

E. New Year and Entity Enumeration

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given an integer m .

Let $M = 2^m - 1$.

You are also given a set of n integers denoted as the set T . The integers will be provided in base 2 as n binary strings of length m .

A set of integers S is called "good" if the following hold.

1. If $x \oplus y \in S$, then $x, y \in S$.
2. If $x \oplus y \in S$, then $x \wedge y \in S$.
3. All elements of S are less than or equal to M .

Here, \oplus and \wedge refer to the bitwise XOR and bitwise AND operators, respectively.

Count the number of good sets S , modulo $10^9 + 7$.

Input

The first line will contain two integers m and n ($1 \leq m \leq 1\,000$, $1 \leq n \leq \min(2^m, 50)$).

The next n lines will contain the elements of T . Each line will contain exactly m zeros and ones. Elements of T will be distinct.

Output

Print a single integer, the number of good sets modulo $10^9 + 7$.

Examples

input
5 3 11010 00101 11000
output
4

input
30 2 0101010101010100101010101010 110110110110110011011011011
output
860616440

Note

An example of a valid set S is $\{00000, 00101, 00010, 00111, 11000, 11010, 11101, 11111\}$.