```java
import components.simplereader.SimpleReader;

/**
 * Creates square roots from input.
 *
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 *
 */
public final class Newton2 {

    /**
     * Private constructor so this utility class cannot be instantiated.
     */
    private Newton2() {
    }

    /**
     * Computes estimate of square root of x to within relative error 0.01%.
     *
     * @param x
     *            positive number or zero to compute square root of
     * @return estimate of square root
     */
    private static double sqrt(double x) {

        double r = x;
        double epsilon = 0.0001;

        if (x != 0) {
            while (!(Math.abs(r * r - x) / x < epsilon * epsilon)) {
                r = (r + x / r) / 2;
            }
        } else {
            r = 0;
        }
        return r;
    }

    /**
     * Main method.
     *
     * @param args
     *            the command line arguments
     */
    public static void main(String[] args) {
        SimpleReader in = new SimpleReader1L();
        SimpleWriter out = new SimpleWriter1L();
        /*
         * Put your main program code here; it may call sqrt as shown
         */
        double input;

        out.println("If you would like to calculate a square root, enter y");
        String repeat = in.nextLine();

        while (repeat.equals("y")) {
            out.print("Enter a positive decimal point number:");
```

```
61              input = in.nextDouble();
62
63              out.println("The squared root of " + input + " is: " + sqrt(input));
64
65              out.println(
66                      "If you would like to calculate another square root, enter y");
67              repeat = in.nextLine();
68          }
69
70          /*
71           * Close input and output streams
72           */
73          in.close();
74          out.close();
75      }
76
77  }
78
```