# CS 400 Lab 4: Doubly Linked List Implementation

**Note**: for CS 400’s lab works, you will need to

-Explain your solution to our teaching assistant

-Submit your solution .cpp file to blackboard

## Question: Implement Doubly Linked List.

1. Create two types of objects: node and doubly linked list by using struct and class.
2. Doubly Linked List includes following operations:

* Constructor
* Destructor
* Add an element at the beginning of list: addFront()
* Add an element at the end of list: addBack()
* Remove the first element from the list: removeFront()
* Remove the last element from the list: removeBack()
* Traverse the list forward and print out all the elements: printForward()
* Traverse the list backward and print out all the elements: printBackward()

1. Use the code inside the main() to test your solution:

int main()

{

DoublyLinekdList dll;

dll.addFront(1);

dll.addFront(2);

dll.addFront(3);

dll.addBack(4);

dll.printForward(); // 3->2->1->4->null

dll.printBackward(); // 4->1->2->3->null

return 0;

}

1. Convert them to templates. Use the code inside main() to test.

int main()

{

DoublyLinekdList dll\_str;

dll.addFront(“1”);

dll.addFront(“2”);

dll.addFront(“3”);

dll.addBack(“4”);

dll.printForward(); // 3->2->1->4->null

dll.printBackward(); // 4->1->2->3->null

return 0;

}