Programming assignment

April 11, 2017

1 Problem

Solve **Minimal network** problem (Project Euler 107) `https://projecteuler.net/problem=107`.

2 General guidelines

Your solution should apply following guidelines:

1. Implement your solution in *Java*.
2. Try to make your algorithm *tail recursive* if possible.
3. Try to implement your solution using *functional programming paradigm* as much as possible.
4. Implement your code using general coding best practices.
5. Document crucial parts of your code.
6. Implement unit tests for crucial parts of your code.
7. Log important information in the file using existing logging framework.
8. Handle *all* exeptions and errors in your code and resolve them gracefully.

3 Report

3.1 Code

Commit your complete source code to a public *git* repository and send the link to us. Your repository should follow usual structure of the Java code repositories.

3.2 Paper

Write a short paper following these technical guidelines:

1. Your paper must have **maximum** of 2 pages.
2. Paper has to be written in English.

3. Font of the text has to be *12pt*.
4. Ideally, paper will be writen in LaTeX.
5. If you used external resources, provide proper referencing. Use existing reference style (f.e. Harvard).
6. Try to achieve maximum readability of your report.

Your paper should include following content:

1. Complexity of your algorithm (using *Big O notation*).
2. Provide your opinion concerning spatial complexity of your algorithm.
3. Explain *briefly* main parts of your algorithm.
4. Explain your solution (final result of the problem as formulated in Project Euler).
5. Conclusion - what parts of the algorithm you could improve and how; also how you could improve your code implementation.

4 Assignment rules

1. Try to implement your solution independently. Of course, you can consult existing solutions on the web, but *make sure* to understand completely what you are doing.
2. Delivery date of your solution (git repo URL + report) is 2 weeks from the date on which you are given this assignment.
3. If you have questions, please ask.
4. After we receive your solution, you will be notified when the next interview will be organized.