```java
import javax.swing.*;
import java.awt.*;


@SuppressWarnings("serial")
public class CalculatorFunctions extends JPanel
{
    private JTextField number1TextField;
    private JTextField number2TextField;
    private JLabel solutionLabel;

    public CalculatorFunctions()
    {
        super(new GridLayout(3,2));
        number1TextField = new JTextField(10);
        number2TextField = new JTextField(10);
        solutionLabel = new JLabel();

        add(new JLabel("Number 1:"));
        add(number1TextField);
        add(new JLabel("Number 2:"));
        add(number2TextField);
        add(new JLabel("Solution:"));
        add(solutionLabel);
    }

    public void add()
    {
        int number1 = Integer.parseInt(number1TextField.getText());
        int number2 = Integer.parseInt(number2TextField.getText());
        int solution = number1 + number2;

        solutionLabel.setText("" + solution);
    }

    public void subtract()
    {
        int number1 = Integer.parseInt(number1TextField.getText());
        int number2 = Integer.parseInt(number2TextField.getText());
        int solution = number1 - number2;

```

```
42          solutionLabel.setText("" + solution);
43      }
44
45      public void multiply()
46      {
47          int number1 = Integer.parseInt(number1TextField.getText());
48          int number2 = Integer.parseInt(number2TextField.getText());
49          int solution = number1 * number2;
50
51          solutionLabel.setText("" + solution);
52      }
53
54      public void divide()
55      {
56          int number1 = Integer.parseInt(number1TextField.getText());
57          int number2 = Integer.parseInt(number2TextField.getText());
58          double solution = (double) number1 / number2;
59
60          solutionLabel.setText("" + solution);
61      }
62
63      public void mod()
64      {
65          int number1 = Integer.parseInt(number1TextField.getText());
66          int number2 = Integer.parseInt(number2TextField.getText());
67          int solution = number1%number2;
68
69          solutionLabel.setText("" + solution);
70      }
71
72      public void power()
73      {
74          int number1 = Integer.parseInt(number1TextField.getText());
75          int number2 = Integer.parseInt(number2TextField.getText());
76          double solution = Math.pow(number1, number2);
77
78          solutionLabel.setText("" + solution);
79      }
80
81      public void squareRoot()
82      {
```

```
83          int number1 = Integer.parseInt(number1TextField.getText());
84          double solution = Math.sqrt(number1);
85
86          solutionLabel.setText("" + solution);
87      }
88
89      public void log()
90      {
91          int number1 = Integer.parseInt(number1TextField.getText());
92          int number2 = Integer.parseInt(number2TextField.getText());
93          double solution = Math.log(number1)/Math.log(number2);
94
95          solutionLabel.setText("" + solution);
96      }
97
98      public void ln()
99      {
100         int number1 = Integer.parseInt(number1TextField.getText());
101         double solution = Math.log(number1);
102
103         solutionLabel.setText("" + solution);
104     }
105
106     public void sin()
107     {
108         int number1 = Integer.parseInt(number1TextField.getText());
109         double solution = (double) Math.sin(number1);
110
111         solutionLabel.setText("" + solution);
112     }
113
114     public void cos()
115     {
116         int number1 = Integer.parseInt(number1TextField.getText());
117         double solution = (double) Math.cos(number1);
118
119         solutionLabel.setText("" + solution);
120     }
121
122     public void tan()
123     {
```

```
124         int number1 = Integer.parseInt(number1TextField.getText());
125         double solution = (double) Math.tan(number1);
126 
127         solutionLabel.setText("" + solution);
128     }
129 
130     public void cot()
131     {
132         int number1 = Integer.parseInt(number1TextField.getText());
133         double solution = (double) 1/Math.tan(number1);
134 
135         solutionLabel.setText("" + solution);
136     }
137 
138     public void sec()
139     {
140         int number1 = Integer.parseInt(number1TextField.getText());
141         double solution = (double) 1/Math.cos(number1);
142 
143         solutionLabel.setText("" + solution);
144     }
145 
146     public void csc()
147     {
148         int number1 = Integer.parseInt(number1TextField.getText());
149         double solution = (double) 1/Math.sin(number1);
150 
151         solutionLabel.setText("" + solution);
152     }
153 
154     public static long factorialCalculation(int n)
155     {
156         if(n < 0)
157             return (Long) null;
158         if(n == 0)
159             return (long) 1;
160         if(n > 0)
161             return n*factorialCalculation(n-1);
162         return 1;
163     }
164 
```

```
165     public void factorial()
166     {
167         int number1 = Integer.parseInt(number1TextField.getText());
168         long solution = factorialCalculation(number1);
169 
170         solutionLabel.setText("" + solution);
171 
172     }
173 
174     public void nPr()
175     {
176         int number1 = Integer.parseInt(number1TextField.getText());
177         int number2 = Integer.parseInt(number2TextField.getText());
178         long solution = factorialCalculation(number1)/
    factorialCalculation(number1 - number2);
179 
180         solutionLabel.setText("" + solution);
181     }
182 
183     public void nCr()
184     {
185         int number1 = Integer.parseInt(number1TextField.getText());
186         int number2 = Integer.parseInt(number2TextField.getText());
187         long solution = factorialCalculation(number1)/
    (factorialCalculation(number1 - number2)*factorialCalculation
    (number2));
188 
189         solutionLabel.setText("" + solution);
190     }
191 
192 
193 }
194 
```