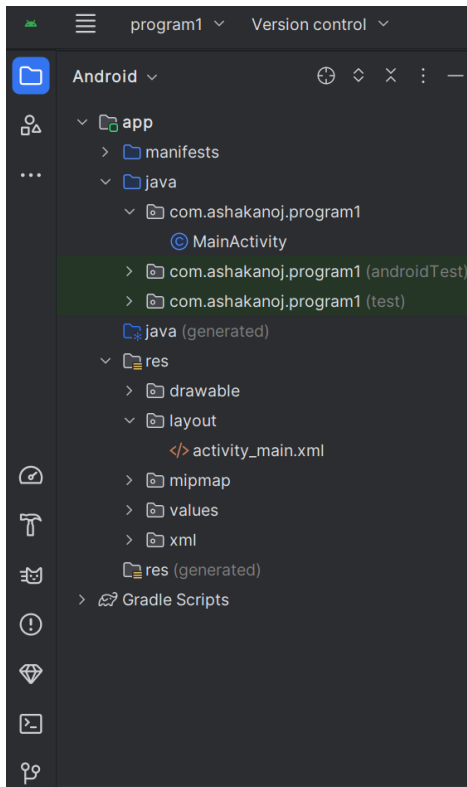


# List of Lab Programs

## PART- A

1. Creating “Hello world” Application.

### STRUCTURE OF A PROGRAM:



### activity\_main.xml file:

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

### Mainactivity.java file:

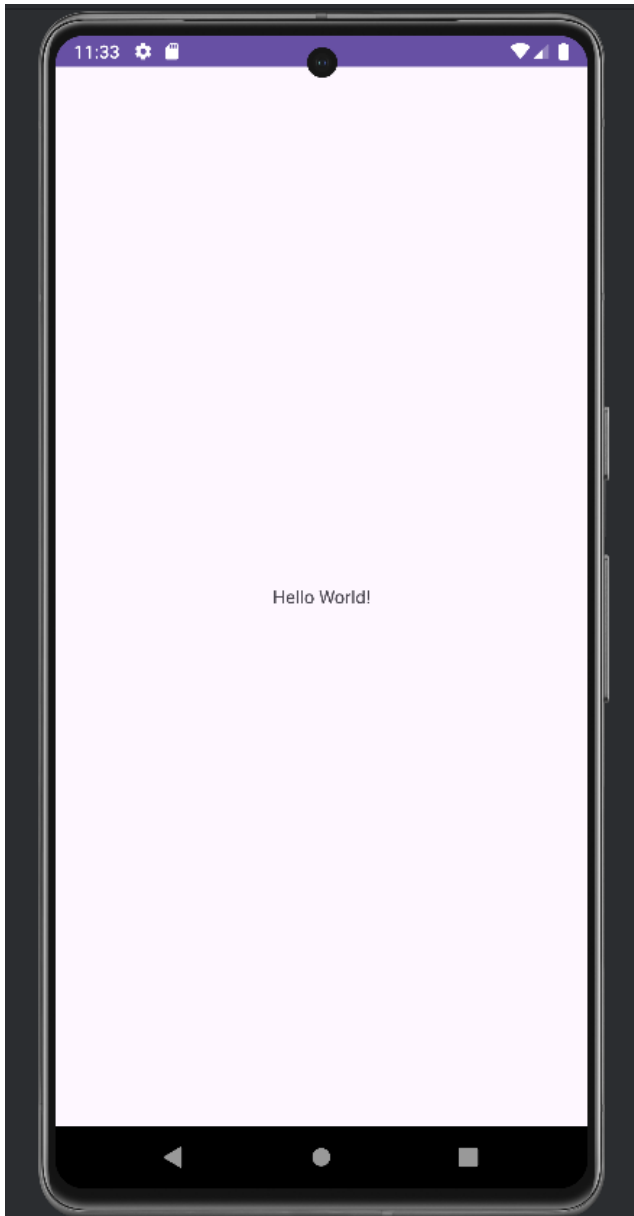
```
package com.ashakanoj.program1;

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

public class MainActivity extends AppCompatActivity {

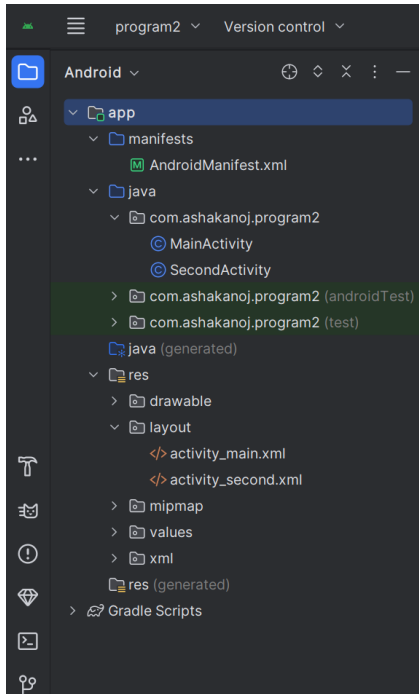
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

### Output:



2. Creating an application that displays message based on the screen orientation.

### STRUCTURE OF A PROGRAM:



#### AndroidManifest.xml file:

```
package com.ashakanoj.program2;

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

public class MainActivity extends AppCompatActivity {
    Button button1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button1 = (Button) findViewById(R.id.button1);
    }

    public void onClick(View v) {
        Intent intent = new Intent(MainActivity.this, SecondActivity.class);
        startActivity(intent);
    }
}
```

### activity\_main.xml file:

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

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="8dp"
        android:layout_marginTop="112dp"
        android:onClick="onClick"
        android:text="Launch next activity"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.612"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText1"
        app:layout_constraintVertical_bias="0.613" />

    <TextView
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="124dp"
        android:ems="10"
        android:textSize="22dp"
        android:text="This activity is portrait orientation"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.502"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

### activity\_second.xml file:

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

```

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginEnd="8dp"
    android:layout_marginStart="8dp"
    android:layout_marginTop="180dp"
    android:text="This is landscape orientation"
    android:textSize="22dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.502"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

### MainActivity.java file:

```

package com.ashakanoj.program2;

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

public class MainActivity extends AppCompatActivity {
    Button button1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button1 = (Button) findViewById(R.id.button1);
    }

    public void onClick(View v) {
        Intent intent = new Intent(MainActivity.this, SecondActivity.class);
        startActivity(intent);
    }
}

```

### SecondActivity.java file:

```

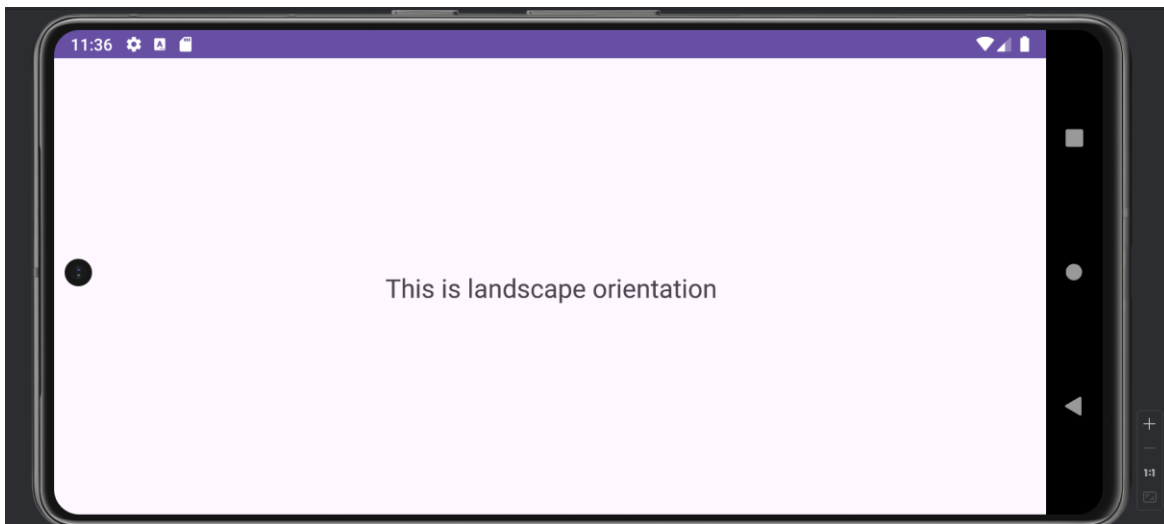
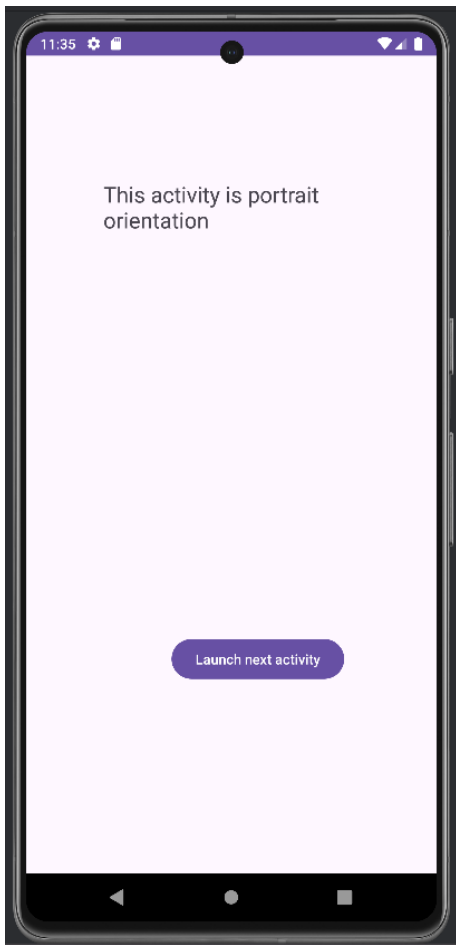
package com.ashakanoj.program2;
import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

public class SecondActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);
    }
}

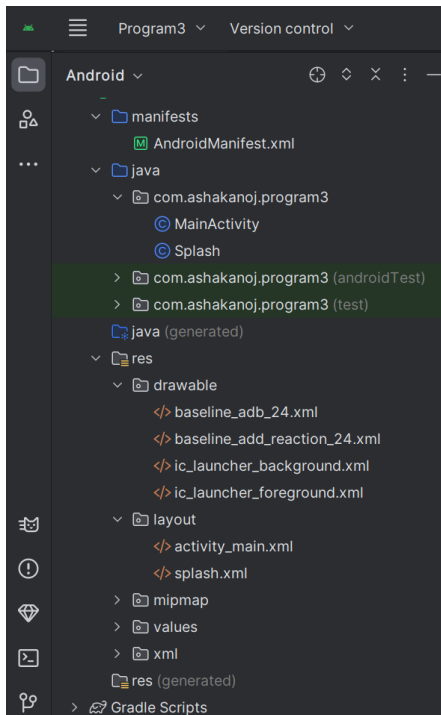
```

