the navigation drawer-->
    <!--include the menu created in the menu folder-->
    <com.google.android.material.navigation.NavigationView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:layout_gravity="start"    app:menu="@menu/navigation_menu"
    />

</androidx.drawerlayout.widget.DrawerLayout>
```

## MainActivity.java

```
package com.example.navigation;

import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.drawerlayout.widget.DrawerLayout;
import android.os.Bundle; import
android.view.MenuItem;
    public class MainActivity extends AppCompatActivity
    {

        public DrawerLayout drawerLayout;
        public ActionBarDrawerToggle actionBarDrawerToggle;

        @Override
```

```

        protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
        // drawer layout instance to toggle the menu icon to open
        // drawer and back button to close drawer
drawerLayout = findViewById(R.id.my_drawer_layout);
actionBarDrawerToggle = new ActionBarDrawerToggle(this,
drawerLayout, R.string.nav_open, R.string.nav_close);
        // pass the Open and Close toggle for the drawer layout listener
// to toggle the button
drawerLayout.addDrawerListener(actionBarDrawerToggle);
actionBarDrawerToggle.syncState();

        // to make the Navigation drawer icon always appear on the action
bar
        getSupportActionBar().setDisplayHomeAsUpEnabled(true);
    }

    // override the onOptionsItemSelected()
    // function to implement
    // the item click listener callback
    // to open and close the navigation
    // drawer when the icon is clicked
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {

        if (actionBarDrawerToggle.onOptionsItemSelected(item)) {
return true;
        }
        return super.onOptionsItemSelected(item);
    } }

```

## navigation.java

```

<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:tools="http://schemas.android.com/tools"
tools:ignore="HardcodedText">

<item
    android:id="@+id/nav_account"
    android:title="My Account" />

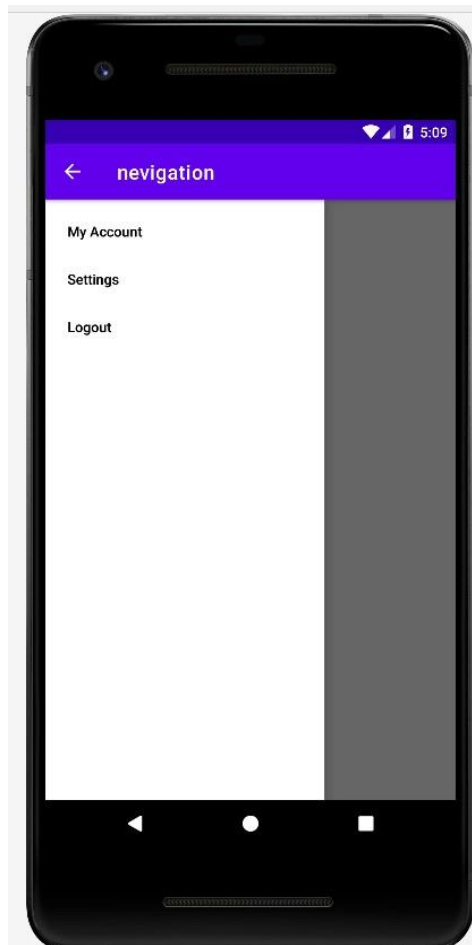
<item
    android:id="@+id/nav_settings"
    android:title="Settings" />

<item
    android:id="@+id/nav_logout"
    android:title="Logout" />

</menu>

```

## Output



**33] Write a program to show androidcustomgridview.**

**Activity\_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
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=".MainActivity">
```

```

        <!-- android:numColumns=2 is the number of columns for Grid View
        android:horizontalSpacing is the space between horizontal
        grid items.-->        <GridView
            android:id="@+id/idGVcourses"
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:horizontalSpacing="6dp"
            android:numColumns="2"
            android:verticalSpacing="6dp" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

### Card\_item.xml

