Problem I. Median

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	256 mebibytes

An integer sequence $a_1, a_2, \ldots, a_n$ is **good** if $m_1 \le m_2 \le \cdots \le m_n$ where m_i is the median of $a_1, a_2, \ldots, a_i$.

Given a sequence $p_1, p_2, \ldots, p_n$, find its permutation which is **good**. If the result is not unique, find the lexicographically largest one.

For a sequence $a_1, a_2, \ldots, a_n$, the median is the $\lceil n/2 \rceil$-th largest element if n is odd, or the average of the $n/2$-th largest and the $(n/2+1)$-th largest elements if n is even.

Input

The first line contains an integer n ($1 \le n \le 10^5$).

The second line contains n integers $p_1, p_2, \ldots, p_n$ ($1 \le p_i \le 10^9$).

Output

On the first line, print n integers which denote the lexicographically largest **good** permutation of the input sequence.

Examples

standard input	standard output
5 1 2 3 4 5	1 3 2 5 4
8 1 2 2 3 3 3 4 4	3 3 4 3 4 2 2 1