NAME - BHAVIK POKAR
ENROLLMENT NO. - IU2253000059
SUBJECT - MADA ASSIGNMENT 2
BRANCH - MCA SEM 2

Q.1 :-

Write a Kotlin program in Android to display a welcome message to the user on a click of a Button using Toast.

Activity_main.xml :-

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">

    <Button

    android:id="@+id/btnclick"

    android:layout_width="141dp"

    android:layout_height="70dp"

    android:layout_marginTop="92dp"
```

```xml
        android:text="click me"

        android:textAlignment="center"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.498"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />



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

MainActivity.kt :-

```kotlin
package com.example.toastprogram1

import androidx.appcompat.app.AppCompatActivity

 import android.os.Bundle
import android.widget.Button

import android.widget.Toast

class MainActivity : AppCompatActivity() {

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

    setContentView(R.layout.activity_main)

    val btn_click_me = findViewById<Button>(R.id.btnclick)

    btn_click_me.setOnClickListener {
```
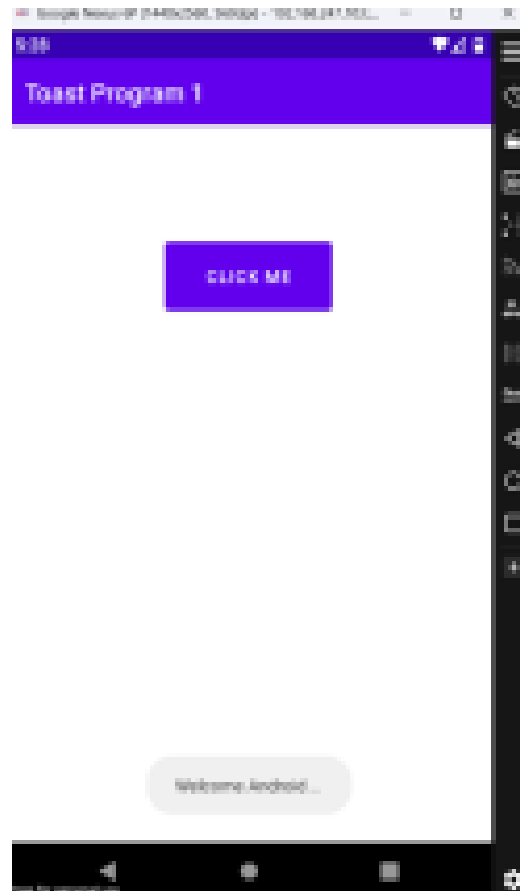
```
        Toast.makeText(this@MainActivity,"Welcome Android .. " ,
Toast.LENGTH_SHORT).show() }}
```



```
        Toast.makeText(this@MainActivity,"Welcome Android .. " ,
Toast.LENGTH_SHORT).show() }}
```

Q.2 :-

Write a Kotlin program in Android to accept a text from the user using EditText control and display it on the screen on the click of a Button.

Activity_Main.xml :-

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">

    <TextView

    android:id="@+id/textView"

    android:layout_width="161dp"

    android:layout_height="42dp"

    android:layout_marginStart="16dp"

    android:layout_marginTop="66dp"

    android:layout_marginEnd="27dp"

    android:layout_marginBottom="45dp"

    android:text="Enter Text :-"

    app:layout_constraintBottom_toTopOf="@+id/textView3"

    " app:layout_constraintEnd_toStartOf="@+id/edit"

    app:layout_constraintStart_toStartOf="parent"
```

```xml
        app:layout_constraintTop_toTopOf="parent" />
    <Button

        android:id="@+id/button"

        android:layout_width="124dp"

        android:layout_height="45dp"

        android:layout_marginStart="143dp"

        android:layout_marginTop="50dp"

        android:layout_marginEnd="144dp"

        android:layout_marginBottom="90dp"

        android:text="Click Me"

        app:layout_constraintBottom_toTopOf="@+id/textView2

        " app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/textView3"

        tools:ignore="TouchTargetSizeCheck" />


    <EditText

        android:id="@+id/edit"

        android:layout_width="191dp"

        android:layout_height="47dp"

        android:layout_marginStart="27dp"

        android:layout_marginTop="66dp"

        android:layout_marginEnd="16dp"

        android:layout_marginBottom="10dp"

        android:ems="10"
```

```xml
        android:inputType="textPersonName"

        app:layout_constraintBottom_toTopOf="@+id/textView3"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toEndOf="@+id/textView"

        app:layout_constraintTop_toTopOf="parent"

        tools:ignore="SpeakableTextPresentCheck,TouchTargetSizeCheck" />

    <TextView

        android:id="@+id/textView2"

        android:layout_width="170dp"

        android:layout_height="57dp"

        android:layout_marginStart="120dp"

        android:layout_marginTop="40dp"

        android:layout_marginEnd="121dp"

        android:layout_marginBottom="140dp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/button" />

    <TextView

        android:id="@+id/textView3"

        android:layout_width="282dp"

        android:layout_height="63dp"

        android:layout_marginStart="74dp"

        android:layout_marginTop="40dp"
```

```xml
        android:layout_marginEnd="55dp"

        android:layout_marginBottom="40dp"

        android:background="#6F52DA"

        android:textColor="#DFDF47"

        android:textStyle="bold"

        android:text="Button click for the dispaly show text"

        app:layout_constraintBottom_toTopOf="@+id/button"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/edit"
    /></androidx.constraintlayout.widget.ConstraintLayout>
```
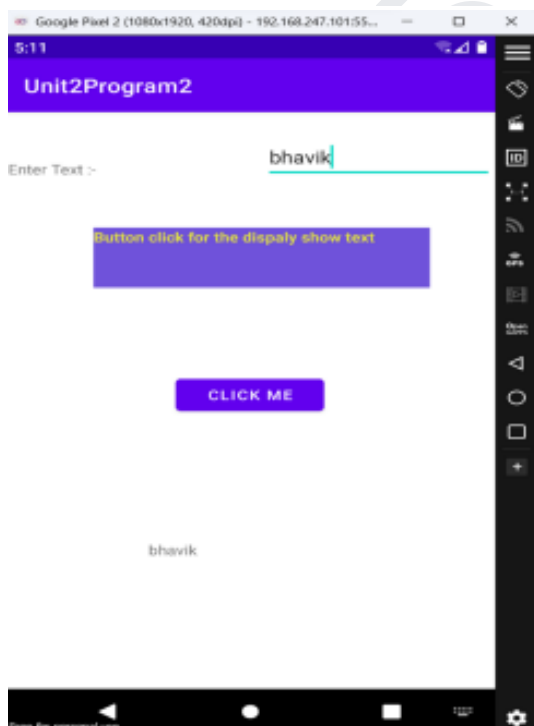
MainActivity.kt :-

```kotlin
package com.example.unit2program2



import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button

import android.widget.EditText

import android.widget.TextView



class MainActivity : AppCompatActivity() {
```

```kotlin
override fun onCreate(savedInstanceState: Bundle?) {

    super.onCreate(savedInstanceState)

    setContentView(R.layout.activity_main)



