

CS590 homework 2 – Lists, Stacks, and Queues

The due date for this assignment is **Friday, Oct 12th, at 11.59pm**. This assignment is worth 10% of your final grade.

Any sign of collaboration will result in a 0 and being reported to the Graduate Academic Integrity Board. Late submission policy described in the syllabus will be applied.

Questions (100 points)

1. Design, and implement two algorithms to remove duplicates from an unsorted single Linked-List. You are given the implementation of the single Linked-List in the files *LinkedList.h*, and *LinkedList.cpp*. You are also given the skeleton code in *problem1.cpp* where you will implement the requested solution. A test case has been provided in the *main()* function, but feel free to write additional test cases to make sure your code works. (Additional test cases are not requested, and will not be graded).

a) for the first algorithm, you can use an additional data structure (one of the STL containers – you can add one include to the header file for that container of the STL you decide to use)

b) for the second algorithm, no additional data structure can be used

2. Design, and implement a C++ class that implements the queue data structure, using two stacks. For the stacks, you are allowed to use the stacks implementation of C++ STL, already included in the source code shared with you. In the *problem2.cpp* file you will find a skeleton of the code where you have to implement the requested solution. A test case has been provided in the *main()* function, but feel free to write additional test cases to make sure your code works. (Additional test cases are not requested, and will not be graded).

Remarks:

- You are not allowed to use code from online resources. Your submission will be tested against that, and will receive a 0, and a report to the Graduate Academic Integrity Board if it is detected.
- No additional libraries are allowed to be used, besides the ones already included in the source code shared with you.
- Makefiles are provided for both problems to build the code in LinuxLab.
- The programming, and testing will take some time. Start early.
- Feel free to use the provided source code for your implementation. You have to document your code.