shamelessad5

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Shor the Duck is once again back at promoting his curated collection of the best uniquely-Codebreaker problems and a more beginner-friendly place for people in Singapore's Informatics Olympiad or Competitive Programming community to chat/discuss!

Discord Server link: `https://discord.gg/G5W5yMAn3u`

Group/Collection link: `https://codebreaker.xyz/group/shorsgcollection`

This time, Shor the Duck is sucked into the mathematical world of NumberLand!

In NumberLand, there are N distinct numbers standing in a row, with their values represented by the array A.

Shor the Duck wants to choose a **subsequence** of these numbers (keeping their original order) for his advertisement (idk why). He considers a subsequence to be beautiful if the numbers in the sequence are **strictly increasing**. and that **no two odd (or even) numbers should be next to each other** in the final subsequence Shor chooses.

Help Shor find the number of beautiful sequences.

Input

The first line of the input will be N ($1 \leq N \leq 2000$) — the number of numbers.

The next line of the input will contain N space separated integers representing the array A. ($1 \leq A_i \leq 10^9$).

Output

Output one integer representing the number of beautiful sequences. Since the answer might be large, output the answer modulo $10^9 + 7$.

Scoring

Subtask	Score	Additional constraints
1	14	$N \leq 10$
2	30	$N \leq 2000$, $A_i = i$ for all $1 \leq i \leq N$
3	16	$N \leq 2000$, A is strictly increasing.
4	40	No additional constraints
5	0	Sample Testcases

Examples

standard input	standard output
4 1 2 3 4	11
6 1 8 9 15 16 100	25
6 5 1 9 2 11 13	11

Note

For sample testcase 1, {1,3,4} and {1,2,4} are examples for subsequences that are not beautiful as at least

one pair of adjacent integers in the sequence are either both odd or both even.

For sample testcase 3, {5, 2} is not considered a beautiful subsequence as it is not strictly increasing.