Exercise – Linked Lists

Exercises:

1. You will be implementing your own templated LinkedList and LinkedListNode classes. Your LinkedList class will contain start and end sentinel nodes and a count for the number of nodes in the list. It will be a doubly linked list. Your class will need the following functions:
    a. Getting a node at a specific index
    b. Add node:
        i. At start
        ii. At end
        iii. At specific index
        iv. After given node
    c. Remove given node
    d. Clearing the list
        i. This should delete all the allocated nodes in the list
    e. Swapping two nodes

2. CHALLENGE: add extra functions:
    a. A function for sorting the list
    b. A function for shuffling the list
    c. A function for inserting another whole linked list at a given index
    d. A function for rotating the list by a given amount

3. CHALLENGE: implement a singly linked list. Implement the same functionality as your doubly linked list.