

Solution 1Solution 2

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