

Interleaving String

Given strings s_1 , s_2 , and s_3 , find whether s_3 is formed by an **interleaving** of s_1 and s_2 .

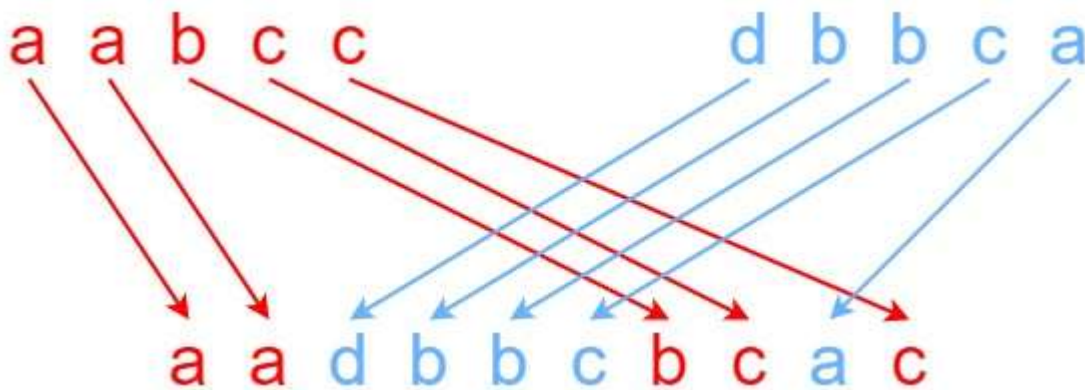
An **interleaving** of two strings s and t is a configuration where s and t are divided into n and m substrings

respectively, such that:

- $s = s_1 + s_2 + \dots + s_n$
- $t = t_1 + t_2 + \dots + t_m$
- $|n - m| \leq 1$
- The **interleaving** is $s_1 + t_1 + s_2 + t_2 + s_3 + t_3 + \dots$ Or $t_1 + s_1 + t_2 + s_2 + t_3 + s_3 + \dots$

Note: $a + b$ is the concatenation of strings a and b .

Example 1:



Input: $s_1 = \text{"aabcc"}$, $s_2 = \text{"dbbca"}$, $s_3 = \text{"aadbcbcbcac"}$

Output: true

Explanation: One way to obtain s_3 is:

Split s_1 into $s_1 = \text{"aa"} + \text{"bc"} + \text{"c"}$, and s_2 into $s_2 = \text{"dbbc"} + \text{"a"}$.

Interleaving the two splits, we get $\text{"aa"} + \text{"dbbc"} + \text{"bc"} + \text{"a"} + \text{"c"} = \text{"aadbcbcbcac"}$.

Since s_3 can be obtained by interleaving s_1 and s_2 , we return true.

Example 2:

Input: $s_1 = \text{"aabcc"}$, $s_2 = \text{"dbbca"}$, $s_3 = \text{"aadbbaaccc"}$

Output: false

Explanation: Notice how it is impossible to interleave s_2 with any other string to obtain s_3 .

Example 3:

Input: s1 = "", s2 = "", s3 = ""

Output: true

Constraints:

- $0 \leq s1.length, s2.length \leq 100$
- $0 \leq s3.length \leq 200$
- s1, s2, and s3 consist of lowercase English letters.