Problem Statement 9:

Write an Android code to display multiple images within the single Image View and change images one after another on a button click. (Min 5 images)

Objective: The objective of this problem is to learn how to display multiple images using Image View and manipulate them dynamically.

activity_main.xml

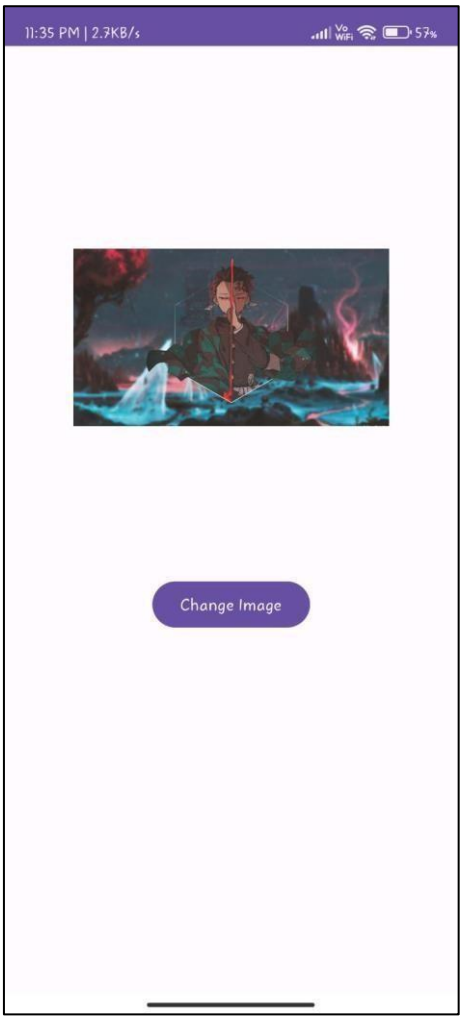
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout >
   <ImageView
android:id="@+id/imageView"
android:layout_width="273dp"
android:layout_height="207dp"
      app:srcCompat="@drawable/a" />

   <Button
android:id="@+id/btn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Change Image" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

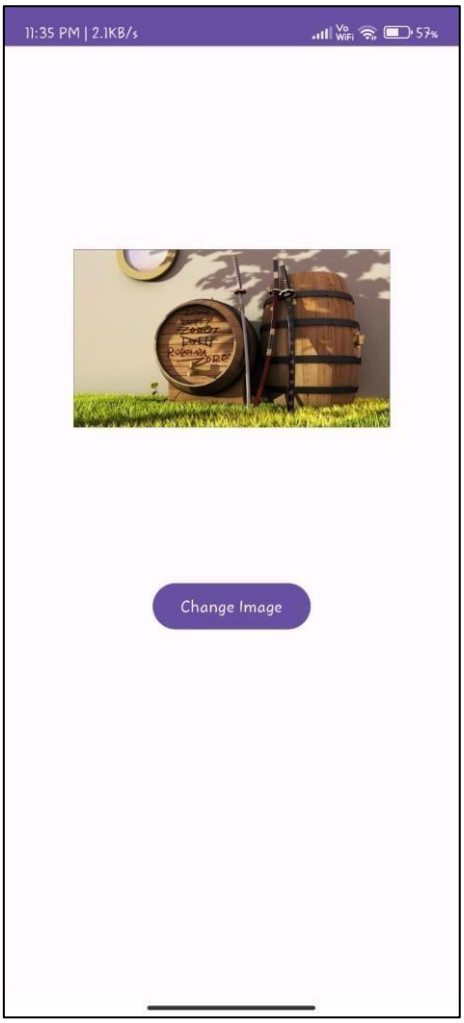
MainActivity.java

```
public class MainActivity extends AppCompatActivity {

   ImageView iv;
Button btn;

   int images[] = {R.drawable.a, R.drawable.b, R.drawable.c, R.drawable.d, R.drawable.e};

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

      iv = findViewById(R.id.imageView);
btn = findViewById(R.id.btn);

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

```
        int i = 0;


