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SNHU CS-300

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3-2 Assignment: Linked Lists

The goal of this program is to read data from a file and store it in a linked list. Once the list is created, users can perform various operations, including displaying the list, searching for specific items, adding elements to either the beginning or end, and removing items. I found the exercise to be clear and easy to follow, making the implementation straightforward. While working with pointers has been somewhat challenging, I can see my understanding improving over time. For this assignment, I referred to the textbook to guide me through certain aspects.

Pseudocode

### **Pseudocode for Linked List Operations**

**Appending to a Linked List:**

1. Create a new node and store the given input in it.
2. If the list is empty (head is NULL):
   1. Set both the head and tail to the new node.
3. Otherwise:
   1. Link the current tail to the new node.
   2. Update the tail to be the new node.

**Prepending to a Linked List:**

1. Create a new node and store the given input in it.
2. If the list is empty (head is NULL):
   1. Set both the head and tail to the new node.
3. Otherwise:
   1. Point the new node to the current head.
   2. Update the head to be the new node.

**Printing a Linked List:**

1. Start from the head node.
2. While the current node is not NULL:
   1. Display the data stored in the node.
   2. Move to the next node in the list.

**Removing an Item from a Linked List:**

1. If the item to remove is at the head:
   1. Update the head to the next node.
2. Otherwise, traverse the list:
   1. While the current node exists and does not match the target value:
      1. If the node contains the target value, store it in a temporary variable.
      2. Otherwise, continue to the next node.
   2. Delete the node stored in the temporary variable.

**Searching a Linked List:**

1. Start at the head node.
2. While there are nodes to check:
   1. If the current node contains the target value, return the node.
   2. Move to the next node.
3. If the value is not found, return NULL.