Ex. No. : 01 Date:

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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 \rightarrow 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

And roid Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"</pre>
   xmlns:tools="http://schemas.android.com/tools">
   <application</pre>
       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"</pre>
   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:layout_marginBottom="16dp"
android:backgroundTint="#8A2BE2"/>

<Button
android:id="@+id/changeBackgroundButton"
android:id="@+id/changeBackgroundButton"
android:layout_width="match_parent"
```

```
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() {
```

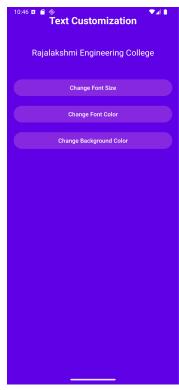
```
val button = findViewById<Button>(R.id.changeFontSizeButton)
    val fontSizes = arrayOf(16f, 20f, 24f, 28f, 32f)
    var currentIndex = 0
    button.setOnClickListener {
        currentIndex = (currentIndex + 1) % fontSizes.size
        collegeNameTextView.textSize = fontSizes[currentIndex]
        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)
           }
```

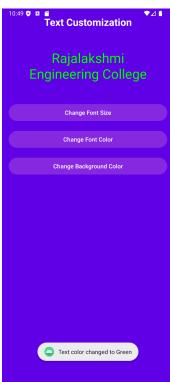
```
showToast("Background changed to ${colorNames[currentIndex]}")
}

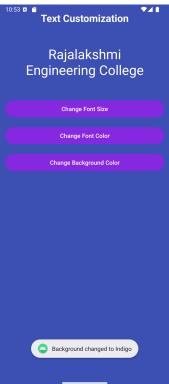
private fun showToast(message: String) {
    Toast.makeText(this, message, Toast.LENGTH_SHORT).show()
}
```

Output









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he GUI application successfully displays a user interface and perform tended functions when run on an emulator or mobile device.	s the