Problem G. the Median of the Median of the Median

Input file:	standard input
Output file:	standard output
Time limit:	2 seconds
Memory limit:	1024 megabytes

Today is YQH's birthday, and she received a positive integer sequence of length n, denoted as $\{a_i\}_{i=1}^{n}$, as a gift.

YQH is very interested in medians, so she wants to find the median of the median of the median for this sequence. Specifically, let $b_{l,r}$ be the median of the multiset $\{a_i\}_{l\le i\le r}$, and let $c_{l,r}$ be the median of the multiset $\{b_{i,j}\}_{l\le i\le j\le r}$. Then, what YQH wants to find is the median of the multiset $\{c_{l,r}\}_{1\le l\le r\le n}$. However, she finds this task too difficult, so she asked you for help.

Note: If you are not familiar with the concept of a median, the median of a multiset of size m is the $\lceil m/2\rceil$-th smallest element in it.

Input

A single positive integer on the first line represents n.

The second line contains n positive integers representing $a_1, \ldots, a_n$.

It is guaranteed that $1 \le n \le 2000$ and $1 \le a_i \le 10^9$.

Output

Output a single line with one integer representing the answer.

Examples

standard input	standard output
4 1 3 1 7	1
8 3 3 8 4 5 3 8 5	4