



Java Institute for Advanced Technology

UNIT NAME: SOFTWARE APPLICATION DEVELOPMENT

UNIT ID: H7E1 04

ASSIGNMENT ID: H7E1 04/AS/01

NAME: M.R.P.N.THARUKSHA RAJAPAKSHA

STUDENT ID: 2019/2020/CO/SE/I2/029

SCN NO: 207977608

NIC: 200019401866

BRANCH: JAVA INSTITUTE, COLOMBO

PROJECT FILE:

<https://drive.google.com/drive/folders/1NRhdST28FNXFG5QZhNVbogPdwNA6QZPe?usp=sharing>



Contents

| | |
|-------------------|----|
| Code | 3 |
| Screenshots | 13 |

Code

```
import java.awt.Color;

import java.awt.Font;

import java.awt.GridLayout;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import javax.swing.JButton;

import javax.swing.JFrame;

import javax.swing.JMenu;

import javax.swing.JMenuBar;

import javax.swing.JMenuItem;

import javax.swing.JPanel;

import javax.swing.JTextField;

/*

 * To change this license header, choose License Headers in Project Properties.

 * To change this template file, choose Tools | Templates

 * and open the template in the editor.

 */

/**

 *

 * @author EZIO AUDITORY

 */

public class Calculator implements ActionListener {

    JFrame calFrame;

    JPanel calPanel, calButtonsPanel;

    JMenuBar calMenuBar;
```

```

JMenu view, edit, help;
JMenuItem helpItem1, helpItem2;
JTextField calTextField;
JButton[] calButtons = new JButton[30];

double number1 = 0, number2 = 0, result = 0;
char operator;
String zeroText = "0";

Font font1 = new Font("Tahoma", 000000, 24);
Font font2 = new Font("Tahoma", 000000, 18);

public Calculator() {
    components();
}

private void components() {
    calFrame = new JFrame("Calculator");
    calFrame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    calFrame.setBounds(750, 250, 460, 500);
    calFrame.setLayout(null);

    calPanel = new JPanel();
    calPanel.setBounds(0, 0, 460, 500);
    calPanel.setLayout(null);

    calMenuBar = new JMenuBar();
    calMenuBar.setBounds(0, 0, 460, 25);

```

```
view = new JMenu("View");
calMenuBar.add(view);

edit = new JMenu("Edit");
calMenuBar.add(edit);

help = new JMenu("Help");
helpItem1 = new JMenuItem("View Help F1");
help.add(helpItem1);
helpItem2 = new JMenuItem("About Calculator");
help.add(helpItem2);
calMenuBar.add(help);

calPanel.add(calMenuBar);

calTextField = new JTextField();
calTextField.setBounds(60, 50, 320, 50);
calTextField.setFont(font1);
calTextField.setEditable(false);
calTextField.setText(zeroText);
calPanel.add(calTextField);

for (int i = 0; i < 30; i++) {
    calButtons[i] = new JButton();
    calButtons[i].addActionListener(this);
    calButtons[i].setFocusable(false);
    calButtons[i].setFont(font2);
}
```

```
calButtons[0].setText("MC");
calButtons[1].setText("MR");
calButtons[2].setText("MS");
calButtons[3].setText("M+");
calButtons[4].setText("M-");
calButtons[5].setText("<--");
calButtons[6].setText("CE");
calButtons[7].setText("C");
calButtons[8].setText("+/-");
calButtons[9].setText("SQRT");
calButtons[10].setText("7");
calButtons[11].setText("8");
calButtons[12].setText("9");
calButtons[13].setText("/");
calButtons[14].setText("%");
calButtons[15].setText("4");
calButtons[16].setText("5");
calButtons[17].setText("6");
calButtons[18].setText("*");
calButtons[19].setText("1/X");
calButtons[20].setText("1");
calButtons[21].setText("2");
calButtons[22].setText("3");
calButtons[23].setText("-");
calButtons[24].setText("=");
calButtons[25].setText("0");
calButtons[26].setText(" ");
calButtons[27].setText(".");
calButtons[28].setText("+");
```

```

calButtons[29].setText("Back");

calButtonsPanel = new JPanel();
calButtonsPanel.setBounds(10, 120, 420, 320);
calButtonsPanel.setLayout(new GridLayout(6, 5, 2, 2));

for (int i = 0; i < 30; i++) {
    calButtonsPanel.add(calButtons[i]);
}

calPanel.add(calButtonsPanel);
calFrame.add(calPanel);
calFrame.setVisible(true);
}

public static void main(String[] args) {
    Calculator cal = new Calculator();
}

@Override
public void actionPerformed(ActionEvent e) {

    if (zeroText == "0") {
        calTextField.setText("");
        zeroText = "";
    }

    // CE Button
    if (e.getSource() == calButtons[6]) {

