

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

XML Code :-

```
<?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=".MainActivity">

    <EditText
        android:id="@+id/input_1"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:ems="10"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.864"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.323" />

    <EditText
        android:id="@+id/input_2"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:ems="10"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.871"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.452" />

    <Button
        android:id="@+id/generate_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
```

```
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.688" />

<TextView
    android:id="@+id/output"
    android:layout_width="232dp"
    android:layout_height="57dp"
    android:text="Enter First Number :"
    android:textSize="20dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.053"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.344" />

<TextView
    android:id="@+id/tv2"
    android:layout_width="232dp"
    android:layout_height="57dp"
    android:text="Enter Second Number :"
    android:textSize="20dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.055"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.467" />

<TextView
    android:id="@+id/textbox1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="TextView"
    android:textSize="25dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.134" />

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

JAVA Code :-

```
package com.example.termwork;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    EditText input1,input2;
    TextView op1;
    Button b1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        input1=findViewById(R.id.input_1);
        input2=findViewById(R.id.input_2);
        b1=(Button) findViewById(R.id.generate_button);
        op1=(TextView) findViewById(R.id.textbox1);
        b1.setOnClickListener(new View.OnClickListener() {
            boolean checkPrime(Integer n){
                for(int i=2;i<n;i++){
                    if(n%i==0){
                        return false;
                    }
                }
                return true;
            }
        })
    }
    @Override
    public void onClick(View view) {
        String num1=input1.getText().toString();
        Integer a= Integer.valueOf(num1);
        String num2=input2.getText().toString();
        Integer b= Integer.valueOf(num2);
        Integer num=a+b;
    }
}
```

```
        if(checkPrime(num)){
            op1.setText(num + " is Prime...");
        }else{
            op1.setText(num + " is Not Prime
...");
        }
    });
}
```

Output :-

TermWork

15 is Not Prime ...

Enter First Number : 6

Enter Second Number : 9

BUTTON

TermWork

13 is Prime...

Enter First Number : 6

Enter Second Number : 7

BUTTON

Problem Statement 2: Design an app in which you have to display your name in the middle of the screen with red color and each time when you click on a button, name will increase with font size and after increasing 5 times, means at sixth time, it will not increase and display a message "you can't perform this operation";

XML Code :-

```
<?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=".MainActivity">

    <Button
        android:id="@+id/generate_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.54" />

    <TextView
        android:id="@+id/textbox1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Gautam"
        android:textColor="@color/RED"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.252" />

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

JAVA Code :-

```
package com.example.termwork;

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

public class Ques2 extends AppCompatActivity {
    Button button1;
    TextView textbox1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques2);
        textbox1=(TextView)findViewById(R.id.textbox1);
        button1=findViewById(R.id.generate_button);
        button1.setOnClickListener(new
View.OnClickListener() {
            Integer count=0;
            @Override
            public void onClick(View view) {
                Float
size=textbox1.getTextSize()/getResources().getDisplayMetri
cs().density;;
                if(count<5){
                    size+=2;
                    textbox1.setTextSize(size);
                    count++;
                }else{

Toast.makeText(getApplicationContext(),"Sorry, You can't
perform this operation",Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

Output :-



Problem Statement 3: Write an Android code to show the working of Activity Lifecycle.

JAVA Code :-

```
package com.example.termwork;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;

public class Ques3 extends AppCompatActivity {
    private static final String NAME = "MainActivity";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques3);
        Log.d( NAME,"onCreate() called");
    }

    @Override
    protected void onStart() {
        super.onStart();
        Log.d( NAME,"onStart() called");
    }

    @Override
    protected void onResume() {
        super.onResume();
        Log.d(NAME,"onResume() called");
    }

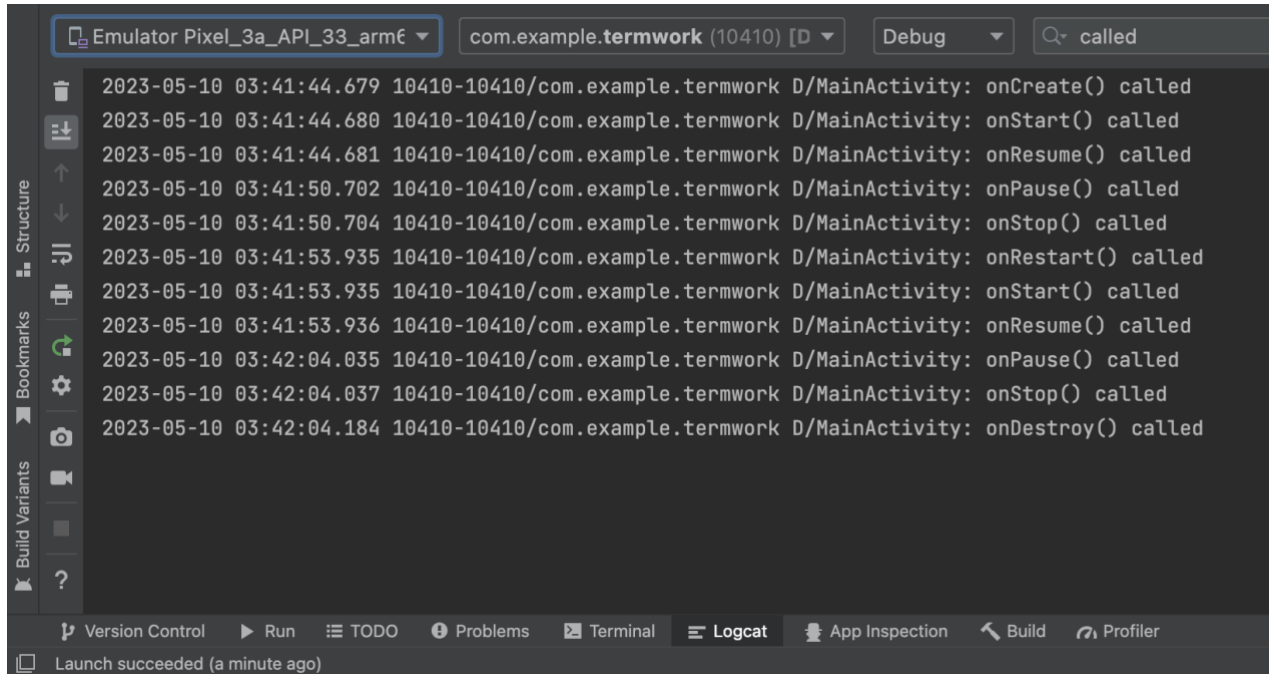
    @Override
    protected void onPause() {
        super.onPause();
        Log.d(NAME, "onPause() called");
    }

    @Override
    protected void onStop() {
        super.onStop();
        Log.d(NAME, "onStop() called");
    }
}
```

```
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        Log.d(NAME, "onDestroy() called");
    }
    @Override
    protected void onRestart() {
        super.onRestart();
        Log.d(NAME, "onRestart() called");
    }
}
```

Output :-



The screenshot shows the Android Studio interface with the Logcat window open. The top bar indicates the emulator is 'Emulator Pixel_3a_API_33_arm64' and the package is 'com.example.termwork (10410)'. The Logcat filter is set to 'called'. The log entries show the lifecycle of MainActivity:

