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Algorithms #3

Here are the following bounds for the different algorithms:

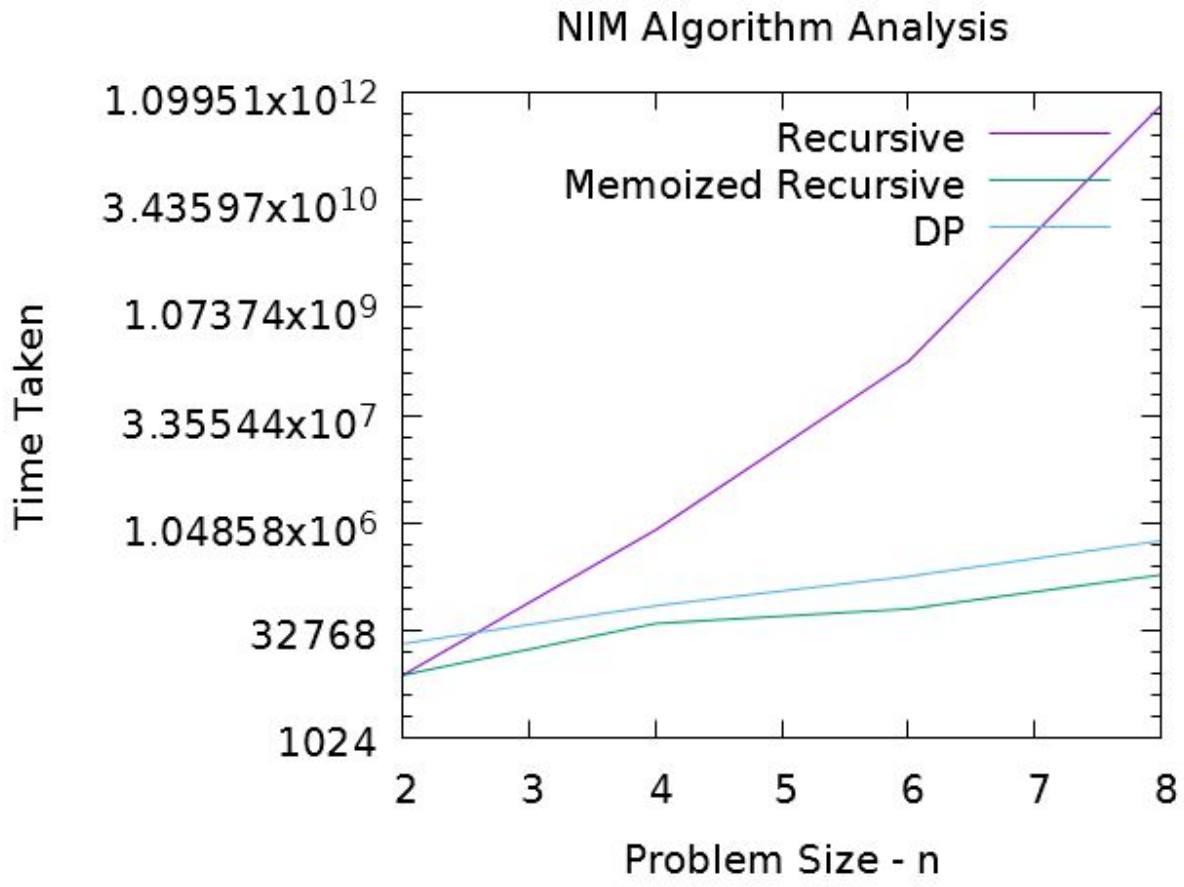
Recursive: $(n^2)^3$
Recursive Memoized: n^3
DP: n^3

