Matching Gloves (125 points)

Introduction

Winter is coming and Arthur needs to sort through his winter wear to make sure that all his gloves are in pairs. Luckily he has labelled each of his gloves with a string, and has a system in place where each glove is labelled with the reverse of the string that its matching pair is labelled with. Arthur never labels his gloves with a palindrome (a string that is the reverse of itself) because that is how he labels his hats. Can you help Arthur work out whether all his gloves have a matching pair?

Input Specifications

Your program will take

- An input **N (1 ≤ N ≤ 1,000)** which denotes the number of gloves and hats Arthur has in his winter wear box.
- This will be followed by **N strings S[1], S[2], ..., S[N]** where S[i] denotes the string that each winter wear item is labelled with. Each string will only be comprised of **lowercase** letters a-z, and there can be duplicates of a string.

Output Specifications

If all Arthur's gloves have a pair, print the **number of matching pairs** of gloves that he has. Otherwise, print **-1**.

Note that:

- Palindromes do not denote a glove and should be ignored.
- Multiple sets of the same pair are still valid and each pair should be counted.

Sample Input/Output

Input

```
5
bcd
erty
ytre
opipo
dcb
```

Output

```
2
```

Explanation

There are two matching pairs of words in this list, ("bcd", "dcb") and ("erty", "ytre"), and one palindrome "opipo" which is ignored. Hence, all the gloves have a matching pair and the number of matching pairs is 2.

Input

3
abcde
edcba
abcde

Output

-1

Explanation

Although "abcde" has its reversed pair "edcba" in the list, there are two "abcde"s and only one "edcba", so each string in the list does not have a reversed pair. Therefore the output is -1.

Input

3
ioi
ertre
ghhg

Output

0

Explanation

All three of the strings in the list are palindromes, so there are no matching pairs. Therefore the output is 0.