

## MINI PROJECT:CALCULATOR

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package calculator;
import javax.swing.*;
import java.awt.event.*;

public class Calculator implements ActionListener{
    static JFrame f;
    static JTextField tx1;
    static JButton b0, b1, b2, b3, b4, b5, b6, b7, b8, b9, bAdd, bSub, bDiv, bMul,
bDot, bClr, bEq;
    String first, second, operator;

    Calculator() {
        first = second = operator = "";
    }
    public static void main(String[] args) {
        f = new JFrame("cal");
        Calculator calculator = new Calculator();
        tx1= new JTextField(16);

        b0 = new JButton("0");
        b1 = new JButton("1");
        b2 = new JButton("2");
        b3 = new JButton("3");
        b4 = new JButton("4");
        b5 = new JButton("5");
        b6 = new JButton("6");
        b7 = new JButton("7");
        b8 = new JButton("8");
        b9 = new JButton("9");

        bEq = new JButton("=");
        bAdd = new JButton("+");
        bSub = new JButton("-");
        bDiv = new JButton("/");
        bMul = new JButton("*");
        bClr = new JButton("C");
        bDot = new JButton(".");

        b0.addActionListener(calculator);
        b1.addActionListener(calculator);
        b2.addActionListener(calculator);
        b3.addActionListener(calculator);
        b4.addActionListener(calculator);
        b5.addActionListener(calculator);
        b6.addActionListener(calculator);
        b7.addActionListener(calculator);
        b8.addActionListener(calculator);
        b9.addActionListener(calculator);

        bEq.addActionListener(calculator);
        bAdd.addActionListener(calculator);
        bSub.addActionListener(calculator);
        bDiv.addActionListener(calculator);
        bMul.addActionListener(calculator);
        bClr.addActionListener(calculator);
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        bDot.addActionListener(calculator);

        JPanel panel = new JPanel();
        panel.add(tx1);
        panel.add(b7);
        panel.add(b8);
        panel.add(b9);
        panel.add(bDiv);
        panel.add(b4);
        panel.add(b5);
        panel.add(b6);
        panel.add(bMul);
        panel.add(b1);
        panel.add(b2);
        panel.add(b3);
        panel.add(bSub);
        panel.add(bDot);
        panel.add(bClr);
        panel.add(b0);
        panel.add(bAdd);
        panel.add(bEq);

        f.add(panel);
        f.setSize(200, 220);
        f.show();
    }

    public void actionPerformed(ActionEvent e) {

        String action = e.getActionCommand();

        if ((action.charAt(0) >= '0' && action.charAt(0) <= '9') ||
action.charAt(0) == '.') {
            if(action.equals(".") && first.contains(".")) {
                // no action
            }
            else if (!operator.equals(""))
                second = second + action;
            else
                first = first + action;

            tx1.setText(first + operator + second);
        }else if (action.charAt(0) == 'C') {
            operator = second = "";
            first = "0";

            tx1.setText(first + operator + second);
        }else if (action.charAt(0) == '=' && !first.equalsIgnoreCase("") &&
!second.equalsIgnoreCase("")) {

            double result;
            if (operator.equals("+"))

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        result = (Double.parseDouble(first) +
Double.parseDouble(second));
        else if (operator.equals("-"))
            result = (Double.parseDouble(first) -
Double.parseDouble(second));
        else if (operator.equals("/"))
            result = (Double.parseDouble(first) /
Double.parseDouble(second));
        else
            result = (Double.parseDouble(first) *
Double.parseDouble(second));

        tx1.setText(first + operator + second + "=" + result);
        first = Double.toString(result);
        operator = second = "";
    } else {
        if (operator.equals("") || second.equals(""))
            operator = action;
        else {
            double result;
            if (operator.equals("+"))
                result = (Double.parseDouble(first) +
Double.parseDouble(second));
            else if (operator.equals("-"))
                result = (Double.parseDouble(first) -
Double.parseDouble(second));
            else if (operator.equals("/"))
                result = (Double.parseDouble(first) /
Double.parseDouble(second));
            else
                result = (Double.parseDouble(first) *
Double.parseDouble(second));
            first = Double.toString(result);
            operator = action;
            second = "";
        }

        if (first.equals("")) {
            first = operator = second = "";
        } else if (second.equals("") && operator.equals("=")) {
            operator = "";
        }
        tx1.setText(first + operator + second);
    }
}
}

```

# OUTPUT:

