

# Power Divisions

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            5 seconds  
Memory limit:         1024 megabytes

We are given a sequence of non-negative integers  $a_1, a_2, \dots, a_n$ . Based on this sequence, we create a sequence of integers  $b_1, b_2, \dots, b_n$ , where  $b_i = 2^{a_i}$  for each  $i$ .

A division of the sequence  $b_1, b_2, \dots, b_n$  is called a set of its contiguous intervals, such that each element belongs to exactly one interval. We call a division good if the sum of numbers in each interval is a power of two (with an integer exponent).

Your task is to count the number of good divisions of the sequence  $b_1, b_2, \dots, b_n$ . Since this number can be very large, it is sufficient to provide its remainder when divided by  $10^9 + 7$ .

## Input

The first line of the input contains a single integer  $n$  ( $1 \leq n \leq 3 \cdot 10^5$ ) representing the length of the sequence  $a_1, a_2, \dots, a_n$  (and thus also the length of the sequence  $b_1, b_2, \dots, b_n$ ).

The second line of the input contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $0 \leq a_i \leq 10^6$ ).

## Output

The output should contain a single integer, representing the remainder when divided by  $10^9 + 7$  of the number of good divisions of the sequence  $b_1, b_2, \dots, b_n$ .

## Example

standard input	standard output
5 2 0 0 1 1	6

## Note

The sequence  $b_1, b_2, \dots, b_n$  in the sample test is 4, 1, 1, 2, 2. Its good divisions are:

- [4], [1], [1], [2], [2],
- [4], [1, 1], [2], [2],
- [4], [1], [1], [2, 2],
- [4], [1, 1], [2, 2],
- [4], [1, 1, 2], [2],
- [4, 1, 1, 2], [2].