



Task Anagramistica

Biljana loves making crosswords. Her favourite type is the so called *anagram crossword*, where each clue is an anagram of the required solution.

She has a set of n words that she thinks would be good candidates for her next puzzle. We say that two words are *similar* if one can be obtained from the other by rearranging the letters (i.e. they are anagrams). She wants to select a subset of her words, such that there are **exactly k pairs of similar words** in that subset. Help Biljana determine the number of such subsets.

Input

The first line contains integers n ($1 \leq n \leq 2000$) and k ($0 \leq k \leq 2000$), the number of words and the required number of similar pairs.

Each of the following n lines contains a word consisting of at most 10 lowercase letters. All words will be distinct.

Output

Output the number of described subsets modulo $10^9 + 7$.

Scoring

Subtask	Points	Constraints
1	10	$1 \leq n \leq 15$
2	30	$0 \leq k \leq 3$
3	70	No additional constraints.

Examples

input

3 1
ovo
ono
voo

output

2

input

5 2
trava
vatra
vrata
leo
ole

output

3

input

6 3
mali
lima
imal
je
sve
ej

output

6

Clarification of the first example:

Subsets with exactly one similar pair are $\{\text{ovo}, \text{ono}, \text{voo}\}$ and $\{\text{ovo}, \text{voo}\}$.