Exchange or Not

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

You are given a sequence of length N, $A = (A_1, A_2, \ldots, A_N)$. For this sequence A, perform the following operation in order for $i = 1, 2, \ldots, N-1$:

- Either swap A_i and A_{i+1}, or do nothing.

Find the number of distinct sequences that can result after performing these operations, modulo 998244353.

Input

The input is given in the following format:

N
A_1 A_2 $\ldots$ A_N

- All inputs are integers.
- $1 \leq N \leq 10^6$
- $1 \leq A_i \leq N$

Output

Print the answer in a single line.

Examples

standard input	standard output
5 1 2 1 2 3	10
9 3 1 6 2 2 7 7 6 6	104

Note

In the first example, there are 10 possible sequences that can result after performing the operations. These sequences are:

- (1,2,1,2,3),
- (1,2,1,3,2),
- (1,2,2,1,3),
- (1,2,2,3,1),
- (1,1,2,2,3),
- (1,1,2,3,2),

- (2,1,1,2,3),
- (2,1,1,3,2),
- (2,1,2,1,3),
- (2,1,2,3,1).