Assignment 5 Overview

YEAH Outline: Assignment 5

Managing memory

In short, whenever you use the "new" keyword, there should be a corresponding "delete" at some point. All of the memory for your data structures (linked list nodes, etc.) should be freed in the destructor.

You don't need to call "delete" on the vector in the vector-based implementation, unless you allocate the vector on the heap.

Edge cases

This assignment is full of edge cases -- cases where the last or first element of some collection has some property that your general algorithm might not handle. Code with lots of explicit edge cases is difficult to maintain, so try to have your general algorithms handle these. Make sure you've considered all the edge cases that could occur at each stage to minimize re-writing of code later.

Debugging

Once you've got basic implementations working, if you're having run-time bugs (either crashing or just unexpected behavior, like "extract-min" not extracting the minimum element), we highly suggest coming up with some small (~5 elements?) test case that exhibits the bug, and then step through the code to see why things don't work. Run-time bugs are almost always a result of you thinking some variable or memory location has some value ("I think this pointer points to that place."), but that not actually being the case. Step through until you find the incorrect pointer or value and it should almost immediately follow as to why. If not, step through again until that point, always watching that one variable.

General assignment tips

This assignment isn't like, say, Boggle -- it's not one large chunk. It's several small chunks, each of which is made up of smaller chunks. For each chunk, make sure you understand it 100% before you start implementing it.

Part of this assignment is about understanding how writing library classes works -- make sure you understand that you're writing something like the implementation of the "vector" class, for example, just for the "pqueue" class. This isn't a difficult concept, but if you're not sure about this, then things could go drastically wrong.

Visit the LaIR: Sun-Thu, 6pm-midnight