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Harbour

From a pile of suggested tasks, authors of COCI must choose ones that will appear in the next round. Difficulty of a task is described with an integer in range 1 to N. For some tasks, however, it's not easy to exactly determine their difficulty. Authors of COCI decided that these tasks can be considered as having either one of two consecutive difficulties. For example, some task can be considered as having difficulty of either 3 or 4. The next round of COCI will contain exactly N tasks. For each difficulty, there will be exactly one task with that difficulty. Of course, no task will appear twice. Find the number of different ways authors can choose tasks for the next round. We say that two ways are different if for some difficulty, a different task is assigned to that difficulty. Since the expected result can be very large, output the number of ways modulo 1 000 000 007.

Input

The first line of input contains an integer N ($2 \leq N \leq 5000$), the number of entertaining days.
The following N lines contain indices of entertaining days, one per line, in ascending order. The first and the last indices, representing the day from which Mirko started monitoring harbour traffic and today, respectively, will always appear on the list. The first index will always be 1, and the last one (index of today) will be less than 10^9.

Output

The first and only line of output must contain the required minimum number of ships.

Sample input	Sample output
3 1 3 4	2
5 1 7 10 13 19	2
3 1 500000000 999999999	1