

## B. String Problem

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

Boy Valera likes strings. And even more he likes them, when they are identical. That's why in his spare time Valera plays the following game. He takes any two strings, consisting of lower case Latin letters, and tries to make them identical. According to the game rules, with each move Valera can change **one** arbitrary character  $A_i$  in one of the strings into arbitrary character  $B_i$ , but he has to pay for every move a particular sum of money, equal to  $W_i$ . He is allowed to make as many moves as he needs. Since Valera is a very economical boy and never wastes his money, he asked you, an experienced programmer, to help him answer the question: what minimum amount of money should Valera have to get identical strings.

### Input

The first input line contains two initial non-empty strings  $s$  and  $t$ , consisting of lower case Latin letters. The length of each string doesn't exceed  $10^5$ . The following line contains integer  $n$  ( $0 \leq n \leq 500$ ) — amount of possible changings. Then follow  $n$  lines, each containing characters  $A_i$  and  $B_i$  (lower case Latin letters) and integer  $W_i$  ( $0 \leq W_i \leq 100$ ), saying that it's allowed to change character  $A_i$  into character  $B_i$  in any of the strings and spend sum of money  $W_i$ .

### Output

If the answer exists, output the answer to the problem, and the resulting string. Otherwise output  $-1$  in the only line. If the answer is not unique, output any.

### Examples

input
uayd uxxd 3 a x 8 x y 13 d c 3
output
21 uxyd

  

input
a b 3 a b 2 a b 3 b a 5
output
2 b

  

input
abc ab 6 a b 4 a b 7 b a 8 c b 11

c a 3  
a c 0

output

-1