## Output:



3. Create an application that displays custom designed Opening Screen.

### STRUCTURE OF A PROGRAM:



#### AndroidManifest.xml file:

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

    <application
        android:allowBackup="true"
        android:icon="@drawable/baseline_add_reaction_24"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/Theme.AppCompat.DayNight">
        <activity android:name="com.ashakanoj.program3.Splash"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name="com.ashakanoj.program3.MainActivity"/>
    </application>
</manifest>
```

#### activity\_main.xml file:

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welocme to Opening Screen!!"
        android:textSize="20sp"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

### splash.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:background="@color/design_default_color_primary_variant">

    <ImageView
        android:id="@+id/logo_id"
        android:layout_width="250dp"
        android:layout_height="250dp"
        android:layout_centerInParent="true"
        android:src="@drawable/baseline_add_reaction_24"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/logo_id"
        android:layout_centerHorizontal="true"
        android:text="This is an Splash Screen"
        android:textSize="40dp"
        android:textColor="@color/black"/>
</RelativeLayout>
```

### MainActivity.java file:

```
package com.ashakanoj.program3;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

### Splash.java file:

```
package com.ashakanoj.program3;
```



```

import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;

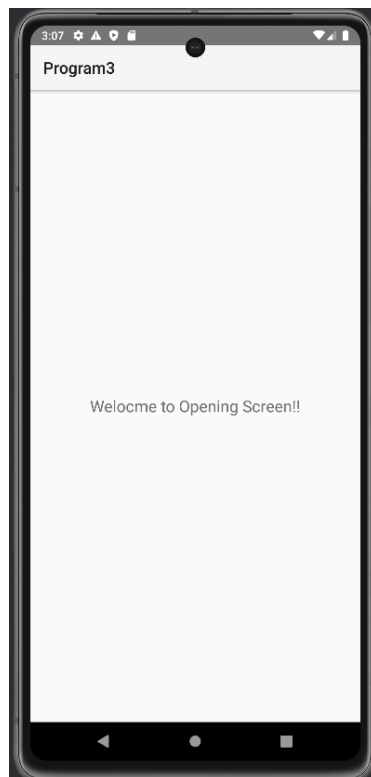
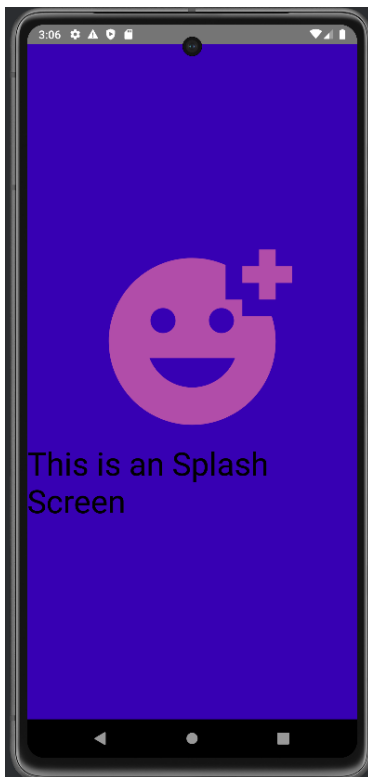
import java.nio.Buffer;
//import java.util.logging.Handler;

public class Splash extends Activity {
    Handler handler;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.splash);
        handler = new Handler();
        handler.postDelayed(new Runnable() {
            @Override
            public void run() {
                Intent intent = new Intent(Splash.this,
MainActivity.class);

                startActivity(intent);
                finish();
            }
        }, 3000);
    }
}

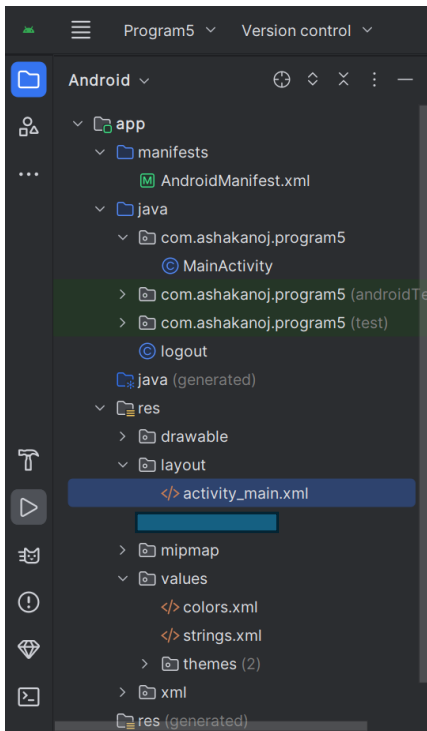
```

## Output:



4. Create an application to develop Login window using UI controls.

### STRUCTURE OF A PROGRAM:



#### Activity\_main.xml File:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/img_4"
    tools:context=".MainActivity">

    <TextView android:text = "Login Page"
        android:layout_width="wrap_content"
        android:layout_height = "wrap_content"
        android:id = "@+id/textview"
        android:textSize = "40dp"
        android:textColor="@color/black"
        android:layout_alignParentTop = "true"
        android:layout_centerHorizontal = "true" />

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

```
<EditText
    android:layout_width = "wrap_content"
    android:layout_height = "wrap_content"
    android:id = "@+id/editText"
    android:hint = "Enter Name"
    android:focusable = "true"
    android:textColorHighlight = "#ff7eff15"
    android:textColorHint = "#FFFFFFFF"
    android:layout_marginTop = "46dp"
    android:layout_below = "@+id/imageView"
    android:layout_alignParentLeft = "true"
    android:layout_alignParentStart = "true"
    android:layout_alignParentRight = "true"
    android:layout_alignParentEnd = "true" />
```

```
<ImageView
    android:layout_width="wrap_content"
    android:layout_height="200dp"
    android:id="@+id/imageView"
    android:src="@drawable/img"
    android:layout_below="@+id/textView"
    android:layout_centerHorizontal="true" />
```

```
<EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:inputType="textPassword"
    android:ems="10"
    android:id="@+id/editText2"
    android:layout_below="@+id/editText"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_alignRight="@+id/editText"
    android:layout_alignEnd="@+id/editText"
    android:textColorHint="#FFFFFFFF"
    android:hint="Password" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Attempts Left:"
    android:id="@+id/textView2"
    android:layout_below="@+id/editText2"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:textColor="@color/black"
    android:textSize="25dp" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="New Text"
    android:id="@+id/textView3"
    android:layout_alignTop="@+id/textView2"
    android:layout_alignParentRight="true"
    android:layout_alignParentEnd="true"
    android:layout_alignBottom="@+id/textView2"
    android:layout_toEndOf="@+id/textview"
    android:textSize="25dp"
    android:textColor="@color/black"
```

```

        android:layout_toRightOf="@+id/textview" />

<Button
    android:layout_width="wrap_content"
    android:layout_height="60dp"
    android:text="login"
    android:id="@+id/button"
    android:layout_alignParentBottom="true"
    android:layout_toLeftOf="@+id/textview"
    android:layout_marginTop="100dp"
    android:layout_toStartOf="@+id/textview" />

