Bloomberg CODECON

Memory Limit: 1024 MB
Time Limit: 2 s

Finals Spring 2015 - Matching Gloves (150 points)

Introduction

Winter is coming and Manny needs to sort through his winter wear to make sure that all his gloves are in pairs. Luckily he has labeled each of his gloves with a string, and has a system in place where each glove is labeled with the **reverse of the string that its matching pair is labeled with**. Manny **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 Manny work out whether all his gloves **have a matching pair?**

Input Specifications

Your program will take

- An input **N (1 ≤ N ≤ 100,000)** which denotes the number of gloves and hats Manny has in his shopping bags.
- 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 labeled with. Each string will only be comprised of **lowercase** letters a-z, and there can be duplicates of a string.

Output Specifications

If all Manny'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.