```
2023-05-10 03:41:44.679 10410-10410/com.example.termwork D/MainActivity: onCreate() called
2023-05-10 03:41:44.680 10410-10410/com.example.termwork D/MainActivity: onStart() called
2023-05-10 03:41:44.681 10410-10410/com.example.termwork D/MainActivity: onResume() called
2023-05-10 03:41:50.702 10410-10410/com.example.termwork D/MainActivity: onPause() called
2023-05-10 03:41:50.704 10410-10410/com.example.termwork D/MainActivity: onStop() called
2023-05-10 03:41:53.935 10410-10410/com.example.termwork D/MainActivity: onRestart() called
2023-05-10 03:41:53.935 10410-10410/com.example.termwork D/MainActivity: onStart() called
2023-05-10 03:41:53.936 10410-10410/com.example.termwork D/MainActivity: onResume() called
2023-05-10 03:42:04.035 10410-10410/com.example.termwork D/MainActivity: onPause() called
2023-05-10 03:42:04.037 10410-10410/com.example.termwork D/MainActivity: onStop() called
2023-05-10 03:42:04.184 10410-10410/com.example.termwork D/MainActivity: onDestroy() called
```

The bottom status bar shows 'Launch succeeded (a minute ago)'.

Problem Statement 4: Create an application which displays three buttons named Red, Yellow, and Green. The background color of activity should be changed to appropriate color when user click on any of these buttons.

XML Code :-

```
<?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"
    android:id="@+id/cl1"
    tools:context=".Ques4">

    <Button
        android:id="@+id/btn_yellow"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="YELLOW"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/btn_green"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="GREEN"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.501"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.673" />

    <Button
        android:id="@+id/btn_red"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="RED"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.33" />
</android.support.constraint.ConstraintLayout>
```

JAVA Code :-

```
package com.example.termwork;

import android.support.constraint.ConstraintLayout;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class Ques4 extends AppCompatActivity {
    Button b1,b2,b3;
    View c1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques4);
        c1=(View)findViewById(R.id.cl1);
        b1=(Button) findViewById(R.id.btn_red);
        b2=(Button) findViewById(R.id.btn_green);
        b3=(Button) findViewById(R.id.btn_yellow);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

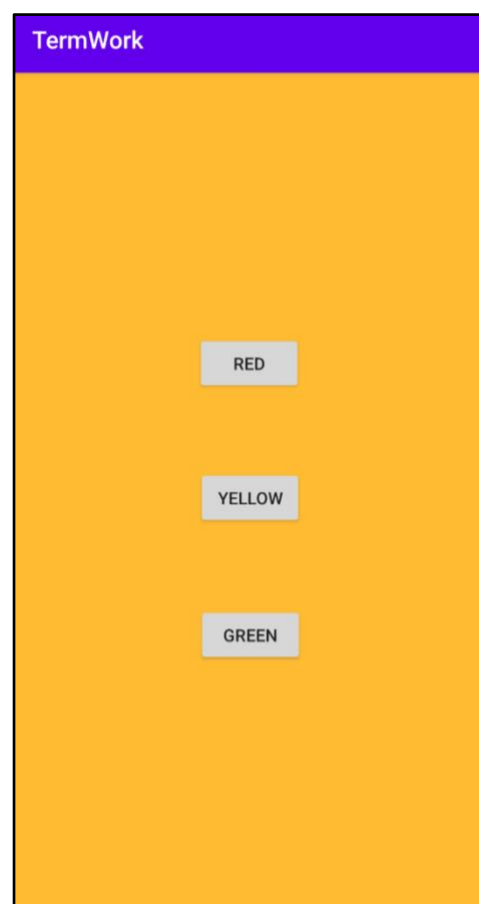
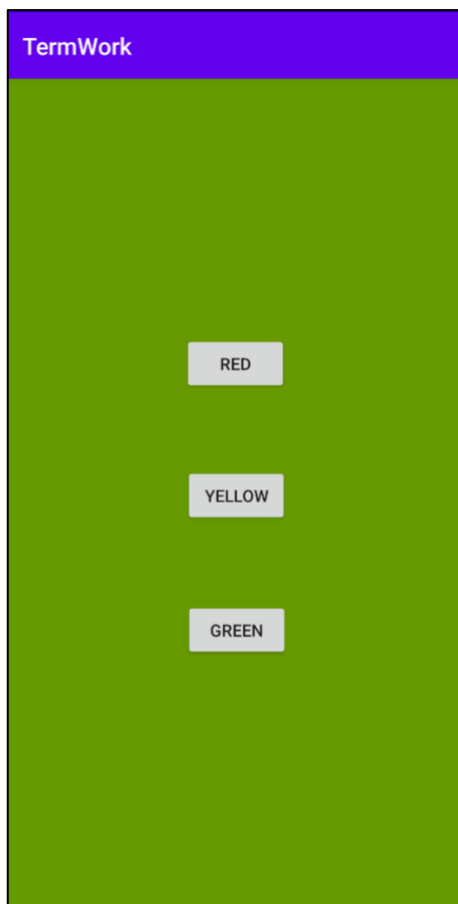
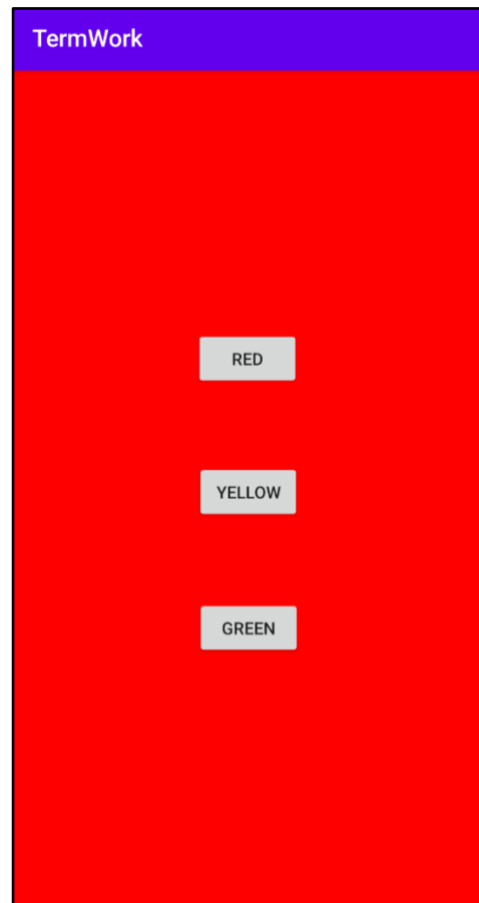
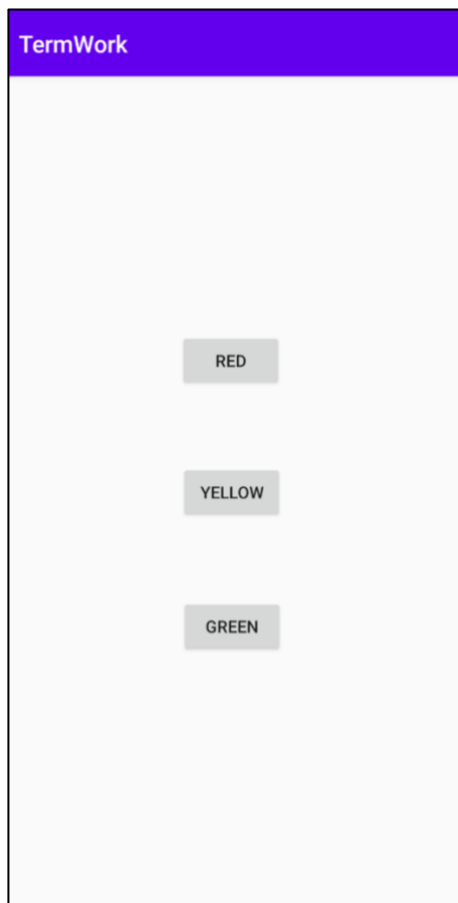
c1.setBackgroundColor(getResources().getColor(R.color.RED)
);
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

c1.setBackgroundColor(getResources().getColor(R.color.GREE
N));
            }
        });
    }
}
```

