Problem E
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You are given K strings $S_1, S_2, \ldots, S_K$ of lowercase Latin letters. You are also given a string T.

Define a function $f(n)$, where n is an integer, as the following.

1. Initially, you have an empty string U.
2. For n times, choose a string uniformly at random among $S_1, S_2, \ldots, S_K$, and append that string to U.
3. Let E_n be the expected value of the number of occurrences of T in U as a substring. Then, $f(n) = E_n/n$.

It can be proven that $\lim_{n\to\infty} f(n)$ exists and can be written as a rational number p/q. Find $pq^{-1} \bmod 998\,244\,353$.

Input

The first line contains the string T ($1 \le |T| \le 5000$) consisting of lowercase Latin letters. The second line contains an integer K ($1 \le K \le 5000$). Each of the next K lines contains S_i ($1 \le |S_i| \le 5000$) consisting of lowercase Latin letters. The sum of $|S_i|$ does not exceed $1\,000\,000$.

Output

Output the limit $pq^{-1} \bmod 998\,244\,353$.

Sample Input 1	Sample Output 1
ab 2 a b	748683265

Explanation of Sample 1: It can be shown that $\lim_{n\to\infty} f(n) = \frac{1}{4}$.

Sample Input 2	Sample Output 2
ab 4 aaa abab baba bbb	1

Explanation of Sample 2: It can be shown that $\lim_{n\to\infty} f(n) = 1$.

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