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## Problem A. Interesting Permutation

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            1 second  
Memory limit:         512 megabytes

DreamGrid has an interesting permutation of  $1, 2, \dots, n$  denoted by  $a_1, a_2, \dots, a_n$ . He generates three sequences  $f, g$  and  $h$ , all of length  $n$ , according to the permutation  $a$  in the way described below:

- For each  $1 \leq i \leq n$ ,  $f_i = \max\{a_1, a_2, \dots, a_i\}$ ;
- For each  $1 \leq i \leq n$ ,  $g_i = \min\{a_1, a_2, \dots, a_i\}$ ;
- For each  $1 \leq i \leq n$ ,  $h_i = f_i - g_i$ .

BaoBao has just found the sequence  $h$  DreamGrid generates and decides to restore the original permutation. Given the sequence  $h$ , please help BaoBao calculate the number of different permutations that can generate the sequence  $h$ . As the answer may be quite large, print the answer modulo  $10^9 + 7$ .

### Input

The input contains multiple cases. The first line of the input contains a single integer  $T$  ( $1 \leq T \leq 20\,000$ ), the number of cases.

For each case, the first line of the input contains a single integer  $n$  ( $1 \leq n \leq 10^5$ ), the length of the permutation as well as the sequences. The second line contains  $n$  integers  $h_1, h_2, \dots, h_n$  ( $1 \leq i \leq n, 0 \leq h_i \leq 10^9$ ).

It's guaranteed that the sum of  $n$  over all cases does not exceed  $2 \cdot 10^6$ .

### Output

For each case, print a single line containing a single integer, the number of different permutations that can generate the given sequence  $h$ . Don't forget to print the answer modulo  $10^9 + 7$ .

### Example

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

### Note

For the first sample case, permutations  $\{1, 3, 2\}$  and  $\{3, 1, 2\}$  can both generate the given sequence.

For the second sample case, permutations  $\{1, 2, 3\}$ ,  $\{2, 1, 3\}$ ,  $\{2, 3, 1\}$  and  $\{3, 2, 1\}$  can generate the given sequence.