

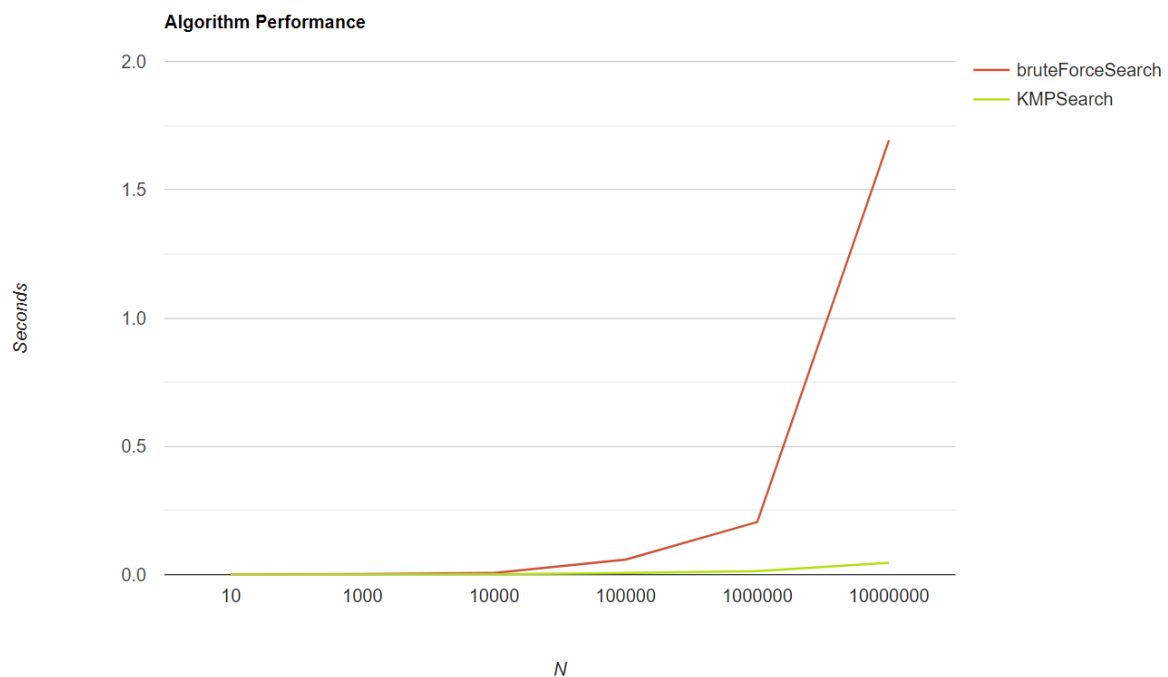
Practical 7: Searching Algorithms

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Results

N	bruteForceSearch	KMPSearch
20	0.001	0.0
1,000	0.002	0.0
10,000	0.007	0.001
100,000	0.059	0.007
1,000,000	0.205	0.014
10,000,000	1.693	0.046

Graph



From the above graph and table, it is evidently clear that KMP search is much more efficient as the value of N increases. From this I can conclude that for small values of N ($<10,000$), either algorithm can work however for values over around 10,000 KMPSearch is far quicker.

Question 1

I would say that the complexity of the Brute Force substring search algorithm is $O(nm)$ where n is the length of text and m is the length of the pattern.

Question 2

I would say that the complexity of the KMP is $O(n)$ where n is the length of text.