Wrap-Up

EECS2011 N & Z:
Fundamentals of Data Structures
Winter 2022

<small>CHEN-WEI WANG</small>

What You Learned (1)

- *Java Programming*
  - JUnit
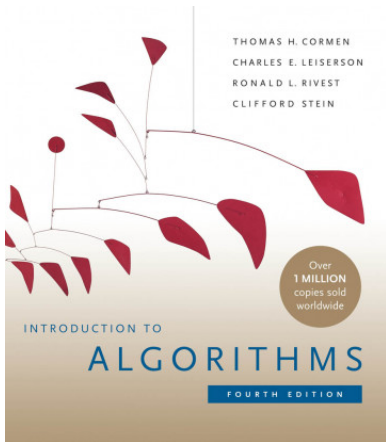 - Recursion
  - Generics

What You Learned (2)

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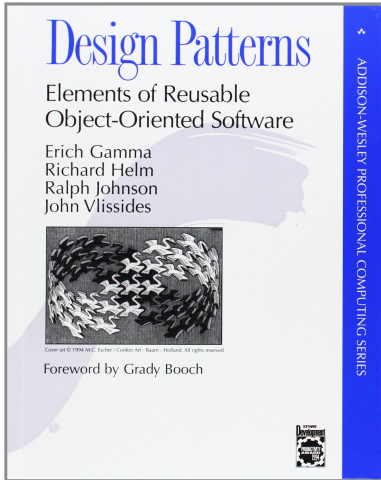 - Priority Queues and Heaps
- *Algorithms*
  - Asymptotic Analysis
  - Binary Search
  - Trinode Restructuring Steps
  - Insertion Sort, Selection Sort, Merge Sort, Quick Sort, Heap Sort
  - Pre-order, in-order, and post-order traversals

THOMAS H. CORMEN
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INTRODUCTION TO

ALGORITHMS

FOURTH EDITION

- *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

Erich Gamma
Richard Helm
Ralph Johnson
John Vlissides

Foreword by Grady Booch

ADDISON-WESLEY PROFESSIONAL COMPUTING SERIES

- *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-W20**):

Using the ANTLR4 Parser Generator to Develop a Compiler

- Trees
- Recursion
- Visitor Design Pattern

Wish You All the Best

LASSONDE

- 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