    val no = findViewById(R.id.edit) as EditText

    var btn = findViewById(R.id.button) as Button

    var txt = findViewById(R.id.textView2) as TextView



    tn.setOnClickListener {txt.text = no.text } }
```

Q.3

Write a Kotlin program in Android to accept a text from the user using EditText control and provide 2 buttons to the user "Bold" and "Italic". Implement the Bold or Italics formatting using toggle functionality for these 2 buttons. Display the user text in a TextView Control after formatting it.

activity_main.xml:-

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">


    <TextView

    android:id="@+id/textView3"

    android:layout_width="150dp"

android:layout_height="43dp"
```

```xml
        android:layout_marginStart="4dp"

        android:layout_marginTop="104dp"

        android:text="Enter Text :"

        android:textColor="#0A3A88"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />

    <EditText

        android:id="@+id/edit"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginStart="44dp"

        android:layout_marginTop="104dp"

        android:ems="10"

        android:inputType="textPersonName"

        android:textColor="#0D0E0F"
```

```xml
        app:layout_constraintStart_toEndOf="@+id/textView3"

        app:layout_constraintTop_toTopOf="parent"

        tools:ignore="TouchTargetSizeCheck,SpeakableTextPresentCheck" />



    <Button

        android:id="@+id/bold"

        android:layout_width="136dp"

    android:layout_height="64dp"

        android:layout_marginStart="35dp"

        android:layout_marginTop="120dp"

        android:layout_marginEnd="40dp"

        android:layout_marginBottom="104dp"

        android:text="Bold"

        app:layout_constraintBottom_toTopOf="@+id/textView4"

        app:layout_constraintEnd_toStartOf="@+id/italic"
```

```xml
    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/textView3" />



    <Button

    android:id="@+id/italic"

    :layout_constraintEnd_toEndOf="parent"

    android:layout_width="127dp"

    android:layout_height="60dp"

    android:layout_marginStart="40dp"

    android:layout_marginTop="120dp"

    android:layout_marginEnd="92dp"

    android:layout_marginBottom="110dp"

    android:text="Italic"

    app:layout_constraintBottom_toTopOf="@+id/textView4

    " app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toEndOf="@+id/bold"
```

```xml
        app:layout_constraintTop_toBottomOf="@+id/edit"

        app:layout_constraintVertical_bias="1.0" />



    <TextView

        android:id="@+id/textView4"

        android:layout_width="177dp"

        android:layout_height="50dp"

        android:layout_marginTop="104dp"

        android:layout_marginEnd="124dp"

        android:text="TextView"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/bold" />

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

MainActivity.kt :-

```kotlin
package com.example.unit2program3

import android.graphics.Typeface

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button

import android.widget.TextView

import android.widget.EditText


class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {

        super.onCreate(savedInstanceState)

        setContentView(R.layout.activity_main)
```

```kotlin
var btn = findViewById(R.id.bold) as Button

var edit = findViewById(R.id.edit) as EditText

var btn2 = findViewById(R.id.italic) as Button

var txt = findViewById(R.id.textView4) as TextView

btn.setOnClickListener {

txt.text = edit.text

txt.setTypeface(null, Typeface.BOLD) }

btn2.setOnClickListener {

txt.text=edit.text

txt.setTypeface(null,Typeface.ITALIC)

}

}

}
```
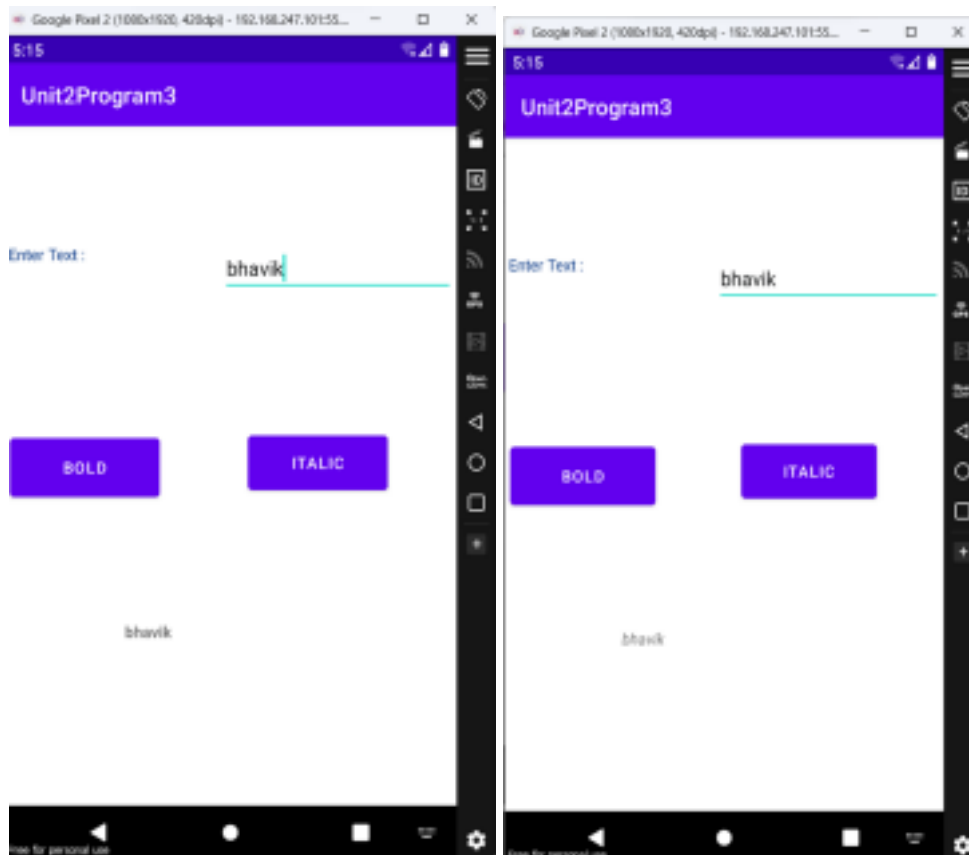
Q4Write a Kotlin program in Android to create a **Feedback Form** to demonstrate the use of Floating Label, Numeric keyboard and Password field.

Activity_Main.xml :-

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">


    <TextView

    android:id="@+id/textView"

    android:layout_width="278dp"

    android:layout_height="77dp"

    android:layout_marginStart="47dp"

    android:layout_marginTop="48dp"

    android:layout_marginBottom="8dp"

    android:hint="Give us your Feedback"

    android:shadowColor="#031D51"

    android:text="FeedBack Form"

    android:textAlignment="center"
```

```xml
            android:textColor="#08E3CE"

            android:textSize="24sp"

            app:layout_constraintBottom_toTopOf="@+id/textInputEditText"

            app:layout_constraintEnd_toEndOf="parent"

            app:layout_constraintHorizontal_bias="0.046"

            app:layout_constraintStart_toStartOf="parent"

            app:layout_constraintTop_toTopOf="parent" />


        <RatingBar

            android:id="@+id/ratingBar"

            android:layout_width="282dp"

            android:layout_height="66dp"

            android:layout_marginStart="64dp"

            android:layout_marginTop="48dp"

            android:layout_marginEnd="65dp"

            android:layout_marginBottom="140dp"

            android:label="Rate Us "

            android:labelFor="@id/ratingBar"

            android:textAlignment="center"

            app:layout_constraintBottom_toTopOf="@+id/button"

            app:layout_constraintEnd_toEndOf="parent"

            app:layout_constraintStart_toStartOf="parent"

            app:layout_constraintTop_toBottomOf="@+id/textInputEditText"
            tools:ignore="SpeakableTextPresentCheck" />
```

```xml
<Button

    android:id="@+id/button"

    android:layout_width="154dp"

    android:layout_height="63dp"

    android:layout_marginStart="128dp"

    android:layout_marginTop="8dp"

    android:layout_marginEnd="129dp"

    android:layout_marginBottom="100dp"

    android:text="Button"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/ratingBar" />


    <com.google.android.material.textfield.TextInputLayou

    t android:layout_width="409dp"

    android:layout_height="wrap_content"

    app:layout_constraintBottom_toTopOf="@+id/ratingBar"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/textView">

    </com.google.android.material.textfield.TextInputLayout>
```

```xml
    <com.google.android.material.textfield.TextInputEditTex

    t android:id="@+id/textInputEditText"

    android:layout_width="match_parent"

    android:layout_height="78dp"

    android:layout_marginTop="20dp"

    android:layout_marginBottom="8dp"

    android:hint="Give Us Your Feedback"

    app:layout_constraintBottom_toTopOf="@+id/ratingBar"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/textView" />


</androidx.constraintlayout.widget.ConstraintLayout>
```
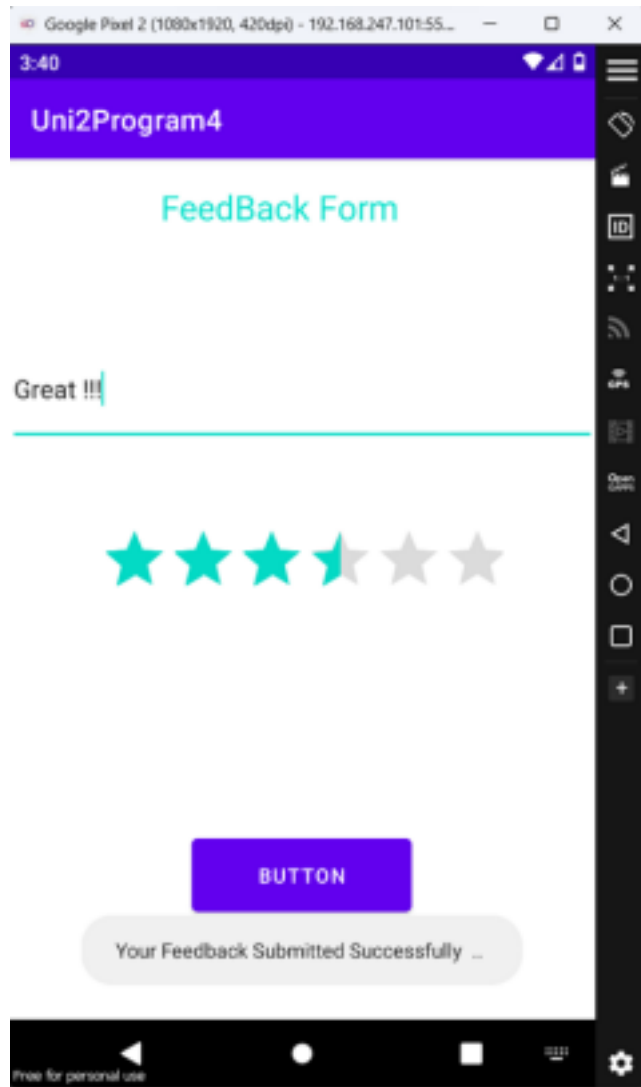
MainActivity.kt :-

```kotlin
package com.example.uni2program4


import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle
```

```kotlin
import android.widget.Button

import android.widget.Toast


class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {

    super.onCreate(savedInstanceState)

    setContentView(R.layout.activity_main)


    var btn = findViewById(R.id.button) as Button

    btn.setOnClickListener {

    Toast.makeText(

        this@MainActivity,

        "Your Feedback Submitted Successfully .. ",

        Toast.LENGTH_SHORT

    ).show()


        }

        }

}
```