        @Override
        public void onClick(View v) {
i++;
            if(i == images.length) i = 0;
iv.setImageResource(images[i]);            }        });
} }
```

Output:





Problem Statement 10:

Develop an Android application to display contact list with at least 10 controls remember that when we click on any contact, display person name with contact number by using Toast.

Objective: The objective of this problem is to learn how to display a list using list view and display the name and number of the person using toast when clicked on it. **activity_main.xml**

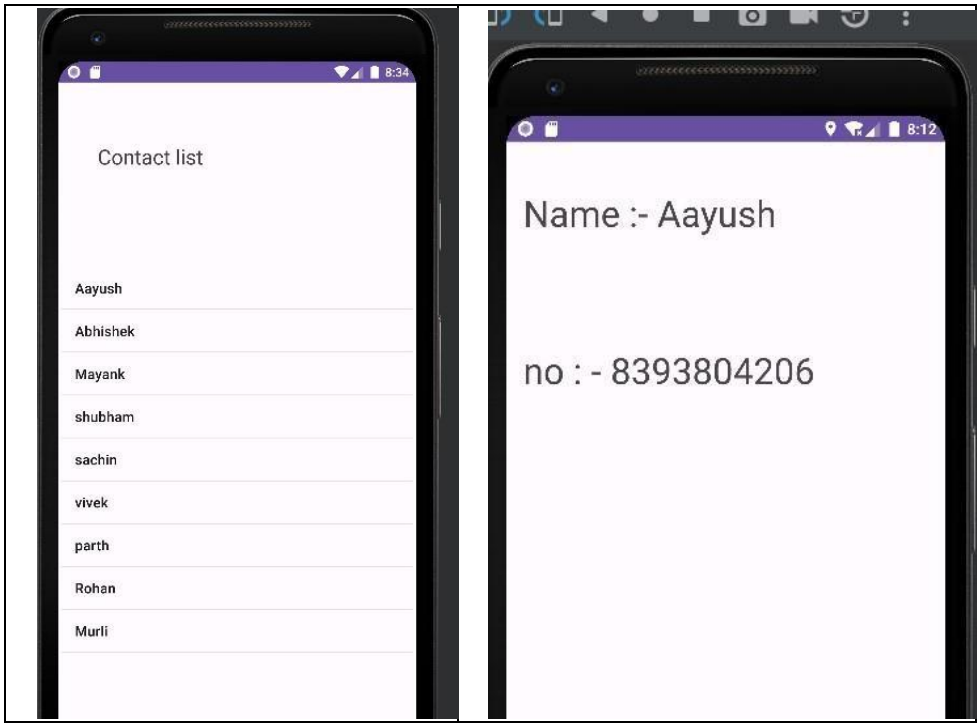
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout >


   <ListView
android:id="@+id/listView"
android:layout_width="409dp"
android:layout_height="729dp"/>


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

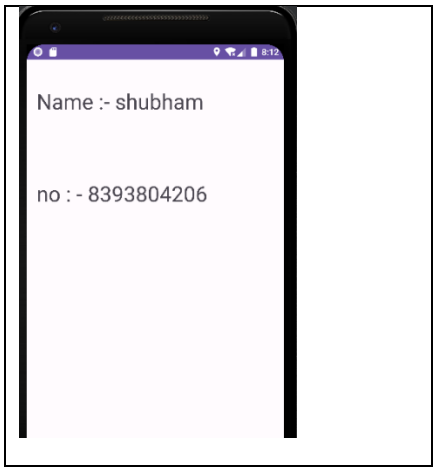
MainActivity.java

```
public class MainActivity extends AppCompatActivity {

   ListView lv;
String s[] = {"Aayush" , "Abhishek", "Mayank" , "shubham" , "sachin" ,"vivek" , "parth" ,"Rohan" , "Murli"   };

   String numbers[] = {"1234567890", "0987654321", "1357924680", "2468013579", "0864297531", "9753108642",
"5647382910", "6574839201", "0192837465", "7418529630", "9638527410", "0258794613", "3021485697"};

