

Ex. No. : 01

Date:

Register No. : 221701032

Name : LINGESH VK

GUI Components

Aim

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

Procedure:

Step 1 : File → New Project

Provide the application name and click “Next”.

Step 2 : Select the target Android devices

Select the minimum SDK to run the application. Click “Next”.

Step 3 : Choose the activity for the application

By default, choose “Blank Activity”. Click “Next”.

Step 4 : Enter activity name and click “Finish”.

Step 5 : Edit the program

Design the UI in activity_main.xml and write Kotlin code in

MainActivity.kt

Step 6 : Run the application

Two ways to run the application:

1. Running through emulator
2. Running through mobile device

AndroidManifest.xml:

```
<?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.GUI"
        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:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/rootLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    android:background="#6200EA"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/appTitleTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Text Customization"
        android:textSize="24sp"
        android:textColor="#FFFFFF"
        android:textStyle="bold"
        android:gravity="center"
        android:layout_marginBottom="32dp"/>

    <TextView
        android:id="@+id/collegeNameTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Rajalakshmi Engineering College"
        android:textSize="20sp"
        android:textColor="#FFFFFF"
        android:gravity="center"
        android:padding="16dp"
        android:layout_marginBottom="32dp"/>
```

```

<Button
    android:id="@+id/changeFontSizeButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Change Font Size"
    android:layout_marginBottom="16dp"
    android:backgroundTint="#8A2BE2"/>

<Button
    android:id="@+id/changeFontColorButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Change Font Color"
    android:layout_marginBottom="16dp"
    android:backgroundTint="#8A2BE2"/>

<Button
    android:id="@+id/changeBackgroundButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Change Background Color"
    android:layout_marginBottom="16dp"
    android:backgroundTint="#8A2BE2"/>
</LinearLayout>

```

MainActivity.kt:

```

package com.example.gui

import android.graphics.Color
import android.graphics.Typeface
import android.os.Bundle
import android.view.View

```

```

import android.widget.Button
import android.widget.TextView
import android.widget.Toast
import android.appcompat.app.AppCompatActivity

class MainActivity : AppCompatActivity() {
    private lateinit var collegeNameTextView: TextView
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        collegeNameTextView = findViewById(R.id.collegeNameTextView)
        // Set initial values
        collegeNameTextView.text = "Rajalakshmi Engineering College"
        // Setup buttons
        setupChangeFontSizeButton()
        setupChangeFontColorButton()
        setupChangeBackgroundColorButton()
    }
    private fun setupChangeFontSizeButton() {
        val button = findViewById<Button>(R.id.changeFontSizeButton)
        val fontSizes = arrayOf(16f, 20f, 24f, 28f, 32f)
        var currentIndex = 0
        button.setOnClickListener {
            currentIndex = (currentIndex + 1) % fontSizes.size
            collegeNameTextView.textSize = fontSizes[currentIndex]
            showToast("Font size changed to ${fontSizes[currentIndex]}sp")
        }
    }
    private fun setupChangeFontColorButton() {
        val button = findViewById<Button>(R.id.changeFontColorButton)
        val colors = arrayOf(
            Color.BLACK,

```

```

        Color.RED,
        Color.BLUE,
        Color.GREEN,
        Color.MAGENTA
    )

    val colorNames = arrayOf("Black", "Red", "Blue", "Green", "Magenta")
    var currentIndex = 0

    button.setOnClickListener {
        currentIndex = (currentIndex + 1) % colors.size
        collegeNameTextView.setTextColor(colors[currentIndex])
        showToast("Text color changed to ${colorNames[currentIndex]}")
    }
}

private fun setupChangeBackgroundColorButton() {
    val button = findViewById<Button>(R.id.changeBackgroundButton)
    val colors = arrayOf(
        Color.WHITE,
        Color.LTGRAY,
        Color.CYAN,
        Color.YELLOW,
        Color.parseColor("#3F51B5") // Indigo
    )

    val colorNames = arrayOf("White", "Light Gray", "Cyan", "Yellow", "Indigo")
    var currentIndex = 0

    // Get the root layout
    val rootLayout = findViewById<View>(R.id.rootLayout)
    button.setOnClickListener {
        currentIndex = (currentIndex + 1) % colors.size

        // Change the background color of the entire layout
        rootLayout.setBackgroundColor(colors[currentIndex])

        // Change text colors to ensure readability

