dongguk UNIVERSITY

CSE 2017 Data Structure

Lecture #0: Orientation

Eun Man Choi

Welcome!

- Introduce myself
- Introduce to Data Structure and Course
- Expected learners
  - Already have programming skills
  - Want to improve their design(data+algorithm) and programming skills
- You ☺

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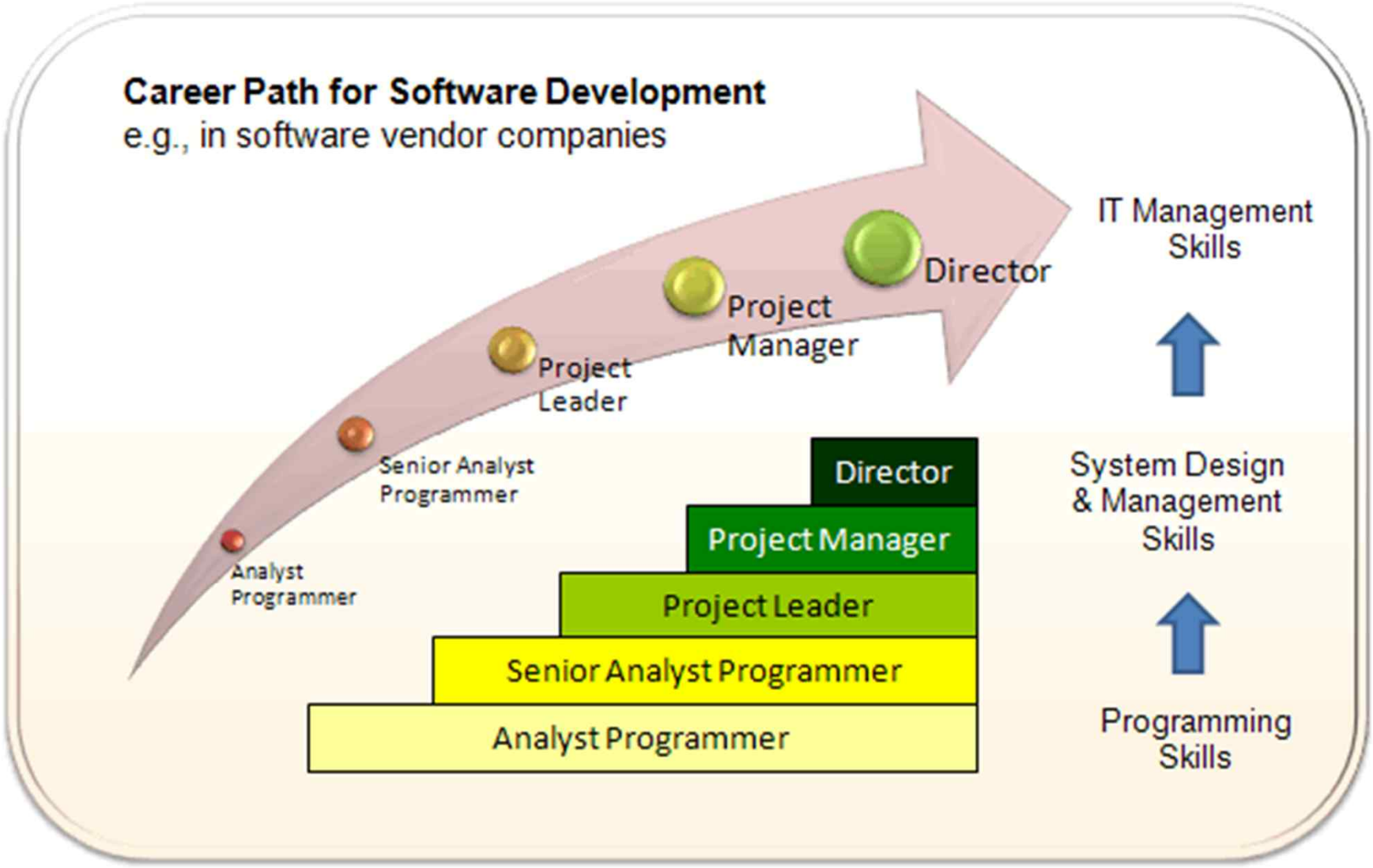
Introduce your self in English

- My name is ooo
- What is a reason/purpose for taking this course?
  What do you expect to learn from this course?
- Explain your best experience of developing programming.
  - "I did make a program about ..... "
  - "I have experience of developing a system with size of ..... LOC(Lines of code)."
  - "I'm frequently used ..... programming language."

