ShaKer 2019 PreCoding Battle

C. "Word puzzle"

Statement

You are a member of the Transgalactical CyberPunk Independent Pirates (more commonly known as the TCP-IP). As any respectable interstellar criminal network, you all use encrypted messages to communicate. You happen to have just received one !

Without skipping a beat, you start decrypting the first word of the message. To do so, you take out your **Decrypting dictionary**. As you know, **all the letters of the word have been shuffled, except for the first and the last one** which remain in the same positions. You thus need to look for all the words that could match this word.

Input

- The first line contains a string M of length T ($2 \leq T \leq 10^7$) which represents the **shuffled word** to be decrypted ;
- The second line contains an integer N which is the **number of words of the dictionary** ($1 \leq N \leq 10^7$) ;
- On the following N line(s), the **dictionary words** as character strings of length T containing only lowercase [a-z] letters.

Note : $T \cdot N \leq 10^8$.

Output

- Print all the words (one word per line) that match the given shuffled word, in alphabetical order.

Note : There is always at least one matching word.

Examples

Example 1

Input
skehar 3 valets sonder shaker

Output
shaker

Here, only the word *shaker* matches the word *skehar* by rearranging the letters that are in neither the first nor the last position.

Example 2

Input
bgadiane 5 baignade parisien raconter badinage maculage

Output
badinage baignade

This time, we can obtain the words *badinage* and *baignade* of the dictionary by rearranging the letters of *bgadiane* while keeping the first and last letters in their original positions.