

Palindromes with Friends

Statement

Fluffy has multiple bags, each bag containing many letter tiles. Each letter labelled with a single letter from A-Z. A bag may contain 0, 1, or more tiles, of any letter.

He wants to form **palindromes**, which are words (not necessarily valid English words) that are the same when read forward or backwards. For example, **ANNA** is a palindrome, and so is **QJSDFMFDSJQ**.

How many ways can Fluffy pick 2 *distinct* bags, such that all the letter tiles they contain, can be rearranged to form a palindrome? (Picking bags i, j is considered the same way as picking bags j, i .)

Input

The first line consists of a single integer N , the number of bags.

N lines follow, each describing the letter tiles in the corresponding bag.

Strings with the same letters may appear multiple times, and are counted as distinct bags (containing the same letters).

Constraints

- $1 \leq N \leq 10^5$
- Each line contains exactly 1 alphabetic string (made of only uppercase Latin letters A-Z).
- Each string has at least 1 character, and at most 1000 characters.
- The total number of letters over all words, is at most 10^6 .

Output

Print out the total number of ways Fluffy can choose 2 bags, such that their combined letter tiles can be rearranged to form a palindrome.

Examples

Sample Input	Expected Output
<pre> 7 ABA B BAB AB XYZ XYZ TT </pre>	<pre> 8 </pre>

The pairs are

- $(ABA, AB) \rightarrow ABABA$
- $(ABA, TT) \rightarrow TABAT$
- $(ABA, B) \rightarrow ABBA$
- $(B, AB) \rightarrow BAB$
- $(B, TT) \rightarrow TBT$
- $(BAB, AB) \rightarrow BABAB$
- $(BAB, TT) \rightarrow TBABT$
- $(XYZ, XYZ) \rightarrow XYZZYX$

Notes

1. A skeleton file has been given to help you. You should not create a new file or rename the file provided. You should develop your program using this skeleton file.
2. You are free to define your own helper methods and classes (or remove existing ones) if it is suitable but you must put all the new classes, if any, in the same skeleton file provided.

Skeleton File

You are given the skeleton file `Palindromes.java`. You should see the following contents when you open the file:

```
/**
 * Name      :
 * Matric. No :
 */

import java.util.*;

public class Palindromes {
    private void run() {

    }

    public static void main(String args[]) {
        Palindromes runner = new Palindromes();
        runner.run();
    }
}
```