```

```

        calTextField.setText("");
    }

    // C Button
    if (e.getSource() == calButtons[7]) {
        calTextField.setText("");
        number1 = 0;
        number2 = 0;
        result = 0;
    }

    // +/- Button
    if (e.getSource() == calButtons[8]) {
        double value = Double.parseDouble(calTextField.getText());
        value *= -1;
        calTextField.setText(String.valueOf(value));
    }

    // SQRT Button
    if (e.getSource() == calButtons[9]) {
        number1 = Double.parseDouble(calTextField.getText());
        result = Math.sqrt(number1);
        calTextField.setText(String.valueOf(result));
    }

    // 7 Button
    if (e.getSource() == calButtons[10]) {
        calTextField.setText(calTextField.getText().concat("7"));
    }

    // 8 Button
    if (e.getSource() == calButtons[11]) {
        calTextField.setText(calTextField.getText().concat("8"));
    }

```



```

// 9 Button
if (e.getSource() == calButtons[12]) {
    calTextField.setText(calTextField.getText().concat("9"));
}

// / Button
if (e.getSource() == calButtons[13]) {
    number1 = Double.parseDouble(calTextField.getText());
    operator = '/';
    calTextField.setText("");
}

// % Button
if (e.getSource() == calButtons[14]) {
    number2 = Double.parseDouble(calTextField.getText());
    result = number2 / 100;
    calTextField.setText(String.valueOf(result));
}

// 4 Button
if (e.getSource() == calButtons[15]) {
    calTextField.setText(calTextField.getText().concat("4"));
}

// 5 Button
if (e.getSource() == calButtons[16]) {
    calTextField.setText(calTextField.getText().concat("5"));
}

// 6 Button
if (e.getSource() == calButtons[17]) {
    calTextField.setText(calTextField.getText().concat("6"));
}

// * Button

```

```

if (e.getSource() == calButtons[18]) {
    number1 = Double.parseDouble(calTextField.getText());
    operator = '*';
    calTextField.setText("");
}

// 1/X Button
if (e.getSource() == calButtons[19]) {
    number1 = Double.parseDouble(calTextField.getText());
    result = 1 / number1;
    calTextField.setText(String.valueOf(result));
}

// 1 Button
if (e.getSource() == calButtons[20]) {
    calTextField.setText(calTextField.getText().concat("1"));
}

// 2 Button
if (e.getSource() == calButtons[21]) {
    calTextField.setText(calTextField.getText().concat("2"));
}

// 3 Button
if (e.getSource() == calButtons[22]) {
    calTextField.setText(calTextField.getText().concat("3"));
}

// - Button
if (e.getSource() == calButtons[23]) {
    number1 = Double.parseDouble(calTextField.getText());
    operator = '-';
    calTextField.setText("");
}

```

```

// = Button
if (e.getSource() == calButtons[24]) {
    number2 = Double.parseDouble(calTextField.getText());

    switch (operator) {
        case '+':
            result = number1 + number2;
            break;
        case '-':
            result = number1 - number2;
            break;
        case '/':
            result = number1 / number2;
            break;
        case '*':
            result = number1 * number2;
            break;
    }
    calTextField.setText(String.valueOf(result));
    number1 = result;
}

// 0 Button
if (e.getSource() == calButtons[25]) {
    calTextField.setText(calTextField.getText().concat("0"));
}

// . Button
if (e.getSource() == calButtons[27]) {
    calTextField.setText(calTextField.getText().concat("."));
}

```

```
// + Button
if (e.getSource() == calButtons[28]) {
    number1 = Double.parseDouble(calTextField.getText());
    operator = '+';
    calTextField.setText("");
}

// Back Button
if (e.getSource() == calButtons[29]) {
    String value = calTextField.getText();
    calTextField.setText("");
    for (int i = 0; i < value.length() - 1; i++) {
        calTextField.setText(calTextField.getText() + value.charAt(i));
    }
}
}
```

Screenshots





