

C. Running Track

time limit per test: 1 second

memory limit per test: 512 megabytes

input: standard input

output: standard output

A boy named Ayrat lives on planet AMI-1511. Each inhabitant of this planet has a talent. Specifically, Ayrat loves running, moreover, just running is not enough for him. He is dreaming of making running a real art.

First, he wants to construct the running track with coating t . On planet AMI-1511 the coating of the track is the sequence of colored blocks, where each block is denoted as the small English letter. Therefore, every coating can be treated as a string.

Unfortunately, blocks aren't freely sold to non-business customers, but Ayrat found an infinite number of coatings s . Also, he has scissors and glue. Ayrat is going to buy some coatings s , then cut out from each of them **exactly one continuous piece** (substring) and glue it to the end of his track coating. Moreover, he may choose to flip this block before glueing it. Ayrat want's to know the minimum number of coating s he needs to buy in order to get the coating t for his running track. Of course, he also want's to know some way to achieve the answer.

Input

First line of the input contains the string s — the coating that is present in the shop. Second line contains the string t — the coating Ayrat wants to obtain. Both strings are non-empty, consist of only small English letters and their length doesn't exceed 2100.

Output

The first line should contain the minimum needed number of coatings n or -1 if it's impossible to create the desired coating.

If the answer is not -1 , then the following n lines should contain two integers x_i and y_i — numbers of ending blocks in the corresponding piece. If $x_i \leq y_i$ then this piece is used in the regular order, and if $x_i > y_i$ piece is used in the reversed order. Print the pieces in the order they should be glued to get the string t .

Examples

input
abc cbaabc
output
2 3 1 1 3

input
aaabrytaaa ayrat
output
3 1 1 6 5 8 7

input
ami no

output
-1

Note

In the first sample string "cbaabc" = "cba" + "abc".

In the second sample: "ayrat" = "a" + "yr" + "at".