<Button
    android:layout_width="wrap_content"
    android:layout_height="60dp"
    android:text="Cancel"
    android:id="@+id/button2"
    android:layout_alignParentBottom="true"
    android:layout_toRightOf="@+id/textview"
    android:layout_toEndOf="@+id/textview" />

</RelativeLayout>

```

## MainActivity.java File:

```

package com.ashakanoj.program5;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.graphics.Color;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    Button b1,b2;
    EditText ed1,ed2;

    TextView tx1;
    int counter = 3;

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

        b1 = (Button)findViewById(R.id.button);
        ed1 = (EditText)findViewById(R.id.editText);
        ed2 = (EditText)findViewById(R.id.editText2);

        b2 = (Button)findViewById(R.id.button2);
        tx1 = (TextView)findViewById(R.id.textView3);
        tx1.setVisibility(View.GONE);
    }
}

```

```

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if(ed1.getText().toString().equals("admin") &&
                    ed2.getText().toString().equals("admin")) {
                    Toast.makeText(getApplicationContext(),
                        "Redirecting...Login Successful
!!!",Toast.LENGTH_SHORT).show();

                }else{
                    Toast.makeText(getApplicationContext(), "Wrong
Credentials",Toast.LENGTH_SHORT).show();

                    tx1.setVisibility(View.VISIBLE);
                    tx1.setBackgroundColor(Color.RED);
                    counter--;
                    tx1.setText(Integer.toString(counter));

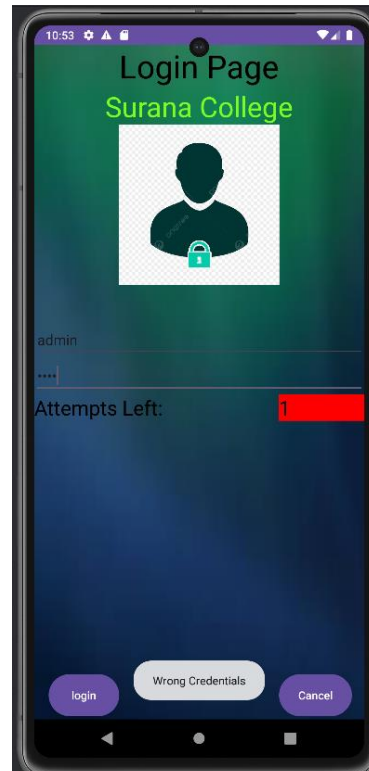
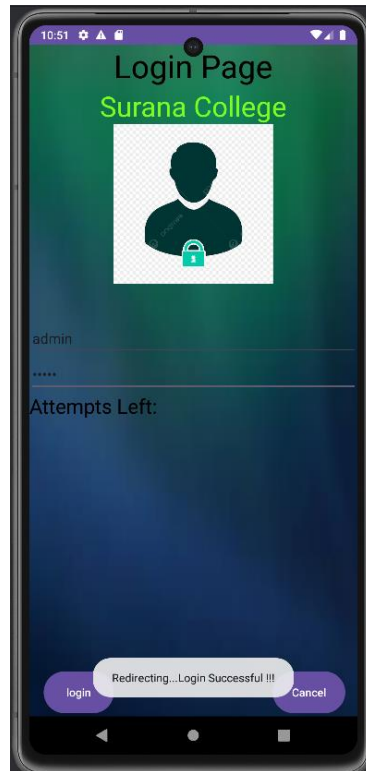
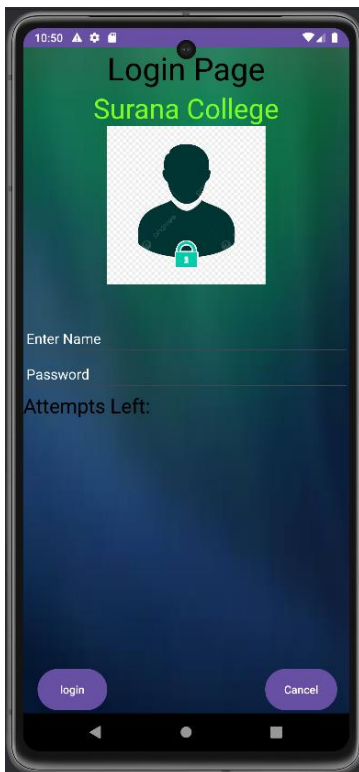
                    if (counter == 0) {
                        b1.setEnabled(false);
                    }
                }
            }
        });

        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

            }
        });
    }
}

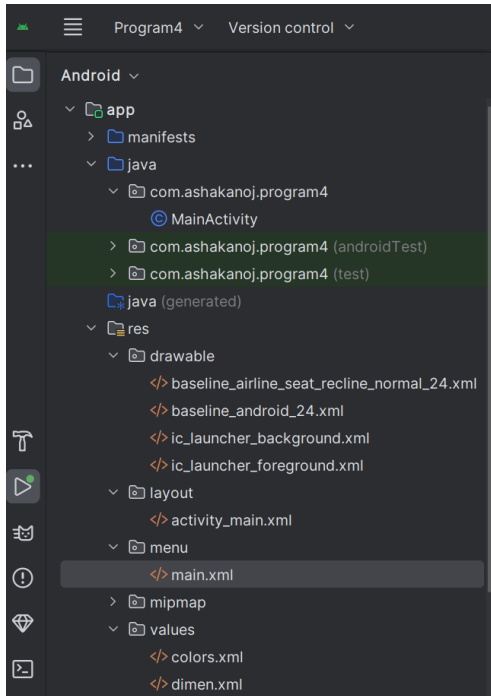
```

## Output:



5. Create an UI with all views.

## STRUCTURE OF A PROGRAM:



### Way To Create Menu Directory And Menu Resource File:

- To create the menu directory just right-click on **res** folder and navigate to **res->New->Android Resource Directory**.
- Give resource directory name as **menu** and resource type **also menu**. one directory will be created under res folder.
- To create xml resource file simply **right-click on menu folder** and navigate to **New->Menu Resource File**.
- Give name of file as menu\_example. One menu\_example.xml file will be created under menu folder.

### activity\_main.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin">
```

```
<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Hello Students!!" />

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

<CheckBox
    android:id="@+id/checkboxExample"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="CheckBox Example" />

<ToggleButton
    android:id="@+id/toggleButtonExample"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="ToggleButton Example" />

<RadioGroup
    android:id="@+id/radioGroupExample"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" >

    <RadioButton
        android:id="@+id/radioButton1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:checked="true"
        android:text="RadioButton 1" />

    <RadioButton
        android:id="@+id/radioButton2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="RadioButton 2" />

    <RadioButton
        android:id="@+id/radioButton3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="RadioButton 3" />
</RadioGroup>

<ImageButton
    android:id="@+id/imageButtonExample"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:src="@drawable/baseline_airline_seat_recline_normal_24" />

</LinearLayout>
```



## Main.xml file:

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

</menu>
```

## dimen.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <dimen name="activity_verticle_margin">100dp</dimen>
    <dimen name="activity_horizontal_margin">100dp</dimen>
</resources>
```

