CSE291 Data Structures Lab

Lab Sheet 7

Doubly Linked List and Circular Singly Linked List

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1. Implement insertion and deletion in a doubly linked list.
2. Implement insertion and deletion in a circular singly linked list.
3. Implement a doubly linked list that formulate the following functions
   a. Count the number of nodes in the list.
   b. Returns the sum of elements in the list.
   c. Change the data field of a node with given value.
4. Write a C++ program to swap two nodes in a singly linked list.(nodes should be swapped by changing links).
5. Implement a procedure to sort the elements in a doubly linked list.
6. Given two singly linked lists sorted in increasing order. Write a C++ program to merge them such a way that the resultant list is in decreasing order (reverse order).

   Input a: 5->10->15->40

   b: 2->3->20

   Output: 40->20->15->10->5->3->2
7. Given two linked lists, represented as singly linked lists (every character is a node in linked list). Implement a function compare() that works similar to strcmp(), i.e., it returns 0 if both strings are same, 1 if first linked list is lexicographically greater, and -1 if second string is lexicographically greater.

Input a: g->e->e->k->s->a

b: g->e-> e->k->s->b

Output: -1

Input a: g->e->e->k->s->a

b: g->e->e->k->s

Output: 1

Input a: g->e->e->k->s->a

b: g->e->e->k->s->a

Output: 0
