Problem K. Consistent Occurrences

Input file:	*standard input*
Output file:	*standard output*
Time limit:	4 seconds
Memory limit:	256 mebibytes

Let us define a *consistent set of occurrences of string t in string s* as a set of occurrences of t in s such that no two occurrences intersect (in other words, no character position in s belongs to two different occurrences).

You are given a string s consisting of n lowercase English letters, and m queries. Each query contains a single string t_i.

For each query, print the maximum size of a consistent set of occurrences of t in s.

Input

The first line contains two space-separated integers n and m: the length of string s and the number of queries ($1 \le n \le 10^5$, $1 \le m \le 10^5$).

The second line contains the string s consisting of n lowercase English letters.

Each of the next m lines contains a single string t_i consisting of lowercase English letters: the i-th query ($1 \le |t_i| \le n$, where $|t_i|$ is the length of the string t_i).

It is guaranteed that the total length of all t_i does not exceed 10^5 characters.

Output

For each query i, print one integer on a separate line: the maximum size of a consistent set of occurrences of t_i in s.

Example

standard input	standard output
6 4 aaaaaa a aa aaa aaaa	6 3 2 1