

```
// CalcView.java - View component
//   Presentation only. No user actions. No direct interaction with model.
// Fred Swartz -- December 2004
// Paolo Bucci -- November 2009 (modified)

import java.awt.FlowLayout;
import java.awt.event.ActionListener;

import javax.swing.JButton;
import javax.swing.JLabel;
import javax.swing.JOptionPane;
import javax.swing.JPanel;
import javax.swing.JTextField;

public class CalcView extends JPanel {

    //... Components
    private JTextField m_userInputTf = new JTextField(5);
    private JTextField m_totalTf     = new JTextField(20);
    private JButton    m_multiplyBtn = new JButton("Multiply");
    private JButton    m_clearBtn    = new JButton("Clear");

    //===== constructor
    /** Constructor */
    public CalcView() {

        //... Initialize components
        m_totalTf.setEditable(false);

        //... Layout the components.
        setLayout(new FlowLayout());
        add(new JLabel("Input"));
        add(m_userInputTf);
        add(m_multiplyBtn);
        add(new JLabel("Total"));
        add(m_totalTf);
        add(m_clearBtn);

        //   setVisible(true);
    }

    String getUserInput() {
        return m_userInputTf.getText();
    }

    void setTotal(String newTotal) {
        m_totalTf.setText(newTotal);
    }

    void showError(String errorMessage) {
        JOptionPane.showMessageDialog(this, errorMessage);
    }

    void addMultiplyListener(ActionListener mal) {
        m_multiplyBtn.addActionListener(mal);
    }

    void addClearListener(ActionListener cal) {
        m_clearBtn.addActionListener(cal);
    }
}
```