CSE2010
Introduction to Data Structures

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Fall 2015

Who am I?

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Who is your Teaching Assistant?

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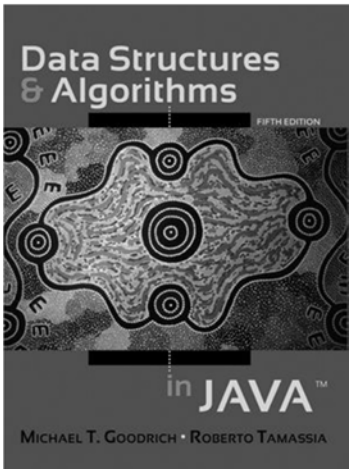
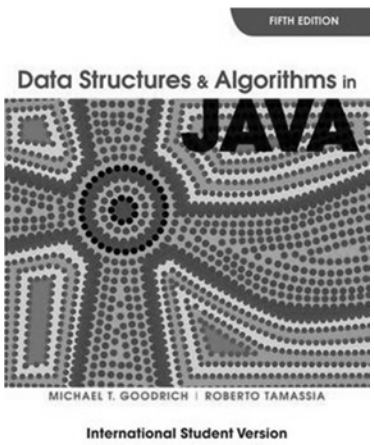
Mobile: 010-9903-6558

Textbook

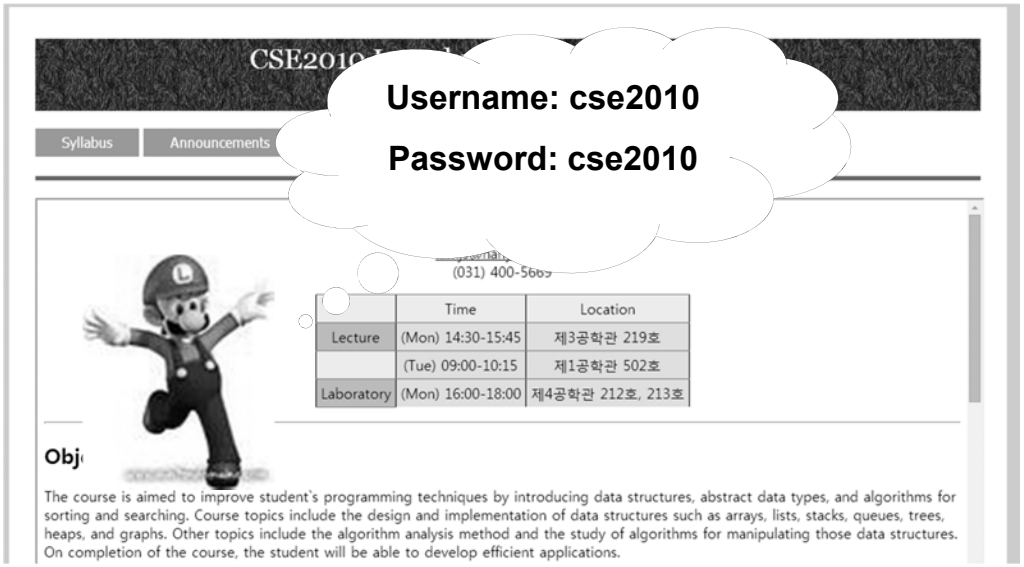
- *Data Structures and Algorithms in Java*, 5th ed., Michael Goodrich & Roberto Tamassia, John Wiley & Sons, 2011.





Class Website

http://veenker.hanyang.ac.kr/~jskim/cse2010.html



Assumptions and Prerequisites

- Basic knowledge of programming
- Some mathematical backgrounds
- Experience with the basics of Java language
- You must participate in the labs., which is mandatory.

Grading (Tentative)

Midterm Exam: 35%

Final Exam 50%

HWs & Labs: 10%

Cheating?

