

AlgoExpert

Quad Layout

Swift

12px

Sublime

Monokai

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PromptScratchpadOur Solution(s)Video Explanation

Run Code

Solution 1Solution 2Solution 3

1// Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3class Program {
4 class TrieNode {
5 var children: [String: Any] = [:]
6 }
7
8 class Trie {
9 var root = TrieNode()
10 let endSymbol = "*"
11
12 func insert(_ string: String) {
13 var node = root
14
15 for i in 0 ..< string.count {
16 let iStringIndex = string.index(string.startIndex, offsetBy: i)
17 let ithCharacter = String(string[iStringIndex])
18
19 if !node.children.keys.contains(ithCharacter) {
20 node.children[ithCharacter] = TrieNode()
21 }
22
23 let nextNode = node.children[ithCharacter] as! TrieNode
24 node = nextNode
25 }
26
27 node.children[endSymbol] = string
28 }
29 }
30
31 // O(ns + bs) time | O(ns) space
32 func multiStringSearch(_ bigString: String, _ smallStrings: [String]) -> [Bool] {
33 let trie = Trie()
34
35 for string in smallStrings {
36 trie.insert(string)
37 }
38
39 var containedStrings = [String: Bool]()
40
41 for i in 0 ..< bigString.count {
42 findSmallStringInBigString(bigString, i, trie, &containedStrings)
43 }
44
45 return smallStrings.map { containedStrings.keys.contains(\$0) }
46 }
47
48 func findSmallStringInBigString(_ string: String, _ startIndex: Int, _ trie: Trie, _ containedStrings: inout [String: Bool]) {
49 var currentNode = trie.root
50
51 for i in startIndex ..< string.count {
52 let currentStringIndex = string.index(string.startIndex, offsetBy: i)
53 let currentCharacter = String(string[currentStringIndex])
54
55 if !currentNode.children.keys.contains(currentCharacter) {
56 break
57 }
58
59 let nextNode = currentNode.children[currentCharacter] as! TrieNode
60 currentNode = nextNode
61
62 if currentNode.children.keys.contains(trie.endSymbol) {
63 let resultString = currentNode.children[trie.endSymbol] as! String
64 containedStrings[resultString] = true
65 }
66 }
67 }
68 }
69

