D. Palindrome Pairs

time limit per test: 4.0 s
memory limit per test: 256 megabytes
input: standard input
output: standard output

After learning a lot about space exploration, a little girl named Ana wants to change the subject.

Ana is a girl who loves palindromes (string that can be read the same backwards as forward). She has learned how to check for a given string whether it's a palindrome or not, but soon she grew tired of this problem, so she came up with a more interesting one and she needs your help to solve it:

You are given an array of strings which consist of only small letters of the alphabet. Your task is to find **how many** palindrome pairs are there in the array. A palindrome pair is a pair of strings such that the following condition holds: **at least one** permutation of the concatenation of the two strings is a palindrome. In other words, if you have two strings, let's say "aab" and "abcac", and you concatenate them into "aababcac", we have to check if there exists a permutation of this new string such that it is a palindrome (in this case there exists the permutation "aabccbaa").

Two pairs are considered different if the strings are located on **different indices**. The pair of strings with indices (i, j) is considered **the same** as the pair (j, i).

Input

The first line contains a positive integer N ($1 \leq N \leq 100\,000$), representing the length of the input array.

Eacg of the next N lines contains a string (consisting of lowercase English letters from 'a' to 'z') — an element of the input array.

The total number of characters in the input array will be less than $1\,000\,000$.

Output

Output one number, representing **how many palindrome pairs** there are in the array.

Examples

input	Copy
3 aa bb cd	

output	Copy
1	

input	Copy
6 aab abcac dffe ed aa aade	

output	Copy
6	

Note

The first example:

1. aa + bb → abba.

The second example:

1. aab + abcac = aababcac → aabccbaa
2. aab + aa = aabaa
3. abcac + aa = abcacaa → aacbcaa
4. dffe + ed = dffeed → fdeedf
5. dffe + aade = dffeaade → adfaafde
6. ed + aade = edaade → aeddea

Topic Stream Mashup: Bitwise Operations

Finished

Practice

→ Virtual participation

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Start virtual contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
268683137	Jul/04/2024 00:43	Accepted
268679061	Jul/03/2024 23:53	Wrong answer on test 1

→ Contest materials

- Topic tutorial video (en)