

```
1  /*
2
3  Jared Dyreson
4  CWID: 889546529
5  CustomJFrame.java -> Calculator application using JFrame
6
7  */
8
9  import javax.swing.*;
10 import java.text.MessageFormat;
11 import java.awt.*;
12 import javax.swing.JFrame;
13 import java.awt.event.*;
14 import java.lang.Math;
15
16 public class CustomJFrame extends JFrame implements ActionListener{
17
18     // suppress an annoying pop-up information -> https://stackoverflow.com/questions/7823477/warning-serial-serializable-class-someclass-has-no-definition-of-serialversi
19     o
20     private static final long serialVersionUID = 12996;
21     final int FRAME_WIDTH = 300, FRAME_HEIGHT = 300;
22
23     // labels used in the program
24     JLabel display_result, padding, top_padding, program_title;
25
26     // buttons
27     JButton addition_button, subtraction_button, multiplication_button, division_button;
28
29     JTextField number_one, number_two;
30
31     public CustomJFrame(){
32         // classes with inheritance must include this FIRST
33         super("Calculator Application");
34
35         // set up values for the frame
36         setSize(FRAME_WIDTH, FRAME_HEIGHT);
37         setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
38         setLocationRelativeTo(null);
39         setLayout(new FlowLayout());
40
41         // various elements that will be displayed in the GUI
42
43         number_one = new JTextField(12);
44         number_two = new JTextField(12);
45
46         addition_button = new JButton("+");
47         subtraction_button = new JButton("-");
48         multiplication_button = new JButton("*");
49         division_button = new JButton("/");
50
51         addition_button.addActionListener(this);
52
53         subtraction_button.addActionListener(this);
54         multiplication_button.addActionListener(this);
55         division_button.addActionListener(this);
56
57         multiplication_button.setToolTipText("Press Enter for pow 2");
58         division_button.setToolTipText("Press Enter for sqrt");
59
60         display_result = new JLabel("<+>", SwingConstants.CENTER);
61         display_result.setFont(new Font("Times New Roman", Font.BOLD, 20));
62         padding = new JLabel(" ");
63         top_padding = new JLabel(" ");
64
65         program_title = new JLabel("      Shifting Bits", SwingConstants.CENTER);
66         program_title.setFont(new Font("Times New Roman", Font.BOLD, 20));
67
68         // add all the elements to the frame
69         add(program_title);
70         add(top_padding);
71         add(number_one);
72         add(number_two);
73         add(addition_button);
74         add(subtraction_button);
75         add(multiplication_button);
76         add(division_button);
77         // allows for alignment of the result in the frame
78         add(padding);
79         add(display_result);
80
81     }
82
83     // allows us to have an event map to a listener
84     @Override
85     public void actionPerformed(ActionEvent event){
86
87         Integer number_one_read = 0, number_two_read = 0;
88         Object source = event.getSource();
89
90         try{
91             number_one_read = Integer.valueOf(number_one.getText());
92         }
93         catch(NumberFormatException error){
94             number_one_read = 0;
95         }
96
97         try{
98             number_two_read = Integer.valueOf(number_two.getText());
99         }
100        catch(NumberFormatException error){
101            number_two_read = 0;
102        }
103
104        // noice
105        String calculated_value = "69";
106
107        // addition
108        if(source == addition_button){
109            calculated_value = String.valueOf(number_one_read + number_two_read);
110        }
111        // subtraction
112        else if(source == subtraction_button){
113            calculated_value = String.valueOf(number_one_read - number_two_read);
114        }
115        // multiplication
116        else if(source == multiplication_button){
117            // implementing square function (first element)
118            if(number_two_read == 0){ calculated_value = String.valueOf(Math.pow(number_one_read, 2)); }
119            else{ calculated_value = String.valueOf(number_one_read * number_two_read); }
120        }
121        else if(source == division_button){
122            // try to divide each element. if we get 0/0 , we will just do the square root of the first element
123            try{
124                calculated_value = String.valueOf(number_one_read / number_two_read);
125            }
126            catch(ArithmeticException error){
127                calculated_value = String.valueOf(Math.sqrt(number_one_read));
128            }
129        }
130        // update the new message and it the label is going to bounce around a little because we're using hardcoded spaces to try and center a label
131        display_result.setText("    " + calculated_value);
132    }
133 }
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Bot

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1  /*
2
3  Jared Dyreson
4  CWID: 889546529
5  Driver.java -> Billboard Program for Small Businesses
6
7  */
8
9  import java.util.Scanner;
10
11 public class Driver {
12     public static void main(String[] args){
13         // Auto generated with caffeine and ntp.service
14         CustomJFrame f = new CustomJFrame();
15         f.setVisible(true);
16     }
17 }
18
```

