CL-2001 Data Structures
Lab # 6 Home Work

Note: (MUST include Insert and print methods)

Objectives:

- Doubly Linked List
- Circular Linked List

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. There must be a block of comments at start of every question's code by students; the block should contain brief description about functionality of code.
2. Comment on every function and about its functionality.
3. Mention comments where necessary such as comments with variables, loop, classes etc to increase code understandability.
4. Use understandable name of variables.
5. Proper indentation of code is essential.
6. Write a code in C++ language.
7. Make a Microsoft Word file and paste all of your C++ code with all possible screenshots of every task **outputs in Microsoft Word and submit word file. Submit all .cpp file.**
8. First think about statement problems and then write/draw your logic on copy.
9. After copy pencil work, code the problem statement on MS Studio C++ compiler.
10. At the end when you done your tasks, attached C++ created files in MS word file and make your submission on Google Classroom. (Make sure your submission is completed).
11. Please submit your file in this format **19F1234_L4**.
12. Do not submit your assignment after deadline. Late and email submission is not accepted.
13. Do not copy code from any source otherwise you will be penalized with negative marks.

Problem: 1 | | Doubly Linked list

Write a C++ program to sort doubly linked list by swapping there links not the data

Problem: 2 | Remove Duplicates

Write a C++ program to remove every duplicate from a doubly linked list.

Input:

NULL<-1<->2<->2<->3<->4<->4<->5<->5<->5->NULL

Output:

1->2->3->4->5->NULL

Problem: 3 | Reverse Doubly Linked List

Write a program that creates a linked list of 10 integer nodes and then reverse the list.

Problem: 4 | Split Doubly Linked List

Write a code to split a doubly link list into sublists — one for the front half, and one for the back half. If the number of elements is odd, the extra element should go in the front list. So FrontBackSplit() on the list {2, 3, 5, 7, 11} should yield the two lists {2, 3, 5} and {7,11}. You should check your solution against a few cases (length = 2, length = 3, length=4) to make sure that the list gets split correctly near the short-list boundary conditions. You will probably need special case code to deal with the (length<2) cases.

Problem: 5 | Linear to Circular Linked List

Write a function that accepts a linear linked list and converts it to a circular linked list both for singly and doubly linked list.

Problem: 6 | Circular Link List

Write a menu driven C++ program for following functions of a Circular Linked list.

1. InsertAtBegin()
2. DeleteAtEnd()

Problem: 8 | Concatenating Lists

Write a program that concatenates two double linked list objects of characters.