Problem I. Value of the Array

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

Yuta has a sequence of n integers $a_1, \ldots, a_n$ and a number k. For any non-empty subsequence S of this sequence, the *value* of S is defined as the sum of the largest $\min(|S|, k)$ numbers in S. The value of the array a is equal to the sum of the values of all its non-empty subsequences.

Now Yuta shows the n integers, and he wants to know the value of the array for each k in $[1, n]$.

Input

The first line of the input contains an integer n ($1 \le n \le 10^5$), the length of the sequence Yuta has. The second line contains n integers $a_1, \ldots, a_n$ ($0 \le a_i \le 10^9$), the sequence itself.

Output

Print a line that contains exactly n integers. The i-th number mjust be the value of the array when $k = i$. The answers may be very large, so you must print them modulo 998 244 353.

Examples

standard input	standard output
3 1 1 1	7 11 12
5 1 2 3 4 5	129 201 231 239 240