Q5- Write a Kotlin program in Android to demonstrate the use of background property of Button Control as well as Image Button.

Activity_Main.xml :-

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



<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">


    <TextView

    android:id="@+id/textView"

    android:layout_width="207dp"

    android:layout_height="55dp"

    android:layout_marginStart="104dp"

    android:layout_marginTop="4dp"

    android:layout_marginEnd="100dp"

    android:background="#5F6F71"

    android:text=" Button Gradient "

    android:textColor="#FBF9F9"

    android:textSize="24sp"

    android:textStyle="bold"
```

```xml
        app:layout_constraintBottom_toTopOf="@+id/button"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.0"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />


    <Button

        android:id="@+id/button"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginStart="141dp"

        android:layout_marginTop="36dp"

        android:layout_marginEnd="176dp"

        android:layout_marginBottom="25dp"

        android:background="@drawable/button1"

        android:text="Solid Color "

        android:textColor="#F4EFEF"

        app:layout_constraintBottom_toTopOf="@+id/button2"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.0"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/textView" />
    <Button

        android:id="@+id/button2"
```

```xml
    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="141dp"

    android:layout_marginTop="8dp"

    android:layout_marginEnd="176dp"

    android:layout_marginBottom="21dp"

    android:text="Gradient Button"

    android:textColor="#F3EEEE"

    android:background="@drawable/button2"

    app:layout_constraintBottom_toTopOf="@+id/button3"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/button" />


    <Button

    android:id="@+id/button3"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="141dp"

     android:layout_marginTop="17dp"

    android:layout_marginEnd="176dp"

    android:layout_marginBottom="22dp"
    android:text=" Center Gradient Button"

    android:textColor="#F8F1F1"
```

```xml
        android:background="@drawable/button3"

        app:layout_constraintBottom_toTopOf="@+id/button4"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/button2" />


    <Button

        android:id="@+id/button4"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginStart="141dp"

        android:layout_marginTop="12dp"

        android:layout_marginEnd="176dp"

        android:layout_marginBottom="21dp"

        android:text="Edge Color Button"

        android:background="@drawable/button4"

        app:layout_constraintBottom_toTopOf="@+id/button5"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/button3" />
```

```xml
<Button

    android:id="@+id/button5"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="141dp"

    android:layout_marginTop="10dp"

    android:layout_marginEnd="176dp"

    android:layout_marginBottom="23dp"

    android:text="Round Button"

    android:textColor="#FBEFEF"

    android:background="@drawable/button5"

    app:layout_constraintBottom_toTopOf="@+id/button6"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/button4" />


<Button

    android:id="@+id/button6"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"
```

```xml
        android:layout_marginStart="141dp"

        android:layout_marginTop="13dp"

        android:layout_marginEnd="176dp"

        android:layout_marginBottom="31dp"

        android:text="Oval Button"

        android:textColor="#272121"

        android:background="@drawable/button6"

        app:layout_constraintBottom_toTopOf="@+id/button7"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/button5" />


    <Button

        android:id="@+id/button7"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

         android:layout_marginStart="141dp"

        android:layout_marginTop="20dp"

        android:layout_marginEnd="176dp"

        android:layout_marginBottom="96dp"

        android:text="Oval Gradient Button"

        android:textColor="#ECD8D8"

        android:background="@drawable/button7"

        app:layout_constraintBottom_toBottomOf="parent"
```

```xml
            app:layout_constraintEnd_toEndOf="parent"

            app:layout_constraintStart_toStartOf="parent"

            app:layout_constraintTop_toBottomOf="@+id/button6" />

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

Button1.xml:-

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



    <shape

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

    android:shape="rectangle">

    <gradient android:startColor="#E14949"

    android:centerColor="#9A9191"

    android:endColor="#130E0E"

    android:angle="45" />

    <corners android:radius="2dp" />

    <stroke android:width="8px" android:color="#000000" /></shape>
```

Button2.xml:-

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

<shape

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

    android:shape="rectangle">

    <gradient android:startColor="#345"

    android:centerColor="#000000"

    android:endColor="#299"

    android:angle="180" />

    <corners android:radius="2dp" />

    <stroke android:width="8px" android:color="#000000" />

</shape>
```

Button3.xml:-

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

<shape

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

    android:shape="rectangle">

    <gradient android:startColor="#44e3ff"

    android:centerColor="#12434c"

    android:endColor="#258191"

    android:angle="90" />

    <corners android:radius="2dp" />

    <stroke android:width="8px" android:color="#000000" />

</shape>
```

Button4.xml:-

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

<shape

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

    android:shape="rectangle">

    <gradient android:startColor="#206C80"

    android:endColor="#00FE33"

    android:angle="90" />

    <corners android:radius="2dp" />
    <stroke android:width="8px" android:color="#000000" />


</shape>
```

Button5.xml:-

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

<shape

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

    android:shape="rectangle">

    <gradient android:startColor="#545"

    android:endColor="#545"

    android:angle="90" />

    <stroke android:width="4dp" android:color="#000000" />


</shape>
```

Button6.xml:-

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

<shape

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

    android:shape="oval">


    <gradient android:startColor="#FFD700"

    android:endColor="#FFD700"

    android:angle="90" />

</shape>
```