```
        b3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

c1.setBackgroundColor(getResources().getColor(R.color.YELLOW));
            }
        });
    }
}
```

Output :-



Problem Statement 5: Write an application that draws graphical primitives such as circle, rectangle and square. Fill all these primitives with different colors.

JAVA Code :-

```
package com.example.termwork;

import android.content.Context;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.RectF;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;

public class Ques5 extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(new MyView(this));
    }
    private static class MyView extends View{
        public MyView(Context context){
            super(context);
        }

        @Override
        protected void onDraw(Canvas canvas) {
            super.onDraw(canvas);
            Paint redPaint=new Paint();

            redPaint.setColor(Color.RED);
            redPaint.setStyle(Paint.Style.FILL);

            Paint yellowPaint=new Paint();
            yellowPaint.setColor(Color.YELLOW);
            yellowPaint.setStyle(Paint.Style.FILL);

            Paint greenPaint=new Paint();
```

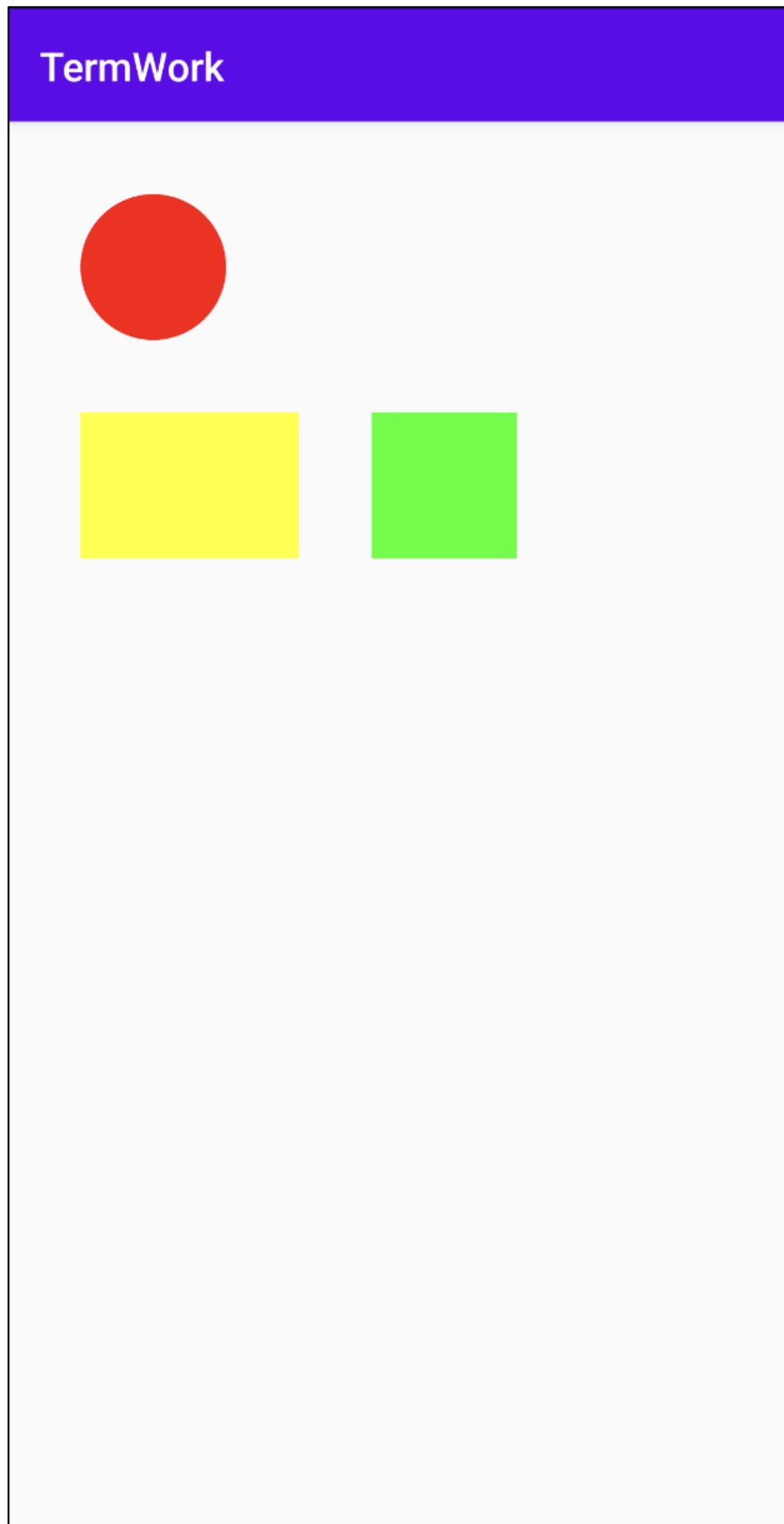


```
        greenPaint.setColor(Color.GREEN);
        greenPaint.setStyle(Paint.Style.FILL);

        canvas.drawCircle(200,200,100,redPaint);
        canvas.drawRect(100,400,400,600,yellowPaint);

        RectF square= new RectF(500,400,700,600);
        canvas.drawRect(square,greenPaint);
    }
}
```

Output :-



Problem Statement 6: Develop an application that validates the login page and registration page.

XML Code (Register):-

```
<?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=".Ques6">

    <TextView
        android:id="@+id/uname"
        android:layout_width="119dp"
        android:layout_height="36dp"
        android:text="Username:"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.078"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.208" />

    <EditText
        android:id="@+id/password_input"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPassword"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.905"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.567" />

    <Button
        android:id="@+id/button_register"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Register"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.759" />
```

```
<TextView
    android:id="@+id/phone"
    android:layout_width="142dp"
    android:layout_height="32dp"
    android:text="Phone Number:"
    android:textSize="20dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.085"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.327" />
```

```
<TextView
    android:id="@+id/email"
    android:layout_width="119dp"
    android:layout_height="36dp"
    android:text="Email:"
    android:textSize="20dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.078"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.446" />
```

```
<Button
    android:id="@+id/button_movenext"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Move to Login"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.866" />
```

```
<EditText
    android:id="@+id/email_input"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textEmailAddress"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.905"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.451" />
```

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

```
        android:layout_width="119dp"
        android:layout_height="36dp"
        android:text="Password:"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.078"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.559" />

<EditText
    android:id="@+id/uname_input"
    android:layout_width="211dp"
    android:layout_height="44dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.92"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.211" />

<TextView
    android:id="@+id/heading1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Registration Form"
    android:textSize="30dp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.066" />

<EditText
    android:id="@+id/phone_input"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="phone"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.9"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.333" />

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

XML Code (Login):-

```
<?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">

    <Button
        android:id="@+id/button_login"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.685" />

    <TextView
        android:id="@+id/phone"
        android:layout_width="142dp"
        android:layout_height="32dp"
        android:text="Phone Number:"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.085"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.258" />

    <EditText
        android:id="@+id/phone_input"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="phone"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.91"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.263" />

    <EditText
        android:id="@+id/password_input"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPassword"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.915"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.497" />

<TextView
    android:id="@+id/email"
    android:layout_width="119dp"
    android:layout_height="36dp"
    android:text="Email:"
    android:textSize="20dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.078"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.376" />

<EditText
    android:id="@+id/email_input"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textEmailAddress"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.915"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.381" />

<TextView
    android:id="@+id/password"
    android:layout_width="119dp"
    android:layout_height="36dp"
    android:text="Password:"
    android:textSize="20dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.078"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.49" />

<TextView
    android:id="@+id/heading1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Login Form"
    android:textSize="30dp"
    android:textStyle="bold"
```

```
app:layout_constraintBottom_toBottomOf="parent"  
app:layout_constraintEnd_toEndOf="parent"  
app:layout_constraintHorizontal_bias="0.497"  
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toTopOf="parent"  
app:layout_constraintVertical_bias="0.066" />
```

