

## Problem J

### Sharing Bread

There are  $N$  toasters, numbered from 1 to  $N$ , from left to right. Initially, each toaster has a single piece of bread in it. There are  $M$  people, numbered from 1 to  $M$ , who are one by one looking for bread among the toasters, starting from person 1, person 2, and so on.

Person  $i$  starts looking from toaster  $a_i$  ( $1 \leq a_i \leq N$ ) and keeps going right until they found a toaster with a piece of bread in it. In other words, person  $i$  is looking for the smallest  $j$  such that  $a_i \leq j \leq N$  and toaster  $j$  contains bread. If such a toaster exists, then person  $i$  will take the bread from that toaster and leave; the toaster becomes empty afterward. If such a toaster does not exist, then person  $i$  will leave empty-handed.

A starting sequence  $(a_1, a_2, \dots, a_M)$  is *fair* if person  $i$  starts looking from toaster  $a_i$  and does not leave empty-handed, for all  $1 \leq i \leq M$ . Out of all  $N^M$  possible starting sequences, determine how many of them are fair modulo 998 244 353.

#### Input

Input consists of two integers  $N$   $M$  ( $1 \leq M \leq N \leq 200\,000$ ) in a single line representing the number of toasters and the number of people, respectively.

#### Output

Output an integer in a single line representing the number of fair starting sequence modulo 998 244 353.

#### Sample Input #1

4 3
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#### Sample Output #1

50
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#### Explanation for the sample input/output #1

One of the possible fair starting sequences is  $(4, 2, 2)$ . First, person 1 starts looking from toaster 4 and takes the bread from toaster 4. Then, person 2 starts looking from toaster 2 and takes the bread from toaster 2. Finally, person 3 will start looking from toaster 2, which is currently empty. Person 3 moves to toaster 3 and takes the bread from toaster 3. Since each person gets a piece of bread, the starting sequence  $(4, 2, 2)$  is fair.

Another example of fair starting sequences are  $(1, 1, 1)$ ,  $(1, 1, 2)$ ,  $(2, 3, 4)$ , and  $(2, 2, 2)$ . Some of the possible starting sequences that are not fair are  $(3, 3, 3)$ ,  $(3, 4, 3)$ ,  $(4, 4, 1)$ , and  $(4, 4, 4)$ .

#### Sample Input #2

10 1
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### Sample Output #2

10

*Explanation for the sample input/output #2*

All starting sequences are fair.

### Sample Input #3

2 2

### Sample Output #3

3

*Explanation for the sample input/output #3*

The only starting sequence that is **not** fair is (2, 2). Person 1 starts looking from toaster 2 and takes the bread from toaster 2. Then, person 2 starts looking from toaster 2, which is currently empty. Since there is no more toaster to the right of toaster 2, person 2 will leave empty-handed.