

연습과제 4_ 1930022 최하원

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

class Calculator extends JFrame implements ActionListener {

    private JLabel jl = new JLabel(" ");
    private String currentInput;
    private double firstNumber;
    private double secondNumber;
    private char operation;

    public Calculator() {
        Container ct = getContentPane();
        ct.setLayout(new GridLayout(3,1));

        JPanel p_del = new JPanel(new GridLayout(1,2));
        JPanel p_btn = new JPanel(new GridLayout(4,4));

        JButton jb_del = new JButton("C");
        JButton jb_back = new JButton("BackSpace");

        JButton jb = new JButton("");
        JButton jb0 = new JButton("0");
        JButton jb1 = new JButton("1");
        JButton jb2 = new JButton("2");
        JButton jb3 = new JButton("3");
        JButton jb4 = new JButton("4");
        JButton jb5 = new JButton("5");
        JButton jb6 = new JButton("6");
        JButton jb7 = new JButton("7");
        JButton jb8 = new JButton("8");
        JButton jb9 = new JButton("9");
        JButton jb_plus = new JButton("+");
        JButton jb_minus = new JButton("-");
        JButton jb_mul = new JButton("*");
        JButton jb_div = new JButton("/");
        JButton jb_eq = new JButton("=");

        p_del.add(jb_del);
        p_del.add(jb_back);

        p_btn.add(jb7);    p_btn.add(jb8);    p_btn.add(jb9);
        p_btn.add(jb_plus);
        p_btn.add(jb4);    p_btn.add(jb5);    p_btn.add(jb6);
        p_btn.add(jb_minus);
        p_btn.add(jb3);    p_btn.add(jb2);    p_btn.add(jb1);
        p_btn.add(jb_mul);
        p_btn.add(jb0);    p_btn.add(jb);    p_btn.add(jb_eq);
        p_btn.add(jb_div);

        ct.add(jl);
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        ct.add(p_del);
        ct.add(p_btn);

        jb0.addActionListener(this);
        jb1.addActionListener(this);
        jb2.addActionListener(this);
        jb3.addActionListener(this);
        jb4.addActionListener(this);
        jb5.addActionListener(this);
        jb6.addActionListener(this);
        jb7.addActionListener(this);
        jb8.addActionListener(this);
        jb9.addActionListener(this);

        // Operation buttons
        jb_plus.addActionListener(this);
        jb_minus.addActionListener(this);
        jb_mul.addActionListener(this);
        jb_div.addActionListener(this);
        jb_eq.addActionListener(this);

        // Other buttons
        jb_del.addActionListener(this);
        jb_back.addActionListener(this);

        setTitle("My Calculator");
        setSize(400, 400);
        setVisible(true);
    }

    public void actionPerformed(ActionEvent ae) {
        String command = ae.getActionCommand();
        double result = 0;
        if (command.equals("C")) { // Clear all values
            j1.setText("");
            firstNumber = 0;
            secondNumber = 0;
            operation = ' ';
        } else if (command.equals("BackSpace")) {
            String currentText = j1.getText();
            if (currentText.length() > 0) {
                j1.setText(currentText.substring(0, currentText.length() -
1));
            }
        } else if (command.equals("0") || command.equals("1")
||command.equals("2") ||
                command.equals("3") ||command.equals("4")
||command.equals("5") ||
                command.equals("6") ||command.equals("7")
||command.equals("8") || command.equals("9")) {
            j1.setText(j1.getText() + command);
        } else if (command.equals("+") || command.equals("-")
||command.equals("*") ||command.equals("/")) {
            if (operation == ' ') {
                firstNumber = Double.parseDouble(j1.getText());

