

Problem 7: HttpRouterTrie

Time efficiency:  $O(n^2)$

Space efficiency:  $O(n)$

Explanation: General insert in RouteTrie takes  $O(n)$ , but the lookup function will take  $O(n^2)$ , because of the very fact of the recursive algorithm inside of the a for loop. The particular algorithm I'm using for this is recursion.

The data structure I'm using for my benefit is a Trie. I've chosen a Trie for it's autocomplete functionality. Tries are great for sequential data.