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


JAVA Code (Register) :-

```
package com.example.termwork;

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;
import android.widget.Toast;

public class Ques6 extends AppCompatActivity {
    Button register,movenext;
    EditText username,password,phonenumber,email;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques6);
        register=findViewById(R.id.button_register);
        movenext=findViewById(R.id.button_movenext);
        username=findViewById(R.id.uname_input);
        password=findViewById(R.id.password_input);
        phonenumber=findViewById(R.id.phone_input);
        email=findViewById(R.id.email_input);

        register.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String Username>Password>Email>PhoneNum;

                Username=username.getText().toString();
                Password=password.getText().toString();
                Email=email.getText().toString();
                PhoneNum=
phonenumber.getText().toString();
                Boolean allCorrect=true;

                if(Username.isEmpty()){
                    username.setError("Enter Valid User
Name");
```

```
        allCorrect=false;
    }
    if(Password.isEmpty() ||
Password.length()<8 ){
        password.setError("Password Length
Should be 8 Chars and Non-Empty");
        allCorrect=false;
    }
    if(Email.isEmpty() ||
!android.util.Patterns.EMAIL_ADDRESS.matcher(Email).matches() ){
        email.setError("Enter Valid Email");
        allCorrect=false;
    }
    if( PhoneNum.isEmpty() ||
PhoneNum.length()<10){
        phonenumber.setError("Phone Number be
At Least 10 Digits");
        allCorrect=false;
    }

    if(allCorrect){

Toast.makeText(getApplicationContext(),"Success, Form Is
Valid To Submit",Toast.LENGTH_LONG).show();
    }else{

Toast.makeText(getApplicationContext(),"Invalid Form
Inputs, Please Try Again With Valid
Inputs",Toast.LENGTH_LONG).show();
    }

    }
});
movenext.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Intent i1=new
Intent(getApplicationContext(),Ques6_2.class);
        startActivity(i1);
    }
}
```

```
        });  
    }  
}
```

JAVA Code (Login) :-

```
package com.example.termwork;  
  
import android.support.v7.app.AppCompatActivity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
  
public class Ques6_2 extends AppCompatActivity {  
    Button button_login;  
    EditText password,phonenum, email;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_ques62);  
        button_login=findViewById(R.id.button_login);  
        email=findViewById(R.id.email_input);  
        password=findViewById(R.id.password_input);  
        phonenum=findViewById(R.id.phone_input);  
  
        button_login.setOnClickListener(new  
View.OnClickListener() {  
            @Override  
            public void onClick(View view) {  
                String Password,Email,PhoneNum;  
  
                Password=password.getText().toString();  
                Email=email.getText().toString();  
                PhoneNum=  
phonenum.getText().toString();  
                Boolean allCorrect=true;
```

```
        if(Password.isEmpty() ||
Password.length()<8 ){
            password.setError("Password Length
Should be 8 Chars and Non-Empty");
            allCorrect=false;
        }
        if(Email.isEmpty() ||
!android.util.Patterns.EMAIL_ADDRESS.matcher(Email).matches() ){
            email.setError("Enter Valid Email");
            allCorrect=false;
        }
        if( PhoneNum.isEmpty() ||
PhoneNum.length()<10){
            phonenumber.setError("Phone Number be
At Least 10 Digits");
            allCorrect=false;
        }

        if(allCorrect){


Toast.makeText(getApplicationContext(),"Success, Form Is
Valid To Submit",Toast.LENGTH_LONG).show();
        }else{


Toast.makeText(getApplicationContext(),"Invalid Form
Inputs, Please Try Again With Valid
Inputs",Toast.LENGTH_LONG).show();
        }
    }
}
});
}
}
```


Output :-


TermWork

Registration Form

Username: 


Phone Number: 

Email: 

Password: 

REGISTER

MOVE TO LOGIN

 Invalid Form Inputs, Please Try Again With Valid Inputs

TermWork

Registration Form

Username:


Phone Number:

Email:

Password:


REGISTER


MOVE TO LOGIN


 Success, Form Is Valid To Submit

TermWork


Login Form

Phone Number: 

Email: 

Password: 

LOGIN

 Invalid Form Inputs, Please Try Again With Valid Inputs

TermWork


Login Form

Phone Number:

Email:

Password:

LOGIN

 Success, Form Is Valid To Submit

Problem Statement 7: Write an Android code to design a password with the combination of letter, digit and special character.

XML Code :-

```
<?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=".Ques7">

    <Button
        android:id="@+id/generate_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Generate"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

    <TextView
        android:id="@+id/output"
        android:layout_width="232dp"
        android:layout_height="57dp"
        android:text="Random Password"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

    <TextView
        android:id="@+id/heading1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Random Password Generator"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.682"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.187" />

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

JAVA Code :-

```
package com.example.termwork;

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

import java.util.Random;

public class Ques7 extends AppCompatActivity {
    Button b1;
    TextView output;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques7);
        b1=findViewById(R.id.generate_button);
        output=findViewById(R.id.output);
        b1.setOnClickListener(new View.OnClickListener() {
            String GenerateRandom(){
                String ans="";
                Random random=new Random();
                String CAPS="ABCDEFGHIJKLMNOPQRSTUVWXYZ";
                String SMALL="abcdefghijklmnopqrstuvwxyz";
                String NUMS="0123456789";
                String SYMBOL="!@#$%^&*()_+?/";
                StringBuilder sb=new StringBuilder();
                Integer count=0;
                while(count<8){
                    int CAPS_INDEX =
random.nextInt(CAPS.length());
                    int SMALL_INDEX =
random.nextInt(SMALL.length());
                    int NUMS_INDEX =
random.nextInt(NUMS.length());
                    int SYMBOL_INDEX =
random.nextInt(SYMBOL.length());
                    sb.append(NUMS.charAt(NUMS_INDEX));
```

```
        sb.append(CAPS.charAt(CAPS_INDEX));
        sb.append(SMALL.charAt(SMALL_INDEX));

sb.append(SYMBOL.charAt(SYMBOL_INDEX));
        count+=4;
    }
    ans = sb.toString();
    return ans;
}

@Override
public void onClick(View view) {
    output.setText(GenerateRandom());
}
});
}
}
```


Output :-

TermWork

Random Password Generator

6Xn^3Fg_

GENERATE

TermWork

Random Password Generator

9Xz(7Fr%

GENERATE

Problem Statement 8: Write an application to divide the screen into 3 parts by using fragments

XML Code :-

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.v7.widget.LinearLayoutCompat
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".Ques8">
    <fragment
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:name="com.example.termwork.Fragment1"
        android:id="@+id/fragment1"/>
    <fragment
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:name="com.example.termwork.Fragment2"
        android:id="@+id/fragment2"/>
    <fragment
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:name="com.example.termwork.Fragment3"
        android:id="@+id/fragment3"/>
</android.support.v7.widget.LinearLayoutCompat>
```

XML Code (Fragment 1) :-

```
<?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"
    tools:context=".Fragment1"
    android:background="@android:color/holo_orange_dark"
    android:gravity="center"
    >

    <TextView
        android:id="@+id/frag_textview1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="This is Fragment 1"
```

```
        android:textAlignment="center"
        android:textColor="@color/white"
        android:textSize="25dp"
        android:textStyle="bold" />
```

```
</LinearLayout>
```

XML Code (Fragment 2) :-

```
<?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"
    tools:context=".Fragment2"
    android:background="@color/white"
    android:gravity="center"
    >
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="This is Fragment 2"
        android:textAlignment="center"
        android:textColor="@android:color/holo_blue_dark"
        android:id="@+id/frag_textview2"
        android:textSize="25dp"
        android:textStyle="bold" />

</LinearLayout>
```

