Non-descending Sequence

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	64 megabytes

Bobo was good at solving Longest Non-descending Sequence Problem. So he liked to find more.

Bobo would like to find the number of non-descending sequences $(x_1, x_2, \ldots, x_n)$ (i.e. $x_1 \leq x_2 \leq \cdots \leq x_n$) where $0 \leq x_i \leq a_i$ given $(a_1, a_2, \ldots, a_n)$.

Input

The first line contains an integer n $(1 \leq n \leq 2000)$.

The second line contains n integers $a_1, a_2, \ldots, a_n$ $(0 \leq a_i \leq 10^9)$.

Output

An integer denotes the number of non-descending sequences module 2017.

Examples

standard input	standard output
2 1 1	3
3 1 2 4	19