Course Topics

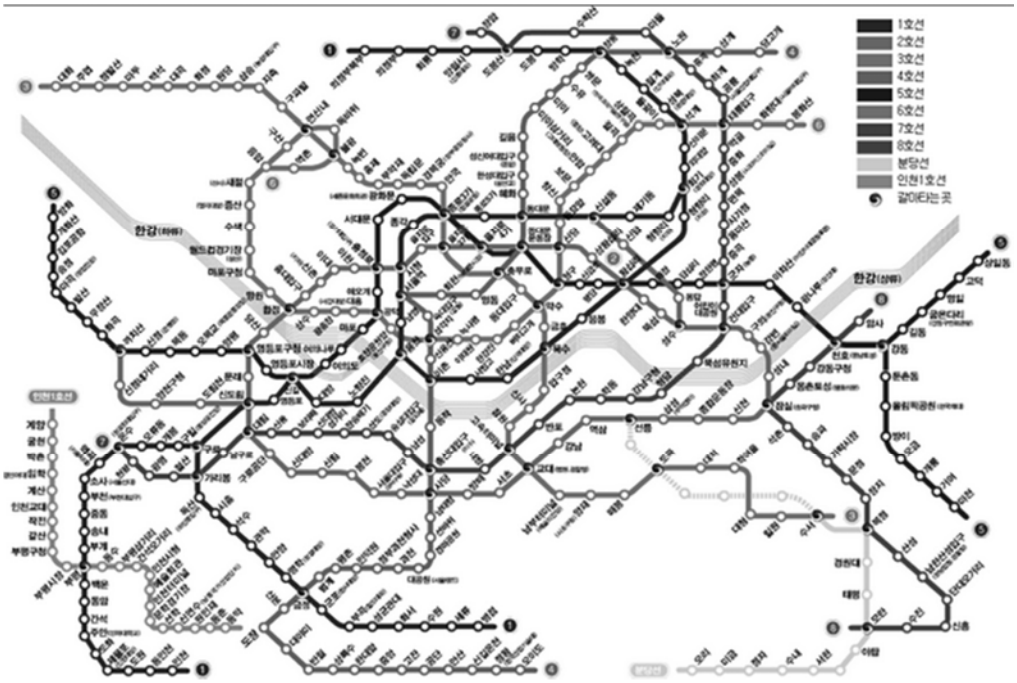
- Nicklaus Wirth:
  - (Creator of PASCAL Language)

Programs = Data Structures + Algorithms

- Data structures
  - Systematic organization of data in memory
- Algorithms
  - Finite sequence of steps to accomplish a particular task in a finite amount of time


F12


민호,윤호네 家系圖
아버지(이순자) 70세
한방병원 원장
어머니(나문희)
68세/주부
이혼
며느리(박해미)
45세/한의사
큰 아들(이준호)
43세/전업주식투자자
작은 아들(이민우)
27세/계속고시
며느리(신지)
26세/CM송가수
큰 손자(이민호)
7세/그 1
작은 손자(이윤호)
16세/그 1
민용의 아들(이준)
1세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한강(상류)

Data Structures and Algorithms

- A well-designed data structure allows a variety of critical operations to be performed, using as few resources, both execution time and memory space, as possible.
- Different kinds of data structures are suited to different kinds of applications.
- Certain key tasks have algorithms that work best with particular data structures.
- Since data structures are so crucial, many of them are included in standard libraries of modern programming languages and environments, such as C++'s Standard Template Library (STL) containers, the Java Collections Framework, and the Microsoft .NET Framework.

Therefore, you will learn ….

- How to organize data?
  - Which operations are needed (Some more frequent than others)?
  - Commonly used data structures such as
    - Implementation dependent: array, linked-list
    - Implementation independent: stack, queue, tree, heap, graph, etc.
- Algorithm analysis
  - Theoretical study of algorithm performance and resource usage (Time complexity *vs.* space complexity)
  - How do we compare two solutions?
  - How will an algorithm behave (or scale) with the size of the input?
- Algorithm design
  - Sorting, searching, finding shortest paths, etc.

Q & A