GUI Components

Aim

Develop an application to change the font and color of the text and display toast message when the user presses the button.

Procedure:

☐ ***Open Android Studio*** *and create a new project by selecting **Empty Views Activity**.*

☐ *Enter the **application name**, select **Kotlin** as the programming language, choose the minimum SDK, and click **Finish**.*

☐ *Open the activity_main.xml file and design the user interface using a* ***LinearLayout**.*

☐ *Add a **TextView** to display the text "Rajalakshmi Engineering College".*

☐ *Add three **Button** components labeled **Change Font Size**, **Change Font Color**, and **Change Background Color**.*

☐ *Set appropriate layout properties such as width, height, margins, text size, and alignment.*

☐ *Open AndroidManifest.xml and ensure that MainActivity is declared as the launcher activity.*

☐ *Open MainActivity.kt and initialize the TextView, Buttons, and Layout using findViewById().*

☐ *Declare Boolean variables to track the changes in font size, font color, and background color.*

☐ *Use setOnClickListener() for each button to perform the following actions:*

- *Change the font size of the text.*
- *Change the font color of the text.*
- *Change the background color of the layout.*

☐ *Display a **Toast message** for each button click to indicate the performed action.*

☐ *Save all the files and click **Build → Rebuild Project** to check for errors.*

☐ *Select an emulator or connect a physical Android device.*

☐ *Click the* ***Run (▸)*** *button to execute the application.*

☐ *Observe the changes in font size, font color, background color, and Toast messages on the screen*

AndroidManifest.xml

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

    <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.Kris_21">
        <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

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/mainLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    android:background="#FFFFFF">

    <TextView
        android:id="@+id/txtCollege"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Rajalakshmi Engineering College"
        android:textSize="20sp"
        android:textStyle="bold"
        android:textAlignment="center"
        android:textColor="#000000"
        android:padding="16dp" />

    <Button
        android:id="@+id/btnFontSize"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Change Font Size"
        android:layout_marginTop="16dp" />

    <Button
        android:id="@+id/btnFontColor"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Change Font Color"
        android:layout_marginTop="8dp" />

