

Vaccine Manufacturing (vaccine)

An Italian lab claims that they are really close to finding a vaccine for the upcoming COVID-23. To manufacture it, they have N vaccine components encoded as strings: none of those alone can cure the virus, but there is a combination of three of them (repetition is allowed) which the researchers believe will be 100% effective to cure the virus.

The researchers know that this “ultimate vaccine” made by concatenating its components’ string encodings **must be a palindrome!** A palindrome is a sequence of characters that reads the same backward as forward, such as `madam` or `racecar`.

As you may know, there is already a very close competition over finding a promising vaccine for COVID-23, so the lab manager wants to know how many combinations of these N components have to be tested to find the working vaccine. Since this number might be huge, you are asked to only print its remainder after division by 1 000 000 007.

Input

The first line contains one integer: N , the number of vaccine components.

Each of the next N lines contains the string representation M_i of the i -th vaccine component.

Output

You need to write a single line containing the remainder of the number of combinations of three vaccine components who form a palindrome after being divided by 1 000 000 007.

Constraints

- $1 \leq N \leq 10\,000$.
- M_i is always between 1 and 100 characters long.
- Different vaccine components may sometimes be represented by the same string encoding.

Explanation

In the second example below there are 3 ways to choose three vaccine components:

- `madam, im, adam`
- `madam, adam, adam`
- `madam, madam, madam`

Examples

input	output
3 a b a	15
3 madam im adam	3