Homework 8

Deadline: 2015/05/22 09:00

Shin-Jie Lee（李信杰）
Assistant Professor
Computer and Network Center
Department of Computer Science and Information Engineering
National Cheng Kung University

Problem Description

- Write a program that solves quadratic equation.
- The program takes its input from a text file of strings representing numbers of type `double`.
  - The input file is given from the program argument `args[0]`.
  - The numbers will be in the range of type `double`.
- Each line in the file contains three numbers representing the coefficients *a*, *b* and *c* of a quadratic equation of the form:

$$ax^2 + bx + c = 0$$

- The roots of such an equation can be found using the formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Problem Description

- Your program should output the message exactly in the format:
  - If the roots are real:
    - `(root1, root2)`
      - $root_1 \geq root_2$
      - Round the results to five decimal places
  - If the roots are imaginary:
    - `Roots are imaginary`
- Write the output to a text file.
  - The file name is given from the program argument `args[1]`.

Sample Input and Output

Input	1 -7 10 3 6 3 13 14 15 9.76 -17.3 -6.8132
Output	(5.00000, 2.00000) (-1.00000, -1.00000) Roots are imaginary (2.10428, -0.33174)

Scoring Criteria

- Correctness: 80%
  - There will be 8 test cases. (Each for 10%)
- Coding standards: 20%
- Plagiarism is strictly forbidden

Submission

- Please upload your source code to Moodle
- The file name should be `{STUDENT_ID}_hw8.java`
- Deadline: 2015/05/22 09:00
- No late submission is accepted

If you have any problem about this homework,
please email to: OpenXavierX@gmail.com（林孝融）

Useful APIs

- java.io.BufferedWriter
- java.util.Scanner
- java.lang.Math