

Programming Assignment #1: 10/8 23:59

- ❑ For this programming assignment, you need to implement the toolkit for *doubly linked lists* and a bag class that uses a doubly linked list to store data items.
- ❑ (40points) As for the toolkit for doubly linked lists, define a node class for doubly linked lists and reimplement all the functions defined for singly linked lists. That is, rewrite *list_length*, *list_search*, *list_locate*, *list_insert*, *list_head_insert*, *list_head_remove*, *list_remove*, *list_clear*, and *list_copy* so that they can work with doubly linked lists properly.
- ❑ (35points) Next, implement a bag class using a doubly linked list to store data items and a main program to see if *all* the functions, constructors, and operators (*insert*, *erase_one*, *count*, *+*, *+=*, *=*, *==*, *!=*, *constructor*, *copy constructor*, *destructor etc.*) in the book work correctly.
- ❑ (10points) In addition, your bag class should have “*show_contents*” function that prints its data contents on the standard output.
- ❑ (15points) Your main routine should show the contents of current bag both before and after each function/operator call.
- ❑ (Extra 10 points) Implement a new member function named “*sort*” that actually changes the order of data items stored in the bag to ascending order. You can use any sort algorithm, but do not use an array to sort data items.