XML Code (Fragment 3) :-

```
<?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"
    tools:context=".Fragment3"
    android:background="@android:color/holo_green_dark"
    android:gravity="center"
    >

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="This is Fragment 3"
        android:textAlignment="center"
        android:textColor="@color/white"
        android:id="@+id/frag_textview2"
        android:textSize="25dp"
        android:textStyle="bold" />

</LinearLayout>
```

JAVA Code (Fragment 1) :-

```
package com.example.termwork;

import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;

public class Fragment1 extends Fragment {

    public Fragment1() {
        // Required empty public constructor
    }
    @Override
    public View onCreateView(LayoutInflater inflater,
        ViewGroup container,
                               Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_1,
            container, false);
    }
}
```

JAVA Code (Fragment 2) :-

```
package com.example.termwork;

import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class Fragment2 extends Fragment {

    public Fragment2() {
```

```
        // Required empty public constructor
    }
    @Override
    public View onCreateView(LayoutInflater inflater,
        ViewGroup container,
                               Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_2,
            container, false);
    }
}
```

JAVA Code (Fragment 3) :-

```
package com.example.termwork;

import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class Fragment3 extends Fragment {

    public Fragment3() {
        // Required empty public constructor
    }
    @Override
    public View onCreateView(LayoutInflater inflater,
        ViewGroup container,
                               Bundle savedInstanceState) {
        return inflater.inflate(R.layout.fragment_3,
            container, false);
    }
}
```

Output :-



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)

XML Code :-

```
<?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"
    android:layout_gravity="center">
    <ImageView
        android:id="@+id/imageView2"
        android:layout_width="match_parent"
        android:layout_height="250dp"
        android:foregroundGravity="center"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:scaleType="fitXY"
        app:srcCompat="@drawable/image_3" />

    <Button
        android:id="@+id/chng_img"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Next"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView2"
        app:layout_constraintVertical_bias="0.42" />

    <TextView
        android:id="@+id/img_text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="TextView"
        android:textSize="25dp"
        app:layout_constraintBottom_toTopOf="@+id/chng_img"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView2" />

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

JAVA Code :-

```
package com.example.termwork;


import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;

public class Ques9 extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques9);
        ImageView img=findViewById(R.id.imageView2);
        Button chng_img=findViewById(R.id.chng_img);
        TextView img_text=findViewById(R.id.img_text);
        chng_img.setOnClickListener(new View.OnClickListener() {
            Integer count=0;
            @Override
            public void onClick(View view) {
                if(count==5)count=0;
                count++;
                String img_res="image_"+count;
                img_text.setText("Showing Image "+count);
                int
res_id=getResources().getIdentifier(img_res,"drawable",getPackageNam
e());
                img.setImageResource(res_id);
            }
        });
    }
}
```


Output :-


TermWork



Showing Image 1

NEXT


TermWork



Showing Image 2

NEXT


TermWork



Showing Image 3

NEXT

TermWork



Showing Image 4

NEXT

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

XML Code (List):-

```
<?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=".Ques10">

    <ListView
        android:id="@+id/contact_list"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

XML Code (List Item):-

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="8dp">
    <ImageView
        android:layout_height="80dp"
        android:layout_width="80dp"
        android:id="@+id/contact_image"
        android:scaleType="centerCrop"
        android:src="@drawable/contact_6"
        />
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:layout_margin="8dp"
        >
    <TextView
        android:textColor="@color/black"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="contact_name"
        android:textSize="20dp"
        android:id="@+id/contact_name"
    />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/contact_number"
        android:textSize="18dp"
        android:layout_marginTop="8dp"
        android:text="contact_number"
    />

</LinearLayout>

</LinearLayout>
```

JAVA Code :-

```
package com.example.termwork;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;
import java.util.ArrayList;

public class Ques10 extends AppCompatActivity {
    ListView contact_list;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques10);
        contact_list=findViewById(R.id.contact_list);

        ArrayList<Integer> img=new ArrayList<>();
        img.add(R.drawable.contact_1);
        img.add(R.drawable.contact_2);
        img.add(R.drawable.contact_3);
        img.add(R.drawable.contact_4);
        img.add(R.drawable.contact_5);
        img.add(R.drawable.contact_6);
        img.add(R.drawable.contact_7);
        img.add(R.drawable.contact_8);
        img.add(R.drawable.contact_9);
        img.add(R.drawable.contact_10);

        ArrayList<String> contact=new ArrayList<>();
        contact.add("+91 7380331867");
        contact.add("+91 8077460928");
        contact.add("+91 9760681112");
        contact.add("+91 9045282475");
        contact.add("+91 9027409766");
        contact.add("+91 8976578789");
        contact.add("+91 7874898789");
        contact.add("+91 9877898789");
        contact.add("+91 9867564567");
        contact.add("+91 9887765454");

        ArrayList<String> names=new ArrayList<>();
        names.add("Gautam Sharma");
        names.add("Ashwani Tomar");
        names.add("Aayush Lamba");
        names.add("Shivam Kumar");
```

```
        names.add("Vivek Kothari");
        names.add("Anupam Mittal");
        names.add("Ashneer Grover");
        names.add("Piyush Bansal");
        names.add("Aman Gupta");
        names.add("Amit Jain");

//        ArrayAdapter<String> adapter=new
ArrayAdapter<String>(this,
android.support.constraint.R.layout.support_simple_spinner_dropdown_
item,names);
        Ques10_Contact_Adapter adapter =new
Ques10_Contact_Adapter(this,names,contact,img);
        contact_list.setAdapter(adapter);
        contact_list.setOnItemClickListener(new
AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> adapterView, View
view, int i, long l) {
                Toast.makeText(getApplicationContext(),"Name:
"+names.get(i)+" Contact:
"+contact.get(i),Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

JAVA Code (Custom Adapter):-

```
package com.example.termwork;

import android.content.Context;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.ImageView;
import android.widget.TextView;

import java.util.ArrayList;

public class Ques10_Contact_Adapter extends BaseAdapter {
    Context ctx;
    ArrayList<String> names;
    ArrayList<String> contact;
    ArrayList<Integer> images;
```

```
        LayoutInflater inflater;
        public Ques10_Contact_Adapter(Context ctx,
        ArrayList<String> names,ArrayList<String>
        contact,ArrayList<Integer> images){
            this.names=names;
            this.contact=contact;
            this.images=images;
            this.inflater=LayoutInflater.from(ctx);
        }
        @Override
        public int getCount() {
            return names.size();
        }









        @Override
        public Object getItem(int i) {
            return null;
        }



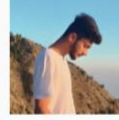



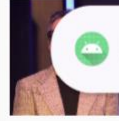

        @Override
        public long getItemId(int i) {
            return 0;
        }

        @Override
        public View getView(int i, View view, ViewGroup
        viewGroup) {

        view=inflater.inflate(R.layout.activity_ques10_contact_lay
        out,null);
            TextView name=(TextView)
        view.findViewById(R.id.contact_name);
            TextView contact_view=(TextView)
        view.findViewById(R.id.contact_number);
            ImageView img=(ImageView)
        view.findViewById(R.id.contact_image);
            name.setText(names.get(i));
            contact_view.setText(contact.get(i));
            img.setImageResource(images.get(i));
            return view;
        }
    }
```

Output :-

TermWork	
	Gautam Sharma +91 7380331867
	Ashwani Tomar +91 8077460928
	Aayush Lamba +91 9760681112
	Shivam Kumar +91 9045282475
	Vivek Kothari +91 9027409766
	Anupam Mittal +91 8976578789
	Ashneer Grover +91 7874898789
	

TermWork	
	Gautam Sharma +91 7380331867
	Ashwani Tomar +91 8077460928
	Aayush Lamba +91 9760681112
	Shivam Kumar +91 9045282475
	Vivek Kothari +91 9027409766
	Anupam Mittal +91 8976578789
	<div>Name: Gautam Sharma Contact: +91 7380331867</div>
	

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.

