Contents

Notes: By Nota

Nota

Nota, is a simple script to manage notes. It manages all my class notes which are markdown files and compiles them to PDF versions. This is so people can see my notes and I can share them easier. Not only that but the PDF version makes for easier reading, while the markdown versions are easy to edit and easy to search for items. Hope you enjoy!

Topic: Week 2

Sort

Selection Sort

- Description:
  - Find the smallest unsorted element, and add it to the end of the sorted list
  - Worst Case: $O(n^2)$
  - Best Case: $\Omega(n^2)$

Bubble Sort

- Description:
  - Move higher valued elements to the right, lower to the left
  - Keep swapping adjacent elements until the counter = 0
  - Check to see if sorted if you don't need to swap
  - Worse Case: $O(n^2)$
  - Best Case: $\Omega(n)$

Insertion Sort

- Description:
  - Go through the array and put elements in their correct place
  - For each element find within the sorted section where it belongs

  - Worse Case: $O(n^2)$
  - Best Case: $\Omega(n)$

Merge Sort

- Description:
  - Recursively sorting the array, consider each element individual
  - Sort the left half then right half
  - Worst Case: $O(n \log n)$
  - Best Case: $\Omega(n)$

Search

Linear Search

- Description:
  - Look from left to right for a specified element
  - Still works if element isn't in the array
  - Doesn't have to be a sorted array
  - Worst Case: $O(n)$
  - Best Case: $\Omega(1)$

Binary Search

- Description:
  - Array **HAS TO BE SORTED**
  - Divide and conquer, throw out half the array at a time
  - Worse Case: $O(n \log n)$
  - Best Case: $\Omega(1)$

Recursion

- Description:
  - A function that calls itself during execution
  - Base case for when to stop