

# Super Humble Matrix

Sherry likes matrices a lot, but her favorite ones are *humble matrices*. An  $N \times M$  matrix (we'll call it  $A$ ) is *humble* if:

- It contains all the elements in range  $[1, N \times M]$  exactly once.
- For any 2 elements  $(i_1, j_1)$  and  $(i_2, j_2)$  in matrix  $A$ :  
If  $i_1 + j_1 \leq i_2 + j_2$ , then  $A_{i_1, j_1} \leq A_{i_2, j_2}$  should hold.

Given  $N$  and  $M$ , find and print the total number of possible humble matrices; as this number can be quite large, print your answer modulo  $10^9+7$ .

## Input Format

Two space-separated integers,  $N$  and  $M$ , respectively.

## Constraints

- $1 \leq N, M \leq 10^6$

## Scoring

- $1 \leq N, M \leq 10^3$  for 30% of the test data.
- $1 \leq N, M \leq 10^6$  for 100% of the test data.

## Output Format

Print the total number of humble matrices possible, modulo  $10^9+7$ .

## Sample Input 0

2 2

## Sample Output 0

2

## Sample Input 1

3 2

## Sample Output 1

4

## Explanation

There are 2 possible  $2 \times 2$  humble matrices:

- $\begin{bmatrix} 1, & 2 \\ 3, & 4 \end{bmatrix}$
- $\begin{bmatrix} 1, & 3 \end{bmatrix}$

**[ 2, 4 ]**

Thus, we print the result of `$2 \ \% \ (10^9+7)$`, which is `$2$`.