Problem L. Legendary Counting Problem

Input file:	*standard input*
Output file:	*standard output*
Time limit:	3 seconds
Memory limit:	1024 mebibytes

Let's see how well you handle Counting Problems. The problem is as follows. We say that k sets $S_1, S_2, \ldots, S_k$ form a *partition* of the set $\{1, 2, \ldots, N\}$ if:

- $\bigcup_{i=1}^{k} S_i = \{1, 2, \ldots, N\}$ and
- $S_i \cap S_j = \varnothing$ for all $1 \le i < j \le k$.

You are given an array of positive integers of length N, denoted as $a_1, a_2, \ldots, a_N$. For any partition $S_1, S_2, \ldots, S_k$ of the set $\{1, 2, \ldots, N\}$, we define the *value* of the partition as:

$$\sum_{i=1}^{k} f(S_i),$$

where

$$f(S) = \binom{\max_{i \in S} a_i}{\min_{i \in S} a_i}.$$

Here, $\binom{n}{m}$ denotes the binomial coefficient: the number of ways to choose a set of m items from n distinct items.

You are tasked with outputting the total value of all distinct partitions of $\{1, 2, \ldots, N\}$ modulo 998 244 353. Two partitions are considered distinct if there exist two integers i and j such that i and j belong to the same set in one partition but are in different sets in the other.

Input

The first line of input contains a single integer N, the length of the array ($1 \le N \le 10^5$).

The second line contains N integers $a_1, a_2, \ldots, a_N$: the contents of the array ($1 \le a_i \le 1000$).

Output

Output a single number representing the total value of all distinct partitions of $\{1, 2, \ldots, N\}$ modulo 998 244 353.

Examples

standard input	*standard output*
3 1 2 3	17
6 1 1 4 5 1 4	1716