    <Button
        android:id="@+id/btnBgColor"
        android:layout_width="match_parent"
```
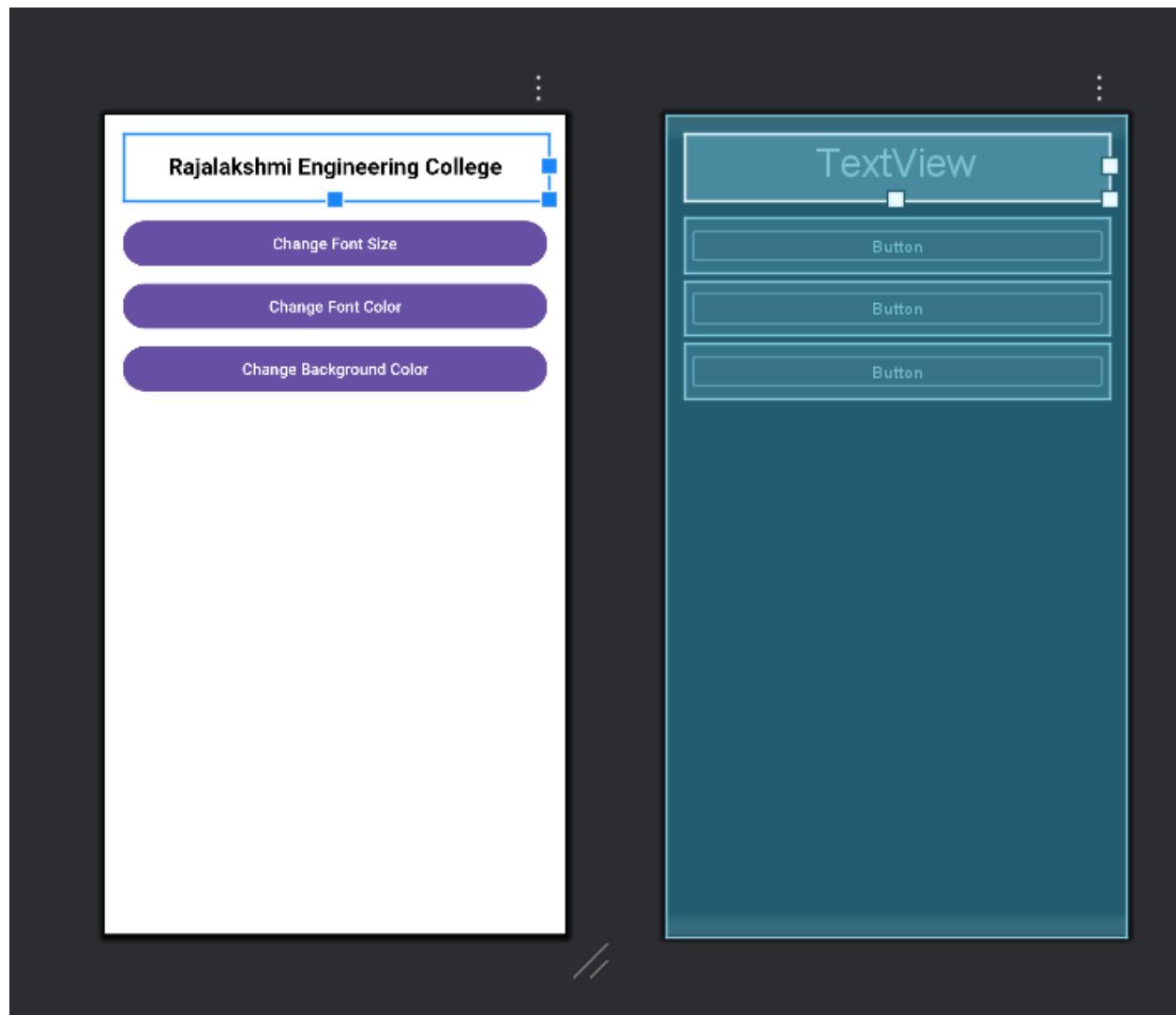
android:layout_height="wrap_content"
android:text="Change Background Color"
android:layout_marginTop="8dp" />

</LinearLayout>

MainActivity.kt

```kotlin
package com.example.kris_21

import android.graphics.Color
import android.os.Bundle
import android.widget.Button
import android.widget.LinearLayout
import android.widget.TextView
import android.widget.Toast
import androidx.appcompat.app.AppCompatActivity

class MainActivity : AppCompatActivity() {

    private var isBigFont = false
    private var isBlueText = false
    private var isBlueBg = false

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

        val txtCollege = findViewById<TextView>(R.id.txtCollege)
        val btnFontSize = findViewById<Button>(R.id.btnFontSize)
        val btnFontColor = findViewById<Button>(R.id.btnFontColor)
        val btnBgColor = findViewById<Button>(R.id.btnBgColor)
        val mainLayout = findViewById<LinearLayout>(R.id.mainLayout)

        // Change Font Size
        btnFontSize.setOnClickListener {
            if (isBigFont) {
                txtCollege.textSize = 20f
                Toast.makeText(this, "Font size reset", Toast.LENGTH_SHORT).show()
            } else {
                txtCollege.textSize = 28f
                Toast.makeText(this, "Font size increased", Toast.LENGTH_SHORT).show()
            }
            isBigFont = !isBigFont
        }

