/\*

 \* @(#)JCalculator.java 1.00 12/29/2009

 \*

 \* Email: light\_warm@163.com

 \*/

**import** java.awt.\*;

**import** java.awt.event.\*;

**import** javax.swing.\*;

/\*\*

 \* A simple calculator program.

 \* <p>I saw this program in a QQ group, and help a friend correct it.</p>

 \*

 \* **@author** Singyuen Yip

 \* **@version** 1.00 12/29/2009

 \* **@see** JFrame

 \* **@see** ActionListener

 \*/

**public** **class** JCalculator **extends** JFrame **implements** ActionListener {

    /\*\*

     \* Serial Version UID

     \*/

**private** **static** **final** **long** *serialVersionUID* = -169068472193786457L;

    /\*\*

     \* This class help close the Window.

     \* **@author** Singyuen Yip

     \*

     \*/

**private** **class** WindowCloser **extends** WindowAdapter {

**public** **void** windowClosing(WindowEvent we) {

           System.*exit*(0);

       }

    }

**int** i;

    // Strings for Digit & Operator buttons.

**private** **final** String[] str = { "7", "8", "9", "/", "4", "5", "6", "\*","1",

           "2", "3", "-", ".", "0", "=", "+" };

    // Build buttons.

    JButton[] buttons = **new** JButton[str.length];

    // For cancel or reset.

    JButton reset = **new** JButton("CE");

    // Build the text field to show the result.

    JTextField display = **new** JTextField("0");

    /\*\*

     \* Constructor without parameters.

     \*/

**public** JCalculator() {

**super**("Calculator");

       // Add a panel.

       JPanel panel1 = **new** JPanel(**new** GridLayout(4, 4));

       // panel1.setLayout(new GridLayout(4,4));

**for** (i = 0; i < str.length; i++) {

           buttons[i] = **new** JButton(str[i]);

           panel1.add(buttons[i]);

       }

       JPanel panel2 = **new** JPanel(**new** BorderLayout());

       // panel2.setLayout(new BorderLayout());

       panel2.add("Center", display);

       panel2.add("East", reset);

       // JPanel panel3 = new Panel();

       getContentPane().setLayout(**new** BorderLayout());

       getContentPane().add("North", panel2);

       getContentPane().add("Center", panel1);

       // Add action listener for each digit & operator button.

**for** (i = 0; i < str.length; i++)

           buttons[i].addActionListener(**this**);

       // Add listener for "reset" button.

       reset.addActionListener(**this**);

       // Add listener for "display" button.

       display.addActionListener(**this**);

       // The "close" button "X".

       addWindowListener(**new** WindowCloser());

       // Initialize the window size.

       setSize(800, 800);

       // Show the window.

       // show(); Using show() while JDK version is below 1.5.

       setVisible(**true**);

       // Fit the certain size.

       pack();

    }

**public** **void** actionPerformed(ActionEvent e) {

       Object target = e.getSource();

       String label = e.getActionCommand();

**if** (target == reset)

           handleReset();

**else** **if** ("0123456789.".indexOf(label) > 0)

           handleNumber(label);

**else**

           handleOperator(label);

    }

    // Is the first digit pressed?

**boolean** isFirstDigit = **true**;

    /\*\*

     \* Number handling.

     \* **@param** key the key of the button.

     \*/

**public** **void** handleNumber(String key) {

**if** (isFirstDigit)

           display.setText(key);

**else** **if** ((key.equals(".")) && (display.getText().indexOf(".") < 0))

           display.setText(display.getText() + ".");

**else** **if** (!key.equals("."))

           display.setText(display.getText() + key);

       isFirstDigit = **false**;

    }

    /\*\*

     \* Reset the calculator.

     \*/

**public** **void** handleReset() {

       display.setText("0");

       isFirstDigit = **true**;

       operator = "=";

    }

**double** number = 0.0;

    String operator = "=";

    /\*\*

     \* Handling the operation.

     \* **@param** key pressed operator's key.

     \*/

**public** **void** handleOperator(String key) {

**if** (operator.equals("+"))

           number += Double.*valueOf*(display.getText());

**else** **if** (operator.equals("-"))

           number -= Double.*valueOf*(display.getText());

**else** **if** (operator.equals("\*"))

           number \*= Double.*valueOf*(display.getText());

**else** **if** (operator.equals("/"))

           number /= Double.*valueOf*(display.getText());

**else** **if** (operator.equals("="))

           number = Double.*valueOf*(display.getText());

       display.setText(String.*valueOf*(number));

       operator = key;

       isFirstDigit = **true**;

    }

**public** **static** **void** main(String[] args) {

**new** JCalculator();

    }

}