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

      lv = findViewById(R.id.listView);

      ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.simple_list_item_1, names);


      lv.setAdapter(adapter);
```

```
lv.setOnItemClickListener(new AdapterView.OnItemClickListener() {
    @Override public void onItemClick(AdapterView<?> parent, View view,
int position, long id) {
                Intent intent = new Intent(MainActivity.this , MainActivity2.class);
Bundle bundle = new Bundle();  bundle.putString("NAME" , ad.getItem(position).toString());
intent.putExtras(bundle);  startActivity(intent); } }); } }
```

Output:





Problem Statement 11:

Develop an Android app to calculate your current age as per your DOB and display your age with the help of Toast.

Objective: The objective of this problem is to take Date of Birth as an input and calculate the current age based on it and display it using toast. **activity_main.xml**

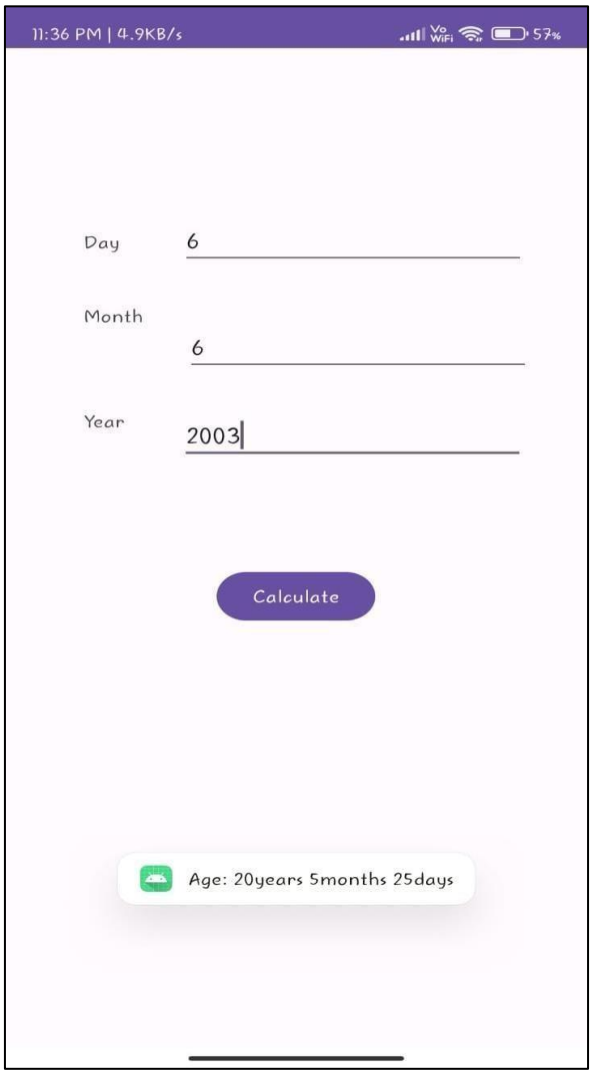
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout >
   <TextView
      android:id="@+id/textView4"
android:text="Day"/>
<TextView
      android:id="@+id/textView2"
android:text="Month"/>
   <TextView
      android:id="@+id/textView5"
android:text="Year"/>
   <EditText
      android:id="@+id/et1"
android:inputType="number "/>
   <EditText
      android:id="@+id/et2"
android:inputType="number"/>
   <EditText
      android:id="@+id/et3"
android:inputType="number "/>     <Button
      android:id="@+id/button"
android:text="Calculate"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
public class MainActivity extends AppCompatActivity {

   EditText e1, e2, e3;
   Button btn;

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

      e1 = findViewById(R.id.et1);        e2 =
```

```
findViewById(R.id.et2);        e3 = findViewById(R.id.et3);        btn
= findViewById(R.id.button);        int month_days[] = {31,28,
31, 30, 31,30,31,31,30,31,30,31};


      btn.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View v) {              int day =
Integer.parseInt(e1.getText().toString());              int month =
Integer.parseInt(e2.getText().toString());              int year =
Integer.parseInt(e3.getText().toString());
            Calendar calendar = Calendar.getInstance(TimeZone.getDefault());              int
y, m, d;

            if(day > 0 && day < 32 && month > 0 && month < 13 && year > 1920 && year < 2023){
y = calendar.get(Calendar.YEAR) - year;                if(calendar.get(Calendar.MONTH) + 1 < month)
{                    y--;
               m = (12 - month) + calendar.get(Calendar.MONTH) + 1;
            }else {
               m = calendar.get(Calendar.MONTH) + 1 - month;
            }
            if(calendar.get(Calendar.DAY_OF_MONTH) < day){
m--;
               d = (month_days[month - 1] - day) + calendar.get(Calendar.DAY_OF_MONTH);
            }else{
               d = calendar.get(Calendar.DAY_OF_MONTH) - day;
            }


            Toast.makeText(getApplicationContext(), "Age: " + y + "years " + m + "months " + d +"days",
Toast.LENGTH_SHORT).show();

            }else {
               Toast.makeText(getApplicationContext(), "Abnormal date", Toast.LENGTH_SHORT).show();
            }


         }
      });
   } }
```

Output:


11:36 PM | 4.9KB/s
57%
Day
6
Month
6
Year
2003
Calculate
Age: 20years 5months 25days

Problem Statement 12:

Write a program to design an Option menu and items in the Option menu are RED, BLUE, and Green.

- **When user selects Red then background of activity should be red.**
- **When user selects BLUE then background of activity should be BLUE.**
- **When user selects Green then background of activity should be Green.**

Objective: The objective of this problem is to design and use an option menu and change the color of the background based on the selected color from the option menu. **menu_main.xml**

```
<menu xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"     xmlns:tools="http://schemas.android.com/tools"
tools:context="com.example.question12.MainActivity">
   <item
android:id="@+id/red"
android:orderInCategory="100"
android:title="Red"
      app:showAsAction="never" />
   <item
android:id="@+id/green"
android:orderInCategory="100"
android:title="Green"        app:showAsAction="never"
/>     <item         android:id="@+id/blue"
android:orderInCategory="100"
android:title="Blue"
      app:showAsAction="never" />
</menu>
```

MainActivity.java

```
package com.example.question12;

import android.annotation.SuppressLint; import
android.graphics.Color;
import android.os.Bundle;

import com.google.android.material.snackbar.Snackbar;

import androidx.appcompat.app.AppCompatActivity;

import android.view.View;

import androidx.constraintlayout.widget.ConstraintLayout;  import
androidx.core.view.WindowCompat; import
```

```
androidx.navigation.NavController; import
androidx.navigation.Navigation; import
androidx.navigation.ui.AppBarConfiguration; import
androidx.navigation.ui.NavigationUI;

import com.example.question12.databinding.ActivityMainBinding;

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

public class MainActivity extends AppCompatActivity {

   private AppBarConfiguration appBarConfiguration;
private ActivityMainBinding binding;
   ConstraintLayout cl;

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

       binding = ActivityMainBinding.inflate(getLayoutInflater());
setContentView(binding.getRoot());         cl =
findViewById(R.id.cl);


       setSupportActionBar(binding.toolbar);

       NavController navController = Navigation.findNavController(this, R.id.nav_host_fragment_content_main);
appBarConfiguration = new AppBarConfiguration.Builder(navController.getGraph()).build();
NavigationUI.setupActionBarWithNavController(this, navController, appBarConfiguration);

       binding.fab.setOnClickListener(new View.OnClickListener() {
          @Override
          public void onClick(View view) {
             Snackbar.make(view, "Replace with your own action", Snackbar.LENGTH_LONG)
                   .setAnchorView(R.id.fab)
                   .setAction("Action", null).show();
          }
       });
}
   @Override      public boolean
onCreateOptionsMenu(Menu menu) {
getMenuInflater().inflate(R.menu.menu_main, menu);
return true;
```

```
    }
    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
int id = item.getItemId();

        if(id == R.id.red){
            cl.setBackgroundColor(Color.RED);
return true;
        }else if(id == R.id.blue){
            cl.setBackgroundColor(Color.BLUE);
return true;
        }else if(id == R.id.green){
            cl.setBackgroundColor(Color.GREEN);
return true;
        }

        return super.onOptionsItemSelected(item);
    }
    @Override
    public boolean onSupportNavigateUp() {
        NavController navController = Navigation.findNavController(this, R.id.nav_host_fragment_content_main);
return NavigationUI.navigateUp(navController, appBarConfiguration)                || super.onSupportNavigateUp();
    } }
```

