Java Software Development

Homework 4

Problem Description

- The Babylonian algorithm to compute the square root of a positive number n is as follows:
  - Make a guess at the answer (you can pick n/2 as your initial guess).
  - Compute r = n / guess.
  - Set guess = (guess + r) / 2.
  - Go back to step 2 until the last two guess values are within 1% of each other
- Write a program that inputs a `double` for n, iterates through the Babylonian algorithm until the guess is within 1% of the previous guess, and outputs the answer as a `double` to two decimal places.
- Your answer should be removed extra zeros and be accurate even for large values of n.

Sample Input and Output

Keyboard Input	25
Output	5

Keyboard Input	100
Output	10

Keyboard Input	102
Output	10.1

Keyboard Input	200
Output	14.14

Submission

- Please archive your source code to `STUDENT_ID.zip` (download the example zip file from Moodle) and upload to Moodle before deadline.
- Your zip file should follow the following format.
  - `STUDENT_ID.zip`

    ```
    |- src
    |- META-INF
    |    |- MANIFEST.MF
    ```

  - All the source files (*.java) are put in the src directory.
  - The entry point (i.e. main class) of the program is specified in the MANIFEST.MF file.
- No late submission is accepted.