

PromptScratchpadOur Solution(s)Video Explanation

Run Code

Solution 1Solution 2Solution 3

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 using System.Collections.Generic;
4
5 public class Program {
6     // O(b^2 + ns) time | O(b^2 + n) space
7     public static List<bool> MultistringSearch(string bigstring, string[] smallstrings) {
8         ModifiedSuffixTrie modifiedSuffixTrie = new ModifiedSuffixTrie(bigstring);
9         List<bool> solution = new List<bool>();
10        foreach (string smallstring in smallstrings) {
11            solution.Add(modifiedSuffixTrie.Contains(smallstring));
12        }
13        return solution;
14    }
15
16    public class TrieNode {
17        public Dictionary<char, TrieNode> children = new Dictionary<char, TrieNode>();
18    }
19
20    public class ModifiedSuffixTrie {
21        TrieNode root = new TrieNode();
22
23        public ModifiedSuffixTrie(string str) {
24            populateModifiedSuffixTrieFrom(str);
25        }
26
27        public void populateModifiedSuffixTrieFrom(string str) {
28            for (int i = 0; i < str.Length; i++) {
29                insertSubstringStartingAt(i, str);
30            }
31        }
32
33        public void insertSubstringStartingAt(int i, string str) {
34            TrieNode node = root;
35            for (int j = i; j < str.Length; j++) {
36                char letter = str[j];
37                if (!node.children.ContainsKey(letter)) {
38                    TrieNode newNode = new TrieNode();
39                    node.children.Add(letter, newNode);
40                }
41                node = node.children[letter];
42            }
43        }
44
45        public bool Contains(string str) {
46            TrieNode node = root;
47            for (int i = 0; i < str.Length; i++) {
48                char letter = str[i];
49                if (!node.children.ContainsKey(letter)) {
50                    return false;
51                }
52                node = node.children[letter];
53            }
54            return true;
55        }
56    }
57 }
58
```