

```
1 import components.naturalnumber.NaturalNumber;
2 import
  components.naturalnumber.NaturalNumber1L;
3 import components.simplewriter.SimpleWriter;
4 import components.simplewriter.SimpleWriter1L;
5
6 /**
7  * Simple HelloWorld program (clear of
  Checkstyle and FindBugs warnings).
8  *
9  * @author Sam Espanioly
10 */
11 public final class hw10 {
12
13     /**
14      * Default constructor--private to prevent
  instantiation.
15      */
16     private hw10() {
17         // no code needed here
18     }
19
20     /**
21      * Swaps the two given {@code
  NaturalNumber}s.
22      *
23      * @param n1
24      *                the first {@code
  NaturalNumber}
25      * @param n2
26      *                the second {@code
```

```
NaturalNumber}
27     * @updates n1
28     * @updates n2
29     * @ensures n1 = #n2 and n2 = #n1
30     */
31     private static void swapNN(NaturalNumber
    n1, NaturalNumber n2) {
32         NaturalNumber temp = new
    NaturalNumber1L(n1);
33         n1.copyFrom(n2);
34         n2.copyFrom(temp);
35     }
36
37     /**
38     * Swaps the two given {@code
    NaturalNumber}s.
39     *
40     * @param n1
41     *           the first {@code
    NaturalNumber}
42     * @param n2
43     *           the second {@code
    NaturalNumber}
44     * @updates n1
45     * @updates n2
46     * @ensures n1 = #n2 and n2 = #n1
47     */
48     private static void swapNN2(NaturalNumber
    n1, NaturalNumber n2) {
49         NaturalNumber temp = new
    NaturalNumber1L(n1);
```

```
50         n1.transferFrom(n2);
51         n2.transferFrom(temp);
52     }
53
54     /**
55      * Squares a given {@code NaturalNumber}.
56      *
57      * @param n
58      *         the number to square
59      * @updates n
60      * @ensures n = #n * #n
61      */
62     private static void square(NaturalNumber n)
63     {
64         NaturalNumber temp = new
65         NaturalNumber1L(n);
66         n.multiply(temp);
67     }
68
69     /**
70      * Main method.
71      *
72      * @param args
73      *         the command line arguments;
74      *         unused here
75      */
76     public static void main(String[] args) {
77         SimpleWriter out = new
78         SimpleWriter1L();
79         out.println("Hello World!");
80     }
```

```
77         NaturalNumber n1 = new
    NaturalNumber1L(5);
78         NaturalNumber n2 = new
    NaturalNumber1L(75);
79         swapNN(n1,n2);
80         out.println(n1);
81         out.println(n2);
82         swapNN2(n1,n2);
83         out.println(n1);
84         out.println(n2);
85         square(n1);
86         out.println(n1);
87         out.close();
88
89     }
90
91 }
92
```