XML Code :-

```
<?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=".Ques11">

    <TextView
        android:id="@+id/msg1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Currently You Are: "
        android:textSize="28dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

    <TextView
        android:id="@+id/tv_years"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Old !"
        android:textAlignment="center"
        android:textSize="28dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

    <Button
        android:id="@+id/btn_calculate_age"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Select DOB"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.685" />

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


JAVA Code :-

```
package com.example.termwork;
import android.app.DatePickerDialog;
import java.time.LocalDate;
import android.os.Build;
import android.support.annotation.RequiresApi;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import java.time.Period;
import android.widget.DatePicker;
import android.widget.TextView;
import android.widget.Toast;

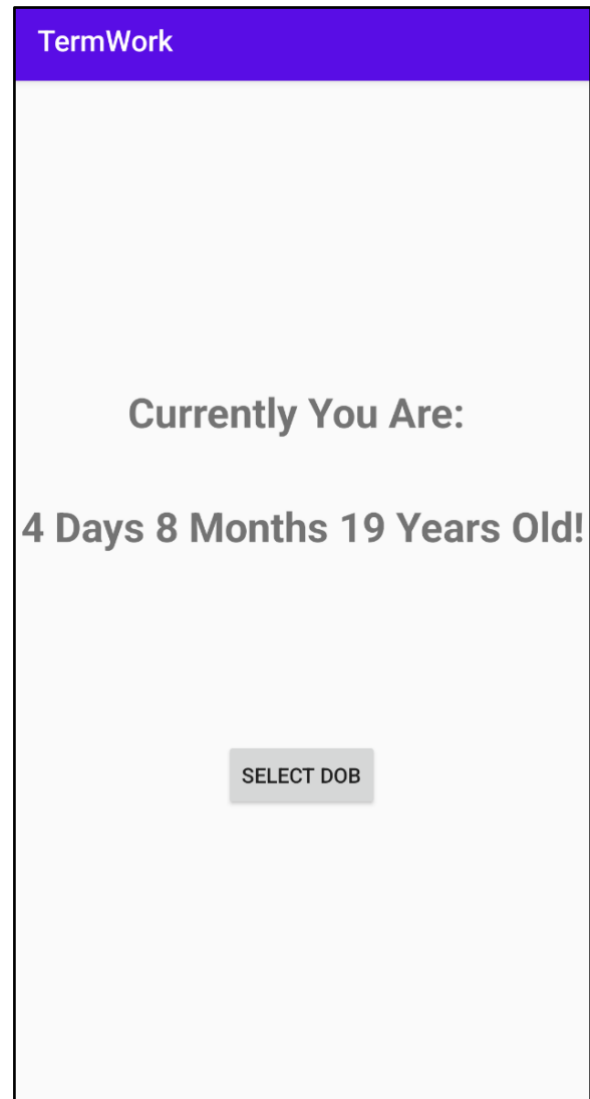
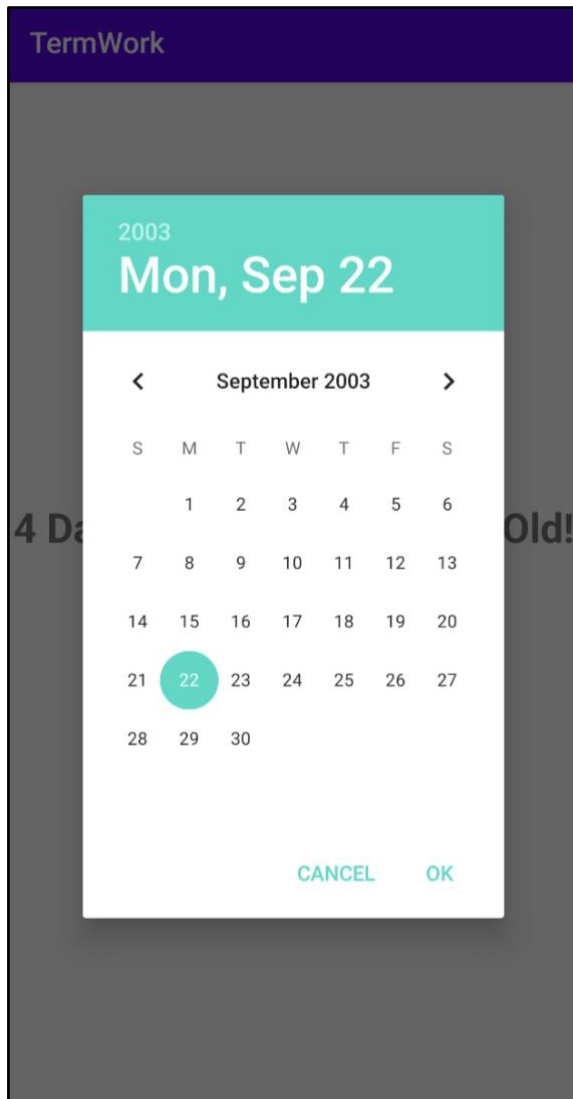
public class Ques11 extends AppCompatActivity {
    TextView t1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques11);
        Button b1=findViewById(R.id.btn_calculate_age);
        t1=findViewById(R.id.tv_years);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                openPicker();
            }
        });

        public void openPicker(){
            DatePickerDialog input_dob=new DatePickerDialog(this, new
            DatePickerDialog.OnDateSetListener() {
                @RequiresApi(api = Build.VERSION_CODES.O)
                @Override
                public void onDateSet(DatePicker datePicker, int year,
            int month, int date) {
                    month+=1;
                    LocalDate DOB=LocalDate.of(year,month,date);
                    LocalDate currentDate = LocalDate.now();
                    Period age=Period.between(DOB,currentDate);

                    Toast.makeText(getApplicationContext(),String.valueOf(age.getDays())
                    +" "+String.valueOf(age.getMonths())+"
                    "+String.valueOf(age.getYears())+" ",Toast.LENGTH_SHORT).show();
```

```
        t1.setText(String.valueOf(age.getDays())+" Days
"+String.valueOf(age.getMonths())+" Months
"+String.valueOf(age.getYears())+" Years Old!");
    }
    },2023,01,01);
    input_dob.show();
}
}
```

Output :-



Problem Statement 12: Write a program to design an Option menu and items in the Option menu are RED, BLUE, and Green.

XML Code :-

```
<?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"
    android:id="@+id/ques12_back"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    tools:context=".Ques12">

    <TextView
        android:id="@+id/ques12_message"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="@color/black"
        android:text="Select a Color From Menu !"
        android:textSize="28dp"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        />

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

XML Code (Menu_1.xml) :-

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">
    <item
        android:id="@+id/option_red"
        android:title="Red"
        app:showAsAction="never"/>
    <item
        android:id="@+id/option_yellow"
        android:title="Yellow"
        app:showAsAction="never"/>
    <item
        android:id="@+id/option_green"
        android:title="Green"
        app:showAsAction="never"/>
</menu>
```

JAVA Code :-

```
package com.example.termwork;
import android.graphics.Color;
import android.support.annotation.ColorInt;
import android.support.annotation.NonNull;
import android.support.constraint.ConstraintLayout;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.widget.TextView;

public class Ques12 extends AppCompatActivity {
    ConstraintLayout ques12_back;
    TextView ques12_message;