```

<?xml version="1.0" encoding="utf-8"?>
<!--XML implementation of Card Layout-->
<androidx.cardview.widget.CardView
    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="120dp"
    android:layout_gravity="center"
    android:layout_margin="5dp"        app:cardCornerRadius="5dp"
    app:cardElevation="5dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">

        <ImageView
            android:id="@+id/idIVcourse"
            android:layout_width="100dp"
            android:layout_height="100dp"
            android:layout_gravity="center"
            android:src="@drawable/ic_launcher_background" />

        <TextView
            android:id="@+id/idTVCourse"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="@string/app_name"                android:textAlignment="center"
        />

    </LinearLayout>

</androidx.cardview.widget.CardView>

```

### Mainactivity.java

```

package com.example.a33androidcustomview;
import android.os.Bundle;
import android.widget.GridView;
import androidx.appcompat.app.AppCompatActivity; import
java.util.ArrayList;
public class MainActivity extends AppCompatActivity
{
    GridView coursesGV;

```

```

        @Override
        protected void onCreate(Bundle savedInstanceState) {
            super.onCreate(savedInstanceState);
            setContentView(R.layout.activity_main);
            coursesGV =
            findViewById(R.id.idGVcourses);
            ArrayList<CourseModel> courseModelArrayList = new
            ArrayList<CourseModel>();
            courseModelArrayList.add(new CourseModel("DSA",
            R.drawable.ic_gfglogo));
            courseModelArrayList.add(new CourseModel("JAVA",
            R.drawable.ic_gfglogo));
            courseModelArrayList.add(new CourseModel("C++",
            R.drawable.ic_gfglogo));
            courseModelArrayList.add(new CourseModel("Python",
            R.drawable.ic_gfglogo));
            courseModelArrayList.add(new CourseModel("Javascript",
            R.drawable.ic_gfglogo));
            courseModelArrayList.add(new CourseModel("DSA",
            R.drawable.ic_gfglogo));

            CourseGVAdapter adapter = new CourseGVAdapter(this,
            courseModelArrayList);
            coursesGV.setAdapter(adapter);
        }
    }

```

### CourseModel.java

```

package com.example.a33androidcustomview;

public class CourseModel {

    // string course_name for storing course_name
    // and imgid for storing image id.
    private String course_name;
    private int imgid;

    public CourseModel(String course_name, int imgid) {
        this.course_name = course_name;        this.imgid =
        imgid;
    }
    public String
    getCourse_name() {        return
    course_name;
    }
    public void setCourse_name(String course_name) {
        this.course_name = course_name;
    }
    public int
    getImgid() {        return
    imgid;
    }
    public void setImgid(int
    imgid) {        this.imgid = imgid;
    }
}

```

### CourseGVAdapter.java

```

package com.example.a33androidcustomview;

```

```

import android.content.Context;
import android.view.LayoutInflater;
import android.view.View; import
android.view.ViewGroup; import
android.widget.AdapterView; import
android.widget.ImageView; import
android.widget.TextView; import
androidx.annotation.NonNull; import
androidx.annotation.Nullable; import
java.util.ArrayList;

public class CourseGVAdapter extends ArrayAdapter<CourseModel> {      public
CourseGVAdapter(@NonNull Context context, ArrayList<CourseModel>
courseModelArrayList) {
    super(context, 0, courseModelArrayList);
}

    @NonNull
@Override
    public View getView(int position, @Nullable View convertView, @NonNull
ViewGroup parent) {
        View listitemView = convertView;
        if (listitemView == null) {
            // Layout Inflater inflates each item to be displayed in
GridView.
            listitemView =
LayoutInflater.from(getContext()).inflate(R.layout.card_item, parent,
false);
        }
        CourseModel courseModel = getItem(position);
        TextView courseTV = listitemView.findViewById(R.id.idTVCourse);
        ImageView courseIV = listitemView.findViewById(R.id.idIVcourse);
        courseTV.setText(courseModel.getCourse_name());
        courseIV.setImageResource(courseModel.getImgid());          return
listitemView;
    }
}

```

## Output



**34] Write a program to show Restful Web Service.**

