

```
1 import components.simplereader.SimpleReader;
5
6 /**
7  * Put a short phrase describing the program here.
8  *
9  * @author Put your name here
10 *
11 */
12 public final class Newton1 {
13
14     /**
15      * Private constructor so this utility class cannot be
16      instantiated.
17      */
18     private Newton1() {
19
20     }
21
22     /**
23      * Computes estimate of square root of x to within relative
24      error 0.01%.
25      *
26      * @param x
27      *         positive number to compute square root of
28      * @return estimate of square root
29      */
30     private static double sqrt(double x) {
31         double guess = x;
32         double error = .0001;
33         while (Math.abs(guess * guess - x) / x > error * error) {
34             guess = (guess + x / guess) / 2;
35         }
36         return guess;
37     }
38
39     /**
40      * Main method.
41      *
42      * @param args
43      *         the command line arguments
44      */
45     public static void main(String[] args) {
46         SimpleReader in = new SimpleReader1L();
47         SimpleWriter out = new SimpleWriter1L();
48     }
```

```
46      String answer;
47      do {
48          out.println("Enter number to calculate square root of:
49          ");
50          double number = in.nextDouble();
51          double sqrtOfNum = sqrt(number);
52          out.println("Square root of " + number + " is " +
53          sqrtOfNum);
54          out.println("Do you wish to calculate square root?[y/
55          n]: ");
56          answer = in.nextLine();
57      } while (answer.equals("y"));
58      in.close();
59      out.close();
60  }
61
```