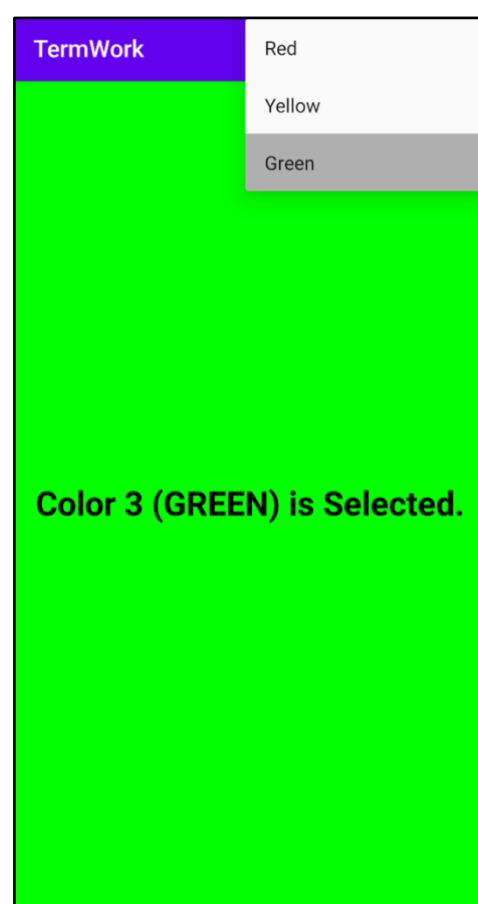
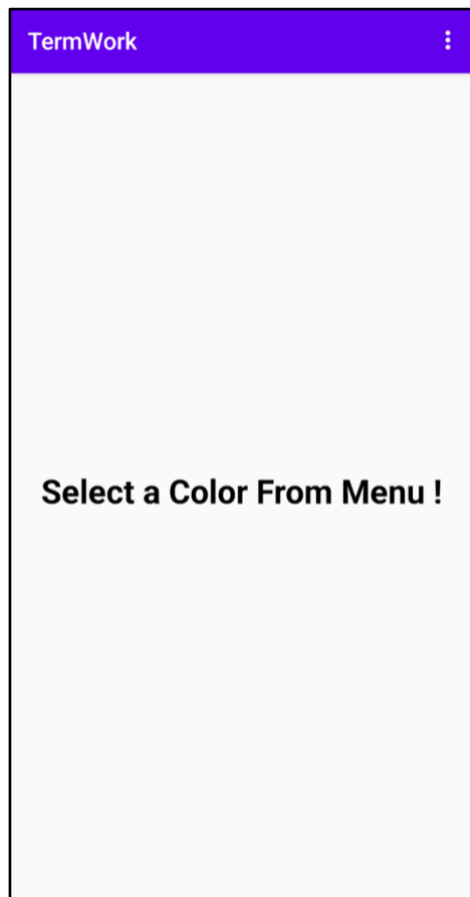
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques12);
        ques12_back=findViewById(R.id.ques12_back);
        ques12_message=findViewById(R.id.ques12_message);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        MenuInflater inflater=getMenuInflater();
        inflater.inflate(R.menu.menu_1,menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        switch (item.getItemId()){
            case R.id.option_red:
                ques12_message.setText("Color 1 (RED) is
Selected.");
                ques12_back.setBackgroundColor(Color.RED);
                return true;
            case R.id.option_yellow:
                ques12_message.setText("Color 2 (YELLOW) is
Selected.");
                ques12_back.setBackgroundColor(Color.YELLOW);
                return true;
            case R.id.option_green:
                ques12_message.setText("Color 3 (GREEN) is
Selected.");
                ques12_back.setBackgroundColor(Color.GREEN);
            }
    }
}
```

```
        return true;
    default:
        return super.onOptionsItemSelected(item);
    }
}
```

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.

XML Code :-

```
<?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=".Ques13">
```

```
    <TextView
        android:id="@+id/output"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Output will be shown here: "
        android:textSize="28dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.347" />
```

```
    <TextView
        android:id="@+id/message"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Enter Name Below:"
        android:textSize="28dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.23" />
```

```
    <EditText
        android:id="@+id/uname_input"
        android:layout_width="193dp"
        android:layout_height="45dp"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.926"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
```



```
        app:layout_constraintVertical_bias="0.491" />

<Button
    android:id="@+id/button_check"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Check"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.464"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.635" />

<TextView
    android:id="@+id/user_name"
    android:layout_width="171dp"
    android:layout_height="41dp"
    android:text="Enter your name :."
    android:textSize="20dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.066"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.494" />

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

JAVA Code :-

```
package com.example.termwork;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class Ques13 extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques13);
        Button button_check=findViewById(R.id.button_check);
        EditText uname_input=findViewById(R.id.uname_input);
        TextView message=findViewById(R.id.message);
        TextView output=findViewById(R.id.output);
        button_check.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String input_name=uname_input.getText().toString();
                if(input_name.equals(input_name.toUpperCase())){
                    message.setText("The Input is in Upper Case.");
                    output.setText("Converted to Lower:
"+input_name.toLowerCase());
                }else
                if(input_name.equals(input_name.toLowerCase())){
                    message.setText("The Input is in Lower Case.");
                    output.setText("Converted to Upper:
"+input_name.toUpperCase());
                }else{
                    message.setText("Oops! String is Jumbled.");
                    output.setText("Please enter a valid String");
                }
            }
        });
    }
}
```

Output :-

TermWork

Enter Name Below:

Output will be shown here:

Enter your name :

CHECK

TermWork

The Input is in Upper Case.

Converted to Lower: gautam

Enter your name :

CHECK

TermWork

The Input is in Lower Case.

Converted to Upper: GAUTAM

Enter your name :

CHECK

TermWork

Oops! String is Jumbled.

Please enter a valid String

Enter your name :

CHECK

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.

XML Code :-

```
<?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=".Ques14">

    <EditText
        android:id="@+id/email_et"
        android:layout_width="263dp"
        android:layout_height="46dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Name"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.891"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.364" />

    <TextView
        android:id="@+id/email_tv"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Enter Email: "
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.02"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.37" />

    <Button
        android:id="@+id/btn_send"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Send Email"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.588" />
```

```
<TextView
    android:id="@+id/rand_num"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Random Number"
    android:textSize="40dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.495"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.125" />

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

JAVA Code :-

```
package com.example.termwork;

import android.content.Intent;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import java.util.Random;

public class Ques14 extends AppCompatActivity {
    Button btn_send;
    TextView rand_num;
    EditText email_et;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques14);
        rand_num=findViewById(R.id.rand_num);
        email_et=findViewById(R.id.email_et);
        btn_send=findViewById(R.id.btn_send);
        btn_send.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Random random=new Random();
                Integer rand_number=
Math.toIntExact(Math.round(Math.random() * 100000));
                rand_num.setText("Selected Number:
"+rand_number.toString());
                String user_email=email_et.getText().toString();
                Intent i = new Intent(Intent.ACTION_SENDTO);
                i.setData(Uri.parse("mailto:"));
                i.putExtra(Intent.EXTRA_EMAIL, new
String[]{user_email});
                i.putExtra(Intent.EXTRA_SUBJECT, "Question 14 Random
Number");
                i.putExtra(Intent.EXTRA_TEXT,"The generated random
number is "+rand_number.toString());
                startActivity(i);
            }
        });
    }
}
```

Output :-

TermWork


Random Number

Enter Email: gautamsharma.best@gmail.com

SEND EMAIL

← Compose

From gautamsharma.best@gmail.com

To  Gautam Sharma

Question 14 Random Number

The generated random number is 49188

Problem Statement 15: Create an android application to set a countdown time for a specific time interval.

XML Code :-