Road Map to be a Software Engineer

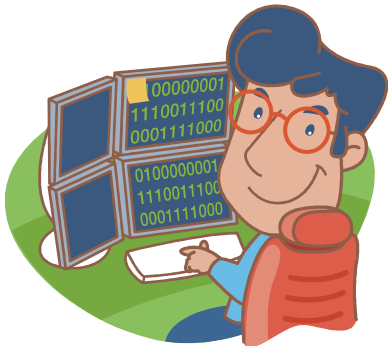


Skills for Working as a Programmer

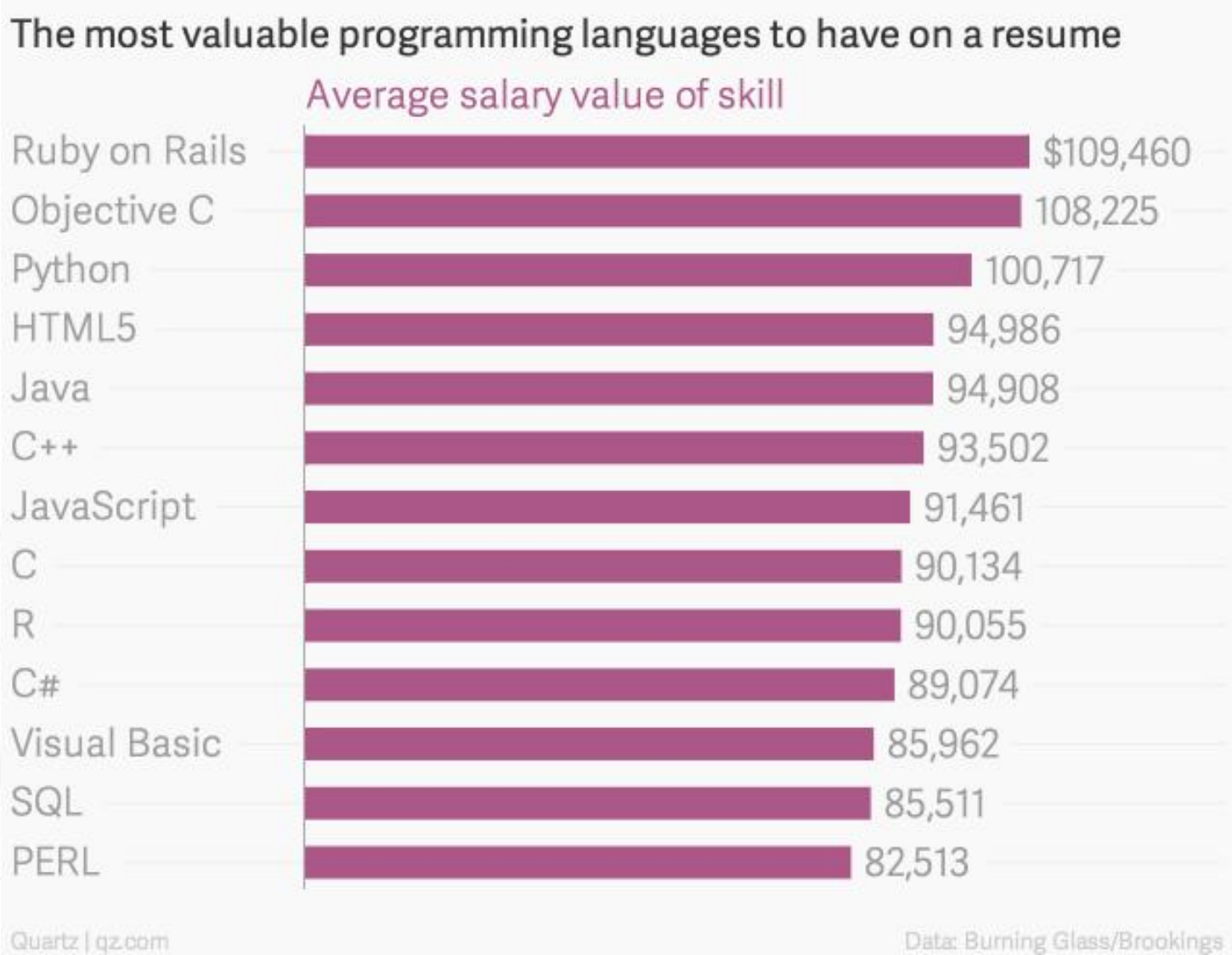
- Programming skill
  - Know Programming Language Grammars
  - Ability to make a program for a certain problem
  - Debugging skill
- Ability to solve problems
  - design algorithms
  - design data structures
- Knowlegde about computer systems
  - OS, DB, network, mobile, security etc.
- Communication skill
  - writing documents
  - presentation

Purpose of this Lecture

- To help you develop a *solid understanding* of what data structure is
- To help you be able to *implement computer based solutions* to solve real problem
- "**Programming Practice** Using Data Structures"



Why OO in Data Structure?



