时间限制：C/C++/Rust/Pascal 2秒，其他语言4秒
空间限制：C/C++/Rust/Pascal 512 M，其他语言1024 M
64bit IO Format: %lld

题目描述

Kobato Jiyogoro and Osanai Yuki are investigating the theft of a permutation $p_1, \ldots, p_n$. There are already some testimonies (x, y) indicating that $p_x = y$. It's guaranteed that the testimonies have no contradictions. In order to find out the suspects, they come up with another problem:

- Two permutations p and q *resemble* each other if and only if the lengths of p and q are the same, and the sets of the prefix maximal positions are the same. A position k of a permutation p is called a prefix maximal position if and only if $p_k = \max(p_1, \ldots, p_k)$.
- Osanai wants to count the number of different permutations q such that there exists a way to fill out all the missing positions in $p_1, \ldots, p_n$ so that p *resembles* q.

Please help Kobato do the calculations. As the answer might be huge, print it modulo 998244353.

Recall that a permutation of length n is an array consisting of n distinct integers from 1 to n in arbitrary order. For example, $[2, 3, 1, 5, 4]$ is a permutation, but $[1, 2, 2]$ is not a permutation (2 appears twice in the array), and $[1, 3, 4]$ is also not a permutation ($n = 3$ but there is 4 in the array).

输入描述:

Each test contains multiple test cases. The first line of input contains a single integer t ($1 \le t \le 1.8 \cdot 10^3$) — the number of test cases. The description of the test cases follows.

The first line of input contains a single integer n ($1 \le n \le 5 \cdot 10^3$).

The second line of input contains n integers $p'_1, \ldots, p'_n$ ($0 \le p'_i \le n$). If $p'_i = 0$, there is currently no information about p_i; otherwise, there is a testimony indicating that $p_i = p'_i$. It's guaranteed that no pairs (i, j) exist such that $1 \le i < j \le n$ and $p'_i = p'_j > 0$.

It's guaranteed that the sum of n over all test cases does not exceed 10^4.

输出描述:

For each test case, output a single line containing an integer: the number of different permutations that might *resemble* p, modulo 998244353.

示例1

输入 复制

C++（clang++18）

1

ACM模
请通过
入输出
出描述

运行结果 自测