```
<?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=".Ques16">

    <ImageView
        android:id="@+id/imageView3"
        android:layout_width="155dp"
        android:layout_height="140dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.213"
        app:srcCompat="@drawable/timer1" />

    <Button
        android:id="@+id/timer_start"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:background="@color/purple_500"
        android:padding="15dp"
        android:text="Start Timer"
        android:textColor="@color/white"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.655" />

    <Button
        android:id="@+id/timer_stop"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:background="@color/purple_500"
        android:padding="15dp"
        android:text="Stop Timer"
        android:textColor="@color/white"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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



```
        app:layout_constraintVertical_bias="0.777" />

<TextView
    android:id="@+id/time_tv"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="00:00"
    android:textColor="@color/black"
    android:textSize="40dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.479" />

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

JAVA Code :-

```
package com.example.termwork;

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

import java.util.concurrent.TimeUnit;

public class Ques16 extends AppCompatActivity {
    Button timer_start, timer_stop;
    TextView time_tv;
    CountDownTimer count_down_timer;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques16);
        timer_start=findViewById(R.id.timer_start);
        timer_stop=findViewById(R.id.timer_stop);
        time_tv=findViewById(R.id.time_tv);
        long duration= TimeUnit.MINUTES.toMillis(5);
        timer_start.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                count_down_timer=new CountDownTimer(duration,1000){

                    @Override
                    public void onTick(long l) {
                        int min_remaining=(int)(l/1000)/60;
                        int sec_remaining=(int) (l/1000)%60;
                        String
total_remaining=String.format("%02d:%02d",min_remaining,sec_remainin
g);

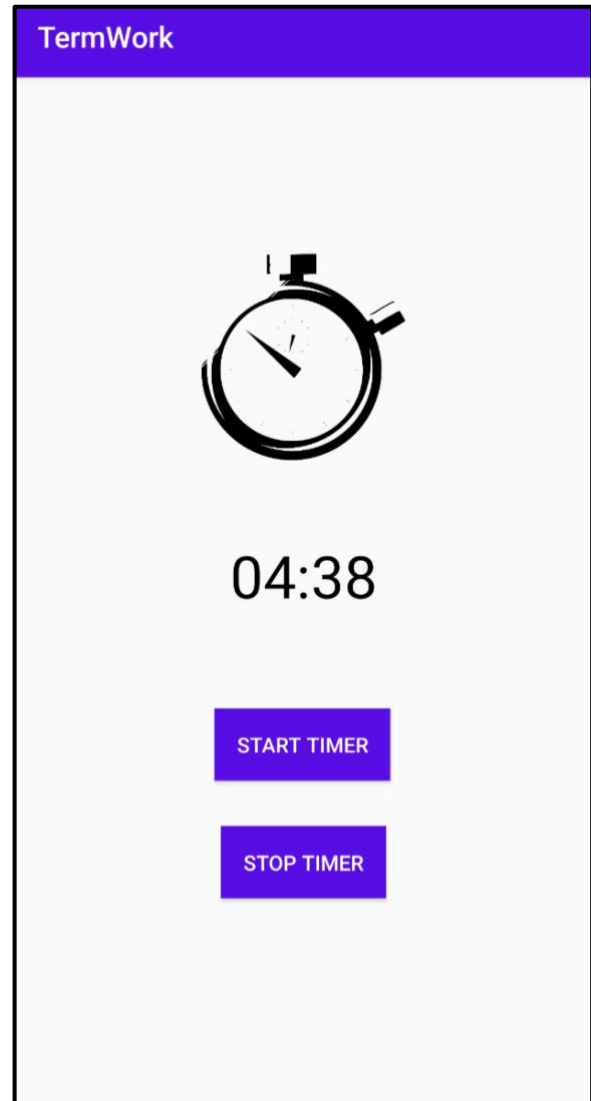
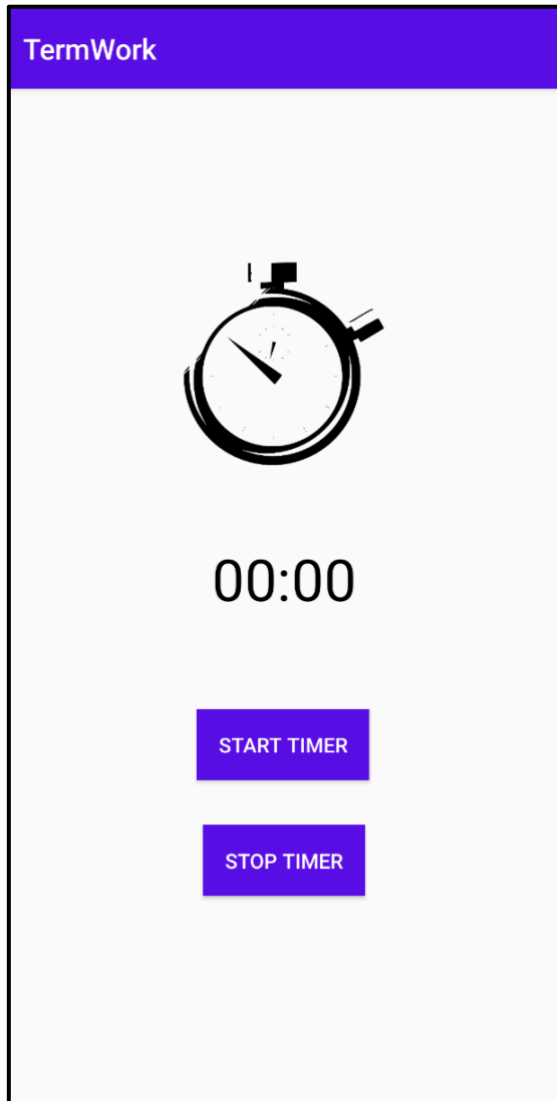
                        time_tv.setText(total_remaining);
                    }

                    @Override
                    public void onFinish() {
                        time_tv.setText("Timer Finished");
                    }
                }.start();
            }

        });
        timer_stop.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
        public void onClick(View view) {
            count_down_timer.cancel();
        }
    });
}
```

Output :-



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.

XML Code :-

```
<?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=".Ques16">

    <EditText
        android:id="@+id/number_et"
        android:layout_width="230dp"
        android:layout_height="44dp"
        android:ems="10"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.878"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.365" />

    <TextView
        android:id="@+id/email_tv"
        android:layout_width="135dp"
        android:layout_height="25dp"
        android:text="Enter Number: "
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.369" />

    <Button
        android:id="@+id/btn_send_sms"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Send SMS"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.588" />

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

JAVA Code :-

```

package com.example.termwork;

import android.app.PendingIntent;
import android.content.Intent;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.telephony.SmsManager;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import java.util.Random;

public class Ques15 extends AppCompatActivity {
    Button btn_send_sms;
    EditText e1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ques15);
        btn_send_sms=findViewById(R.id.btn_send_sms);
        e1=findViewById(R.id.number_et);
        btn_send_sms.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                try {
                    Random random=new Random();
                    Integer rand_number=
Math.toIntExact(Math.round(Math.random() * 100000));
                    SmsManager smsManager = SmsManager.getDefault();

                    smsManager.sendTextMessage(e1.getText().toString(), null, "The
generated number is "+rand_number.toString(), null, null);
                    Toast.makeText(getApplicationContext(), "SMS
Sent!",
                                Toast.LENGTH_LONG).show();
                } catch (Exception e) {
                    Toast.makeText(getApplicationContext(),
                                "Failed To Send SMS :(",
                                Toast.LENGTH_LONG).show();
                }
            }
        });
    }
}

```

Output :-

TermWork

Enter Number: +917380331867

SEND SMS

TermWork

Enter Number: +917380331867

SEND SMS

 SMS Sent!