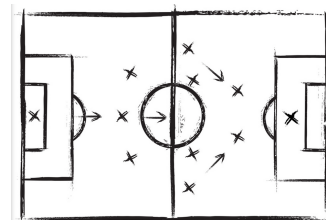




## Task Trener

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

```
3 2
a b
ab bd
abc abd
```

#### output

```
5
```

#### input

```
3 3
a b c
aa ab ac
aaa aab aca
```

#### output

```
6
```

#### input

```
3 1
a
bc
def
```

#### output

```
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).