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PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   HACKS   STANDINGS   CUSTOM INVOCATION

E. You Are Given Some Strings...

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a string t and n strings $s_1, s_2, \ldots, s_n$. All strings consist of lowercase Latin letters.

Let $f(t, s)$ be the number of occurences of string s in string t. For example, $f('aaabacaa', 'aa') = 3$, and $f('ababa', 'aba') = 2$.

Calculate the value of $\sum_{i=1}^{n} \sum_{j=1}^{n} f(t, s_i + s_j)$, where $s + t$ is the concatenation of strings s and t. Note that if there are two pairs i_1, j_1 and i_2, j_2 such that $s_{i_1} + s_{j_1} = s_{i_2} + s_{j_2}$, you should include both $f(t, s_{i_1} + s_{j_1})$ and $f(t, s_{i_2} + s_{j_2})$ in answer.

Input

The first line contains string t ($1 \le |t| \le 2 \cdot 10^5$).

The second line contains integer n ($1 \le n \le 2 \cdot 10^5$).

Each of next n lines contains string s_i ($1 \le |s_i| \le 2 \cdot 10^5$).

It is guaranteed that $\sum_{i=1}^{n} |s_i| \le 2 \cdot 10^5$. All strings consist of lowercase English letters.

Output

Print one integer — the value of $\sum_{i=1}^{n} \sum_{j=1}^{n} f(t, s_i + s_j)$.

Examples

input	Copy

```
aaabacaa
2
a
aa
```

output	Copy

```
5
```

input	Copy

```
aaabacaa
4
a
a
a
b
```

output	Copy

```
33
```

Educational Codeforces Round 70
(Rated for Div. 2)

Finished

Practice

⭐

→ **Virtual participation**

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

[Start virtual contest]

→ **Practice**

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ **Clone Contest to Mashup**

You can clone this contest to a mashup.

[Clone Contest]

→ **Submit?**

Language: GNU G++11 5.1.0 ▼

Choose file: 选择文件   未选择任何文件

[Submit]

→ **Problem tags**

brute force   string suffix structures
strings   *2500

No tag edit access

→ **Contest materials**

- Announcement #1 (en) ✕
- Announcement #2 (ru) ✕
- Tutorial (en) ✕

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