Button7.xml:-

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

<shape

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

    android:shape="oval">

    <gradient android:startColor="#006400"

    android:endColor="#909"

    android:angle="90" />


</shape>
```
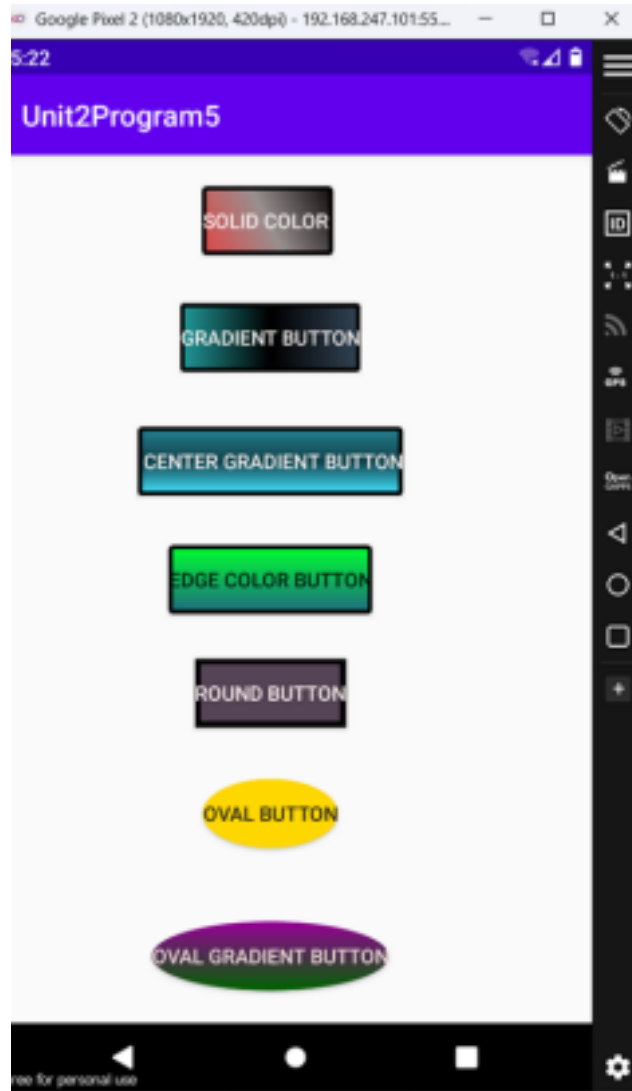
Q.6 :-

Write a Kotlin program in Android to design a Student Registration Form to implement different widgets available in Android. Provide appropriate fields and 2 buttons "Submit" and "Reset". Implement the appropriate functionality of the Button.

Activity_Main.xml :-

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

<androidx.constraintlayout.widget.ConstraintLayout

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

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">


    <TextView

    android:id="@+id/t1"

    android:layout_width="312dp"

    android:layout_height="57dp"

    android:layout_marginEnd="99dp"

    android:layout_marginBottom="69dp"

    android:text="Registration Form"

    android:textAlignment="center"

    android:textSize="35dp"
```

```xml
        android:textStyle="bold"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintTop_toTopOf="parent" />


    <TextView

        android:id="@+id/t2"

        android:layout_width="95dp"

        android:layout_height="43dp"

        android:layout_marginStart="26dp"

        android:layout_marginTop="55dp"

        android:layout_marginEnd="26dp"

        android:layout_marginBottom="30dp"

        android:text="Name"

        android:textSize="24sp"

        android:textStyle="bold"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/t1" />


    <EditText

        android:id="@+id/PersonName"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginStart="20dp"

        android:layout_marginTop="45dp"
```

```xml
        android:layout_marginEnd="25dp"

        android:layout_marginBottom="26dp"

        android:ems="10"

        android:hint="Enter Your Name"

        android:inputType="textPersonName"

        android:minHeight="48dp"

        app:layout_constraintBottom_toTopOf="@+id/EmailAddress"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toEndOf="@+id/t2"

        app:layout_constraintTop_toBottomOf="@+id/t1" />


    <TextView

        android:id="@+id/t3"

        android:layout_width="101dp"

        android:layout_height="41dp"

        android:layout_marginStart="26dp"

        android:layout_marginTop="40dp"

        android:layout_marginEnd="26dp"

        android:layout_marginBottom="8dp"

        android:text="E-Mail"

        android:textSize="24sp"

        android:textStyle="bold"

        app:layout_constraintBottom_toTopOf="@+id/t4"

        app:layout_constraintEnd_toStartOf="@+id/EmailAddress"
```

```xml
        app:layout_constraintHorizontal_bias="0.0"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/t2" />


    <TextView

        android:id="@+id/t4"

        android:layout_width="107dp"

        android:layout_height="39dp"

        android:layout_marginStart="45dp"

        android:layout_marginTop="30dp"

        android:layout_marginEnd="26dp"

        android:layout_marginBottom="8dp"

        android:text="Password"

        android:textSize="24sp"

        android:textStyle="bold"

        app:layout_constraintBottom_toTopOf="@+id/t5"

        app:layout_constraintEnd_toStartOf="@+id/Password"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/t3" />


    <EditText

        android:id="@+id/EmailAddress"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"
```

```xml
        android:layout_marginStart="15dp"

        android:layout_marginTop="10dp"

        android:layout_marginEnd="26dp"

        android:layout_marginBottom="32dp"

        android:ems="10"

        android:hint="Enter Your E-mail"

        android:inputType="textPersonName"

        android:minHeight="48dp"

        app:layout_constraintBottom_toTopOf="@+id/Password"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toEndOf="@+id/t3"

        app:layout_constraintTop_toBottomOf="@+id/PersonName" />


    <EditText

        android:id="@+id/Password"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginStart="24dp"

        android:layout_marginTop="10dp"

        android:layout_marginEnd="45dp"

        android:layout_marginBottom="8dp"

        android:ems="10"

        android:hint="Enter Your Password"

        android:inputType="textPersonName"
```

```xml
android:minHeight="48dp"

app:layout_constraintBottom_toTopOf="@+id/radioGroup"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toEndOf="@+id/t4"

app:layout_constraintTop_toBottomOf="@+id/EmailAddress" />


<TextView

android:id="@+id/t5"

android:layout_width="95dp"

android:layout_height="40dp"

android:layout_marginStart="32dp"

android:layout_marginTop="33dp"

android:layout_marginEnd="35dp"

android:layout_marginBottom="90dp"

android:text="Gender"

android:textSize="24sp"

android:textStyle="bold"

app:layout_constraintBottom_toTopOf="@+id/button"

app:layout_constraintEnd_toStartOf="@+id/radioGroup

" app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/t4"

tools:ignore="MissingConstraints" />
```

```xml
<Button

    android:id="@+id/button"

    android:layout_width="151dp"

    android:layout_height="54dp"

    android:layout_marginStart="32dp"

    android:layout_marginTop="45dp"

    android:layout_marginEnd="41dp"

    android:layout_marginBottom="50dp"

    android:text="RESET"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toStartOf="@+id/button2"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/t5" />


<Button

    android:id="@+id/button2"

    android:layout_width="138dp"

    android:layout_height="57dp"

    android:layout_marginStart="224dp"

    android:layout_marginTop="20dp"

    android:layout_marginEnd="49dp"

    android:layout_marginBottom="60dp"

    android:text="SUBMIT"

    app:layout_constraintBottom_toBottomOf="parent"
```

```xml
        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/radioGroup" />


    <RadioGroup

        android:id="@+id/radioGroup"

        android:layout_width="178dp"

        android:layout_height="97dp"

        android:layout_marginStart="50dp"

        android:layout_marginEnd="57dp"

        android:layout_marginBottom="90dp"

        app:layout_constraintBottom_toTopOf="@+id/button2"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toEndOf="@+id/t5"

        app:layout_constraintTop_toBottomOf="@+id/Password">


    <RadioButton

        android:id="@+id/radioButton3"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:text="Male" />


    <RadioButton
```

```xml
        android:id="@+id/radioButton4"



        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:text="Female" />

    </RadioGroup>




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

MainActivity.kt :-

```kotlin
package com.example.unit2program6


import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.*


class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {

    super.onCreate(savedInstanceState)

    setContentView(R.layout.activity_main)
```

```kotlin
val t1 = findViewById(R.id.t1) as TextView

val t2 = findViewById(R.id.t2) as TextView

val btn1 = findViewById(R.id.PersonName) as EditText

val btn2 = findViewById(R.id.EmailAddress) as

EditText val btn3 = findViewById(R.id.t3) as TextView

val btn4 = findViewById(R.id.t4) as TextView

val btn5 = findViewById(R.id.Password) as

EditText val btn6 = findViewById(R.id.t5) as

TextView

val btn7 = findViewById(R.id.radioGroup) as RadioGroup

val btn8 = findViewById(R.id.button) as Button

val btn = findViewById(R.id.button2) as Button


btn8.setOnClickListener {


btn1.setText("");

btn2.setText("");

btn5.setText("");
```

```kotlin
        }

        btn.setOnClickListener {



            Toast.makeText(

                this@MainActivity,

                "your Data Has Been Successfully Submitted",

                Toast.LENGTH_SHORT

            ).show()



