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CS-260

Week 3 Journal

* Reflect on linked-list data structures as a means of organizing data. What are the pros and cons of using a singly linked versus doubly-linked list? What are some potential uses of a linked list?

In a single linked list, there is only a pointer to the next node, in a double linked list there is a pointer to the next node and previous node. This is both a pro and con just depending on what the circumstance is. Single linked list are used to store mainly stacks of data. Whereas double linked list are used for more of stacks along with heaps and binary trees. If I have a program that needs to save data but not search through it then a simple single linked list would work better, but if I need to do some searching then a double linked list is more applicable.

* Reflect on search algorithms as a means of finding particular items of data. Are these algorithms tied to the data structures being searched, or can they be utilized in other scenarios?

Let’s look at Linear search, Binary search, and jump search. All of these are search algorithms used for a specific purpose. A linear search is and can be used with almost any data structure. It searches through every possibility and every variable to find the answer. Next we have Binary search which looks at the middle of the data structure to see if it is at it’s number if not then it goes left or right based on the variable in the middle. This can also be used with multiple data structures from my knowledge. Jump search Is similar to linear search and binary search, somewhat a mix of the two. Jump search jumps multiple elements in the data structure to see if It is at it’s desired outcome if it has went to far then it comes back if not then it continues to jump. From all of my understanding so far, these algorithms can work with any data structure. Although I am probably wrong, I do not have enough knowledge yet to know that I am wrong.