COMP 600.226: Data Structures

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What this course is about

Data structures:
conceptual and concrete ways to organize data
for efficient storage and manipulation

Why do we need them

Computers take on more and more complex tasks
Software implementation and maintenance is difficult
Clean conceptual framework allows for more efficient & more correct code

Some example data structures

- Set
- Stack
- List/Sequence

What you will learn

- What are some of the common data structures
- What are some ways we can implement them
- How can we analyze their efficiency
- How can we use them to solve some practical problems

Tool Box

Known data structures are tools for solving your future problems
Libraries and packages contain some debugged implementations of these structures
Why do we study this?

Argument against:
- Packages are already written
- Why not just read documentation of their interfaces and use them?

Argument for:
- You tell me

Some arguments for

- The more you know, the better you can choose the tools
- You can modify tools
- You can create entirely new tools
- You are to become the experts!

Prerequisites

At least one semester of C++ or Java programming
Easier if you’ve got two semesters

What you need

Textbook

Java references (handy, not required)

Computer with Java installation

What you’ll be graded on

20% : Written assignments
40% : Programming assignments
15% : Mid-term
25% : Final

What NOT to do

Plagiarism
Procrastination
Pair Programming

Extreme programming
• “two minds are better then one”
• One person types/codes, the other watches over shoulder
• Switch roles every ½ hour or so

Divide and conquer
• Decide together how to split up tasks into roughly independent modules
• Code/debug modules independently
• Meet to merge modules and debug combination