Problem G. Good Game

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

You want to walk from $(0, 0, \ldots, 0)$ to $(a_0, a_1, \ldots, a_{n-1})$ in an n-dimensional space. On each step, you can increase one component of your coordinate vector by one. There are m obstacles $p_1, p_2, \ldots, p_m$. You want to find the number of paths that don't pass through the obstacles.

However, this problem is too simple for an ICPC contest in the year 8102. We add one more constraint. For every point $(x_0, x_1, \ldots, x_{n-1})$ on your path, the components of this vector should be non-decreasing: $x_0 \le x_1 \le \ldots \le x_{n-1}$.

Output the number of paths modulo $10^9 + 7$.

Input

The first line contains two integers n and m ($1 \le n \le 50$, $0 \le m \le 50$).

The second line contains n integers $a_0, a_1, \ldots, a_{n-1}$ ($0 \le a_0 \le a_1 \le \ldots \le a_{n-1} \le 10^4$), the coordinate vector of your destination.

The following m lines describe obstacles. The i-th of these lines contains n integers $p_{i,0}, p_{i,1}, \ldots, p_{i,n-1}$ ($0 \le p_{i,0} \le p_{i,1} \le \ldots \le p_{i,n-1} \le 10^4$), the coordinate vector of an obstacle.

The starting point, destination, and all the obstacles are distinct.

Output

Output the answer modulo $10^9 + 7$.

Examples

standard input	standard output
2 0 3 3	5
4 2 1 2 3 4 0 1 2 3 1 1 2 2	312