        }

    }

}
```

7.Use the Registration Form created in Q6, and implement the click event for the submit button to check whether all the fields are filled or not. If all the form fields are filled, redirect the user to a welcome page, displaying welcome message. On the click of the clear button, reset all the fields.

Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/androi
 d" 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_margin="10dp"
   android:orientation="vertical"
   android:padding="10dp"
   tools:context=".MainActivity">


   <TextView
       android:id="@+id/textView"
       android:layout_width="0dp"
       android:layout_height="wrap_content"
       android:gravity="center"
       android:text="STUDENT REGISTRATION "
       app:layout_constraintEnd_toEndOf="parent"
       app:layout_constraintStart_toStartOf="parent"
       app:layout_constraintTop_toTopOf="parent" />

   <EditText
       android:id="@+id/editTextTextPersonName"
       android:layout_width="0dp"
       android:layout_height="wrap_content"
       android:layout_marginTop="10dp"
       android:ems="10"
       android:hint="Enter Your First Name"
       android:inputType="textPersonName"
       app:layout_constraintEnd_toEndOf="parent"
       app:layout_constraintStart_toStartOf="parent"
       app:layout_constraintTop_toBottomOf="@+id/textView"
       tools:ignore="TouchTargetSizeCheck" />

   <EditText
       android:id="@+id/editTextTextPersonName2"
       android:layout_width="0dp"
       android:layout_height="wrap_content"
       android:layout_marginTop="10dp"
       android:ems="10"
       android:hint="Enter the Last Name"
```

```xml
        android:inputType="textPersonName"

        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonNam
        e" tools:ignore="TouchTargetSizeCheck" />

    <EditText
        android:id="@+id/editTextTextEmailAddress"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:ems="10"
        android:hint="Enter Your Email"
        android:inputType="textEmailAddress"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.8"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName
        2" tools:ignore="TouchTargetSizeCheck" />

    <EditText
        android:id="@+id/editTextPhone"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:ems="10"
        android:hint="Enter Your Phone Number"
        android:inputType="phone"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextTextEmailAddres
        s" tools:ignore="TouchTargetSizeCheck" />

    <EditText
        android:id="@+id/editTextTextPersonName4"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:ems="10"
        android:hint="Enter Your Last Enrollment Number"
        android:inputType="textPersonName"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextPhon
        e" tools:ignore="TouchTargetSizeCheck" />

    <RadioGroup
        android:id="@+id/radioGroup"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:orientation="horizontal"
        app:layout_constraintEnd_toEndOf="parent"
```

```xml
                app:layout_constraintStart_toStartOf="parent"

            app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4">

            <RadioButton
                android:id="@+id/radioButton"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:checked="false"
                android:text="Male"
                tools:ignore="TouchTargetSizeCheck" />

            <RadioButton
                android:id="@+id/radioButton2"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_marginLeft="10dp"
                android:text="Female"
                tools:ignore="TouchTargetSizeCheck" />
        </RadioGroup>

        <RadioGroup
            android:id="@+id/radioGroup2"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:orientation="horizontal"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toBottomOf="@+id/radioGroup">

            <RadioButton
                android:id="@+id/radioButton3"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="10th"
                tools:ignore="TouchTargetSizeCheck" />

            <RadioButton
                android:id="@+id/radioButton4"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="12th"
                tools:ignore="TouchTargetSizeCheck" />

            <RadioButton
                android:id="@+id/radioButton5"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Graduate"
                tools:ignore="TouchTargetSizeCheck" />

            <RadioButton
                android:id="@+id/radioButton6"
```

```xml
            android:layout_width="wrap_content"

            android:layout_height="wrap_content"
            android:text="Post Graduate"
            tools:ignore="TouchTargetSizeCheck" />
    </RadioGroup>

    <Button
        android:id="@+id/button"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Submit"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/radioGroup2" />

    <Button
        android:id="@+id/button2"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="Reset"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button" />


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

MainActivity.kt

```kotlin
package com.example.piyush2_7

import android.content.Intent
import android.os.Bundle
import android.support.v7.app.AppCompatActivity
import android.widget.Button
import android.widget.EditText
import android.widget.RadioButton
import android.widget.RadioGroup
import android.widget.Toast


class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val submit = findViewById(R.id.button) as Button
        val reset = findViewById(R.id.button2) as Button
        val txt1 = findViewById(R.id.editTextTextPersonName) as EditText
        val txt2 = findViewById(R.id.editTextTextPersonName2) as EditText
```

```kotlin
        val txt3 = findViewById(R.id.editTextTextEmailAddress) as
        EditText val txt4 = findViewById(R.id.editTextPhone) as EditText

        val txt5 = findViewById(R.id.editTextTextPersonName4) as
        EditText val txt6 = findViewById(R.id.radioGroup) as RadioGroup
        val txt7 = findViewById(R.id.radioGroup2) as RadioGroup



        submit.setOnClickListener {
            var fname = txt1.text.toString();
            var lname = txt2.text.toString();
            var phone = txt4.text.toString();
            var email = txt3.text.toString();
            var enroll = txt5.text.toString();
            var gender = txt6.checkedRadioButtonId.toString()
            var edu = txt7.checkedRadioButtonId.toString();




            if (fname == "" || lname == "" || phone == "" || email == ""
|| enroll == "" || gender == "-1" || edu == "-1") {
                Toast.makeText(this@MainActivity, "Plz Fill All Field
", Toast.LENGTH_SHORT).show()
            } else {
                val intent = Intent(applicationContext,
second_activity::class.java)
                intent.putExtra("fname", fname)
                intent.putExtra("lname", lname)
                intent.putExtra("phone", phone)
                intent.putExtra("email", email)
                intent.putExtra("enroll", enroll)
                startActivity(intent)
            }
            reset.setOnClickListener {
                txt1.setText("");
                txt2.setText("");
                txt3.setText("");
                txt4.setText("");
                txt5.setText("");
                txt6.clearCheck();
                txt7.clearCheck();


            }
        }
    }
}
```

second_activity.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/androi
d" 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=".second_activity">



<TextView
android:id="@+id/textView2"
android:layout_width="400dp"
android:layout_height="100dp"
android:paddingTop="15dp"
android:text="Welcome Page"
android:textAlignment="center"
android:textSize="50dp"
app:layout_constraintBottom_toBottomOf="paren
t" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
</android.support.constraint.ConstraintLayout>
```

second_activity.kt

```kotlin
package com.example.piyush2_7

import
android.support.v7.app.AppCompatActivity
import android.os.Bundle

    class second_activity : AppCompatActivity() {
 override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
      setContentView(R.layout.second_activity)}}
```

- AndroidManifest.xml
- `<activityandroid:name=".second_activity">`

8.Create an android application in kotlin, to implement ListFragment. Create an UI such that one section of the screen has a list of all the types of cars. On selecting any car name, Car details like : name , launch date ,company name, image, on the second section of the screen.

