CPSC 350 Midterm Study Guide

Please make sure to study the material referenced in this study guide. Although an effort has been made to try and cover everything covered thus far this semester, please review lecture notes and your textbook in the event a topic was not mentioned.

Algorithm Analysis
- Empirical Analysis
  - Benefits
  - Disadvantages
- Mathematical/Asymptotic Analysis
  - Benefits
  - Disadvantages
  - Big-O Notation
    - Formal definitions
      - Upper bound
      - Strict upper bound
      - Lower bound
      - Strict lower bound
    - Techniques for analyzing run-times

Arrays
- Arrays as data structures
  - Benefits
  - Disadvantages
  - How to create/initialize an array
  - How does an array differ from other data structures (i.e. Linked Lists, Trees)
- Big-O Runtime
  - Access
  - Insert
  - Search
  - Delete

Linked List/ Double Linked List
- Benefits
- Disadvantages
- How to create/initialize an array
- How does a list differ from other data structures (i.e. arrays, Trees)
- Big-O Runtime
  - Access
  - Insert
  - Search
  - Delete

Abstract Data Structures (ADT)
- Stacks
- Queues
    - Circular queue
    - Priority queue
- Definition of an ADT
- Implementation
    - Arrays based
    - List based

Trees
- Benefits
- Disadvantages
- How does a tree (BST.) differ from other data structures (i.e. arrays, linked list)
- Rules of a Tree
    - Binary Search Tree (BST)
- Big-O Runtime
    - Access
    - Insert
    - Search