

Problem J. Permutation Pattern

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 512 mebibytes

A sequence a_1, \dots, a_m of m distinct numbers is called **without 231** if there is ***no*** triples (i, j, k) where $1 \leq i < j < k \leq m$ and $a_k < a_i < a_j$.

Bobo has a permutation p_1, \dots, p_n of $1, \dots, n$, and he can remove some (possibly none, but not all) elements from the permutation. Find the number of sequences without 231 among $(2^n - 1)$ resulting permutations.

Input

The input consists of several test cases terminated by end-of-file. For each test case,

The first line contains an integer n .

The second line contains n integers p_1, \dots, p_n .

- $1 \leq n \leq 50$
- $1 \leq p_i \leq n$ for each $1 \leq i \leq n$
- In each input, the sum of n does not exceed 500.

Output

For each test case, output an integer which denotes the number of sequences.

Examples

standard input	standard output
2	3
2 1	7
3	11
1 2 3	
4	
2 3 4 1	