

## Problem A. Swapping Inversions

Input file: *standard input*  
Output file: *standard output*  
Time limit: 1 second  
Memory limit: 256 mebibytes

You are given a permutation  $x$  of the integers from 1 to  $n$ .

You want to sort this permutation by a sequence of operations. In one operation, you select two adjacent elements  $x_i$  and  $x_{i+1}$  such that  $x_i > x_{i+1}$  and swap them. When there are multiple choices of such  $i$ , you choose one of them with equal probability. When there is no such  $i$ , the process ends.

The cost of swapping  $x_i$  and  $x_{i+1}$  is  $|x_i - x_{i+1}|$ . Calculate the expected total cost of sorting the permutation modulo  $10^9 + 7$ .

### Input

The first line of input contains an integer  $n$  ( $1 \leq n \leq 10^6$ ).

The second line contains  $n$  integers  $x_1, x_2, \dots, x_n$  ( $1 \leq x_i \leq n$ ). It is guaranteed that  $x$  is a permutation of the integers from 1 to  $n$ .

### Output

Print a single line containing an integer: the expected total cost modulo  $10^9 + 7$ .

Formally, it can be shown that the expected total cost can be represented as a fraction  $p/q$  for some coprime non-negative integers  $p$  and  $q$ . For example, if the expected total cost is an integer, then we just have  $q = 1$ . You have to print the value  $p \cdot q^{-1} \bmod (10^9 + 7)$ .

### Examples

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