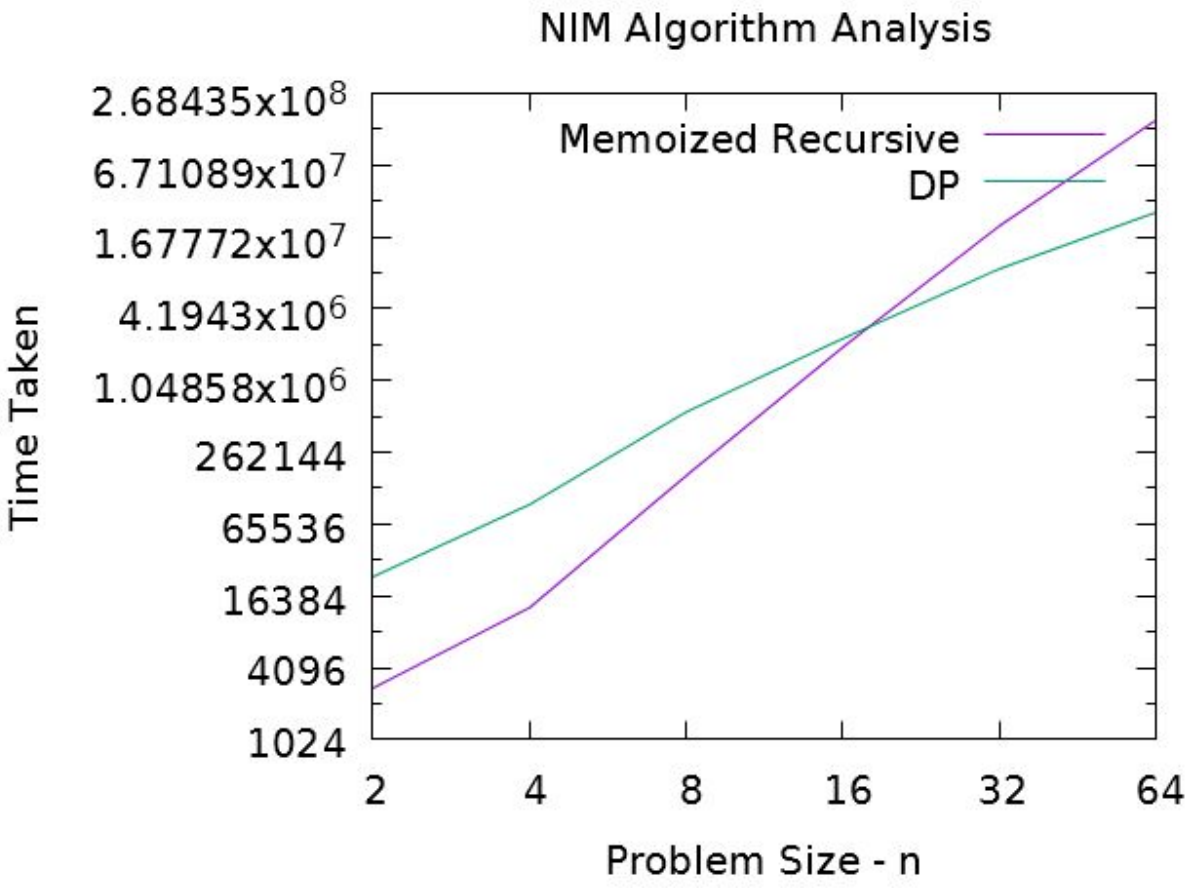
For each scenario, there is a search space in the order of n^3. After running the recursive algorithm for 3 hours waiting for n = 10 to finish, I gave up after calculating the upper bound of $(n^2)^3$. With the n^2 being the average extra work done by the recursive algorithm.

Here are the following slopes for the different algorithms:

Recursive: 8.86 x 10^{11} ns/n
Recursive Memoized: 2.48 x 10^6 ns/n
DP: 4.19 X 10^6 ns/n

And graphs:





I find it interesting that the Memoized algorithm became significantly faster in the end. I think that it is more likely to come across the answer because of the depth first search built into it, whereas the DP algorithm was somewhat more like a breadth search in the search space.However both of these algorithms are on the same order of magnitude, and on someone else's computer, maybe it is reversed. But they are incredibly close considering the difference of 5 orders of magnitude better than the normal recursive algorithms.