

# What is the Median?

## The Problem

Median plays an important role in the world of statistics. By definition, it is a value which divides an array into two equal parts. In this problem you are to determine the current median of some long integers.

Suppose, we have five numbers  $\{1,3,6,2,7\}$ . In this case, 3 is the median as it has exactly two numbers on its each side.  $\{1,2\}$  and  $\{6,7\}$ .

If there are even number of values like  $\{1,3,6,2,7,8\}$ , only one value cannot split this array into equal two parts, so we consider the average of the middle values  $\{3,6\}$ . Thus, the median will be  $(3+6)/2 = 4.5$ . In this problem, you have to print only the integer part, not the fractional. As a result, according to this problem, the median will be 4!

## Input

The input file consists of series of integers  $X$  ( $0 \leq X < 2^{31}$ ) and total number of integers  $N$  is less than 10000. The numbers may have leading or trailing spaces.

## Output

For each input print the current value of the median.

## Sample Input

```
1
3
4
60
70
50
2
```

## Sample Output

```
1
2
3
3
4
27
4
```

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