When you are satisfied that your program is correct, write a brief analysis document. The analysis document is 30% of your Assignment 3 grade. Ensure that your analysis document addresses the following.

1. Who is your programming partner? Which of you submitted the source code of your program?

Enrico Cecale, me Jeramie McDonough will submit the code.

2. How often did you and your programming partner switch roles? Would you have preferred to switch less/more often? Why or why not?

We switched every 30 min, give or take a few min. I think in the future we should switch less, maybe every hour or so. I felt as if I was losing productivity by constantly starting and stopping.

3. Evaluate your programming partner. Do you plan to work with this person again?

Definetly.

4. If you had backed the sorted set with a Java List instead of a basic array, summarize the main points in which your implementation would have differed. Do you expect that using a Java List would have more or less efficient and why? (Consider efficiency both in running time and in program development time.)

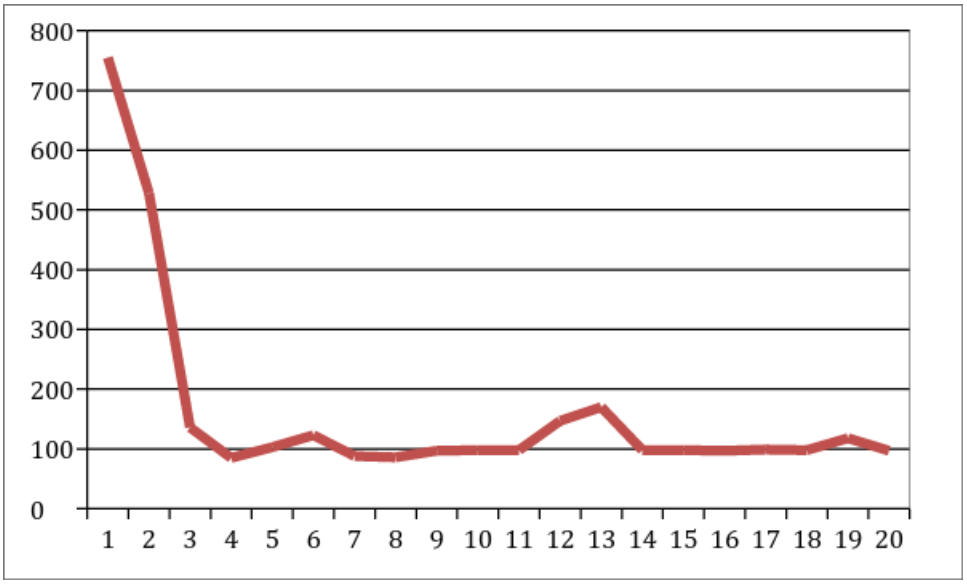
The ability to quickly search through the sorted sets make it more efficient in certain tasks. Plus the fact that list allow duplicates would be a real problem. On the plus side for List they are sorted which is convenient but after getting comparable working this isnt a real advantage over sorted sets.

5. What do you expect the Big-O behavior of MySortedSet's contains method to be and why?

2N(LogN)/2 because our we used a Binary search to find the position. A binary

search is N(logN)/2. We then run additional functions decreasing the speed to 2n(LogN)/2.

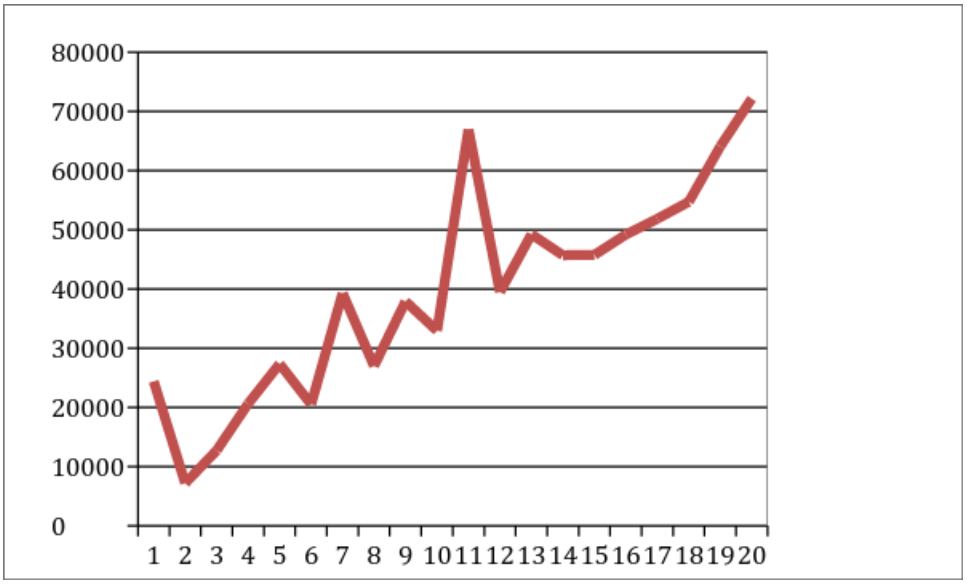
6. Plot the running time of MySortedSet's contains method for sets of sizes 100000 to 2000000 by steps of 100000. Use the timing techniques demonstrated in Lab 1. Be sure to choose a large enough value of timesToLoop to get a reasonable average of running times. Include your plot in your analysis document. Does the growth rate of these running times match the Big-oh behavior you predicted in question 5?



The values were reduced because of problems with Eclipse.

7. Consider your add method. For an element not already contained in the set, how long does it take to locate the correct position at which to insert the element? Create a plot of running times. Pay close attention to the problem size for which you are collecting running times. Beware that if you simply add N items, the size of the sorted set is always changing. A good strategy is to fill a sorted set with N items and time how long it takes to add one additional item. To do this repeatedly (i.e., timesToLoop), remove the item and add it again, being careful not to include the time required to call remove() in your total. In the worst-case, how much time does it take to locate the position to add an element

(give your answer using Big-oh)?



I would say the growth is N though there is an unusual spike I am not educated enough to create a formula based on this graph.

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

This assignment took forever! we spent 12-18 hours on this assignment 4 hours of which was constructing the tests.

Programming partners are encouraged to collaborate on the answers to these questions. However, each partner must write and submit his/her own solutions.

Upload your document (.pdf only!) to the Assignment 3 page by 11:59pm on February 5.