



1st North African Olympiad in Informatics 2025

Tiles

Time limit: 2 seconds

Memory limit: 256 MB

You are given a rectangular board of $n \times m$ cells, where $1 \leq n \leq 2$. Some of the cells are blocked, and all the other ones are free. You can place a domino (rectangle of size 1×2 or 2×1) on two neighboring cells that are both free. Once you place a domino on the board, the two cells it occupies become blocked. We call a set of dominoes **good** for a given board if after we place all of the dominoes from the set on the board it is not possible to place any more dominoes on it.

Given a board, how many good sets of dominoes exist? Count modulo $10^9 + 7$. We consider two dominoes to be different if one of them occupies a cell that the other does not. We consider two sets of dominoes to be different if there is a domino in one set that does not exist in the other set or vice versa.

Input

The first line contains two integers n and m ($1 \leq n \leq 2$, $1 \leq m \leq 10^5$).
The following n lines contain m characters each, each character is either '.' or '#'.
The j -th character in the i -th of these lines is '.' if the cell (i, j) is free,
and '#' if the cell (i, j) is blocked.

Output

Print one integer - the number of good sets of dominoes modulo $10^9 + 7$

Constraints

- $1 \leq n \leq 2$
- $1 \leq m \leq 10^5$

Subtasks

Subtask	Score	Constraints
1	6	$m \leq 2$
2	14	$n = 1$
3	12	$m \leq 7$
4	8	$3 \mid m$, for $j = 3k$ (k ranges from 1 to $\frac{m}{3}$) cells $(1, j - 2)$, $(1, j - 1)$ and $(2, j - 2)$ are free, all other cells are blocked
5	12	All cells free
6	18	$n \leq 10^3$
7	30	No additional constraints

Examples

Input 1

```
2 2
..
..
```

Output 1

```
2
```

Input 2

```
2 3
##.
#.#
```

Output 2

```
1
```

Input 3

```
1 8
....#...
```

Output 3

```
4
```

Explanation

- In the first example, there are two possible good sets: one contains two vertical dominoes and the other contains two horizontal dominoes.
- In the second example, the only good set is the empty set.