Problem D. Arcane Behemoths

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You have N Arcane Behemoths, each with an attack value A_i.

You may choose any non-empty subsequence of Behemoths and sell them one by one. Whenever you sell a Behemoth, each remaining unsold Behemoth in the subsequence increases its attack value by the attack value of the Behemoth you just sold.

The value of a subsequence is the maximum attack value the last remaining Behemoth can achieve, if the other Behemoths in the subsequence are sold in an optimal order.

Your task is to compute the sum of values over all non-empty subsequences of the sequence. Print the result modulo 998244353.

Input

The first line contains a single integer T ($1 \le T \le 2 \times 10^5$) — the number of test cases.

For each test case, the first line contains an integer N ($1 \le N \le 2 \times 10^5$) — the number of Behemoths.

The second line contains N integers $A_1, A_2, \ldots, A_N$ ($0 \le A_i < 998244353$) — the initial attack values of the Behemoths.

It is guaranteed that $\sum N \le 2 \times 10^5$ over all test cases.

Output

For each test case, print a single integer — the sum of values over all non-empty subsequences modulo 998244353.

Example

standard input	standard output
3 3 1 2 3 6 1 1 4 5 1 4 3 998244350 998244351 998244352	27 1266 998244328

Note

Consider the subsequences of $[1, 2, 3]$:

- $[1] \to$ only one Behemoth remains, value $= 1$.
- $[2] \to$ value $= 2$.
- $[3] \to$ value $= 3$.
- $[1, 2]$: sell the larger Behemoth 2 first, leave $1 \to$ final attack $= 1 + 2 = 3$.
- $[1, 3]$: sell 3 first, leave $1 \to$ final attack $= 1 + 3 = 4$.
- $[2, 3]$: sell 3 first, leave $2 \to$ final attack $= 2 + 3 = 5$.

- $[1, 2, 3]$:
  - Step 1: sell 3 $\rightarrow$ remaining sequence $[1 + 3, 2 + 3] = [4, 5]$.
  - Step 2: sell 2 (now 5) $\rightarrow$ add its attack to remaining 4, final attack $= 4 + 5 = 9$.
  - Thus, the value of this subsequence is 9.

Finally, summing all values: $1 + 2 + 3 + 3 + 4 + 5 + 9 = 27$.