Problem Result

Running median

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You are given a stream of N integers. For every i-th integer added to the running list of integers, print the resulting median.

Print only the integer part of the median.

Input Format :

The first line of input contains an integer N, denoting the number of integers in the stream.

The second line of input contains 'N' integers separated by a single space.

Output Format :

Print the running median for every integer added to the running list on a new line.

Input Constraints

1 <= N <= 10^5
1 <= Ai <= 10^5

Time Limit: 1sec

Sample Input 1 :

```
6
6 2 1 3 7 5
```

Sample Output 1 :

```
6
4
2
2
3
4
```

Explanation of Sample Output 1 :

S = {6}, median = 6
S = {6, 2} -> {2, 6}, median = 4
S = {6, 2, 1} -> {1, 2, 6}, median = 2
S = {6, 2, 1, 3} -> {1, 2, 3, 6}, median = 2
S = {6, 2, 1, 3, 7} -> {1, 2, 3, 6, 7}, median = 3
S = {6, 2, 1, 3, 7, 5} -> {1, 2, 3, 5, 6, 7}, median = 4

Sample Input 2 :

```
5
5 4 3 2 1
```

Sample Output 2 :

```
5
4
4
3
3
```

```
35    priority_queue<triplet*, vector<triplet*>, comp > pq;
36
37    for(int i = 0; i<input.size(); i++){
38
39        triplet * temp = new triplet;
40        temp->element = input.at(i)->at(0);
41        temp->ai = i;
42        temp->ei = 0;
43
44        pq.push(temp);
45
46    }
47
48    while(!pq.empty()){
49
50        triplet * ans = pq.top();
51        pq.pop();
52        output.push_back(ans->element);
53
54        if(ans->ei+1 < (input.at(ans->ai)->size())){
55            triplet * temp = new triplet;
56            temp->element = input.at(ans->ai)->at(ans->ei+1);
57            temp->ai = ans->ai;
58            temp->ei = ans->ei+1;
59
60            pq.push(temp);
61
62        }
63
64    }
65
66    return output;
67
68 }
```