Output:

Problem Statement 13:

Develop an application to take your name as an input and if name is in lowercase then converting it in uppercase and vice versa.

Objective: The objective of this problem is to take your name as an input and if name is in lowercase then converting it in uppercase and vice versa. **activity_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout>
   <EditText
android:id="@+id/et"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Name"/>

   <TextView
android:id="@+id/tv"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="TextView" />

   <Button
android:id="@+id/btn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Convert"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
public class MainActivity extends AppCompatActivity {

   EditText et;
   TextView tv;
Button btn;

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

```
        et = findViewById(R.id.et);         tv
= findViewById(R.id.tv);
        btn = findViewById(R.id.btn);

        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String value = et.getText().toString();
if(value.toLowerCase().equals(value)){
tv.setText(value.toUpperCase());
                }else{
tv.setText(value.toLowerCase());
                }
            }
        });
    } }
```

Output:

Problem Statement 14:

Design an app in which you have to generate 5-digit random number and send this number to the client via email.

Objective: The objective of this problem is to generate an 5-digit random number and send that number to a client via email using intent. **activity_main.xml**

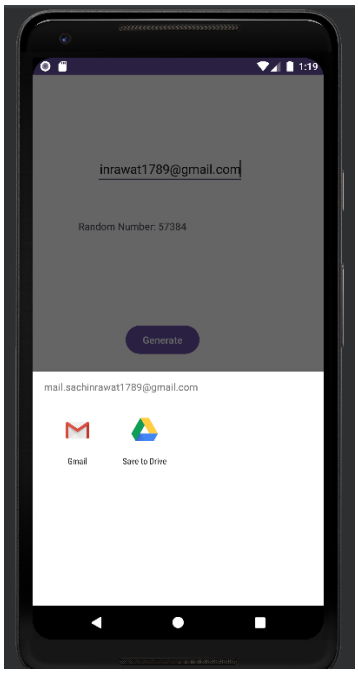
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout >
   <TextView
android:id="@+id/TextView"
android:text="To"/>
   <EditText
android:id="@+id/et1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:inputType="text"/>
   <TextView
android:id="@+id/tv1"
android:text="Random Number: "/>
   <Button
android:id="@+id/bt1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Generate Number"/>
   <Button
      android:id="@+id/bt2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Send"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
public class MainActivity extends AppCompatActivity {
   EditText et1;
   TextView tv1;
Button bt1, bt2;    int num;
@Override     protected
void onCreate(Bundle
savedInstanceState) {
super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      et1 = findViewById(R.id.et1);
```

```
tv1 = findViewById(R.id.tv1);        bt1
= findViewById(R.id.bt1);        bt2 =
findViewById(R.id.bt2);