```

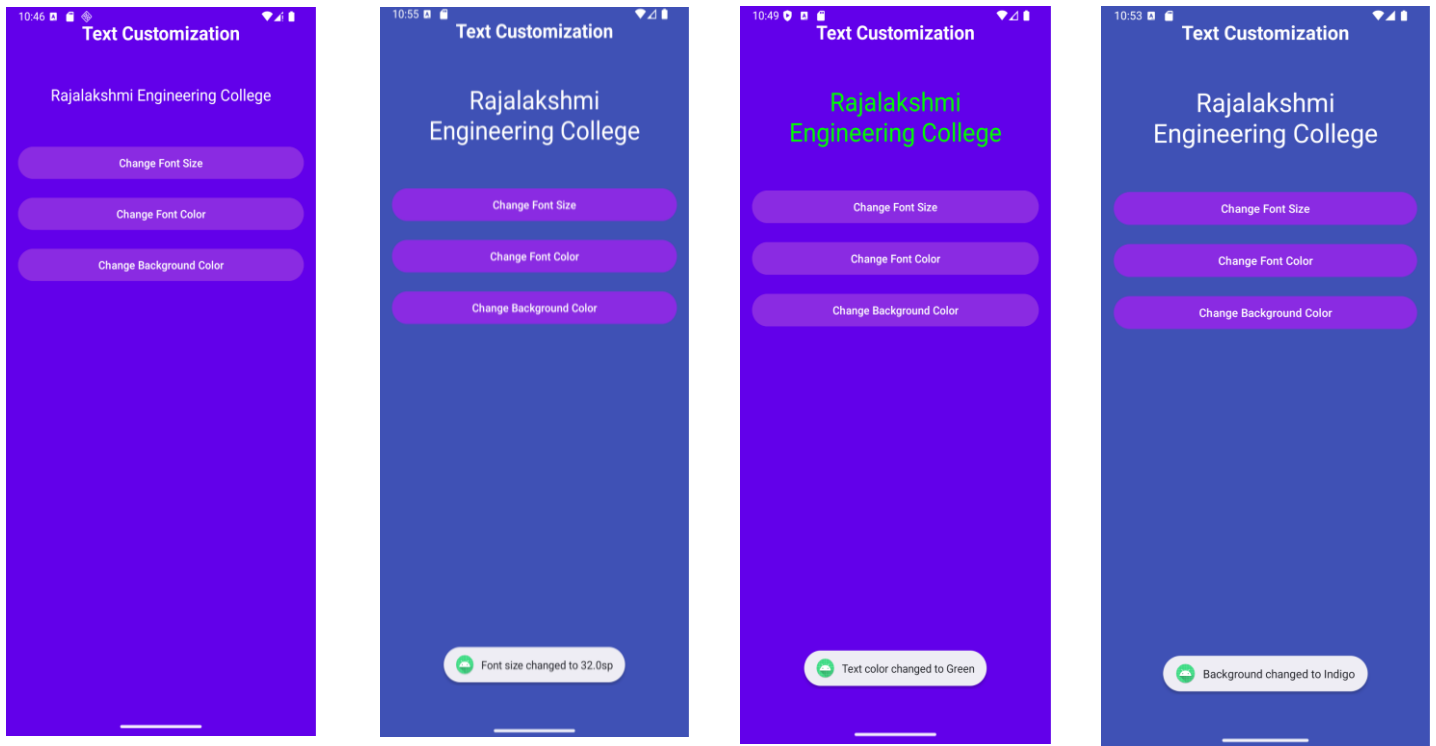
```

        if (colors[currentIndex] == Color.YELLOW || colors[currentIndex] == Color.WHITE || colors[currentIndex]
== Color.LTGRAY) {
            collegeNameTextView.setTextColor(Color.BLACK)
            findViewById<TextView>(R.id.appTitleTextView).setTextColor(Color.BLACK)
        } else {
            collegeNameTextView.setTextColor(Color.WHITE)
            findViewById<TextView>(R.id.appTitleTextView).setTextColor(Color.WHITE)
        }
        showToast("Background changed to ${colorNames[currentIndex]}")
    }
}

private fun showToast(message: String) {
    Toast.makeText(this, message, Toast.LENGTH_SHORT).show()
}
}

```

Output:



Result:

The GUI application successfully displays a user interface and performs the intended functions when run on an emulator or mobile device.