## MainActivity.java File:

```
package com.ashakanoj.program4;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.Menu;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.ImageButton;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.RadioGroup.OnCheckedChangeListener;
import android.widget.Toast;
import android.widget.ToggleButton;

public class MainActivity extends AppCompatActivity {

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

        CheckBox exampleCheckBox = (CheckBox) findViewById(R.id.checkBoxExample);
        RadioGroup exampleRadioGroup = (RadioGroup) findViewById(R.id.radioGroupExample);
        ToggleButton exampleToggleButton = (ToggleButton)
        findViewById(R.id.toggleButtonExample);
        ImageButton exampleImageButton = (ImageButton)
        findViewById(R.id.imageButtonExample);

        example.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View arg0) {
                // TODO Auto-generated method stub

                ToastToDisplay("Hey Button is pressed!!");
            }
        });
    }
}
```

```

});
exampleCheckBox.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        if (((CheckBox) v).isChecked()) {
            ToastToDisplay("Check Box is checked");
        } else {
            ToastToDisplay("Check box is unchecked");
        }
    }
});
exampleRadioGroup
    .setOnCheckedChangeListener(new OnCheckedChangeListener() {
        @Override
        public void onCheckedChanged(RadioGroup group, int checkedId) {
            // TODO Auto-generated method stub
            RadioButton rb1 = (RadioButton) findViewById(R.id.radioButton1);
            RadioButton rb2 = (RadioButton) findViewById(R.id.radioButton2);
            if (rb1.isChecked()) {
                ToastToDisplay("Radio Button 1 is checked");
            } else if (rb2.isChecked()) {
                ToastToDisplay("Radio Button 2 is checked");
            } else {
                ToastToDisplay("Radio Button 3 is checked");
            }
        }
    });
exampleToggleButton.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        if (((ToggleButton) v).isChecked()) {
            ToastToDisplay("Toggle button is ON");
        } else {
            ToastToDisplay("Toggle Button is OFF");
        }
    }
});

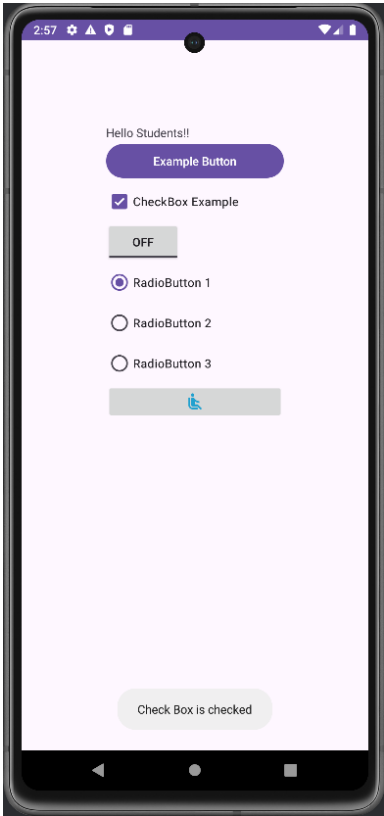
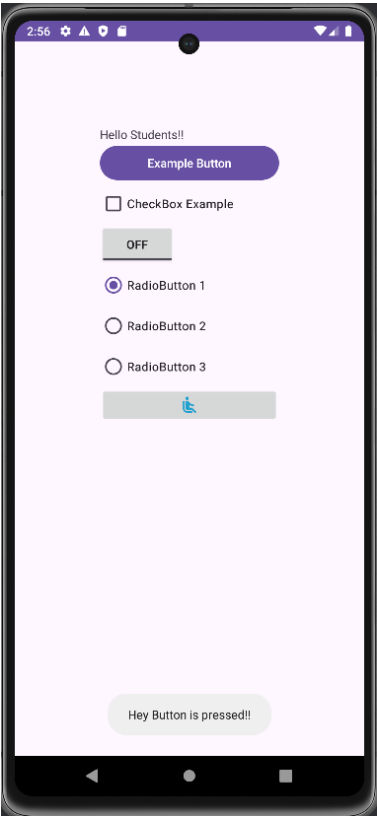
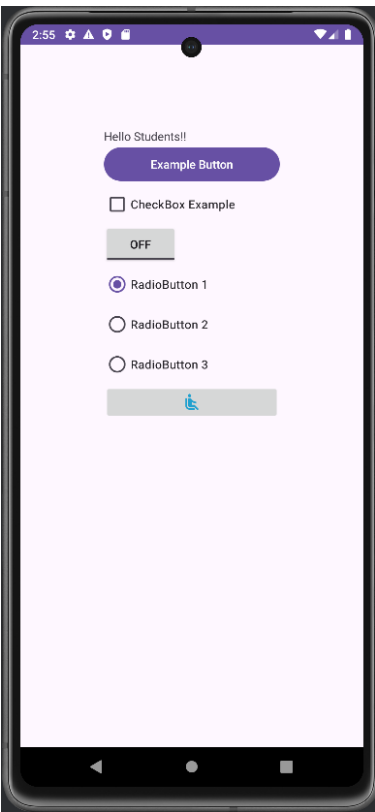
exampleImageButton.setOnClickListener(new View.OnClickListener() {

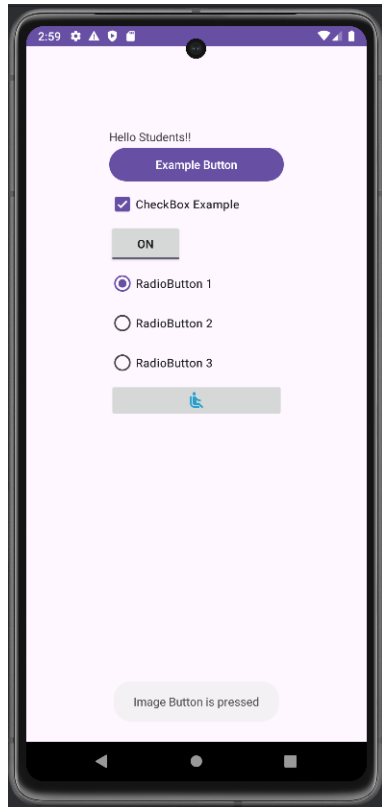
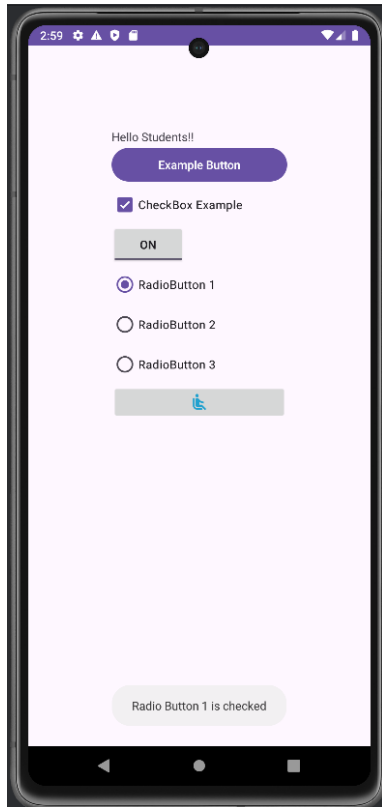
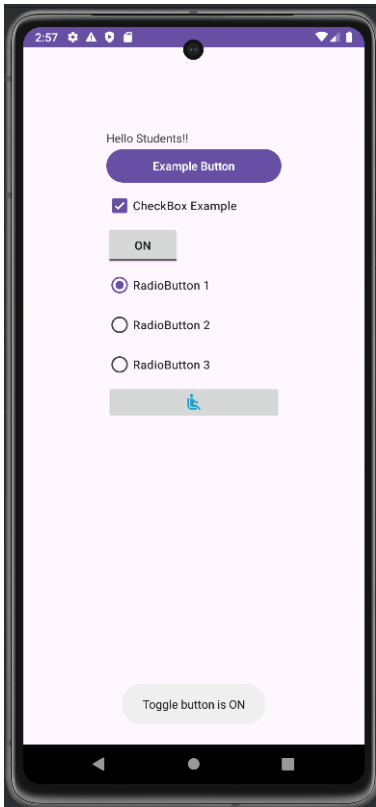
    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        ToastToDisplay("Image Button is pressed");
    }
});
}

private void ToastToDisplay(String args) {
    Toast.makeText(getApplicationContext(), args, Toast.LENGTH_SHORT).show();
}
@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.main, menu);
    return true;
}
}

```

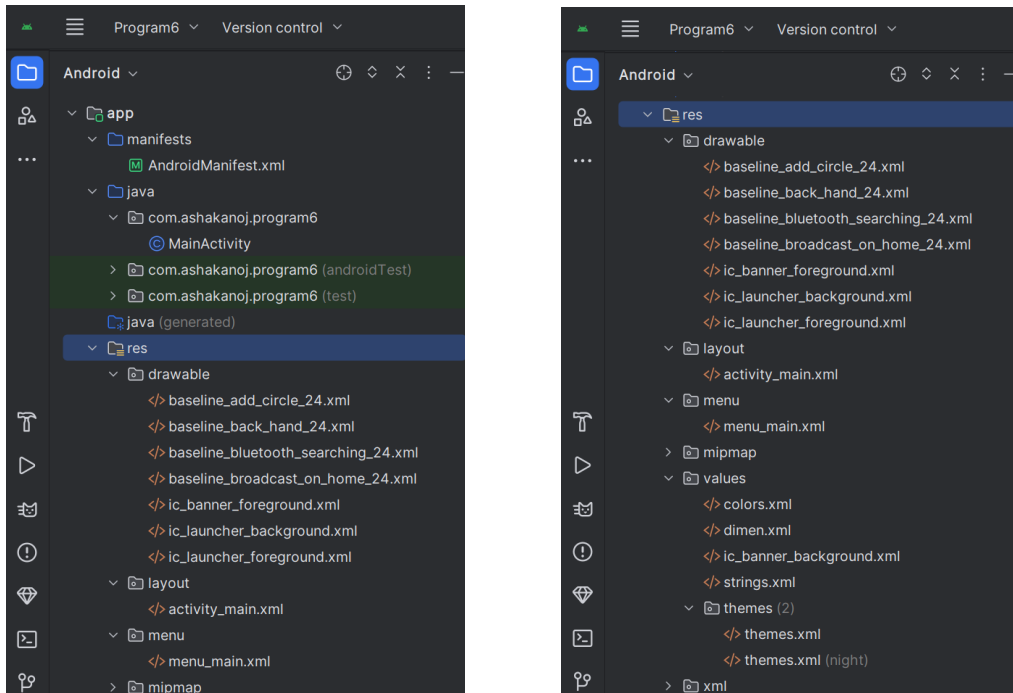
Output:





## 6. Create menu in Application.

### STRUCTURE OF A PROGRAM:



### Manifest.xml File:

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

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Program6"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

## MainActivity.xml File:

```
package com.ashakanoj.program6;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.ContextMenu;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;
import android.widget.Toolbar;
import androidx.appcompat.widget.PopupMenu;

import static android.os.Build.VERSION_CODES.N;

public class MainActivity extends AppCompatActivity implements
    PopupMenu.OnMenuItemClickListener{
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        //Registering for Context Menu
        registerForContextMenu((TextView) findViewById(R.id.t1));
    }

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

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        int mid = item.getItemId();
        if (mid == R.id.i1) {
            Toast.makeText(this, "Clicked Option Menu",
                Toast.LENGTH_SHORT).show();
        } else if (mid == R.id.i2) {
            Toast.makeText(this, "I am Sub-menu 1",
                Toast.LENGTH_SHORT).show();
        } else if (mid == R.id.i3) {
            Toast.makeText(this, "I am Sub-menu 2",
                Toast.LENGTH_SHORT).show();
        }
        return super.onOptionsItemSelected(item);
    }

    @Override
    public void onCreateContextMenu(ContextMenu menu, View v,
        ContextMenu.ContextMenuInfo menuInfo) {
        super.onCreateContextMenu(menu, v, menuInfo);
        MenuInflater mi = getMenuInflater();
        mi.inflate(R.menu.menu_main, menu);
    }

    @Override
    public boolean onContextItemSelected(MenuItem item) {
        int mid = item.getItemId();
```

```

        if (mid == R.id.i1) {
            Toast.makeText(this, "Clicked Context Menu",
                Toast.LENGTH_SHORT).show();
        } else if (mid == R.id.i2) {
            Toast.makeText(this, "I am Sub-menu 1",
                Toast.LENGTH_SHORT).show();
        } else if (mid == R.id.i3) {
            Toast.makeText(this, "I am Sub-menu 2",
                Toast.LENGTH_SHORT).show();
        }
        return super.onContextItemSelected(item);
    }
    public void pop(View v) {
        PopupMenu popup = new PopupMenu(this, v);
        MenuInflater mi = getMenuInflater();
        mi.inflate(R.menu.menu_main, popup.getMenu());
        popup.show();
    }
    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        int mid = item.getItemId();
        if (mid == R.id.i1) {
            Toast.makeText(this, "Clicked Popup Menu",
                Toast.LENGTH_SHORT).show();
        } else if (mid == R.id.i2) {
            Toast.makeText(this, "I am Sub-menu 1",
                Toast.LENGTH_SHORT).show();
        } else if (mid == R.id.i3) {
            Toast.makeText(this, "I am Sub-menu 2",
                Toast.LENGTH_SHORT).show();
        }
        return true;
    }
}
}

```

### activity\_main.xml File:

```

<?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:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_horizontal_margin"
    android:orientation="vertical"
    android:background="@color/skyblue"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/t1"
        android:layout_width="fill_parent"
        android:layout_height="50dp"
        android:text="I am Context Menu"
        android:textColor="@color/design_default_color_background"
        android:background="@color/yellowgreen"
    >

```

```

        android:paddingBottom="20dp"
        android:backgroundTint="@color/design_default_color_secondary_variant"
        android:textAllCaps="true"
        android:textSize="20sp"
    />
    <Button
        android:id="@+id/button"
        android:layout_width="fill_parent"
        android:layout_height="50dp"
        android:onClick="pop"
        android:text="I am Pop Menu"
        android:textColor="@color/design_default_color_background"
        android:paddingBottom="20dp"
        android:background="@color/yellowgreen"
        android:backgroundTint="@color/design_default_color_secondary_variant"
        android:textAllCaps="true"
    />
</LinearLayout>

```

### menu\_main.xml File:

```

<?xml version="1.0" encoding="utf-8"?>
<menu
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item android:id="@+id/i1"
        android:title="Click me to see Sub-menu Item"
        android:icon="@drawable/baseline_back_hand_24" >
        <!-- "item" submenu -->
        <menu>
            <item android:id="@+id/i2"
                android:title="Submenuitem 1"
                android:icon="@drawable/baseline_add_circle_24"
            />
            <item android:id="@+id/i3"
                android:title="Submenuitem 2"
                android:icon="@drawable/baseline_bluetooth_searching_24" />
        </menu>
    </item>
</menu>

```

### Values: dimen.xml File:

```

<?xml version="1.0" encoding="utf-8"?>
<resources>
    <dimen name="activity_vertical_margin">100dp</dimen>
    <dimen name="activity_horizontal_margin">100dp</dimen>
</resources>

```

### Values: colors.xml File:

```

<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFF</color>
    <color name="green">#008000</color>
    <color name="yellowgreen">#9ACD32</color>
    <color name="blue">#0000FF</color>

```



```
<color name="red">#FF0000</color>
<color name="skyblue">#87CEEB</color>
</resources>
```

### Values: string.xml File:

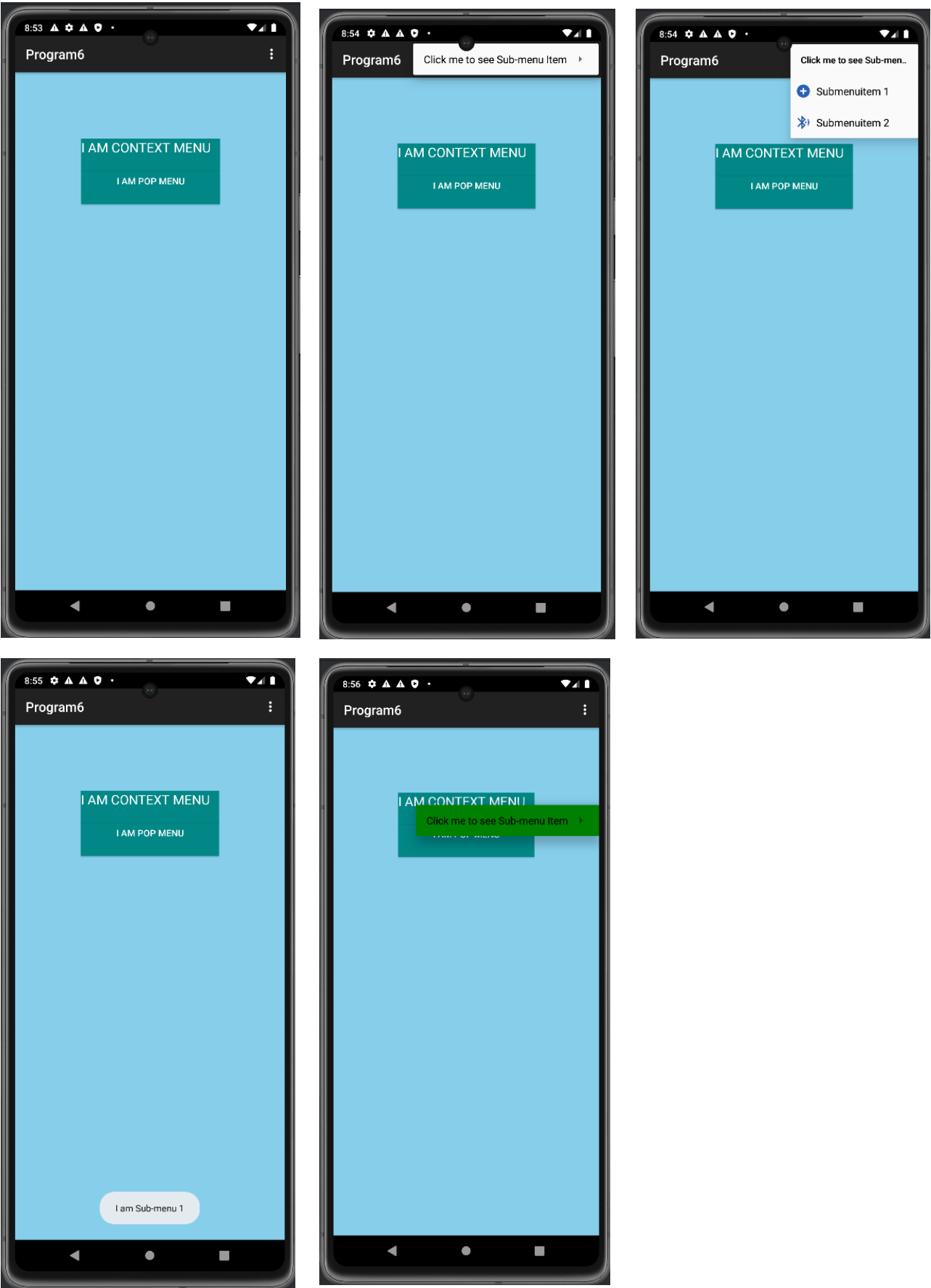
```
<resources>
  <string name="app_name">Program6</string>
  <!-- Base application theme. -->
  <style name="AppTheme" parent="Theme.AppCompat.Light.NoActionBar">
    <!-- Customize your theme here. -->
    <item name="colorPrimary">@color/design_default_color_primary_variant</item>
    <item name="colorPrimaryDark">@color/design_default_color_primary_dark</item>
    <item name="colorAccent">@color/design_default_color_secondary_variant</item>
  </style>
</resources>
```

