Green University of Bangladesh
Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester:(Spring, Year:2024), B.Sc. in CSE (Day)

Lab Report NO: 07

Course Title: Object-Oriented Programming Lab

Course Code: CSE 202 Section: 223 D9

Lab Experiment Name: Graphical User Interface: Implementing Simple

GUI using AWT and SWING Lab. Manual

Student Details

Name		ID
1.	Promod Chandra Das	231002005

Lab Date :

Submission Date :

Course Teacher's Name : Noyan Ali

Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

TITLE OF THE LAB REPORT EXPERIMENT:-

Graphical User Interface: Implementing Simple GUI using AWT and SWING Lab. Manual

OBJECTIVES/AIM :

- To gather knowledge of graphical user interface.
- • To implement simple GUI using AWT and SWING on lab..

Problem analysis:

For solving real life problem, all should know about the graphical user interface. In this Lab experiment the
main focus will be on GUI. Using GUI and java language, all have to implement different types of desktop based
application. So that, they can feel a little touch on industry.

- Write a program in java to generate calculator using GUI.

```
1 Log:
2 double t=Math.log10(Double.parseDouble(jTextField1.getText()));
3
4 jTextField1.setText("");
5 jTextField1.setText(jTextField1.getText() + t);
6 Sin:
7 double num1=Math.toRadians(Double.parseDouble(jTextField1.getText()));
8 double num2=Math.sin(num1);
9 jTextField1.setText("");
10 jTextField1.setText(jTextField1.getText() + num2);
11 Cos:
12 double num1=Math.toRadians(Double.parseDouble(jTextField1.getText()));
13 double num2=Math.cos(num1);
14 jTextField1.setText("");
15 jTextField1.setText(jTextField1.getText() + num2);
16 Tan:
17 double num1=Math.toRadians(Double.parseDouble(jTextField1.getText()));
18 double num2=Math.tan(num1);
19 jTextField1.setText("");
20 jTextField1.setText(jTextField1.getText() + num2);
21
22 Factorial (x!):
23 double t=Double.parseDouble(jTextField1.getText());
```

```
24
25 double fact=1;
26 while(t!=0){
27
28 fact= fact*t;
29 t−−;
30 }
31 jTextField1.setText("");
32 jTextField1.setText(jTextField1.getText() + fact);
33 Root ([U+FFFD]):
34 double t = Double.parseDouble(String.valueOf(jTextField1.getText()));
35 t = Math.sqrt(t);
36 jTextField1.setText(String.valueOf(t));
37 Square (x2
38 ):
39 double t=Double.parseDouble(jTextField1.getText());
40 t=t*t;
41 jTextField1.setText("");
42 jTextField1.setText(jTextField1.getText() + t);
```

- Lab Exercise (Submit as a report)

• Write a program in java using GUI to design a converter

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class TemperatureConverter extends JFrame {
    private JTextField inputField;
    private JComboBox<String> fromUnit;
    private JComboBox<String> toUnit;
    private JLabel resultLabel;

    public TemperatureConverter() {
        setTitle("Temperature Converter");
        setSize(300, 200);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLayout(new GridLayout(5, 2));

        JLabel inputLabel = new JLabel("Enter Temperature:");
        inputField = new JTextField();
        add(inputLabel);
        add(inputField);

        JLabel fromLabel = new JLabel("From:");
        String[] units = {"Celsius", "Fahrenheit"};
        fromUnit = new JComboBox<>(units);
        add(fromLabel);
        add(fromUnit);
```

```
        JLabel toLabel = new JLabel("To:");
        toUnit = new JComboBox<>(units);
        add(toLabel);
        add(toUnit);

        JButton convertButton = new JButton("Convert");
        resultLabel = new JLabel("Result: ");
        add(convertButton);
        add(resultLabel);

        convertButton.addActionListener(new ConvertAction());

        setVisible(true);
    }

    private class ConvertAction implements ActionListener {
        @Override
        public void actionPerformed(ActionEvent e) {
            try {
                double inputTemp = Double.parseDouble(inputField.getText());
                String from = (String) fromUnit.getSelectedItem();
                String to = (String) toUnit.getSelectedItem();

                double result;
                if (from.equals("Celsius") && to.equals("Fahrenheit")) {
                    result = inputTemp * 9/5 + 32;
                } else if (from.equals("Fahrenheit") && to.equals("Celsius")) {
                    result = (inputTemp - 32) * 5/9;
                } else {
                    result = inputTemp;
                }

                resultLabel.setText("Result: " + result);
            } catch (NumberFormatException ex) {
                resultLabel.setText("Invalid input");
            }
        }
    }

    public static void main(String[] args) {
        new TemperatureConverter();
    }
}
```

➢ Discussion & Conclusion

A calculator has been constructed in this project by using Java object oriented, GUI concept. While designing the calculator's layout, some difficulties were encountered. There was a flaw with the logic of the root function when it was being built. Connecting the equal button to the mathematical operations button took some extra time. Building the logic for the backspace button was the most critical part of running this program. The moment when the application was run properly and all the operations worked correctly, that moment was the most delightful moment during the whole time of making this project. I learned about plenty of java GUI methods, logic, and operations via this application. The aim of this program was to develop a calculator utilizing a Java GUI, which was completed successfully