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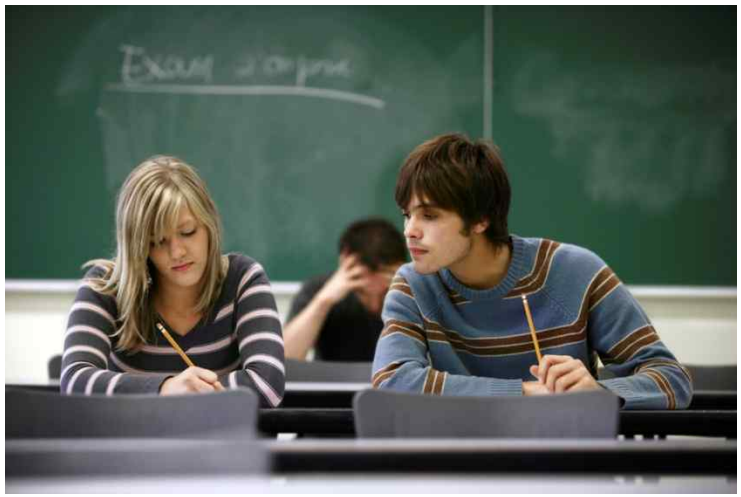
Structure of this Lecture

- **Part 1: Lecture(2 hours)**
  - 10 minutes review last lecture and Q&A
  - 50 minutes lecture will cover each data structure type with presentation using PPT slide
  - 10 minutes break
  - 30 minutes supplement lecture
  - 20 minutes introducing lab problems

- **Part 2: Lab**
  - Pre-lab : a *homework* assignment in which you create an implementation of a data structure using the techniques presented in lecture.
  - In-lab: apply or extend the concepts introduced in the Prelab. All In-lab work shall be completed and turned in to your lab instructor *during the lab*.

Grading Policy

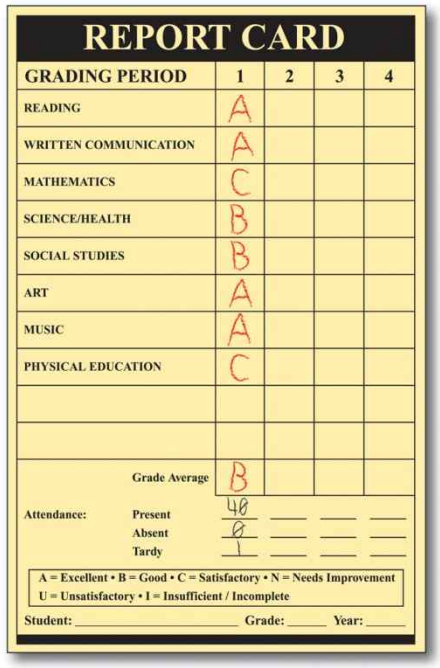
- Midterm and final exam: 60%
  - Simple answer questions
  - Fill in blanks of implementation
  - Writing a procedure in C programming language
  - No make-up exam
- Lab programming: 20%
  - 13 lab sessions
  - 100~200 LOC per week
- Project programming: 15%
  - 3 real professional programs
  - 500~1000 LOC each
- Attendance and Participation: 5%



Approximate Grading Scale

- Grading is on relative and absolute scale

Total Score	Grade
>85%	A+
>75%	A
>65%	B+
>60%	B
>45%	C
>30%	D
<30%	F



REPORT CARD

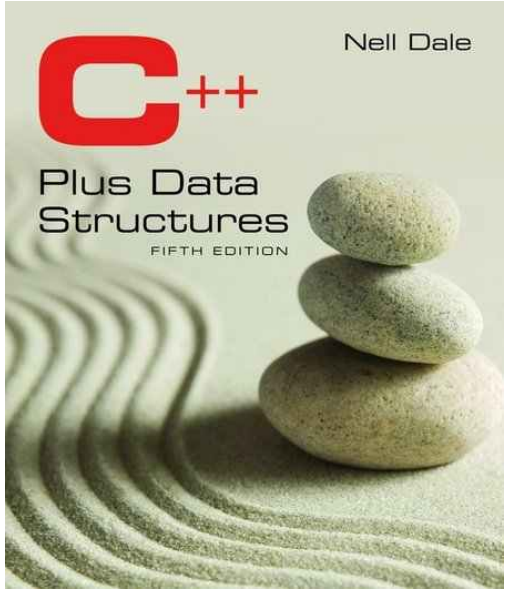
GRADING PERIOD	1	2	3	4
READING	A			
WRITTEN COMMUNICATION	A			
MATHEMATICS	C			
SCIENCE/HEALTH	B			
SOCIAL STUDIES	B			
ART	A			
MUSIC	A			
PHYSICAL EDUCATION	C			
Grade Average	B			
Attendance: Present	40			
Absent	0			
Tardy	1			