### Themes: themes.xml File:

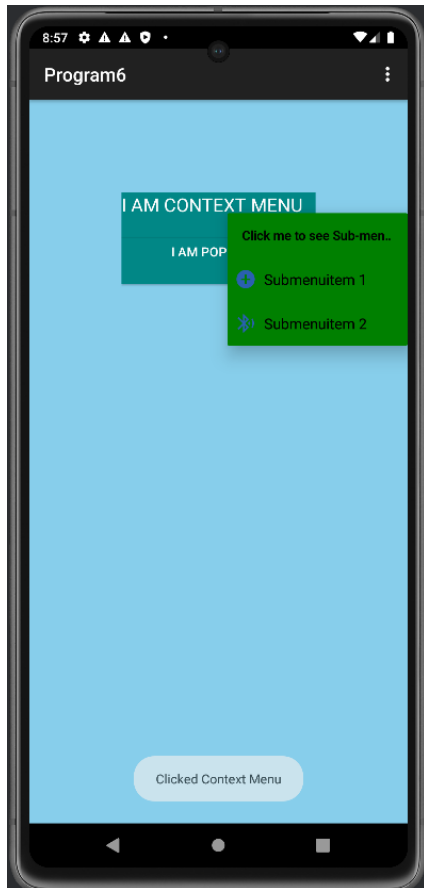
```
<resources xmlns:tools="http://schemas.android.com/tools">
  <!-- Base application theme. -->
  <style name="Base.Theme.Program6" parent="Theme.AppCompat.DayNight.DarkActionBar">
    <item name="android:colorBackground">@color/green</item>
    <item name="android:textColor">@color/black</item>
    <!-- Customize your light theme here. -->
    <!-- <item name="colorPrimary">@color/my_light_primary</item> -->
  </style>

  <style name="Theme.Program6" parent="Base.Theme.Program6" />
</resources>
```

Output:

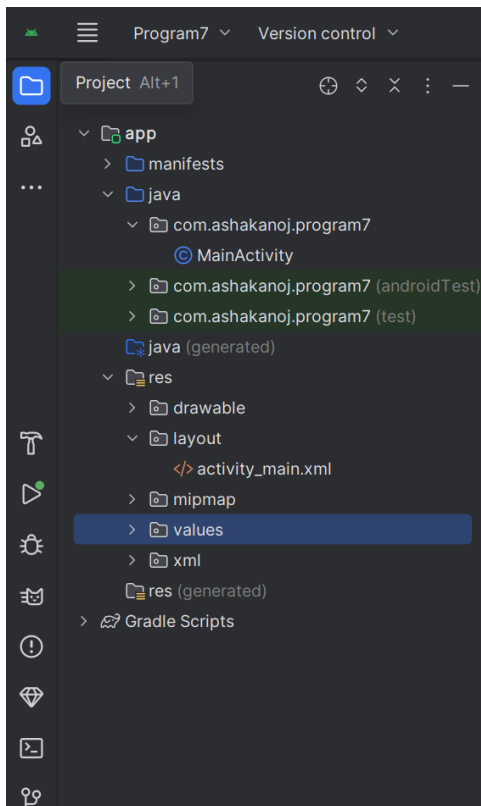


**Long press on Context Menu to view the Option.**



## 7. Read/ write the Local data.

### STRUCTURE OF A PROGRAM:



### activity\_main.xml File:

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

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_alignParentRight="true"
        android:layout_marginTop="134dp"
        android:layout_marginRight="19dp"
        android:textColor="@color/white"
        android:ems="10">

        <requestFocus />
    </EditText>
```

```
<EditText
    android:id="@+id/editText2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignRight="@+id/editText1"
    android:layout_below="@+id/editText1"
    android:layout_marginTop="24dp"
    android:textColor="@color/white"
    android:ems="10" />

<TextView
    android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText1"
    android:layout_alignBottom="@+id/editText1"
    android:layout_alignParentLeft="true"
    android:textColor="@color/white"
    android:text="Enter File Name:" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText2"
    android:layout_alignBottom="@+id/editText2"
    android:layout_alignParentLeft="true"
    android:textColor="@color/white"
    android:text="Enter Information to Read:" />

<Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/editText2"
    android:layout_below="@+id/editText2"
    android:layout_marginLeft="50dp"
    android:layout_marginTop="16dp"
    android:text="Save" />

<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/button1"
    android:layout_alignBottom="@+id/button1"
    android:layout_toRightOf="@+id/button1"
    android:text="Read" />

</RelativeLayout>
```

## MainActivity.xml File:

```
package com.ashakanoj.program7;
import android.content.Context;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import java.io.BufferedReader;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStreamReader;

public class MainActivity extends AppCompatActivity {
    EditText editTextFileName, editTextData;
    Button saveButton, readButton;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        editTextFileName=findViewById(R.id.editText1);
        editTextData=findViewById(R.id.editText2);
        saveButton=findViewById(R.id.button1);
        readButton=findViewById(R.id.button2);

        //Performing Action on Read Button
        saveButton.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View arg0) {
                String filename=editTextFileName.getText().toString();
                String data=editTextData.getText().toString();

                FileOutputStream fos;
                try {
                    fos = openFileOutput(filename, Context.MODE_PRIVATE);
                    //default mode is PRIVATE, can be APPEND etc.
                    fos.write(data.getBytes());
                    fos.close();

                    Toast.makeText(getApplicationContext(),filename + " stored",
                        Toast.LENGTH_LONG).show();

                } catch (FileNotFoundException e) {e.printStackTrace();}
                catch (IOException e) {e.printStackTrace();}

            }

        });
    }
}
```

```

//Performing Action on Read Button
readButton.setOnClickListener(new View.OnClickListener() {

    @Override
    public void onClick(View arg0) {
        String filename=editTextFileName.getText().toString();
        StringBuffer stringBuffer = new StringBuffer();
        try {
            //Attaching BufferedReader to the FileInputStream by the help of
InputStreamReader
            BufferedReader inputReader = new BufferedReader(new InputStreamReader(
                openFileInput(filename)));
            String inputString;
            //Reading data line by line and storing it into the stringBuffer
            while ((inputString = inputReader.readLine()) != null) {
                stringBuffer.append(inputString + "\n");
            }

        } catch (IOException e) {
            e.printStackTrace();
        }
        //Displaying data on the toast

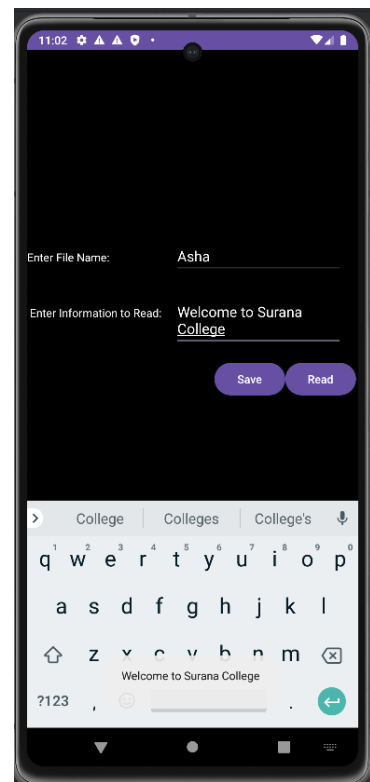
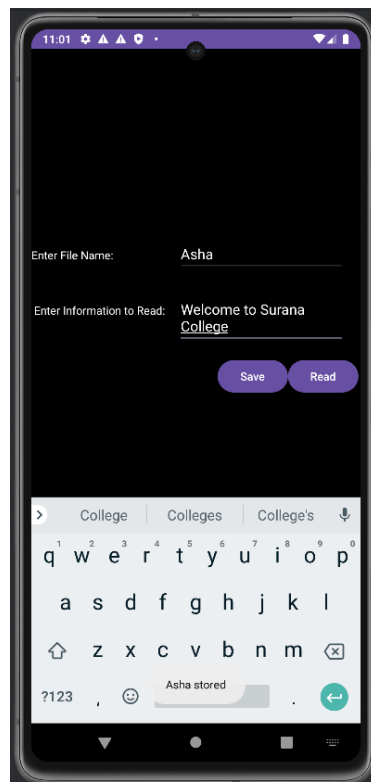
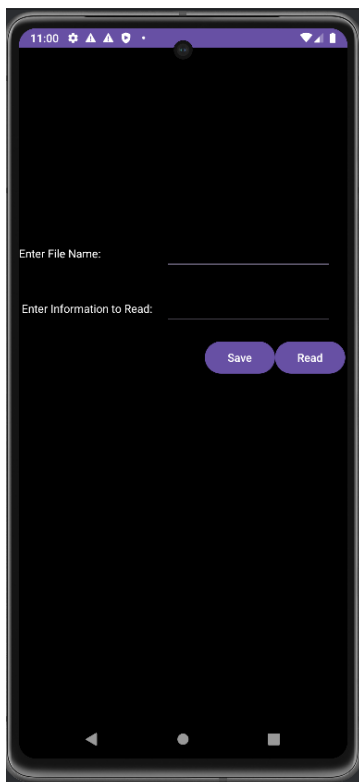
        Toast.makeText(getApplicationContext(),stringBuffer.toString(),Toast.LENGTH_LONG).show();

