# CSI 2372 – Lab Task 5

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Linked lists, friend classes,

pointers to objects in C++

Your task in this lab is to create a linked list in C++. This time, you are going to create a double linked list, in which each node has a link to the next and the previous element. Make sure you have C++ installed, and you are familiar with the header files, and coding files. If you need help, ask your TA to help you with this.

Then, you should do the following programming task. Each programming task in the lab is a design based on the subjects you learned during lectures. There is a test code that you can use to test your design. If you have questions, ask your TAs.

Your task is to create a double linked list of integers. We did a single linked list in class. Each element has a link to the next node. In the linked list you design, each element has a node to both the next and the previous node. You need to write every function we did in class, plus the operator << for printing the elements of the list. Also, here keep a pointer to the last element of the list. The double linked list that you should design is shown below. Your methods have the same signature with the ones we did in class for single linked list. You can add any method you need.
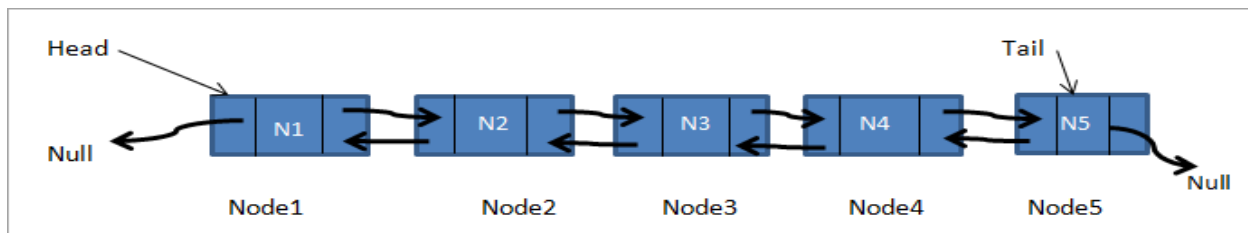
Class DoubleLinkedList	
Method	**Description**
DoubleLinkedList	For initialization of pointers
~ DoubleLinkedList	Release all memories allocated for nodes
add_to_front	Add an element to the beginning of the list
add_to_back	Add an element to the end of the list
insert_item	Insert an element at the given position (0-baseed-index)
remove_item	remove the given element from the list
remove_from_front	remove the first element of the list
remove_from_back	remove the last element of the list
operator [ ]	For indexing the elements of the list
operator <<	For printing all elements of the linked list Example: 25, 12, 29, 35