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        operation = command.charAt(0);
        jl.setText("");
    } else { // operation 존재
        secondNumber = Double.parseDouble(jl.getText());
        switch (operation) {
            case '+':
                result = firstNumber + secondNumber;
                break;
            case '-':
                result = firstNumber - secondNumber;
                break;
            case '*':
                result = firstNumber * secondNumber;
                break;
            case '/':
                if (secondNumber != 0) {
                    result = firstNumber / secondNumber;
                } else {
                    jl.setText("Error: Division by zero");
                }
                break;
        }
        firstNumber = Double.parseDouble(jl.getText());
        operation = command.charAt(0);
        jl.setText("");
    }
}

else if (command.equals("=")) {
    if (operation != ' ') {
        secondNumber = Double.parseDouble(jl.getText());
        switch (operation) {
            case '+':
                firstNumber = firstNumber + secondNumber;
                break;
            case '-':
                firstNumber = firstNumber - secondNumber;
                break;
            case '*':
                firstNumber = firstNumber * secondNumber;
                break;
            case '/':
                if (secondNumber != 0) {
                    firstNumber = firstNumber / secondNumber;
                } else {
                    jl.setText("Error: Division by zero");
                    return; // exit early if dividing by zero
                }
                break;
        }
        jl.setText(String.valueOf(firstNumber)); // Display the
result
        operation = ' '; // Reset operation for next calculation
    }
}
}

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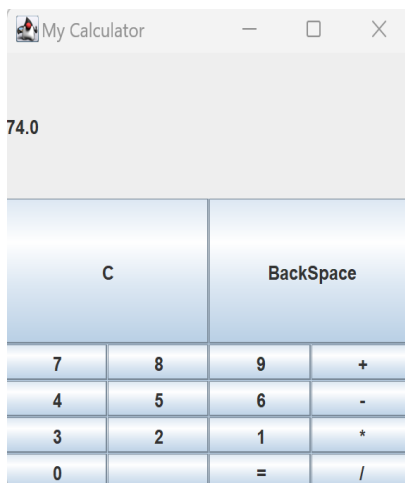
}

public class MyCalculator {
    public static void main(String[] args) {
        new Calculator();
    }
}

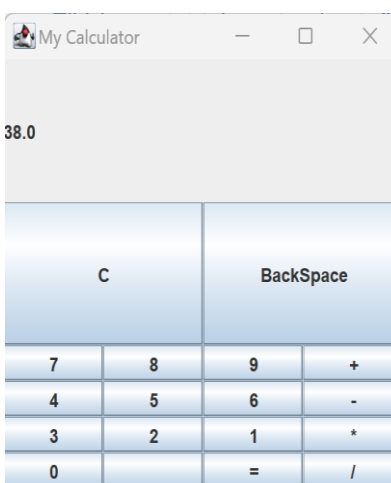
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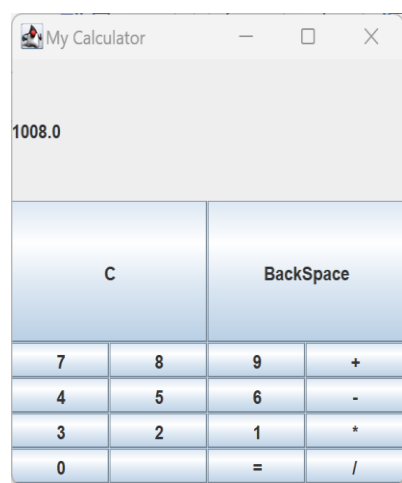
56 + 18 =



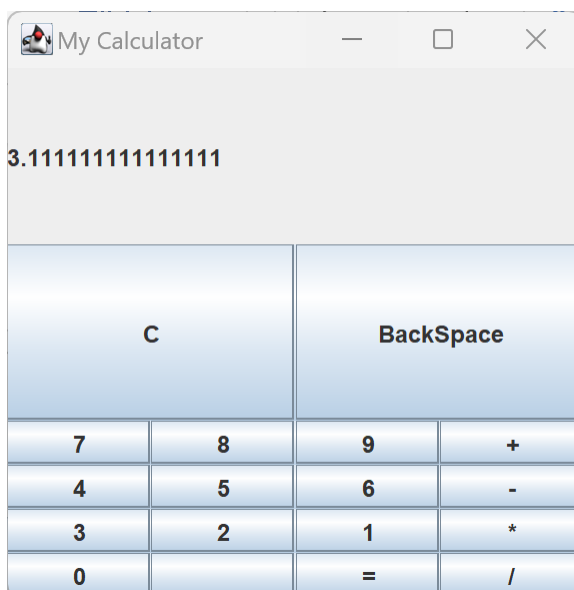
56- 18 =



56*18 =



56/18 =



56/0 =

