Boring Lesson

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Ildar is attending a boring online lesson. In order to do something, he transforms strings. Initially, he has a string s. Ildar wants to get a string t from the string s in minimum number of steps. In one step he can:

- Remove a character from any position.
- Insert any character to any position. I.e. before the first character, between two adjacent characters, or after the last character.
- Replace character at any position with any other character.

The minimum number of such steps needed to transform string s into string t is also known as *edit distance* between s and t.

Ildar has n favorite strings w_i. Consider sequence of strings that would occur during the transformation: $s = x_1, x_2, \ldots, x_{m-1}, x_m = t$. Ildar wants as many of w_i as possible to appear in the set $\{x_1, x_2, \ldots, x_m\}$. Help Ildar to find out what is the minimum number of steps needed to transform s to t, and what is the maximum number of w_i that can appear during this process, also print these strings.

Input

The first line of input contains the string s.

The second line of input contains the string t.

The third line contains a single integer n ($0 \le n \le 1\,000$). The following n lines contain strings w_i.

All strings consist of lowercase English letters, are non-empty, their lengths don't exceed 10 000. The total length of all strings doesn't exceed 10 000. All strings are distinct, including $s \neq t$, $s \neq w_i$ and $t \neq w_i$.

Output

Output two integers at the first line of output — the minimum number of steps, needed to transform s into t, and the maximum number of strings w_i that can appear in the process of transformation.

After that, output strings w_i that can appear during the transformation, in the same order they would appear. If there are multiple correct answers, you can output any of them.

Examples

standard input	standard output
cat dog 4 dot pot rat oat	3 1 dot
longlong double 3 doublon longleng dongle	6 2 longleng dongle

Explanation

In the second example one of correct transformations is the following:

"longlong" → "**longleng**" → "dongleng" → "dongleg" → "**dongle**" → "donble" → "double"

Ildar's favorite strings are highlighted.