Deadline: 02/01/2018 24:00

Requirements:

If you do not have any JAVA coding knowledge and experience, you can read Part A. Otherwise, you can look at part B.

Scores: 10, extra scores are added only if you did not get the full scores.

Part A:

1. Watch the video and **write the same code** according to the video instructions. This is trying to help you understand the Objective-oriented programming language. You need to submit ".java" files.(4 scores)

https://www.youtube.com/watch?v=0NPR8GFHNmE

2. Read the book "First head java" from page 27-48. **Submit your notes** for what you read. You can draw some pictures while reading it or code to understand. **There is no standard for the notes.** (Suggestions: You can read the book based on your own reading speed. I suggest that you can finish the book in one or two days to get a general understanding of this language before do coding practice)(**2 scores. If you show me that you read more than the requirements, you will get an extra 2 scores)**
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3.coding practice: submit in ".java" files. (2 scores)

Given an array of integers, return indices of the two numbers such that they add up to a specific target.
You may assume that each input would have exactly one solution, and you may not use the same element twice.
Example:

Given nums = [2, 7, 11, 15], target = 9,

Because nums[0] + nums[1] = 2 + 7 = 9,
return [0, 1].

Part B:

Please pay attention to basic algorithm knowledge. It is vital to learn the differences between distinctive approaches for one problem. This may be helpful for your interviews.

1. **What is time complexity and space complexity? Explain them in the pages/word "Assignment 2".(2 scores)**

2. **What is the time complexity and space complexity of the code you wrote (question 3). Paste your code and explain them for each line in the pages/word "Assignment 2".(2 scores)**

3.coding practice: submit in ".java" files.
Given an array of integers, return indices of the two numbers such that they add up to a specific target.
You may assume that each input would have exactly one solution, and you may not use the same element twice. **Use at least two methods. (4 scores)**

Example:

Given nums = [2, 7, 11, 15], target = 9,

Because nums[0] + nums[1] = 2 + 7 = 9,
return [0, 1].

Given a 2d grid map of '1's (land) and '0's (water), count the number of islands. An island is surrounded by water and is formed by connecting adjacent lands horizontally or vertically. You may assume all four edges of the grid are all surrounded by water.
(**2 scores, If you successfully complete it using two methods, you will get an extra 2 scores. Hints: one boolean matrix or one int matrix)**

Example 1:
11110
11010
11000
00000
Answer: 1
Example 2:
11000
11000
00100
00011

Answer: 3