A = Excellent • B = Good • C = Satisfactory • N = Needs Improvement
U = Unsatisfactory • I = Insufficient / Incomplete

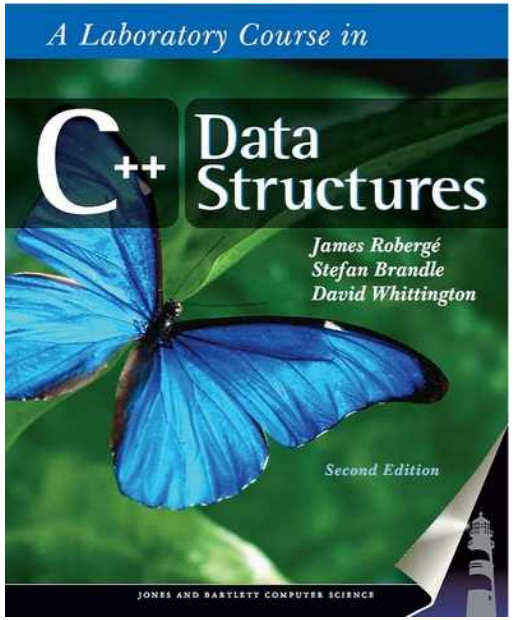
Student: _____ Grade: _____ Year: _____

Text and References

- **Text**
  - **Nell Dale and David Teague: C++ Plus Data Structures, fourth edition, Jones and Bartlett, 2013.**



- **Lab Book**
  - **James Roberge: Data Structures in C++: A Laboratory Course, second edition, Jones and Bartlett, 2003.**



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Lecture Schedule

- Lecture 01: Orientation and Introduction to Data Structure
- Lecture 02: Introduction to C++(Struct, Class, Member Function, Overloading)
- Lecture 03: Data design and Implementation
- Lecture 04: List(Unsorted, Sorted)
- Lecture 05: Stack
- Lecture 06: Queue
- Lecture 07: Linked List
- Lecture 08: Double Linked List
- Lecture 09: Recursion
- Lecture 10: Tree
- Lecture 11: Binary Tree
- Lecture 12: Heap
- Lecture 13: Graph
- Lecture 14: Sorting

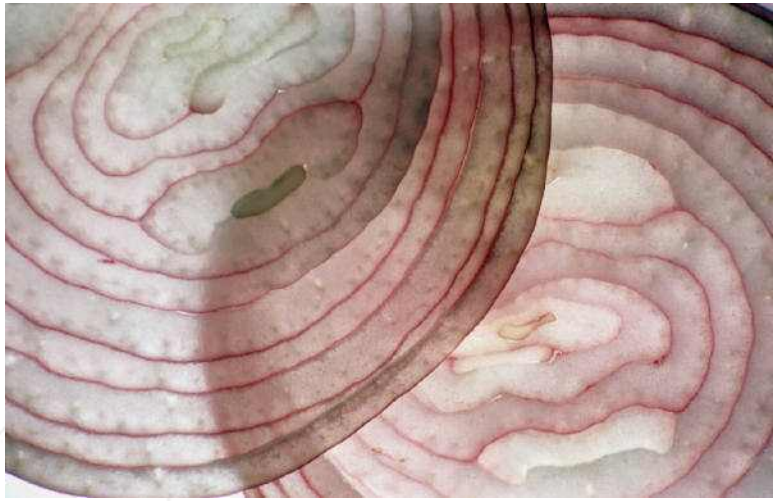
Guide to get A+ grade

- Familiar with C programming language
- Understanding data abstraction concept and each data structure's characteristics
- Your own work for Lab Programming
- Practice to apply basic concept to real problem by solving questions in books

Why Studying Data Structure is important?

- Real basic subject for understanding computer system and programming

- Computer Technology = Several Layers(like onion)



- C programming + Data Structure + Algorithm + Computer System knowledge + Design Skill + Database + ….. = Success in getting a job

Questions?

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