

PromptScratchpadOur Solution(s)Video Explanation

Run Code

Solution 1Solution 2

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 import java.util.*;
4
5 class Program {
6     // O(nm) time | O(nm) space - where n is the length of the
7     // first string and m is the length of the second string
8     public static boolean interweavingStrings(String one, String two, String three) {
9         if (three.length() != one.length() + two.length()) {
10             return false;
11         }
12
13         Boolean[][] cache = new Boolean[one.length() + 1][two.length() + 1];
14         return areInterwoven(one, two, three, 0, 0, cache);
15     }
16
17     public static boolean areInterwoven(
18         String one, String two, String three, int i, int j, Boolean[][] cache) {
19         if (cache[i][j] != null) return cache[i][j];
20
21         int k = i + j;
22         if (k == three.length()) {
23             return true;
24         }
25
26         if (i < one.length() && one.charAt(i) == three.charAt(k)) {
27             cache[i][j] = areInterwoven(one, two, three, i + 1, j, cache);
28             if (cache[i][j]) return true;
29         }
30
31         if (j < two.length() && two.charAt(j) == three.charAt(k)) {
32             var result = areInterwoven(one, two, three, i, j + 1, cache);
33             cache[i][j] = result;
34             return result;
35         }
36
37         cache[i][j] = false;
38         return false;
39     }
40 }
41
```