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Project 4: Exhaustive vs. Dynamic Programming

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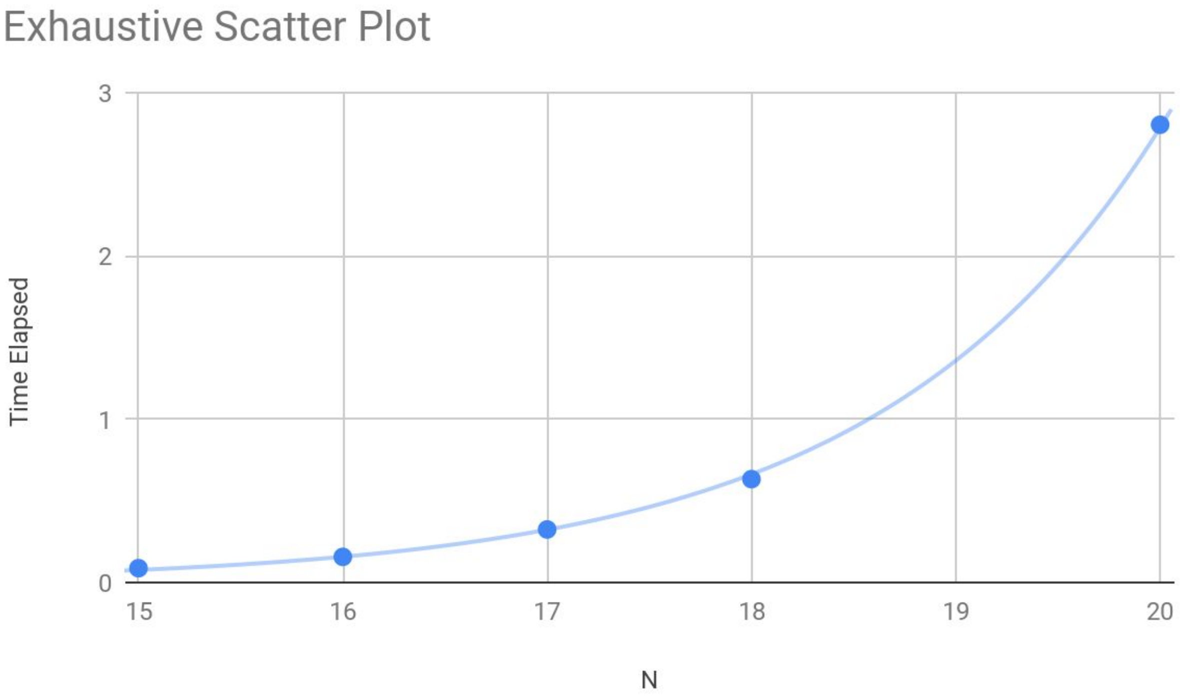
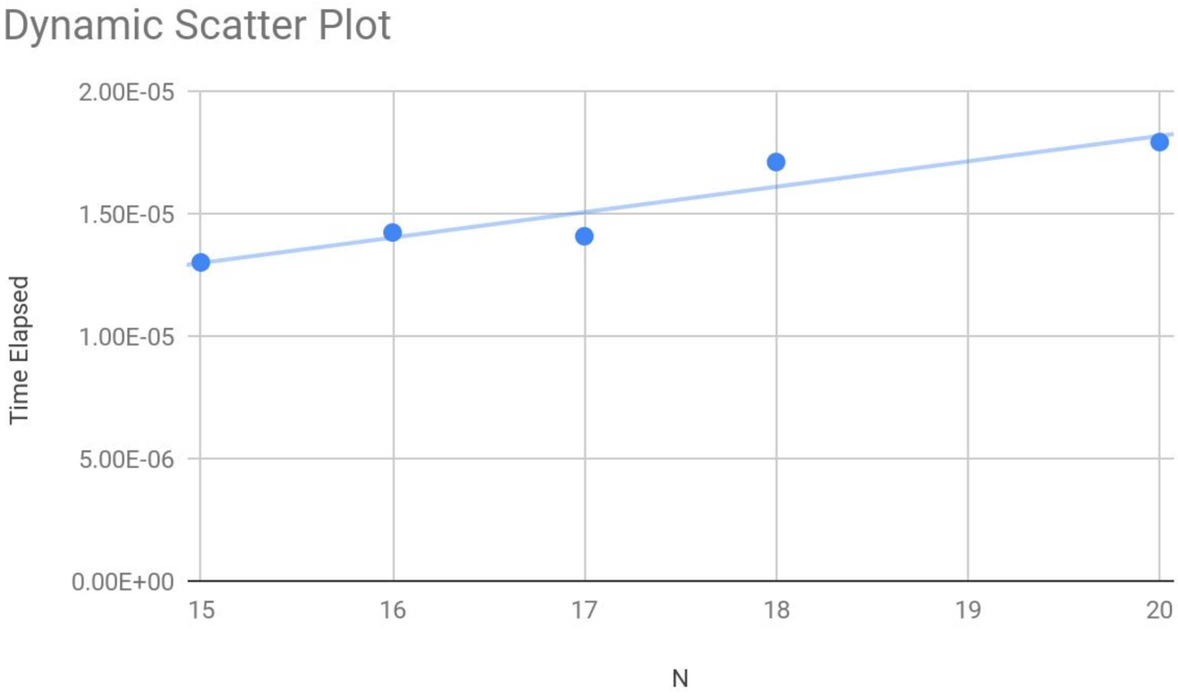


