☆ **Swap Letters** CodeForces - 1215C 🔗

Time limit	2000 ms
Mem limit	262144 kB
Source	Codeforces Round 585 (Div. 2)
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Monocarp has got two strings s and t having equal length. Both strings consist of lowercase Latin letters "a" and "b".

Monocarp wants to make these two strings s and t equal to each other. He can do the following operation any number of times: choose an index pos_1 in the string s, choose an index pos_2 in the string t, and swap s_{pos_1} with t_{pos_2}.

You have to determine the minimum number of operations Monocarp has to perform to make s and t equal, and print any optimal sequence of operations — or say that it is impossible to make these strings equal.

Input

The first line contains one integer n $(1 \le n \le 2 \cdot 10^5)$ — the length of s and t.

The second line contains one string s consisting of n characters "a" and "b".

The third line contains one string t consisting of n characters "a" and "b".

Output

If it is impossible to make these strings equal, print -1.

Otherwise, in the first line print k — the minimum number of operations required to make the strings equal. In each of the next k lines print two integers — the index in the string s and the index in the string t that should be used in the corresponding swap operation.

Examples

Input	copy	Output	copy
4 abab aabb		2 3 3 3 2	

Input	copy	Output	copy
1 a b		-1	

Input	copy	Output	copy
8 babbaabb abababaa		3 2 6 1 3 7 8	

Note

In the first example two operations are enough. For example, you can swap the third letter in s with the third letter in t. Then $s = $ "abbb", $t = $ "aaab". Then swap the third letter in s and the second letter in t. Then both s and t are equal to "abab".

In the second example it's impossible to make two strings equal.

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