Wrap-Up

EECS2011 X:
Fundamentals of Data Structures
Winter 2023

CHEN-WEI WANG

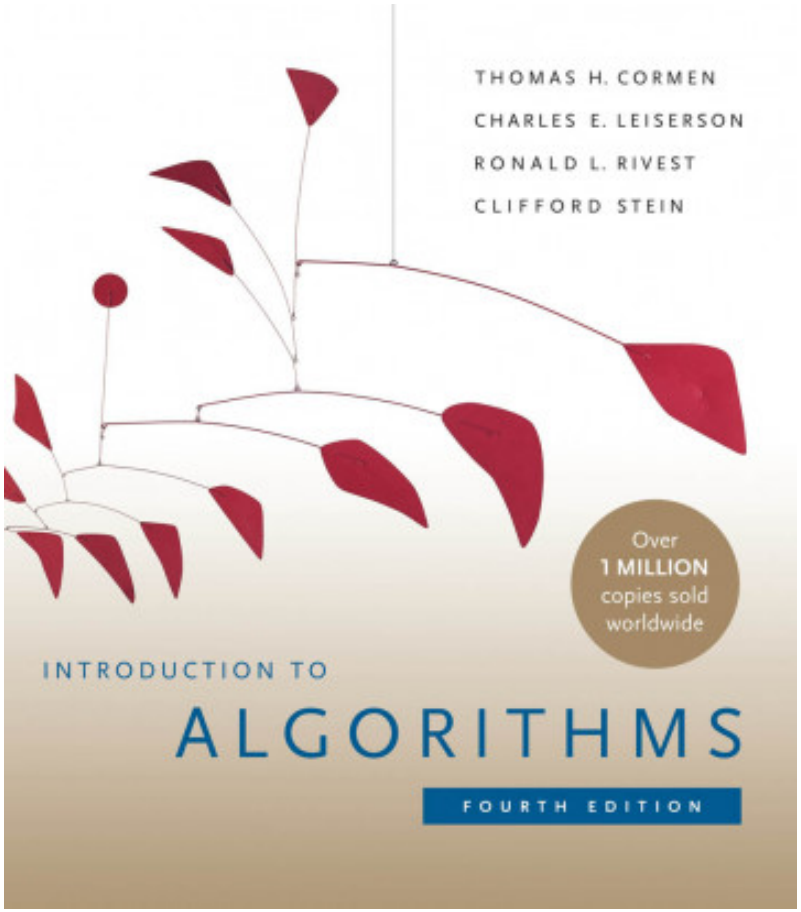
What You Learned (1)

- ***Java Programming***
  - JUnit
  - Recursion
  - Generics

What You Learned (2)

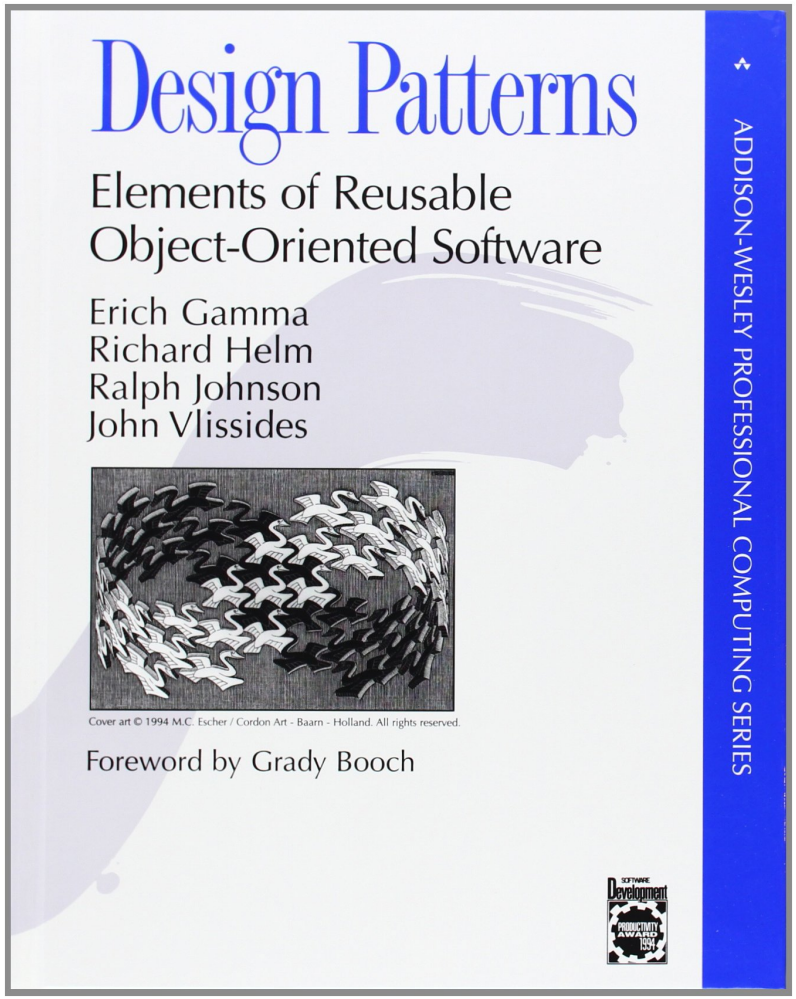
- ***Data Structures***
  - Arrays
  - (Circular Arrays, Dynamic Arrays, Amortized RT Analysis)
  - Singly-Linked Lists and Doubly-Linked Lists
  - Stacks, Queues
  - Trees, Binary Trees, Binary Search Trees, Balanced BSTs
  - Priority Queues and Heaps
- ***Algorithms***
  - Asymptotic Analysis
  - Binary Search
  - Insertion Sort, Selection Sort, Merge Sort, Quick Sort, Heap Sort
  - Pre-order, in-order, and post-order traversals

Beyond this course. . . (1)



- *Introduction to Algorithms (4th Ed.)* by Cormen, *etc.*
- DS by DS, Algo. by Algo.:
  - *Understand* math analysis
  - *Read* pseudo code
  - ***Implement*** in Java
  - ***Test*** in JUnit

Beyond this course. . . (2)



- *Design Patterns: Elements of Reusable Object-Oriented Software* by Gamma, *etc.*
- Pattern by Pattern:
  - *Understand* the problem
  - *Read* the solution (not in Java)
  - ***Implement*** in Java
  - ***Test*** in JUnit

Beyond this course. . . (3)

A tutorial on building a language compiler using Java (from ***EECS4302-F22***):

Using the ANTLR4 Parser Generator to Develop a Compiler

- Trees
- Recursion
- Visitor Design Pattern

Wish You All the Best

- What you have learned will be **assumed** in the third year.
- Some topics we did not cover:
  - Hash table [See Weeks 10 – 11 of EECS2030-F19]
  - Graphs [EECS3101]
- Logic is your friend: Learn/Review `EECS1019/EECS1090`.
- Do **not** abandon Java during the break!!
- Feel free to get in touch and let me know how you're doing :D