COLORED BALLOONS

Hung wants to celebrate his wife's birthday so he decided to decorate his room with the colored balloons. Hung has n colored balloons that are colored with k different colors. The colors are labeled from 1 to k. Balloons of the same color are indistinguishable. He will arrange all the balloons in the line so the last balloons of color i before the last balloons of color $i+1$ for all i from 1 to k - 1. Now he wonders how many different ways this can happen.

Input

The first line of input will have one integer k ($1 \le k \le 1000$) the number of colors.
Then, k lines will follow. The i-th line will contain a_i, the number of balloons of the i-th color ($1 \le c_i \le 1000$). The total number of balloons doesn't exceed 1000.

Output

A single integer, the number of ways that Hung can arrange all the balloons as described in the statement, modulo 1 000 000 007.

Examples

Standard Input	Standard Output
2 1 3	3
3 1 2 3	20

Note

In the first sample, we have 1 balloons of color 1, 3 balloons of color 2. The three ways for Hung are:
1 2 2 2
2 1 2 2
2 2 1 2