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CS 2420

Assignment 3 Analysis

1. My programming partner for Assignment 3 was Nicholas Lloyd and he will be the one submitting the source code for our program.

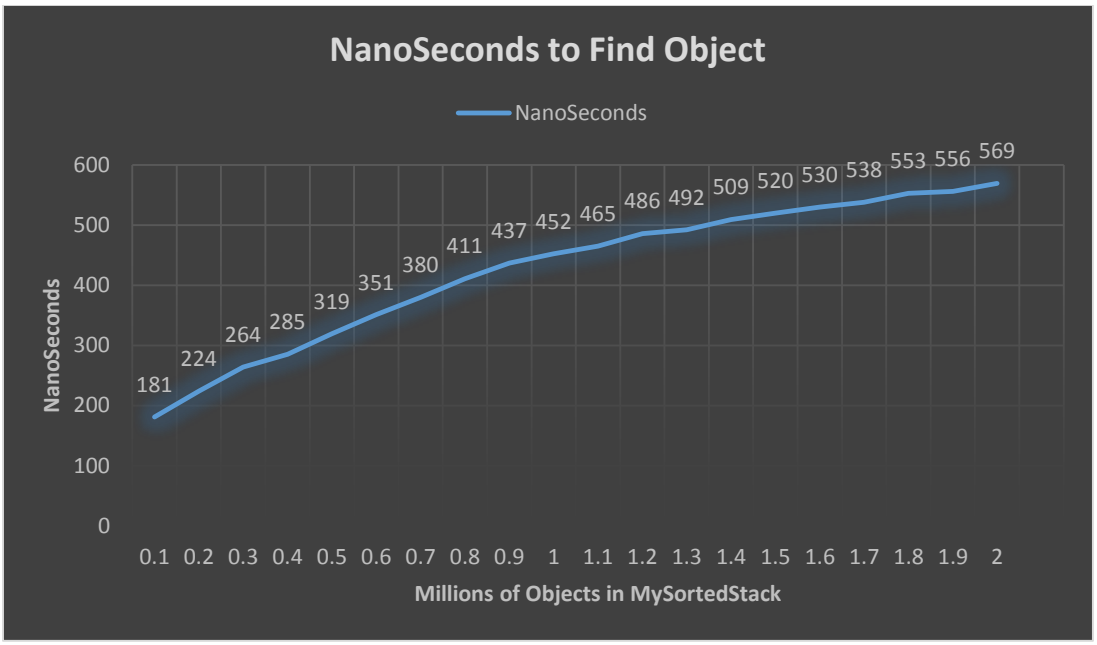
2. As partners we would switch off regularly for coding as we both were knowledgeable in what we were doing with the assignment, which meant the work that we split the work almost 50/50 the whole time. This worked out very well due to the fact we both knew what we were doing and what our roles were, helping us get the assignment done in a correct and efficient manner.

3. My programming partner was very good to work with and I will be working with him on the next assignment and future assignments.

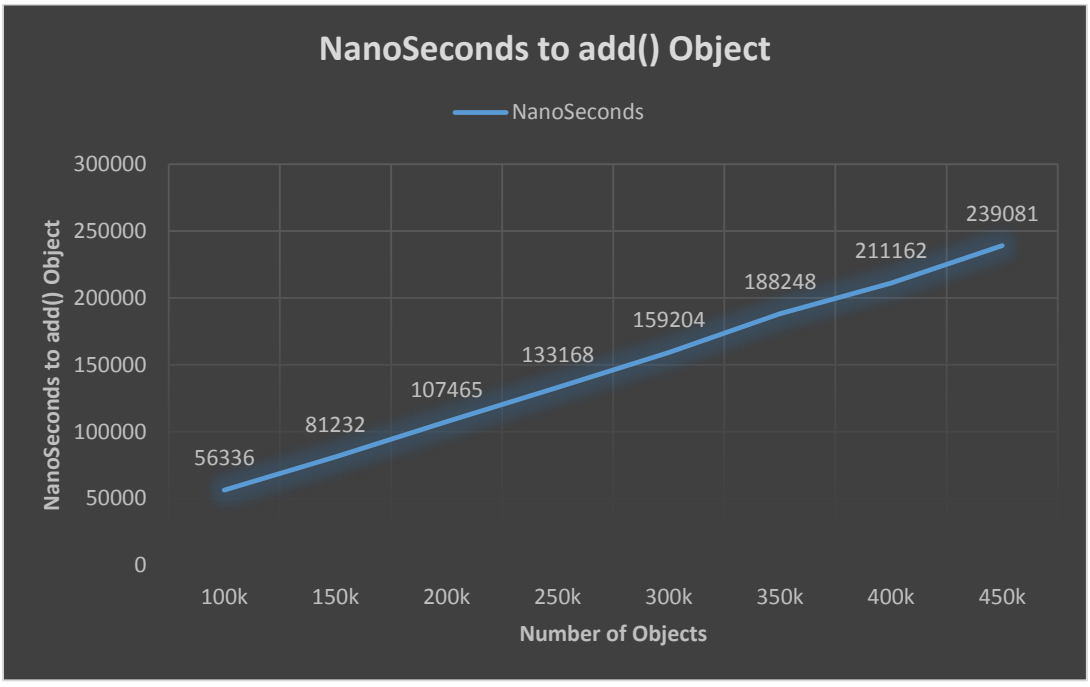
4. I think that if we would have used a list instead of an array, the implementation might have been a little easier since we would have not had to deal with the fact that the size of an array cannot be adjusted. But, I don't think that it was that different since we ended up emulating a list with the array throughout the program, leading me to believe that maybe the list ran a little faster (since the Java creators optimized this), but for the most part they would pretty much have the same run times, and we could even make ours possibly faster due to the fact we could specifically optimize it to the data we are using.

5. Due to the fact that the contains method in our program uses binary search, I would expect the runtime of that particular method to be approximately O(log(n)), since to search for the element every it will divide the array in half to keep searching.

6. To make sure the times were averaging correctly we ran them 10 million times, and as shown on the graph it seems to be going towards O(logN).



7. According to the graph, the complexity of the add function is O(N), due to the fact that every time something is added to the MySortedSet, elements have to be shifted, so the more elements and larger the array size, more things have to be shifted making the time longer.



8. We spent approximately 15-20 hours to complete this whole assignment.