      bt1.setOnClickListener(new View.OnClickListener() {
          @Override            public void
onClick(View v) {                Random
rd = new Random();
              num = rd.nextInt(10000) + (rd.nextInt(9)+1) * 10000;
tv1.setText("Random Number: " + num);
          }
      });
      bt2.setOnClickListener(new View.OnClickListener() {
          @Override            public
void onClick(View v) {
              String to = et1.getText().toString();
Intent i = new Intent(Intent.ACTION_SEND);
              i.putExtra(Intent.EXTRA_EMAIL, new String[]{to});
              i.putExtra(Intent.EXTRA_SUBJECT, "Random integer");
              i.putExtra(Intent.EXTRA_TEXT, num + "");
              i.setType("message/rfc822");
startActivity(Intent.createChooser(i, "mail.sachinrawat1789@gmail.com"));
          }
      });
} }
```

Output:



Problem Statement 15:

Create an android application to set a countdown time for a specific time interval

Objective: The objective of this problem is to learn how to implement a count down timer for a specific time interval. **activity_main.xml**

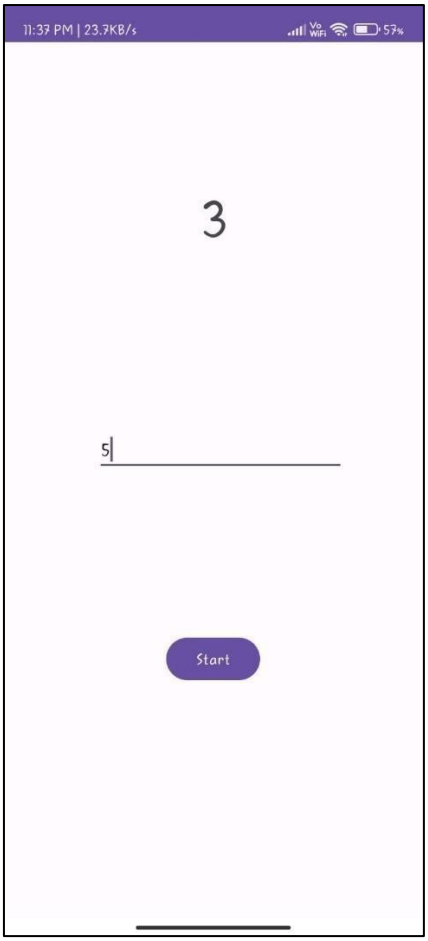
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout >
   <TextView
      android:id="@+id/tv1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="0"/>

   <EditText
      android:id="@+id/et1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:inputType="number "/>

   <Button
android:id="@+id/btn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
      android:text="Start"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

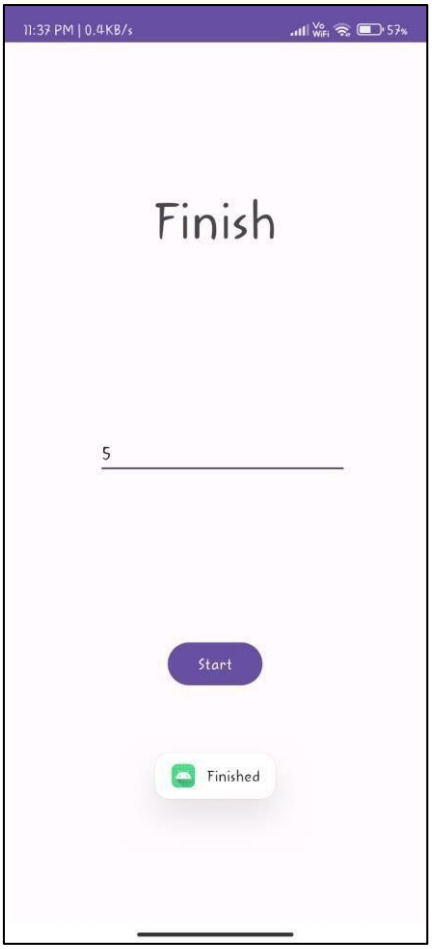
MainActivity.java

```
public class MainActivity extends AppCompatActivity {

   TextView tv;
EditText et;
Button btn;
int count;

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

      tv = findViewById(R.id.tv1);
et = findViewById(R.id.et1);
      btn = findViewById(R.id.btn);
```

```
      btn.setOnClickListener(new View.OnClickListener() {
          @Override              public
void onClick(View v) {
              count = Integer.parseInt(et.getText().toString());
new CountDownTimer(count * 1000,1000){
@Override
                  public void onTick(long millisUntilFinished) {
count--;
                      tv.setText(count+"");
                  }

