LAB SHEET 11 – ANSWERS

// simple calculator

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

public class SimpleCalculator extends JFrame implements ActionListener {
    private JTextField firstNumberField;
    private JTextField secondNumberField;
    private JTextField answerField;
    private char operator;

    public SimpleCalculator() {
        setTitle("Simple Calculator");
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLayout(new BorderLayout());

        // Panels
        JPanel topPanel = new JPanel();
        topPanel.setLayout(new GridLayout(3, 2, 10, 10));
        JPanel centerPanel = new JPanel();
        centerPanel.setLayout(new GridLayout(4, 4, 10, 10));
```

```
// Labels and Text Fields
JLabel firstNumberLabel = new JLabel("Enter first number:");
firstNumberField = new JTextField(10);
JLabel secondNumberLabel = new JLabel("Enter second number:");
secondNumberField = new JTextField(10);
JLabel answerLabel = new JLabel("Answer:");
answerField = new JTextField(10);
answerField.setEditable(false);

// Buttons
JButton addButton = createButton("+");
JButton subtractButton = createButton("-");
JButton multiplyButton = createButton("*");
JButton divideButton = createButton("/");
JButton clearButton = createButton("Clear");

// Add components to panels
topPanel.add(firstNumberLabel);
topPanel.add(firstNumberField);
topPanel.add(secondNumberLabel);
topPanel.add(secondNumberField);
topPanel.add(answerLabel);
topPanel.add(answerField);
```

```
    centerPanel.add(addButton);
    centerPanel.add(subtractButton);
    centerPanel.add(multiplyButton);
    centerPanel.add(divideButton);
    centerPanel.add(clearButton);

    // Add panels to frame
    add(topPanel, BorderLayout.NORTH);
    add(centerPanel, BorderLayout.CENTER);

    pack();
    setLocationRelativeTo(null); // Center the frame on the screen
}

private JButton createButton(String label) {
    JButton button = new JButton(label);
    button.setFont(new Font("Arial", Font.PLAIN, 20));
    button.addActionListener(this);
    return button;
}

@Override
public void actionPerformed(ActionEvent e) {
```

```
        String actionCommand = e.getActionCommand();
        if (actionCommand.equals("+") || actionCommand.equals("-") ||
actionCommand.equals("*") ||
                actionCommand.equals("/")) {
            operator = actionCommand.charAt(0);
            calculate();
        } else if (actionCommand.equals("Clear")) {
            clear();
        }
    }

    private void calculate() {
        try {
            double firstNumber = Double.parseDouble(firstNumberField.getText());
            double secondNumber =
Double.parseDouble(secondNumberField.getText());
            double result = 0;
            switch (operator) {
                case '+':
                    result = firstNumber + secondNumber;
                    break;
                case '-':
                    result = firstNumber - secondNumber;
                    break;
                case '*':
```

```
                result = firstNumber * secondNumber;
                break;
            case '/':
                result = firstNumber / secondNumber;
                break;
        }
        answerField.setText(String.valueOf(result));
    } catch (NumberFormatException e) {
        answerField.setText("Error: Invalid input");
    }
}

private void clear() {
    firstNumberField.setText("");
    secondNumberField.setText("");
    answerField.setText("");
    operator = ' ';
}

public static void main(String[] args) {
    SwingUtilities.invokeLater(() -> {
        SimpleCalculator calculator = new SimpleCalculator();
        calculator.setVisible(true);
    });
```

```
    }
}


// IntelliJ IDEA 2023.1
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class ClickCounter extends JFrame implements ActionListener {
    private JButton clickButton;
    private JLabel countLabel;
    private int clickCount;

    public ClickCounter() {
        setTitle("Click Counter");
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        initComponents();
        setSize(300, 150); // Set a larger size for the JFrame
        setLocationRelativeTo(null);
        setVisible(true);
    }
```

```
    private void initComponents() {
        clickCount = 0;
        JPanel panel = new JPanel(new FlowLayout());
        clickButton = new JButton("Click Me!");
        clickButton.addActionListener(this);
        countLabel = new JLabel("Click Count: " + clickCount);
        panel.add(clickButton);
        panel.add(countLabel);
        getContentPane().add(panel);
    }

    public void actionPerformed(ActionEvent e) {
        if (e.getSource() == clickButton) {
            clickCount++;
            countLabel.setText("Click Count: " + clickCount);
        }
    }

    public static void main(String[] args) {
        SwingUtilities.invokeLater(() -> new ClickCounter());
    }
}
```