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** ($1 \leq \mathbf{N} \leq 1\,000\,000$, $1 \leq \mathbf{M} \leq 20$).

Each of the following **N** lines contains an integer $\mathbf{K_i}$ ($0 \leq \mathbf{K_i} \leq \mathbf{M}$) followed by $\mathbf{K_i}$ 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.

SCORING

In test cases worth 50% of total points, $\mathbf{N} \leq 100$ and $\mathbf{M} \leq 15$ will hold.

In test cases worth 70% of total points, $\mathbf{N} \leq 1\,000\,000$ and $\mathbf{M} \leq 15$ will hold.

SAMPLE TESTS

input

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

output

```
7
```

input

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

output

```
1
```

input

```
4 5
2 2 3
2 1 2
4 1 2 3 5
4 1 2 4 5
```

output

```
6
```