CSCI-1200 Data Structures — Fall 2018
Lab 6 — List Implementation

This lab gives you practice in working with our implementation of the `dslist` class that mimics the STL `list` class. Create a directory/folder named `lab6` and download these files into that folder:

http://www.cs.rpi.edu/academics/courses/fall18/csci1200/labs/06_list_implementation/dslist.h
http://www.cs.rpi.edu/academics/courses/fall18/csci1200/labs/06_list_implementation/lab6.cpp

Checkpoint 1

The implementation of the `dslist` class is incomplete. In particular, the class is missing the `destroy_list` private member function that is used by the destructor and the `clear` member function. The provided test case in `lab6.cpp` works "fine", so what's the problem?

Before we fix the problem, let's use Dr. Memory and/or Valgrind to look at the details more carefully. You should use the memory debugging tools *both* on your local machine *and* by submitting the files to the homework server. Study the memory debugger output carefully. The output should match your understanding of the problems caused by the missing `destroy_list` implementation. Ask a TA if you have any questions.

Now write and debug the `destroy_list` function and then re-run the memory debugger (both locally and on the submission server) to show that the memory problems have been fixed. Also finish the implementation of the `push_front`, `pop_front`, and `pop_back` functions.

To complete this checkpoint, show a TA the implementation and memory debugger output before and after writing `destroy_list`.

Checkpoint 2

Checkpoint 2 will be available at the start of Wednesday's lab.
This checkpoint will be a "pair programming" exercise.
https://en.wikipedia.org/wiki/Pair_programming

Checkpoint 3

For the remainder of lab time, work on Homework 5 and ask your TA and mentors lots of questions!

Work on your student test cases. Yes! You can and should write test cases before your code is finished. Specifically how will you test your copy constructor and assignment operator? Make sure you've got the syntax correct. What are the challenges in implementing these functions and what possible flaws might occur with a buggy solution?

Use Dr. Memory or Valgrind on your local machine to debug the memory usage of your program (both memory errors and memory leaks).

(~10 minutes before the end of lab:) To complete this checkpoint and the entire lab, show your TA or mentor your progress on the homework.