HW2: Searching and Sorting

CSS 342 – Data Structures, Algorithms, and Discrete Mathematics I
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Summary

Part of everyday "magic" that consumers take for granted is the ability to sort as well as search through massive amounts of data with ease. Explore a basic implementation of this as well as the time complexity of your implementation.

Skills Expected

- Linked Structures
- Algorithm: Searching and Sorting
- Big-O Notation

Assignment Description

Create a doubly-linked data structure used to keep track of objects containing at least one sortable property (e.g. item for sale { price, size }, books { author, title, genre }, etc.). Choose a sorting algorithm (or make your own) to implement (***Do NOT use the sort() method with Vector***). Demonstrate "ascending" as well as "descending" sort. Also implement a basic search function.

Grading Criteria

- Implementation ***(10 Points Total):***
  - [2 Points] Doubly-Linked Structure
  - [1 Points] Object with at least one sortable property
  - [2 Points] Ascending Sort
  - [2 Points] Descending Sort
  - [3 Points] Search
- Demonstration ***(7 Points Total):***
  - [1 Point] doubly-linked list structure with at least 10 objects
  - [2 Points] Ascending Sort
  - [2 Points] Descending Sort
  - [2 Points] Search
- Big-O Analysis ***(3 Points Total):***
  - [1 Point] Ascending Sort
  - [1 Point] Descending Sort
  - [1 Point] Search