

PromptScratchpadOur Solution(s)Video Explanation

Run Code

Solution 1Solution 2

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 // O(nm) time | O(nm) space - where n is the length of the
4 // first string and m is the length of the second string
5 function interweavingStrings(one, two, three) {
6   if (three.length !== one.length + two.length) {
7     return false;
8   }
9
10  const cache = new Array(one.length + 1).fill(0).map(_ => new Array(two.length + 1).fill(null));
11  return areInterwoven(one, two, three, 0, 0, cache);
12 }
13
14 function areInterwoven(one, two, three, i, j, cache) {
15   if (cache[i][j] !== null) return cache[i][j];
16
17   const k = i + j;
18   if (k === three.length) return true;
19
20   if (i < one.length && one[i] === three[k]) {
21     cache[i][j] = areInterwoven(one, two, three, i + 1, j, cache);
22     if (cache[i][j]) return true;
23   }
24
25   if (j < two.length && two[j] === three[k]) {
26     cache[i][j] = areInterwoven(one, two, three, i, j + 1, cache);
27     return cache[i][j];
28   }
29
30   cache[i][j] = false;
31   return false;
32 }
33
34 exports.interweavingStrings = interweavingStrings;
35
```