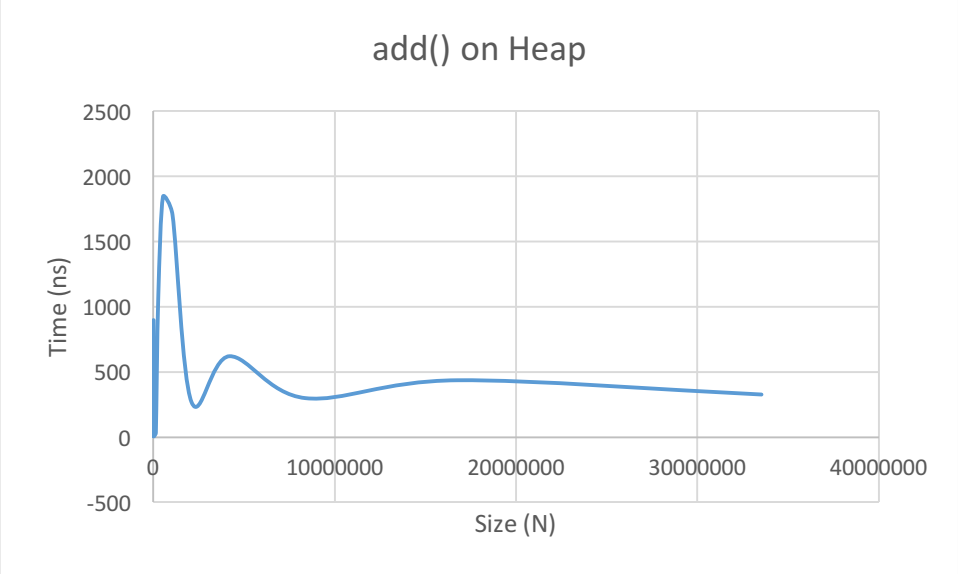
Lindsey Loveland
11/16/16

1. Design and conduct an experiment to assess the running-time efficiency of your priority queue. Carefully describe your experiment, so that anyone reading this document could replicate your results. Plot the results of your experiment. Since the organization of your plot(s) is not specified here, the labels and titles of your plots(s), as well as, your interpretation of the plots is critical.

I tested the add method on a normal heap with about 25 different tests.



2. What is the cost of each priority queue operation (in Big-O notation)? Does your implementation perform as you expected? (Be sure to explain how you made these determinations.)

While the add method can vary from constant to log n time, average case ends up around O(C) time. That's basically illustrated in the graph above.

FindMin is constant as well, since it's accessing the array at index 0.

DeleteMin is O(logN), since you need to put the new root in it's place and percolate down.

3. Briefly describe at least one important application for a priority queue. (You may consider a priority queue implemented using any of the three versions of a binary heap that we have studied: min, max, and min-max)

A priority queue would be useful as a triage system for a hospital emergency room. Those coming in with non-immediate life threatening illnesses would receive a lower number than

those who are rushed in because of life threatening circumstances. Since the latter receive greater priority, they are treated first.

4. How many hours did you spend on this assignment?

Spent about 5-7 hours on this assignment