



## Problem D: Median

Time limit: 1s; Memory limit: 256 MB

There is an array  $a$  with  $n$  integers  $a[1], a[2], \dots, a[n]$  where  $a[i] \leq 10^5$ . You are given  $q$  queries each of which contain two integers  $l$  and  $r$  where  $l \leq r$  and you have to find the median value of the subarray in the range  $[l, r]$ . The median value of an array with  $n$  integers is the value at the position  $\lfloor (n + 1)/2 \rfloor$  after the array is sorted ascendingly.

### Input

The first line contains two integers  $n$  and  $q$  ( $n \leq 10^5$  and  $q \leq 10^5$ ) – the length of the array and the number of queries

The second line contains the array  $a$ ,  $a[1], a[2], \dots, a[n]$  ( $1 \leq a[i] \leq 10^5$ )

The next  $q$  lines contain the queries. Each of the lines has two integers  $l$  and  $r$  ( $1 \leq l \leq r \leq n$ ) – represent the subarray

### Output

For each query, print the median value of the given subarray.

### Sample

Input	Output
8 5	4
2 8 4 16 5 2 10 6	5
1 3	6
2 5	5
6 8	5
5 8	
1 8	