    }

});
}
}

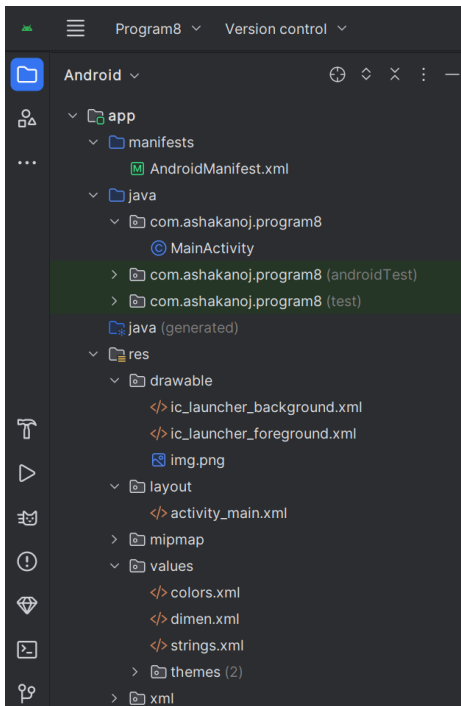
```

## Output:



## 8. Create an application to send SMS.

### STRUCTURE OF A PROGRAM:



### Activity\_main.xml File:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/gray"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="MainActivity">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Sending SMS!!!"
        android:textColor="@color/blue"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:textSize="30dp" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Surana College "
```



```

        android:textColor="@color/white"
        android:textSize="25dp"
        android:layout_below="@+id/textView1"
        android:layout_alignRight="@+id/imageButton"
        android:layout_alignEnd="@+id/imageButton" />

<ImageButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/imageButton"
    android:src="@drawable/img"
    android:layout_below="@+id/textView2"
    android:layout_centerHorizontal="true" />

<EditText
    android:layout_width="wrap_content"
    android:layout_height="30dp"
    android:id="@+id/editText"
    android:hint="Enter Phone Number"
    android:phoneNumber="true"
    android:layout_marginTop="10dp"
    android:background="@color/skyblue"
    android:textColorHint="@color/abc_primary_text_material_dark"
    android:layout_below="@+id/imageButton"
    android:layout_centerHorizontal="true" />

<EditText
    android:layout_width="wrap_content"
    android:layout_height="30dp"
    android:id="@+id/editText2"
    android:layout_below="@+id/editText"
    android:layout_alignLeft="@+id/editText"
    android:layout_alignStart="@+id/editText"
    android:textColorHint="@color/abc_primary_text_material_dark"
    android:layout_alignRight="@+id/imageButton"
    android:layout_alignEnd="@+id/imageButton"
    android:layout_marginTop="20dp"
    android:background="@color/yellowgreen"
    android:hint="Enter SMS" />

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Send SMS"
    android:id="@+id/btnSendSMS"
    android:layout_below="@+id/editText2"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="48dp" />

</RelativeLayout>

```

## MainActivity.java File:

```

package com.ashakanoj.program8;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.telephony.SmsManager;

```

```

import android.view.View;

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

public class MainActivity extends AppCompatActivity {
    EditText phonenumber, message;
    Button send;
    String phone;

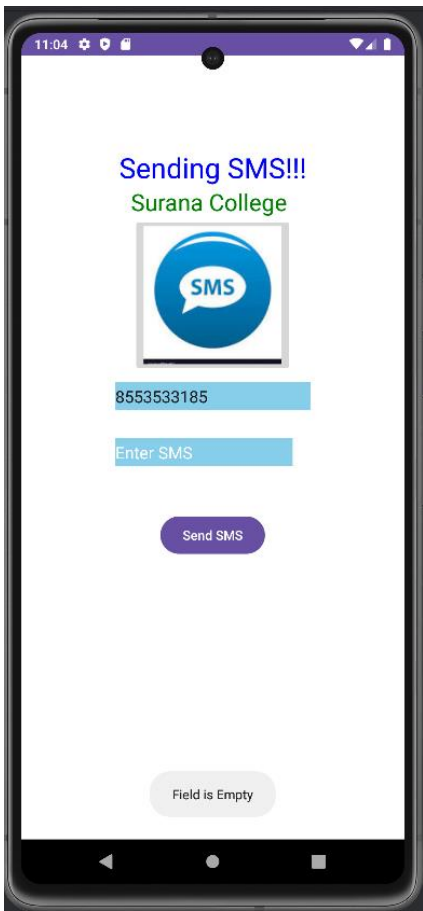
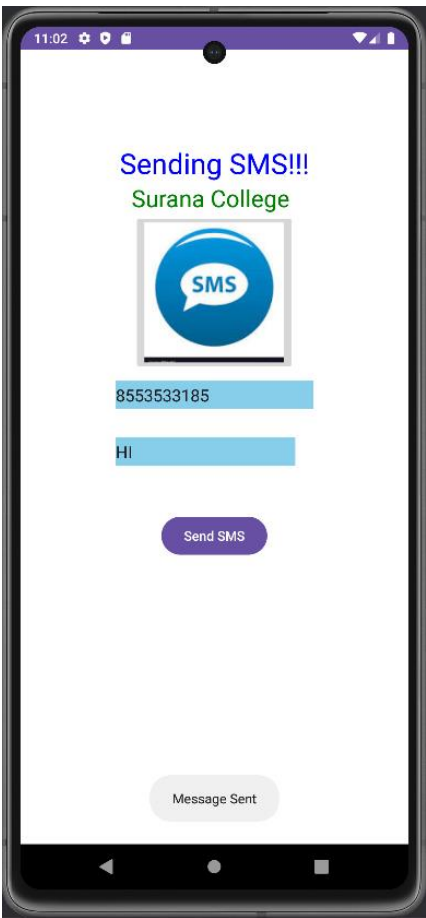
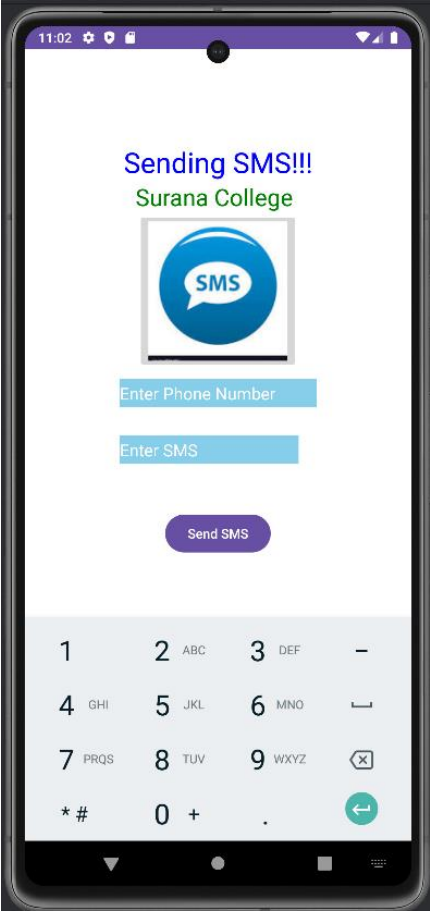
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        send = findViewById(R.id.button);
        phonenumber = findViewById(R.id.editText);
        message = findViewById(R.id.editText2);
        send.setOnClickListener(new View.OnClickListener() {

            public void onClick(View view) {
                String number = phonenumber.getText().toString();
                String msg = message.getText().toString();
                try {
                    SmsManager smsManager = SmsManager.getDefault();
                    smsManager.sendTextMessage(number, null, msg, null, null);
                    Toast.makeText(getApplicationContext(), "Message Sent",
Toast.LENGTH_LONG).show();
                } catch (Exception e) {
                    Toast.makeText(getApplicationContext(), "Field is Empty",
Toast.LENGTH_LONG).show();
                }
            }
        });
    }
}

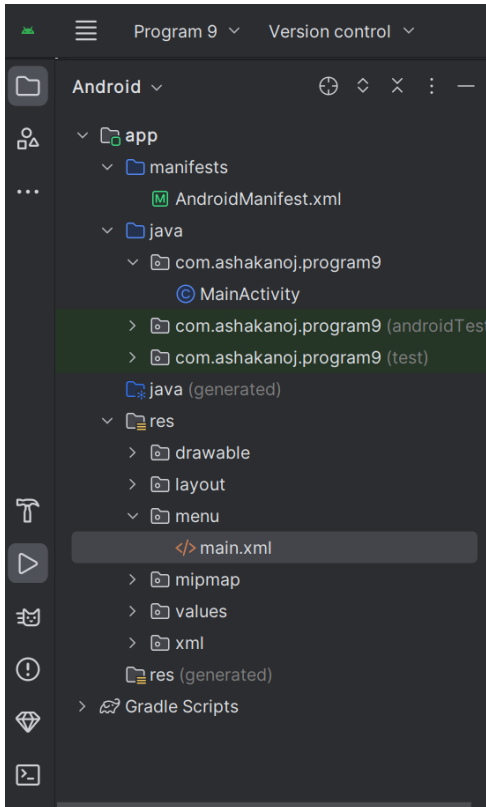
```

