

Invincible Hotwheels

Input file:	standard input
Output file:	standard output
Time limit:	6 seconds
Memory limit:	512 megabytes

Yukari is an elusive youkai (monster) who can manipulate boundaries. Recently Yukari is in a bad temper, and when she hears someone saying something she does not like (for example, “Yukari is thousands of years old”), she will be angry and beat the person from behind. Reimu has been bothered by her for a while because she does not know which words make Yukari unhappy. Even saying some common words like “oooooooooooooooooooooooooooo”, “I want to eat noodles”, or “invincible hotwheels” will be beaten by Yukari.

To avoid angering Yukari, Reimu finds out n possible words Yukari may dislike, numbered from 1 to n . Each word is a string containing only lowercase English letters. However, some redundant (unnecessary) words may contain other words. For example, if “iwanttoeatnoodles” and “noodles” are both possible words, then the former is redundant.

Reimu wants to estimate how many redundant relations are among the n words. Formally, let s_i denotes the i -th word. Reimu wants to know that, how many tuples of (i, j, k) ($1 \leq i, j, k \leq n$; i, j, k are pairwise distinct) satisfying following conditions: s_i is a substring of s_j , and s_j is a substring of s_k . Also, there must not be another j' which is not equal to i, j or k , such that s_i is also a substring of $s_{j'}$, and $s_{j'}$ is also a substring of s_k .

Reimu asked you for help her calculating the number of such tuples.

Input

The first line of input contains one positive integer n ($1 \leq n \leq 10^6$), denoting the number of words.

Then follows n lines. The i -th line contains a non-empty string s_i consisting of lowercase letters, denoting the i -th word. It is guaranteed that all the words are distinct and $\sum_{i=1}^n |s_i| \leq 2 \times 10^6$ holds.

Output

Output one integer - the answer described in the statement.

Examples

standard input	standard output
8 wwwsoupunetcom wwwsoupunet soupunet punetcom punet pun net n	6
4 a aa aaa aaaa	2
5 bc cbcb cbca cbc c	3

Note

For the first example, the valid tuples are (3, 2, 1), (5, 3, 2), (6, 5, 3), (6, 5, 4), (7, 5, 3) and (7, 5, 4).