

Problem H. P-P-Palindrome

Input file: standard input
Output file: standard output
Time limit: 3 seconds
Memory limit: 512 megabytes

Given n strings S_1, S_2, \dots, S_n , you need to calculate the number of different *P-P-Palindromes* given by these n strings.

A palindrome is a string that can be read the same from left to right and from right to left. For example, “a”, “level”, and “otto” are palindromes, while “aab” and “icpc” are not.

A *P-P-Palindrome* is an ordered pair of **nonempty** palindromes (P, Q) such that both P and Q are the substrings of some in S_1, S_2, \dots, S_n and $P + Q$ is also a palindrome. Here $P + Q$ means concatenating P and Q in order, or more specifically, let $P = p_1p_2 \dots p_{|P|}$ and $Q = q_1q_2 \dots q_{|Q|}$, then $P + Q = p_1p_2 \dots p_{|P|}q_1q_2 \dots q_{|Q|}$, where $|S|$ is the length of string S .

Note that two *P-P-Palindromes* are considered different if and only if P differs or Q differs.

Input

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

Then n lines follow, the i -th of which contains a string S_i ($1 \leq |S_i| \leq 10^6$) consisting of lowercase English letters only.

It is guaranteed that the total length of the given strings does not exceed 10^6 .

Output

Output a line containing a single integer, indicating the number of different *P-P-Palindromes* given by the n strings.

Examples

standard input	standard output
2 aaaa aaa	16
3 abaaa abbbbba bbbaba	28