Problem I. Permutation Pair

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

PTY got a positive integer N and an array A with indices from 1 to N. He needs to count the total number of **ordered permutation pair** (P, Q) (i.e., an ordered pair (P, Q), where both P and Q are permutations of $\{1, 2, \cdots, N\}$) that satisfies the following conditions:

1. M is an $N \times N$ matrix where $M_{i,j} = \begin{cases} 1 & \exists k \in \{1, 2, \cdots, N\}, i = P_k \wedge j = Q_k \\ 0 & \text{otherwise} \end{cases}$.

2. For every $M_{i,j} = 1$, there is **NO** $(A_j+1) \times (A_j+1)$ submatrix of M (i.e., a subregion of M in consecutive $(A_j + 1)$ rows and $(A_j + 1)$ columns) that **covers** $M_{i,j}$ and is an identity matrix or horizontal mirror of the identity matrix.

Because of the large answer, you just need to tell PTY the answer mod 998244353. Can you help him?

Input

Two lines. The first line contains an integer N ($1 \le N \le 5000$). The second line contains N positive numbers A_j ($1 \le A_j \le N$) for j in $1, 2, .., N$.

Output

A single line with the answer mod 998244353.

Examples

standard input	standard output
3 1 2 3	12
4 4 2 3 2	432
5 1 4 4 4 3	8400