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/androi
 d" 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">

  <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_marginBottom="32dp"
      android:background="#ACFB50"
      android:orientation="horizontal"
      app:layout_constraintBottom_toTopOf="@+id/frameLayout"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent">

      <Button
          android:id="@+id/button1"
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"
          android:layout_margin="10dp"
          android:layout_weight="1"
          android:background="#101010"
          android:text="G-Wagon"
          android:textColor="#FFFFFF"
          android:textSize="16sp"
          android:textStyle="bold" />

      <Button
          android:id="@+id/button2"
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"
          android:layout_margin="10dp"
```

```xml
            android:layout_weight="1"
            android:background="#101010"
            android:text="BMW M8"
            android:textColor="#FFFFFF"
            android:textSize="16sp"
            android:textStyle="bold" />


    </LinearLayout>


    <FrameLayout
        android:id="@+id/frameLayout"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginTop="100dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">

    </FrameLayout>

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

```kotlin
package com.example.piyush2_8

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

class MainActivity : AppCompatActivity() {
    private val fragmentManager = supportFragmentManager
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val btn1 = findViewById<Button>(R.id.button1)
        val btn2 = findViewById<Button>(R.id.button2)
        btn1.setOnClickListener({
            val fragmentTransaction =
            fragmentManager.beginTransaction()
            fragmentTransaction.add(R.id.frameLayout,firstFragment())
            fragmentTransaction.addToBackStack(null)
            fragmentTransaction.commit()
        })
        btn2.setOnClickListener({
            val fragmentTransaction =
            fragmentManager.beginTransaction()
            fragmentTransaction.add(R.id.frameLayout,secondFragment())
            fragmentTransaction.addToBackStack(null)
            fragmentTransaction.commit()
```

```
        })

    }
}
```

Fragment_first.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    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="#35645B"
    tools:context=".firstFragment">

    <!-- TODO: Update blank fragment layout
    --> <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
        " android:layout_marginLeft="30dp"
        android:layout_marginTop="250dp"
        android:text="Name : "
        android:textColor="#F8FFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
        " android:layout_marginLeft="200dp"
        android:layout_marginTop="250dp"
        android:text="G-Wagon"
        android:textColor="#FCFCFC"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
        " android:layout_marginLeft="30dp"
        android:layout_marginTop="290dp"
        android:text="Company : "
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
```

```xml
        " android:layout_marginLeft="200dp"
        android:layout_marginTop="290dp"
        android:text="Benz"
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView5"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        " android:layout_marginLeft="30dp"

        android:layout_marginTop="330dp"
        android:text="Launch Date : "
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        " android:layout_marginLeft="200dp"
        android:layout_marginTop="330dp"
        android:text="Feb 9, 1979"
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView7"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        " android:layout_marginLeft="30dp"
        android:layout_marginTop="370dp"
        android:text="Color : "
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView8"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        " android:layout_marginLeft="200dp"
        android:layout_marginTop="370dp"
        android:text="Red"
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView9"
        android:layout_width="wrap_content"
```

```xml
        android:layout_height="wrap_content"
        " android:layout_marginLeft="30dp"
        android:layout_marginTop="410dp"
        android:text="Price : "
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView10"
        android:layout_width="wrap_content"

        android:layout_height="wrap_content"
        android:layout_marginLeft="200dp"
        android:layout_marginTop="410dp"
        android:text="1.72 Cr"
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView11"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="450dp"
        android:text="Dealer : "
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView12"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="200dp"
        android:layout_marginTop="450dp"
        android:text="Piyush Nandaniya"
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="300dp"
        android:layout_height="300dp"
        android:layout_marginLeft="30dp"
        android:src="@mipmap/gwagon" />

</FrameLayout>
```

firstFragment.kt

```
package com.example.piyush2_8
```

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

class firstFragment : Fragment() {
    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,

        savedInstanceState: Bundle?
    ): View? {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_first, container,
    false) }
}
```

Fragment_second.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    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="#576272"
    tools:context=".secondFragment">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="250dp"
        android:text="Name : "
        android:textColor="#F8FFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="200dp"
        android:layout_marginTop="250dp"
        android:text="M8"
        android:textColor="#FCFCFC"
```

```xml
            android:textSize="24sp"
            android:textStyle="bold" />

    <TextView
            android:id="@+id/textView3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="30dp"
            android:layout_marginTop="290dp"
            android:text="Company : "
            android:textColor="#FAFFFFFF"
            android:textSize="24sp"
            android:textStyle="bold" />

    <TextView
            android:id="@+id/textView4"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content
            " android:layout_marginLeft="200dp"
            android:layout_marginTop="290dp"
            android:text="BMW"
            android:textColor="#FAFFFFFF"
            android:textSize="24sp"
            android:textStyle="bold" />

    <TextView
            android:id="@+id/textView5"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content
            " android:layout_marginLeft="30dp"
            android:layout_marginTop="330dp"
            android:text="Launch Date : "
            android:textColor="#FAFFFFFF"
            android:textSize="24sp"
            android:textStyle="bold" />

    <TextView
            android:id="@+id/textView6"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content
            " android:layout_marginLeft="200dp"
            android:layout_marginTop="330dp"
            android:text="Jan 26,2008"
            android:textColor="#FAFFFFFF"
            android:textSize="24sp"
            android:textStyle="bold" />

    <TextView
            android:id="@+id/textView7"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content
            " android:layout_marginLeft="30dp"
            android:layout_marginTop="370dp"
            android:text="Color : "
```

```xml
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView8"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
        " android:layout_marginLeft="200dp"
        android:layout_marginTop="370dp"

        android:text="Green"
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView9"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
        " android:layout_marginLeft="30dp"
        android:layout_marginTop="410dp"
        android:text="Price : "
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView10"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
        " android:layout_marginLeft="200dp"
        android:layout_marginTop="410dp"
        android:text="1.2 Cr"
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView11"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
        " android:layout_marginLeft="30dp"
        android:layout_marginTop="450dp"
        android:text="Dealer : "
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/textView12"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content
        " android:layout_marginLeft="200dp"
        android:layout_marginTop="450dp"
```

```xml
        android:text="Piyush"
        android:textColor="#FAFFFFFF"
        android:textSize="24sp"
        android:textStyle="bold" />

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="300dp"
        android:layout_height="300dp"

        android:layout_marginLeft="30dp"
        android:src="@mipmap/bmw" />

</FrameLayout>
```

secondFragment.kt

```kotlin
package com.example.piyush2_8

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

class secondFragment : Fragment() {

    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_second, container,
    false) }
}
```

OutPut:

IU2253000059
BHAVIK POKAR

10.Write a Kotlin program in Android, to implement Fragment Communication. Create an android application, which divides the main activity UI into 2 parts. The 1st part has an EditText & Button, which accepts a numeric value from the user and on the click of the button display the factorial of the number in the 2nd fragment.

Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/androi
 d" 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">

   <FrameLayout
       android:id="@+id/fragment_container"
       android:layout_width="match_parent"
       android:layout_height="match_parent"
       app:layout_constraintEnd_toEndOf="parent"
       app:layout_constraintStart_toStartOf="parent"
       app:layout_constraintTop_toTopOf="parent">

   </FrameLayout>

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

MainActivity.kt

```kotlin
package com.example.piyush2_10

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.EditText
import com.example.p10.Fragments.FragmentA
import com.example.p10.Fragments.FragmentB

class MainActivity : AppCompatActivity() {
   override fun onCreate(savedInstanceState: Bundle?) {
       super.onCreate(savedInstanceState)
       setContentView(R.layout.activity_main)
       val fragmentA = FragmentA()

supportFragmentManager.beginTransaction().replace(R.id.fragment_container,f
r agmentA).commit()
   }
  override fun fact(editTextData : String)
   {
       val bundle = Bundle()
```

```kotlin
        bundle.putString("message",editTextData)

        val transaction =
        this.supportFragmentManager.beginTransaction() val fragmentB =
        FragmentB()

        fragmentB.arguments = bundle
        transaction.replace(R.id.fragment_container,fragmentB).commit(
    ) }
}
```

Fragment_a.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
 xmlns:android="http://schemas.android.com/apk/res/androi
  d" 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=".Fragments.FragmentB">

    <!-- TODO: Update blank fragment layout -->

    <EditText
        android:id="@+id/input"
        android:layout_width="347dp"
        android:layout_height="59dp"
        android:layout_marginTop="85dp"
        android:ems="10"
        android:hint="Enter Number"
        android:inputType="number"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:layout_editor_absoluteX="32dp" />

    <Button
        android:id="@+id/submit"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/input"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Find Factorial"
        android:textSize="16sp"
        android:textStyle="bold"
        tools:layout_editor_absoluteX="139dp"
        tools:layout_editor_absoluteY="196dp" />

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

AFragment.kt

```kotlin
package com.example.piyush2_10.Fragments

import android.os.Bundle
import androidx.fragment.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.Button
import android.widget.EditText
import com.example.p10.Communicator
import com.example.p10.R

class FragmentA : Fragment() {
    private lateinit var communicator: Communicator
    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        // Inflate the layout for this fragment
        val view = inflater.inflate(R.layout.fragment_a, container,
        false) val btn: Button = view.findViewById(R.id.submit)
        val editText: EditText = view.findViewById(R.id.input)
        communicator = activity as Communicator
        btn.setOnClickListener({
            communicator.fact(editText.text.toString())
        })
        return view
    }
}
```

Fragment_b.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/androi
 d" 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=".Fragments.FragmentB">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:id="@+id/result"
        android:layout_width="197dp"
        android:layout_height="35dp"
        android:layout_marginStart="96dp"
        android:layout_marginTop="204dp"
```

```xml
        android:gravity="center"
        android:text="Answer"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

BFragment.kt

