CSCI-SHU 210 Data Structures

Homework Assignment4 Linked List

This homework consists two parts:

- Single linked list
  - Singly linked, single ended, no sentinel.
- Double linked list
  - Doubly linked, double ended, with sentinel.

Single Linked List:

1. __getitem__(self, k)
   - return the element (not the node) stored at kth indexed node.
   - We will only test with valid k. (0 ~ len(self) – 1)
2. list_reverse(self)
   - Reverses self linked list.
3. remove_all_occurance(self, value)
   - Remove any node that contains value from self linked list.

Double Linked List:

4. sameSame(self, otherlist)
   - Checks whether two DoubleLinkedLists lists contain the same elements in the same order
5. feed(self, otherlist, n)
   - Remove several first nodes from otherlist and insert them at the beginning of self linkedlist.
6. del_anything_occured(self, otherlist)
   - Remove nodes from self linked list, any node that contains any value appeared in otherlist.

Hints:

1. All the detailed descriptions & examples are included in the python files.
2. Drawing how references change can help a lot when you code with linked lists.
3. Watch out for special case! They can hurt your assignment grade if you forget to handle.
4. Doubly Linked Lists have empty header/trailer nodes.
5. Singly Linked Lists does not have empty header node.
   a. Which also means, you may encounter more special case(s) → when the list becomes empty
6. There is no time complexity requirement for this assignment.