Output:



9. Create an application to send an e-mail.

## STRUCTURE OF A PROGRAM:



### Activity\_main.xml File:

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

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:layout_marginRight="30dp"
        android:layout_marginTop="20dp"
        android:ems="10" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/editText1"
        android:layout_below="@+id/editText1"
```

```

        android:layout_marginTop="18dp"
        android:ems="10" >

        <requestFocus />
</EditText>

<EditText
    android:id="@+id/editText3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/editText2"
    android:layout_below="@+id/editText2"
    android:layout_marginTop="28dp"
    android:ems="10"
    android:inputType="textMultiLine" />

<TextView
    android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText1"
    android:layout_alignBottom="@+id/editText1"
    android:layout_alignParentLeft="true"
    android:text="To:" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText2"
    android:layout_alignBottom="@+id/editText2"
    android:layout_alignParentLeft="true"
    android:text="Subject:" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText3"
    android:layout_alignBottom="@+id/editText3"
    android:layout_alignParentLeft="true"
    android:text="Message:" />

<Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/editText3"
    android:layout_below="@+id/editText3"
    android:layout_marginLeft="76dp"
    android:layout_marginTop="30dp"
    android:text="Send" />

</RelativeLayout>

```

**MainActivity.java File:**

```

package com.ashakanoj.program9;
import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.app.Activity;

public class MainActivity extends Activity {
    EditText editTextTo, editTextSubject, editTextMessage;
    Button send;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        editTextTo=(EditText) findViewById(R.id.editText1);
        editTextSubject=(EditText) findViewById(R.id.editText2);
        editTextMessage=(EditText) findViewById(R.id.editText3);

        send=(Button) findViewById(R.id.button1);

        send.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View arg0) {
                String to=editTextTo.getText().toString();
                String subject=editTextSubject.getText().toString();
                String message=editTextMessage.getText().toString();

                Intent email = new Intent(Intent.ACTION_SEND);
                email.putExtra(Intent.EXTRA_EMAIL, new String[]{ to});
                email.putExtra(Intent.EXTRA_SUBJECT, subject);
                email.putExtra(Intent.EXTRA_TEXT, message);

                //need this to prompts email client only
                email.setType("message/rfc822");

                startActivity(Intent.createChooser(email, "Choose an Email client :"));

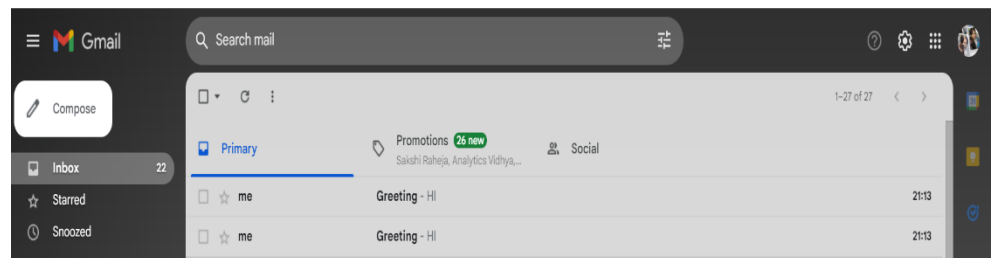
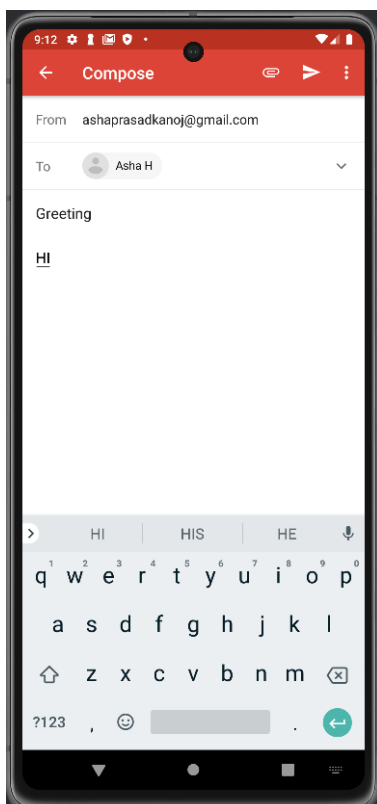
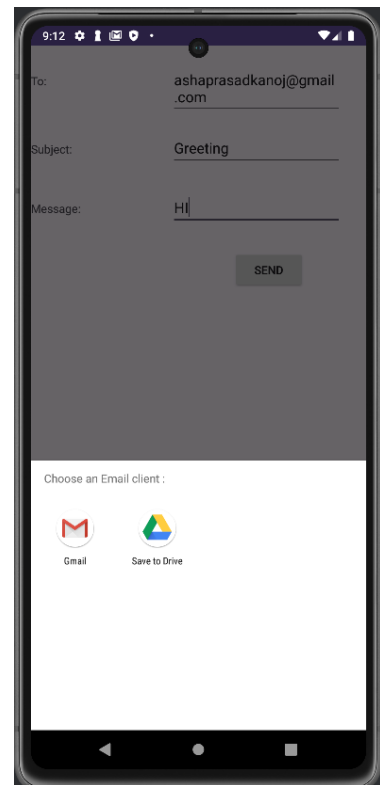
            }

        });
    }

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

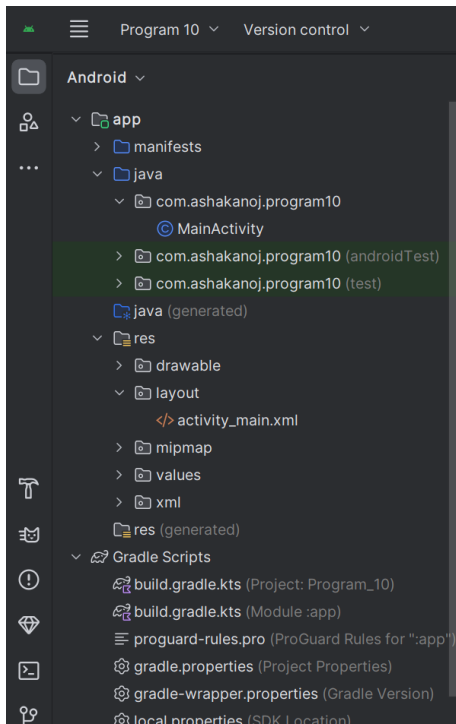
```

## Output:



10. Display Map based on the Current/given location.

### STRUCTURE OF A PROGRAM:



### AndroidManifest.xml File:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
    <uses-permission android:name="android.permission.INTERNET"/>
    <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE"/>
    <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Program10"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```



### Activity\_main.xml File:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <fragment
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:id="@+id/id_map"
        android:name="com.google.android.gms.maps.SupportMapFragment"/>
</RelativeLayout>
```




### MainActivity.java File:

```
package com.ashakanoj.program10;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity implements OnMapReadyCallback {
    private GoogleMap mMap;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        SupportMapFragment mapFragment = (SupportMapFragment)
            getSupportFragmentManager().findFragmentById(R.id.id_map);
        mapFragment.getMapAsync(this);
    }
    @Override
    public void onMapReady(@NonNull GoogleMap googleMap) {
        LatLng location=new LatLng(12.9364 , 77.5782 );
        // co-ordinates of surana college 12.9364° N, 77.5782° E
        googleMap.addMarker(new MarkerOptions().position(location).title("Surana
College"));
        googleMap.moveCamera(CameraUpdateFactory.newLatLngZoom(location,12));
    }
}
```

### build.gradle.kts: (Module: app)

```
✓  Gradle Scripts
     build.gradle.kts (Project: Program_10)
     build.gradle.kts (Module :app)
```

```
dependencies {  
  
    implementation("androidx.appcompat:appcompat:1.6.1")  
    implementation("com.google.android.material:material:1.11.0")  
    implementation("androidx.constraintlayout:constraintlayout:2.1.4")  
    testImplementation("junit:junit:4.13.2")  
    androidTestImplementation("androidx.test.ext:junit:1.1.5")  
    androidTestImplementation("androidx.test.espresso:espresso-core:3.5.1")  
    implementation("com.google.android.gms:play-services-maps:18.2.0")  
    implementation("com.google.android.gms:play-services-location:21.2.0")  
  
}
```

**Output:**