```kotlin
package com.example.piyush2_10.Fragments

import android.os.Bundle
import androidx.fragment.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.TextView
import com.example.p10.R

class FragmentB : Fragment() {
    var output : String ?= ""
    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        // Inflate the layout for this fragment
        val view = inflater.inflate(R.layout.fragment_b, container,
        false) val textView : TextView = view.findViewById(R.id.result)
        output = arguments?.getString("message")
        val num = output!!.toInt()
        var factorial:Long = 1
        for (i in 1..num){
            factorial *= i.toLong()
        }
        textView.text = factorial.toString()
        return view
    }
}
```
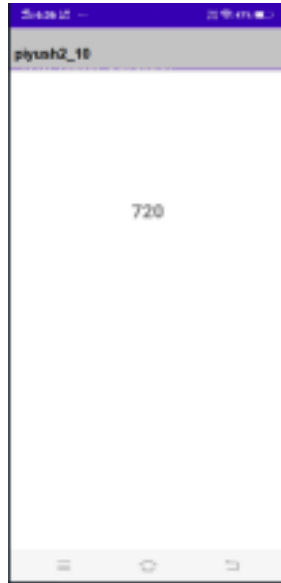
Communicator.kt

```kotlin
package com.example.piyush2_10

interface Communicator {
    fun fact(editTextData : String)
}
```

OutPut:

11.Create an android application in kotlin, to create an options menu, to provide options for changing the background color of the layout. Also provide shortcuts for the menu items. Provide a minimum of 6 color options. Do not use basic colors, like red, blue, green etc..

Option_menu.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/clr1"
        android:icon="@drawable/ic_baseline_circle_24"
        android:title="SkyBlue?"
        />
    <item
        android:id="@+id/clr2"
        android:icon="@drawable/ic_darkred_circle_24"
        android:title="Purple?"
        />
    <item
        android:id="@+id/clr3"
        android:icon="@drawable/ic_olive_circle_24"
        android:title="Olive?"
        />
    <item
        android:id="@+id/clr4"
        android:icon="@drawable/ic_black_circle_24"
        android:title="DarkBlue"
        />
</menu>
```

MainActivity.kt

```kotlin
package com.example.piyush2_11

import android.graphics.Color.parseColor
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.support.constraint.ConstraintLayout
import android.view.Menu
import android.view.MenuItem
import android.widget.Toast

class MainActivity : AppCompatActivity() {
    lateinit var lay:ConstraintLayout
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)


        lay = findViewById<ConstraintLayout>(R.id.layout1)
```

```kotlin
    }


    override fun onCreateOptionsMenu(menu: Menu?): Boolean
        { menuInflater.inflate(R.menu.option_menu, menu)
        return super.onCreateOptionsMenu(menu)


    }


    override fun onOptionsItemSelected(item: MenuItem): Boolean
        { when (item.itemId) {
            R.id.clr1 -> {
                Toast.makeText(this, "sky blue color selected",
Toast.LENGTH_LONG).show()
                lay.setBackgroundColor(parseColor("#39EAE1"))
            }
            R.id.clr2 -> {
                Toast.makeText(this, "Purple color selected",
Toast.LENGTH_LONG).show()
                lay.setBackgroundColor(parseColor("#7D0552"))
            }
            R.id.clr3 -> {
                Toast.makeText(this, "Olive color selected",
Toast.LENGTH_LONG).show()
                lay.setBackgroundColor(parseColor("#808000"))
            }
            R.id.clr4 -> {
                Toast.makeText(this, "DarkBlue color selected",
Toast.LENGTH_LONG).show()
                lay.setBackgroundColor(parseColor("#0002FF"))
            }

            }

        return super.onOptionsItemSelected(item)

    }
}
```

ic_baseline_circle_24.xml

```xml
<vector android:height="24dp" android:tint="#3B3B3B"
    android:viewportHeight="24"
    android:viewportWidth="24" android:width="24dp"
xmlns:android="http://schemas.android.com/apk/res/android
    "> <path android:fillColor="@android:color/white"
android:pathData="M12,2C6.47,2 2,6.47 2,12s4.47,10 10,10
10,-4.47 10,-10S17.53,2 12,2z"/>
</vector>
```

ic_black_circle_24.xml

```xml
<vector android:height="24dp" android:tint="#000000"
    android:viewportHeight="24"
    android:viewportWidth="24" android:width="24dp"
```

```xml
xmlns:android="http://schemas.android.com/apk/res/android">

    <path android:fillColor="@android:color/white"
android:pathData="M12,2C6.47,2 2,6.47 2,12s4.47,10 10,10
10,-4.47 10,-10S17.53,2 12,2z"/>
</vector>
```

ic_darkred_circle_24.xml

```xml
<vector android:height="24dp" android:tint="#570B0B"
    android:viewportHeight="24" android:viewportWidth="24"
    android:width="24dp"
xmlns:android="http://schemas.android.com/apk/res/android
    "> <path android:fillColor="@android:color/white"
android:pathData="M12,2C6.47,2 2,6.47 2,12s4.47,10 10,10
10,-4.47 10,-10S17.53,2 12,2z"/>
</vector>
```

ic_olive_circle_24.xml

```xml
<vector android:height="24dp" android:tint="#808000"
    android:viewportHeight="24" android:viewportWidth="24"
    android:width="24dp"
xmlns:android="http://schemas.android.com/apk/res/android
    "> <path android:fillColor="@android:color/white"
android:pathData="M12,2C6.47,2 2,6.47 2,12s4.47,10 10,10
10,-4.47 10,-10S17.53,2 12,2z"/>
</vector>
```

OutPut:

12.Create an android application to demonstrate, Context & Popup menu

Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:gravity="center"
    android:layout_margin="20dp"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/result1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:rotation="-3"
        android:rotationX="20"
        android:rotationY="23"
        android:text="Context Menu"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/result2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:rotation="3"
        android:rotationX="-5"
        android:rotationY="23"
        android:text="PopUp Menu"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</LinearLayout>
```

MainActivity.kt

```kotlin
package com.example.piyush2_12

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
```

```kotlin
import android.view.ContextMenu

import android.view.MenuInflater
import android.view.MenuItem
import android.view.View
import android.widget.Button
import android.widget.PopupMenu
import android.widget.Toast

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        var result2 = findViewById<Button>(R.id.result2)
        var result1 = findViewById<Button>(R.id.result1)

        result2.setOnClickListener({
            val popupMenu: PopupMenu = PopupMenu(this, result2)
            popupMenu.menuInflater.inflate(R.menu.popupmenu,
            popupMenu.menu) popupMenu.setOnMenuItemClickListener
 (PopupMenu.OnMenuItemClickListener {
                    item ->
                when(item.itemId){
                    R.id.wifi ->{
                        Toast.makeText(applicationContext,"Cricket
Clicked",Toast.LENGTH_LONG).show()
                        true
                    }
                    R.id.mobiledata ->{
                        Toast.makeText(applicationContext,"Volly Ball
Clicked",Toast.LENGTH_LONG).show()
                        true
                    }
                    R.id.hotspot ->{
                        Toast.makeText(applicationContext,"Kho-Kho
Clicked",Toast.LENGTH_LONG).show()
                        true
                    }
                    R.id.vpn ->{
                        Toast.makeText(applicationContext,"Hockey
Clicked",Toast.LENGTH_LONG).show()
                        true
                    }
                    else -> true
                }
            })
            popupMenu.show()
        })
        registerForContextMenu(result1)
        registerForContextMenu(result2)
    }

    override fun onCreateContextMenu(
        menu: ContextMenu?,
```

```kotlin
        v: View?,

        menuInfo: ContextMenu.ContextMenuInfo?
    ) {
        val inflater : MenuInflater = menuInflater
        inflater.inflate(R.menu.menu,menu)
    }


