

Goals

- Double Linked List.

Class assignments

Write a program that builds the Double Linked List structure with the following basic functions:

- Node structure for DoubleLinkedList with data type $\langle T \rangle$ (using template).
- Initialize the DoubleLinkedList.
- Basic operations: add a node at the top of the list, add a node at the end of the list, delete the last node, delete the first node.
- Search for any node.
- Delete any node.

Homework

Write a program that uses DoubleLinkedList to manage Students. Each student in the classroom has the following information:

- Full name: maximum of 30 characters.
- Student ID: maximum of 8 characters. Each student has a unique number that does not repeat.
- Average score: a real number between 0 and 10.

Functions that the program requires:

- a) Randomly generated a list of at least 10 students.
- b) Print out the student list of the class to the screen.
- c) Remove students with an average score of < 5 .
- d) Allows searching for students by student ID (allows partial searching). For example, a search using “11872” will return 3 results for 3 students with ID respectively is: “11872119”, “11872120” and “11872121”.