

String Matching

Input file: **standard input**
Output file: **standard output**
Time limit: 4 seconds
Memory limit: 1024 megabytes

Given n strings s_1, s_2, \dots, s_n consisting of lowercase letters. It is guaranteed that these strings are sorted in **non-decreasing** order of length, i.e. $|s_1| \leq |s_2| \leq \dots \leq |s_n|$.

For any two different strings s_i and s_j with $1 \leq i < j \leq n$, define $t_{i,j} = s_i + s_j$, which means the new string obtained by concatenating s_i and s_j in order, with s_i in front and s_j behind.

We define a function $f(t)$, where t is a string of length m . The value of $f(t)$ is the number of positive integers x ($0 < x \leq m$) satisfying the following condition:

- The first x characters of string t are exactly the same as the last x characters of t . That is, $t[1 : x] = t[m - x + 1 : m]$.

Your task is to compute the sum of $f(t_{i,j})$ over all valid pairs (i, j) , that is:

$$\sum_{1 \leq i < j \leq n} f(t_{i,j}).$$

Input

The input contains multiple lines.

The first line contains an integer n ($1 \leq n \leq 10^6$), representing the total number of given strings.

The next n lines each contain a lowercase string s_i ($1 \leq |s_i| \leq 10^6$).

It is guaranteed that the total length of all strings in the test data satisfies $\sum |s_i| \leq 10^6$.

Output

Output one line containing an integer, representing the total sum of all $f(t_{i,j})$.

Examples

standard input	standard output
2 ak hbcpc	1
3 aa abaa ababaa	9

Note

In the second sample, there are $n = 3$ strings, and we can form 3 different $t_{i,j}$:

- When $i = 1, j = 2$: $t_{1,2} = aaabaa$. The lengths x such that the prefix equals the suffix are: 1, 2, 6.
- When $i = 1, j = 3$: $t_{1,3} = aaababaa$. The lengths x such that the prefix equals the suffix are: 1, 2, 8.
- When $i = 2, j = 3$: $t_{2,3} = abaaababaa$. The lengths x such that the prefix equals the suffix are: 1, 4, 10.

The final answer is $3 + 3 + 3 = 9$.