Class Panel03 - Unit 03 Lab03


```
1  import javax.swing.*;
2  import java.awt.*;
3  import java.awt.event.*;
4  /**
5   * JPanel for Lab03: Hailstone Numbers. Creates a label, a textField,
6   * 3 buttons labeled Set, Next, and Quit. Allows the user to find the
7   * hailstone numbers. Each button has a tailor-made ActionListener.
8   *
9   * @author Josh Ibad
10  * @author James Park
11  * @version 17 November 2017
12  * @teacher Coglianese
13  * @period 2
14  */
15 public class Panel03 extends JPanel
16 {
17     private JLabel label1, label2;
18     private JTextField box;
19     private int number, count;
20     /**
21      * Constructs the JPanel with a FlowLayout, containing a JLabel,
22      * a JTextField, and 3 JButtons labeled Set, Next, and Quit,
23      * each button is given a listener in order to fulfill their
24      * respective functions. Another label is added, displaying the
25      * number of iterations of hailstone number algorithms was used
26      * to obtain the number being displayed.
27      */
28     public Panel03()
29     {
30         setLayout(new FlowLayout());
31 
32         label1 = new JLabel("37");
33         label1.setFont(new Font("Serif", Font.BOLD, 100));
34         label1.setForeground(Color.blue);
35         add(label1);
36 
37         JPanel panel = new JPanel();
38         panel.setLayout(new FlowLayout());
39         add(panel);
40 
41         box = new JTextField("37", 5);
42         box.setHorizontalAlignment(SwingConstants.RIGHT);
43         panel.add(box);
44 
45         JButton button1 = new JButton("Set");
46         button1.addActionListener(new Listener1());
47         panel.add(button1);
48 
49         JButton button2 = new JButton("Next");
```

```
50          button2.addActionListener(new Listener2());
51          panel.add(button2);
52
53          JButton button3 = new JButton("Quit");
54          button3.addActionListener(new Listener3());
55          panel.add(button3);
56
57          label2 = new JLabel("Iterations: 0");
58          add(label2);
59      }
60
61      /**
62       * Handles actions for the Set button. Sets the number in the
63       * textField as the number to be displayed by the label. Resets
64       * the iteration count.
65       */
66      private class Listener1 implements ActionListener
67      {
68          /**
69           * Sets the number in the textField as the number to be
70           * displayed by the label.
71           *
72           * param e      ActionEvent, that is, the clicking of the
73           *              button by the user.
74           */
75          public void actionPerformed(ActionEvent e)
76          {
77              label1.setText(box.getText());
78              label2.setText("Iterations: 0");
79          }
80      }
81      /**
82       * Handles actions for the Next button. Generates the next
83       * number in the hailstone numbers and increases displayed
84       * iteration count.
85       */
86      private class Listener2 implements ActionListener
87      {
88          /**
89           * Generates the next number of the hailstone numbers and
90           * displays it. Increases iteration count.
91           *
92           * param e      ActionEvent, that is, the clicking of the
93           *              button by the user.
94           */
95          public void actionPerformed(ActionEvent e)
96          {
97              int x = Integer.parseInt(label1.getText());
98              if(x%2 == 0)
```

```
99              {
100                 label1.setText("" + x/2);
101             }
102             else
103             {
104                 label1.setText("" + (x*3 + 1));
105             }
106             label2.setText("Iterations: " + (Integer.parseInt(label2.getT
    ext().substring(12)) + 1));
107         }
108     }
109     /**
110      * Handles actions for the Quit button. Quits the program.
111      */
112     private class Listener3 implements ActionListener
113     {
114         /**
115          * Terminates the Java Virtual Machine, effectively closing
116          * the program.
117          *
118          * param e      ActionEvent, that is, the clicking of the
119          *              button by the user.
120          */
121         public void actionPerformed(ActionEvent e)
122         {
123             System.exit(0);
124         }
125     }
126 }
```