E. Gacha 101

Problem ID: E

For each $i = 1, 2, \ldots, N$, there are A_i balls with i written on them. These are put into a box and mixed up. The string variable s consists of initially N "0"s. Balls are taken out of the box one by one (uniformly at random and independently). When a ball with i written on it is drawn, the i-th character of s is changed to "1" (it remains unchanged if it was already "1"). Find the probability, modulo $998,244,353$, of having a point during this process that s contains "101" as a contiguous substring.

Input

The input consists of a single test case of the following format.

N
$A_1\ A_2\ \ldots\ A_N$

The first line consists of an integer N. The second line consists of N positive integers $A_1, A_2, \ldots, A_N$. For each i, A_i represents the number of balls i written.

- $1 \leq N \leq 2 \times 10^5$
- $\sum_{1 \leq i \leq N} A_i < 998,244,353$

Output

Output in a line the probability modulo $998,244,353$.

Note

- How to find the probability modulo $998,244,353$
  - It can be proved that the sought probability is always a rational number. Additionally, the constraints of this problem guarantee that if the sought probability is represented as an irreducible fraction $\frac{y}{x}$, then x is not divisible by $998,244,353$. Here, there is a unique $0 \leq z < 998,244,353$ such that $y \equiv xz \pmod{998,244,353}$, so report this z.

Sample Input 1	Sample Output 1
3 1 2 3	465847365

Sample Input 2	Sample Output 2
10 3 1 4 1 5 9 2 6 5 3	488186016