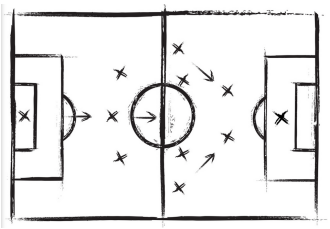
Task Trener



At this point we already know that students love to sleep. Patrik is a record holder in this category. He wakes up only when he needs to eat or if he wishes to play *FIFA 20*. Therefore, his dreams usually revolve around football. In his last dream, he found himself in the role of a football manager of his favourite team – GNK Dinamo Zagreb.

His job is to select N players that will defend the blue colors in the next season, but the board has some peculiar requests. They are:

- All players must have surnames of distinct lengths.
- Surname of a player must appear as a continuous subsequence of surnames of all players whose surnames are longer.

To make his job easier, Patrik divided the potential players in N buckets such that players in i-th bucket have exactly i letters in their surname. In each of these buckets there are exactly K players. Patrik wants to know in how many distinct ways (modulo $10^9 + 7$) can he choose the players for his squad while also conforming to the given requests.

Input

The first line contains two integers N ($1 \leq N \leq 50$) and K ($1 \leq K \leq 1\,500$).

Each of the next N lines contains K not necessarily distinct surnames of players. The surnames of players in i-th of those lines consist of exactly i lowercase letters from the English alphabet.

Output

In the only line you should output the answer from the task description.

Bodovanje

Subtask	Score	Constraints
1	22	$N = 5$ and $K = 10$
2	33	$N = 50$ and $K = 100$
3	55	No additional constraints.

Examples

input	**input**	**input**

`3 2`
`a b`
`ab bd`
`abc abd`
	`3 3`
	`a b c`
	`aa ab ac`
	`aaa aab aca`
		`3 1`
		`a`
		`bc`
		`def`

output	**output**	**output**
`5`	`6`	`0`

Clarification of the first example: Patrik can choose the following teams: `(a, ab, abc)`, `(a, ab, abd)`, `(b, ab, abc)`, `(b, ab, abd)` and `(b, bd, abd)`.