CL2001 – Data Structure Lab

Home Work # 02

Ring, Doubly Linked List

Note: Carefully read the following instructions.

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. Submit a pdf file containing all of your C++ code with all possible screenshots of every task outputs. Submit all .cpp files as well on Google Classroom.
7. First think about statement problems and then write/draw your logic on copy.
8. After copy pencil work, code the problem statement.
9. Please submit your file in this format (20P-8743-Zain).
10. Do not copy code from any source otherwise you will be penalized with negative marks.

Problem: 1 | Remove Duplicates

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

Input:

NULL <– 1 ⇔ 2 ⇔ 9 ⇔ 3 ⇔ 9 ⇔ 2 ⇔ 5 ⇔ 2 ⇔3 –>NULL

Output:

NULL <– 1 ⇔ 2 ⇔ 9 ⇔ 3 ⇔ 5->NULL

Problem: 2 | 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: 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 Even and Odd

Create two doubly linked lists so that one can store the even data and other stores the odd data of the provided linked list having at least 10 nodes.

Input:

1⇔2⇔2⇔3⇔5⇔6⇔7⇔9⇔11⇔12

Output:

L1: 1⇔3⇔5⇔7⇔9⇔11

L2: 2⇔2⇔6⇔12
