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Algorithms

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Analysis: Assignment 3, Sorting Algorithms

The comparisons of times are shown below for Bubble sort vs. the STL sort method. The bubble sort runs at , while the STL appears to be much faster, though without the code we can’t conduct formal analysis of it. For 80,000 data points, STL took 74 time units to execute, while at 8000 data points, it took 6 time units to execute. This is nearly time for the STL sort, since:

and

meaning the change in time is essentially directly proportional to the change in the size of *n*, so O(n) makes sense.

For the worst case formal analysis of the bubble sort, the algorithm can be written as such:

According to the data collected, this is about right. Judging by the number of iterations of the bubble sort, ad following the same logic as for the STL sort, we have:

and

So it seems that T(n)= n\*, so seems to be an accurate representation of the efficiency seems to be an accurate representation of the efficiency of this algorithm.