    override fun onContextItemSelected(item: MenuItem): Boolean
        { return when (item.itemId) {
            R.id.soundHaptics -> {
                Toast.makeText(applicationContext, "soundHaptics
selected", Toast.LENGTH_LONG).show()
                return true
            }
            R.id.focus -> {
                Toast.makeText(applicationContext, "focus selected",
Toast.LENGTH_LONG).show()
                return true
            }
            R.id.screentime -> {
                Toast.makeText(applicationContext, "screentime
selected", Toast.LENGTH_LONG).show()
                return true
            }
            R.id.general -> {
                Toast.makeText(applicationContext, "general selected",
Toast.LENGTH_LONG).show()
                return true
            }
            else ->
                return super.onContextItemSelected(item)
        }
    }}
```
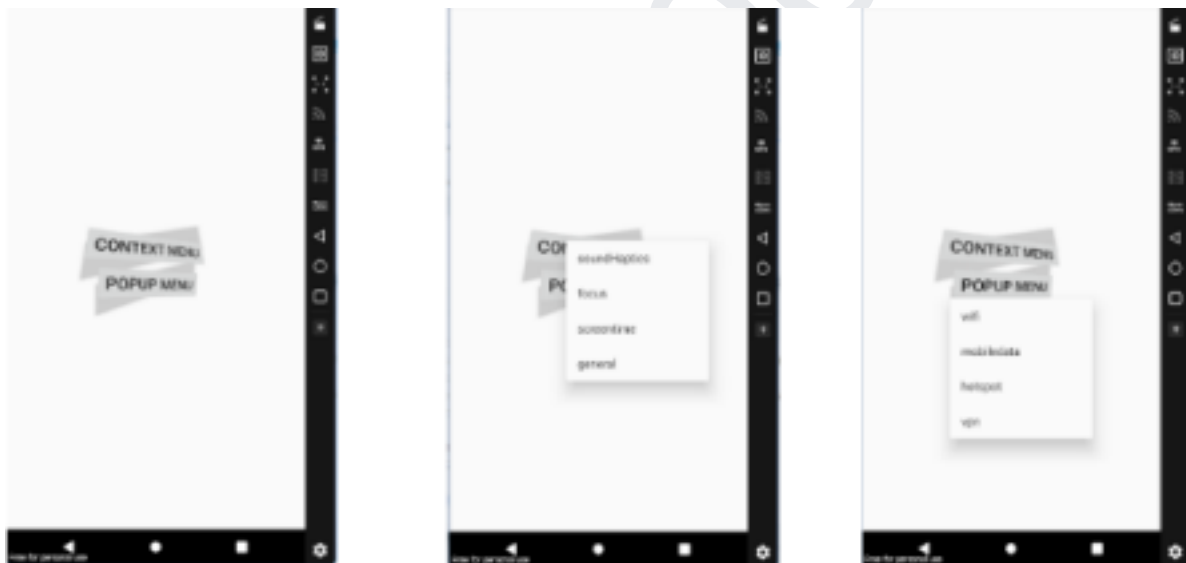
Menu.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/soundHaptics"
        android:title="soundHaptics"/>
    <item
        android:id="@+id/focus"
        android:title="focus"/>
    <item
        android:id="@+id/screentime"
        android:title="screentime"/>
    <item
        android:id="@+id/general"
        android:title="general"/>
</menu>
```

Popupmenu.xml

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

<menu
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/wifi"
        android:title="wifi"/>
    <item
        android:id="@+id/mobiledata"
        android:title="mobiledata"/>
    <item
        android:id="@+id/hotspot"
        android:title="hotspot"/>
    <item
        android:id="@+id/vpn"
        android:title="vpn"/>
</menu>
```

OutPut:

Popupmenu.xml

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

13.Write a Kotlin program in Android to implement different types of Notifications.

Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
 xmlns:android="http://schemas.android.com/apk/res/androi
  d" 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">

    <LinearLayout
        xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:gravity="center"
        android:padding="16dp">

        <Button
            android:id="@+id/notification_button_1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Show Notification 1"/>

        <Button
            android:id="@+id/notification_button_2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Show Notification 2"/>

        <Button
            android:id="@+id/notification_button_3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Show Notification 3"/>

    </LinearLayout>

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

MainActivity.kt

```kotlin
package com.example.piyush2_13

import android.app.NotificationChannel
import android.app.NotificationManager
```

```kotlin
import android.app.PendingIntent

import android.content.Context
import android.content.Intent
import android.graphics.BitmapFactory
import android.os.Build
import android.os.Bundle
import android.support.v4.app.NotificationCompat
import android.support.v7.app.AppCompatActivity
import android.widget.Button


class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        // Buttons
        val notificationButton1 =
findViewById<Button>(R.id.notification_button_1)
        val notificationButton2 =
findViewById<Button>(R.id.notification_button_2)
        val notificationButton3 =
findViewById<Button>(R.id.notification_button_3)

        // Notification channel
        createNotificationChannel()

        // Notification 1
        notificationButton1.setOnClickListener {
            val intent = Intent(this, MainActivity::class.java)
          val pendingIntent = PendingIntent.getActivity(this, 0, intent, 0)

                val builder = NotificationCompat.Builder(this,
           "channel_id") .setSmallIcon(R.drawable.notification_icon)
              .setContentTitle("Notification 1")
            .setContentText("This is a simple notification")
             .setPriority(NotificationCompat.PRIORITY_DEFAULT)
             .setContentIntent(pendingIntent)

          val notificationManager =
          getSystemService(Context.NOTIFICATION_SERVICE) as
 NotificationManager notificationManager.notify(1, builder.build())
        }

        // Notification 2
        notificationButton2.setOnClickListener {
            val intent = Intent(this, MainActivity::class.java)
          val pendingIntent = PendingIntent.getActivity(this, 0, intent, 0)

            val largeIcon = BitmapFactory.decodeResource(resources,
               R.drawable.notification_icon
             )
```

```kotlin
        val builder = NotificationCompat.Builder(this, "channel_id")
            .setSmallIcon(R.drawable.notification_icon)
            .setLargeIcon(largeIcon)
            .setContentTitle("Notification 2")
            .setContentText("This is a notification with a large
            icon") .setPriority(NotificationCompat.PRIORITY_DEFAULT)
            .setContentIntent(pendingIntent)

        val notificationManager =
        getSystemService(Context.NOTIFICATION_SERVICE) as
 NotificationManager notificationManager.notify(2, builder.build())
    }

    // Notification 3
    notificationButton3.setOnClickListener {
        val intent = Intent(this, MainActivity::class.java)
        val pendingIntent = PendingIntent.getActivity(this, 0, intent, 0)

            val builder = NotificationCompat.Builder(this,
        "channel_id") .setSmallIcon(R.drawable.notification_icon)

            .setContentTitle("Notification 3")
           .setContentText("This is a progress notification")
            .setPriority(NotificationCompat.PRIORITY_DEFAULT)
            .setContentIntent(pendingIntent)
            .setProgress(100, 50, false)

        val notificationManager =
        getSystemService(Context.NOTIFICATION_SERVICE) as
 NotificationManager notificationManager.notify(3, builder.build())
    }
}

private fun createNotificationChannel() {
    // Create the NotificationChannel, but only on API 26+ because
// the NotificationChannel class is new and not in the support
library
    if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
        val name = "channel_name"
        val descriptionText = "channel_description"
        val importance = NotificationManager.IMPORTANCE_DEFAULT
        val channel = NotificationChannel("channel_id", name,
importance).apply {
            description = descriptionText
        }
        // Register the channel with the system
        val notificationManager: NotificationManager =
            getSystemService(Context.NOTIFICATION_SERVICE) as
NotificationManager
        notificationManager.createNotificationChannel(channel)
    }
}
}
```

notification_icon.xml

```xml
<layer-list xmlns:android="http://schemas.android.com/apk/res/android">

    <!-- Background circle -->
    <item>
        <shape android:shape="oval">
            <solid android:color="#FF0000" />
        </shape>
    </item>

    <!-- Photo -->
    <item android:drawable="@drawable/gwagon"
        android:gravity="center" />

</layer-list>
```

OutPut: