

Problem K. Keep It Cool

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 512 mebibytes

Consider the set of all pairs (a, b) with a and b satisfying the constraint $1 \leq a < b \leq n$. A permutations of all these pairs is called *balanced* if and only if, for any a, b and c satisfying $1 \leq a < b < c \leq n$, the pair (a, c) is between the pairs (a, b) and (b, c) in the permutation. That is, those three pairs appear in the permutation either in the order $(a, b), (a, c), (b, c)$, or in the order $(b, c), (a, c), (a, b)$.

Moreover, there are m additional restrictions on the permutation, i -th of them states that the pair (a_i, b_i) should appear before the pair (c_i, d_i) in the permutation. Compute the number of balanced permutations that satisfy these m restrictions.

Input

In the first line of the input, there are space-separated integers n and m ($2 \leq n \leq 10$; $0 \leq m \leq 10$). The i -th of the following m lines contains space-separated integers a_i, b_i, c_i , and d_i ($1 \leq a_i < b_i \leq n$; $1 \leq c_i < d_i \leq n$; pairs (a_i, b_i) and (c_i, d_i) are different).

Output

Print the number of balanced permutations where (a_i, b_i) appears before (c_i, d_i) for every i . As this number can be very large, print it modulo prime number 998 244 353.

Examples

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

Note

In the second sample, the permutations are:

$(1, 2), (1, 3), (1, 4), (2, 3), (2, 4), (3, 4);$
 $(1, 2), (1, 3), (2, 3), (1, 4), (2, 4), (3, 4).$