Data Structures Study Guide

Professor Andrew Rosen

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Programming Topics

- Big O notation

- Recursion (especially related to trees)

- Sorting

  - Insertion Sort
  - Quicksort and partition
  - Merge Sort

- Huffman Encoding

Data Structures For the exam, you will not write any data stru

- Lists

  - Types:
    * ArrayList
    * LinkedList
  - Big O for `add, remove, get, set` differs based on type.

- Stacks

- Queues

- Trees

  - Tree vs Binary Tree vs Binary Search Tree
  - Tree algorithms are recursive and are either `find`-based or `traversal`-based.

- Heap

  - Always a complete tree
  - How to turn array into heap in $O(n)$ time.

- Graphs
  - BFS
  - DFS
  - Dijkstra's