        // Change Font Color
        btnFontColor.setOnClickListener {
```
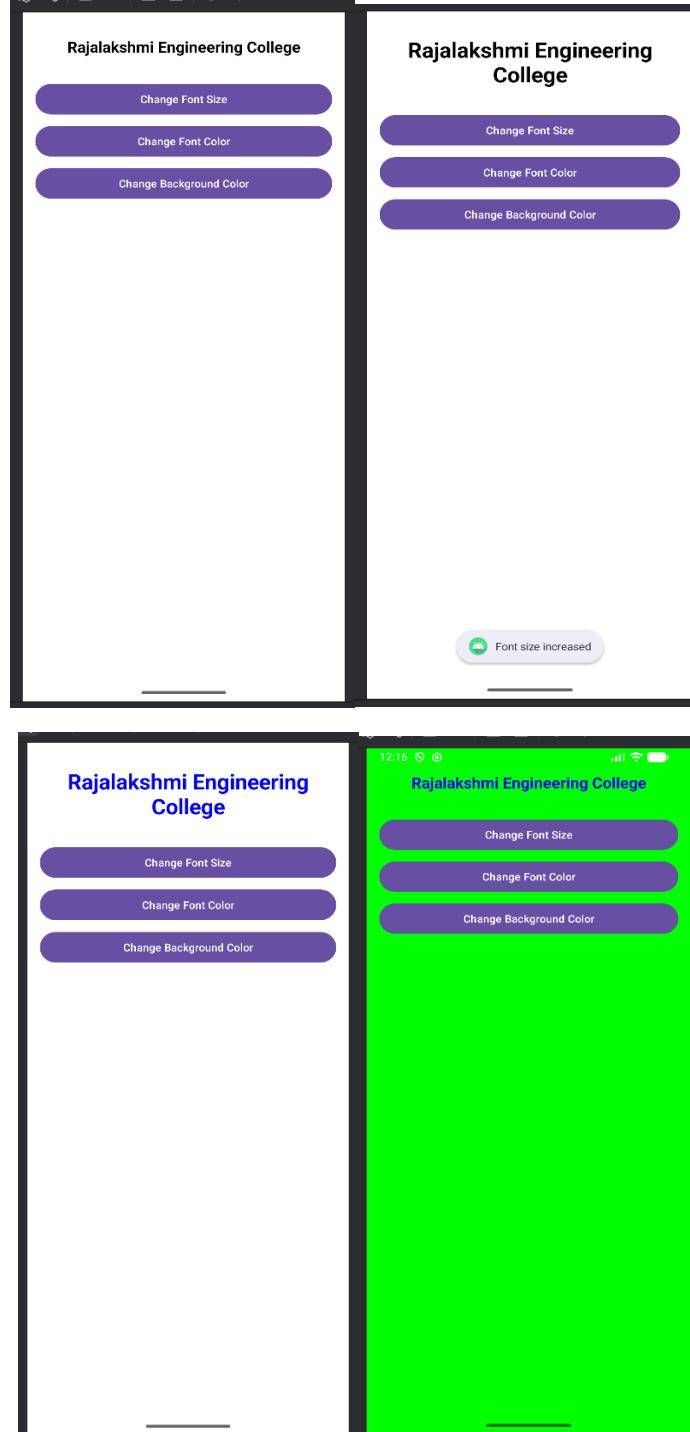
```kotlin
            if (isBlueText) {
                txtCollege.setTextColor(Color.BLACK)
                Toast.makeText(this, "Font color reset", Toast.LENGTH_SHORT).show()
            } else {
                txtCollege.setTextColor(Color.BLUE)
                Toast.makeText(this, "Font color changed", Toast.LENGTH_SHORT).show()
            }
            isBlueText = !isBlueText
        }

        // Change Background Color
        btnBgColor.setOnClickListener {
            if (isBlueBg) {
                mainLayout.setBackgroundColor(Color.WHITE)
                Toast.makeText(this, "Background reset", Toast.LENGTH_SHORT).show()
            } else {
                mainLayout.setBackgroundColor(Color.GREEN)
                Toast.makeText(this, "Background color changed", Toast.LENGTH_SHORT).show()
            }
            isBlueBg = !isBlueBg
        }
    }
}
```

Result:

The Android application was successfully designed, developed, and executed.
On running the application, the text "Rajalakshmi Engineering College" was displayed along with three buttons: Change Font Size, Change Font Color, and Change Background Color.

- When the Change Font Size button was pressed, the font size of the displayed text increased and a Toast message indicating the change was shown.

- When the Change Font Color button was pressed, the color of the text changed and a corresponding Toast message was displayed.

- When the Change Background Color button was pressed, the background color of the application changed and a Toast message confirming the action was displayed.

Thus, the application dynamically modified the text properties and background color based on user interaction and successfully displayed Toast messages for each operation.