Author: Davor Ljubenkov, Aalborg University
Supervisor: Sokol Kosta, Aalborg University

Boxes

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 ($1 \leq N \leq 1\,000\,000$, $1 \leq M \leq 20$). Each of the following N lines contains an integer K_i ($0 \leq K_i \leq M$) followed by 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.

Sample input	Sample output
3 3 3 1 2 3 3 1 2 3 3 1 2 3	7
3 3 1 1 1 2 1 3	1
4 5 2 2 3 2 1 2 4 1 2 3 5 4 1 2 4 5	6