Assignment 4.1: Heaps and Priority Queues

Due: 8 am, March 18, 2009

Directions

The problems for this assignment are described below. You will submit this assignment by emailing it do Mr. Wulsin. The file will be named "Assignment 4.1-LastName.zip", where [LastName] is obviously your last name. All of your submitted assignments will be named in this fashion. The Zip file will contain a folder of the same name (so, "Assignment 4.1-LastName"), which will contain a folder for each of the subsequent problems. Each of these subfolders will have the name of its particular problem. Each of these problem subfolders will contain all of the necessary files for that particular problem. It's very important that you follow all of these naming conventions exactly as specified.

Problems

1) PriorityQueue (AB only)

Heaps are a great way to implement priority queues. In this assignment, you will finish implementing the `HeapPriorityQueue` class partially coded for you from your book. I will provide you with the partial file, so you need not copy it from the book, although you *must* read the other code thoroughly so you know how all the methods and data work together. If you haven't read Chapter 25 completely at this point, do that now.

You will write the `reheapUp` and `reheapDown` methods for the `HeapPriorityQueue` class and a simple tester to test the class. Section 25.4 of your book discusses this implementation in detail, so pay particularly close attention to it.

I would highly recommend drawing out a few sample trees with pen and paper before trying any real coding to ensure that you understand how the `reheapUp` and `reheapDown` methods should actually work. Practice adding and removing objects to and from the heap.