CS2308 - Foundations of Computer Science II
Linux Program Assignment #2 (Total Points: 100)

This project contains two parts, which covers linked list, stack, and queue respectively.

Part 1:

In the first part, you will implement the copy constructor and overloaded assignment operator using the provided NumberList.h and NumberList.cpp files. The test.cpp file and the output.txt file are also provided to verify if you have implemented these two functions correctly.

Part 2:

In the second part, you will solve the **File Reverser** problem and the **File Filter** problem by utilizing the C++ Standard Template Library (STL) stacks and queues respectively.

File Reverser: Write a program (named as *file_reverser.cpp*) that opens the ***input.txt*** file and reads its contents into a stack of characters. The program should then pop the characters from the stack and save them in the ***output_reverse.txt*** file. The order of the characters saved in ***output_reverse.txt*** should be the reverse of their order in the ***input.txt*** file.

File Filter: Write a program (named as *file_filter.cpp*) that opens the ***input.txt*** file and reads its contents into a queue of characters. The program should then dequeue each character, convert it to uppercase, and store it in the ***output_filter.txt*** file. The order of the characters saved in ***output_filter.txt*** should be the same as their order in the ***input.txt*** file, but all in uppercase.

Sample Output:

input.txt: This is the original file.
output_reverse.txt: .elif lanigiro eht si sihT
output_filter.txt: THIS IS THE ORIGINAL FILE.

Comments and Suggestions:

DO NOT DELAY. Start the project from Day 1. Your program must correctly compile and be executable on the Linux server (eros.cs.txstate.edu).

Program Submission

Please submit only one zip file (named as firstname_lastname_prog2.zip) to Canvas, which should contain the following source code files with your solutions:

- NumberList.h and NumberList.cpp.
- file_reverser.cpp
- file_filter.cpp

Your program will be graded as follows, please make sure to check each item before you submit.

CS2308 Linux Program #2 Name:_____

Program and Run Time Output: _____ (90 Points)

_____ (20) Correctly implement the copy constructor function

_____ (4) Correct function prototype in .h file

_____ (16) Correctly implement the copy constructor function and pass the test case

_____ (20) Correctly implement the overloaded assignment operator function

_____ (4) Correct function prototype in .h file

_____ (16) Correctly implement the overloaded assignment operator function and pass the test case

_____ (25) Correctly implement the File Reverser

_____ (5) Correctly use the C++ STL to create a char stack

_____ (10) Correctly use the char stack operations to read and store characters

_____ (10) Correct file operations and single character get() and put() function

_____ (25) Correctly implement the File Filter

_____ (5) Correctly use the C++ STL to create a char queue

_____ (10) Correctly use the char queue operations to read and store characters

_____ (10) Correct file operations, single character get() and put() and toupper() functions

Coding Standards: _____ (10 Points)

_____ (3) Documentation (program and function headers)

_____ (3) Comments

_____ (2) Meaningful Variable Names

_____ (2) Indentation Scheme / Use of { }

Total: _____ (100 Points)

Executable Version: _____ (%)

If your code cannot be compiled or executed, your final score will only be 50% of your accumulated score of each item above.

Final Score: _____ (100 Points)