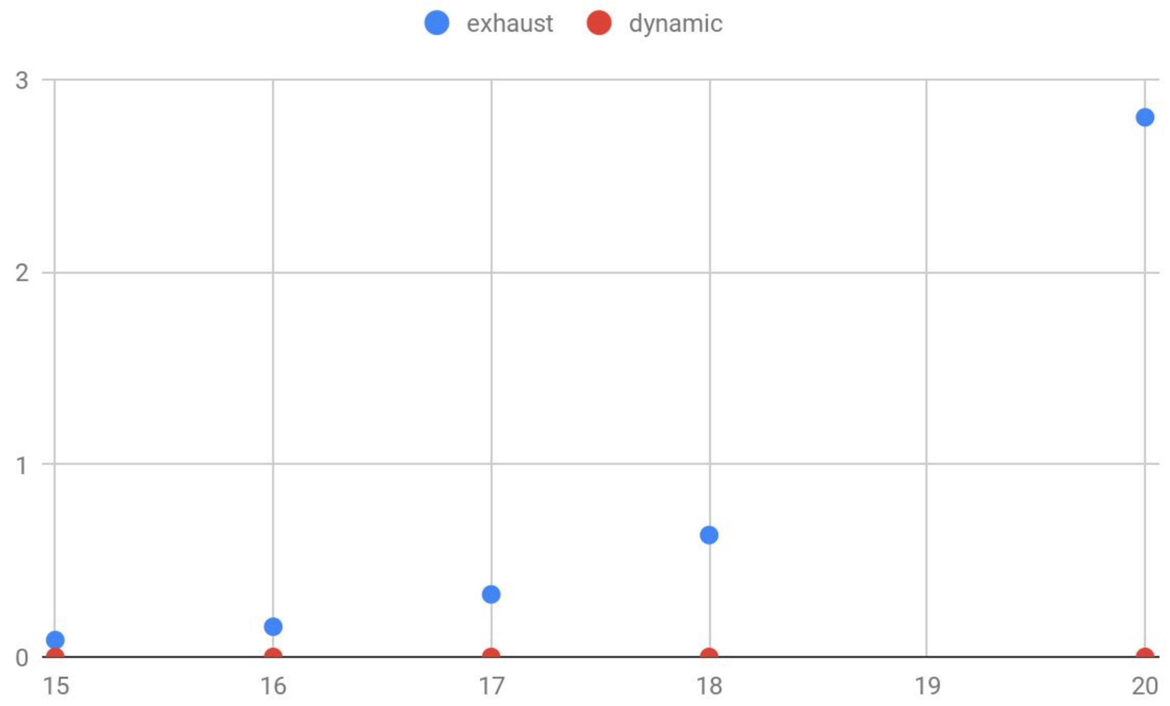
Scatter plot: exhaustive

The bullet points determines the time it took for algorithm to finish with the size of ‘n’. The time elapsed grows exponentially as ‘n’ increases.



Scatter plot: dynamic

The bullet points determines the time it took for algorithm to finish with the size of ‘n’. The time elapsed grows in linear as ‘n’ increases.This is due to dynamic programming. The ‘target’ is directly found by fast array look up rather than re-compute it from scratch.



Scatter plot: exhaust vs dynamic

Comparing both algorithm in scatterplot. I find dynamic programming more efficient and better big o analysis than exhaust programming.

Questions:

1. The fit line of the exponential is not fit. Due to increasing elapsed time exponentially. However, fit line for dynamic programming is deterministic due to linear scatter plot..
2. The evidence provided on the first page hypothesis match well with the evidence. The scatter plots gives clear answers to how both programming differs in big o analysis
3. Since the pseudo code was given I presumed that the implementation of the code would be easy. However implementing the algorithm was quite hard. In comparison exhaustive algorithm was easier than the dynamic. I prefer dynamic programming due to better efficiency and better big o analysis.