                  @Override                    public
void onFinish() {
tv.setText("Finish");
                      Toast.makeText(getApplicationContext(), "Finished", Toast.LENGTH_SHORT).show();
                  }
              }.start();
          }
      });
   } }
```

Output:


11:37 PM | 23.7KB/s
57%
3
5
Start


11:37 PM | 0.4KB/s
57%
Finish
5
Start
Finished

Problem Statement 16:

Design an app in which you have to generate 5-digit random number and send this number to the client via SMS.

Objective: The objective of this problem is to generate an 5-digit random number and send that number to a client via SMS using intent. **activity_main.xml**

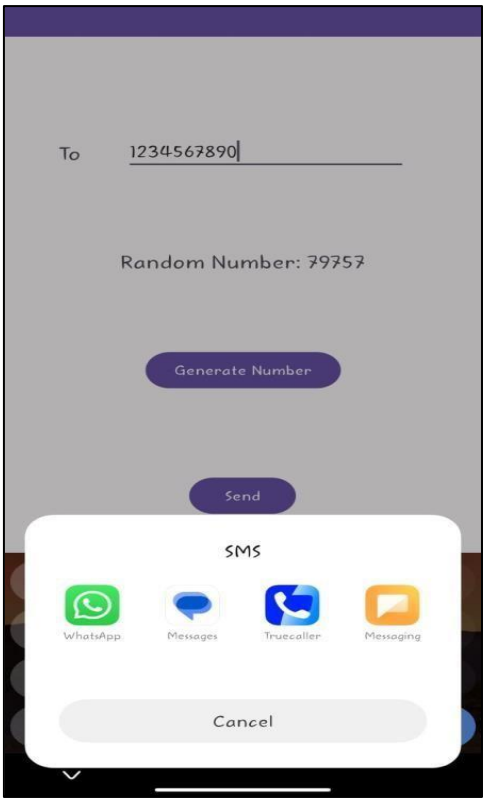
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout >
   <TextView
      android:id="@+id/TextView"
android:text="To"/>     <EditText
android:id="@+id/et1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:inputType="number"/>
   <TextView
android:id="@+id/tv1"
android:text="Random Number: "/>
   <Button         android:id="@+id/bt1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Generate Number"/>
   <Button
android:id="@+id/bt2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Send"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
public class MainActivity extends AppCompatActivity {

   EditText et1;
   TextView tv1;
Button bt1, bt2;    int num;

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

      et1 = findViewById(R.id.et1);
tv1 = findViewById(R.id.tv1);       bt1
```

```
= findViewById(R.id.bt1);        bt2 =
findViewById(R.id.bt2);


        bt1.setOnClickListener(new View.OnClickListener() {
            @Override            public void onClick(View v) {
Random rd = new Random();                num = rd.nextInt(10000)
+ (rd.nextInt(9)+1) * 10000;                tv1.setText("Random
Number: " + num);
            }
        });
        bt2.setOnClickListener(new View.OnClickListener() {
@Override              public void onClick(View v) {
                String to = et1.getText().toString();
                Intent i = new Intent(Intent.ACTION_SENDTO);
i.setData(Uri.parse("smsto:" + Uri.encode(to)));
                i.putExtra("sms_body", num+"");
startActivity(Intent.createChooser(i, "SMS"));
            }
        });
} }
```

Output:



Problem Statement: 1. Create an Android app to add two numbers and check the output is prime or not.

Objective: To learn the basic concept of EditText or java programming **Source Code:**

Activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
tools:context=".MainActivity">
   <EditText
android:id="@+id/e1"

 android:layout_width="wrap_content"
android:layout_height="wrap_content"
/>
   <EditText         android:id="@+id/e2"
android:layout_width="wrap_content"        />
<Button         android:id="@+id/b1"
android:layout_width="wrap_content"
 />
   <TextView
android:id="@+id/t1"
android:layout_width="150dp"
 />
</androidx.constraintlayout.widget.ConstraintLayout>
```