Jellyfish and OEIS

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

Jellyfish always uses OEIS to solve math problems, but now she finds a problem that cannot be solved by OEIS:

Count the number of permutations p of $[1, 2, \ldots, n]$ such that for all (l, r) such that $l \leq r \leq m_l$, the subarray $[p_l, p_{l+1}, \ldots, p_r]$ is not a permutation of $[l, l+1, \ldots, r]$.

Since the answer may be large, you only need to find the answer modulo $10^9 + 7$.

Input

The first line of the input contains a single integer n ($1 \leq n \leq 200$) — the length of the permutation.

The second line of the input contains n integers $m_1, m_2, \ldots, m_n$ ($0 \leq m_i \leq n$).

Output

Output the number of different permutations that satisfy the conditions, modulo $10^9 + 7$.

Examples

standard input	standard output
3 1 2 3	2
5 2 4 3 4 5	38
5 5 1 1 1 1	0

Note

In the first example, $[2, 3, 1]$ and $[3, 1, 2]$ satisfies the condition.