KOSARE

Mirko found N boxes with various forgotten toys at his attic. There are M different toys, numbered 1

through M, but each of those can appear multiple times across various boxes.

Mirko decided that he will **choose some boxes** in a way that there is **at least one toy of each kind**

present, and throw the rest of the boxes away.

Determine the number of ways in which Mirko can do this.

Input

The first line of input contains two integers N and M (1 ≤ N ≤ 1 000 000, 1 ≤ M ≤ 20).

Each of the following N lines contains an integer K_i (0 ≤ K_i ≤ M) followed by Ki distinct integers from

interval [1, M], representing the toys in that box.

Output

The first and only line of output should contain the requested number of ways modulo 1 000 000 007.

Example

Input 1:
3 3
3 1 2 3
3 1 2 3
3 1 2 3

Output 1:
7

Input 2:

```
3 3
1 1
1 2
1 3
```

Output 2:
```
1
```

Input 3:
```
4 5
2 2 3
2 1 2
4 1 2 3 5
4 1 2 4 5
```

Output 3:
```
6
```