sliding your phone in some direction, your phone automatically capture each frame and merge them into a very long photo.

Usually people use this feature to take pictures of amazing views. However you are a student in data structure course, you are going to take pictures of an integer sequence. You see a beautiful long integer sequence $a_1, a_2, \cdots, a_n$ and you know that at most k integers can stay in a single frame of your smartphone camera. You are curious about the median of each frame.

In other words, given an integer sequence $a_1, a_2, \cdots, a_n$, please output the median of each subarray with length k.

The median of an integer array of length n in this problem is defined to be the $\lceil \frac{n+1}{2} \rceil$ -th smallest element in the array. For example, the median of array $(4, 8, 7, 6)$ is 7, while the median of array $(4, 8, 7, 6, 3)$ is 6.

Input

The first line contains two integers n and k.

The second line contains n integers $a_1, a_2, \cdots, a_n$.

Restrictions

- $1 \leq k \leq n \leq 10^6$
- $1 \leq a_i \leq 10^9$ for $i = 1, 2, \cdots, n$

Output

For each subarray with length k from the leftmost to the rightmost, please output the median of it.

Sample Input 1

```
6 3
4 8 8 7 6 3
```

Sample Output 1

```
8 8 7 6
```

Submissions

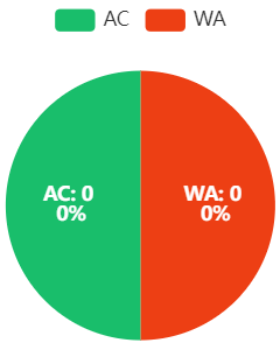
Rankings

View Contest

Information

ID	1
Time Limit	2000MS
Memory Limit	256MB
IO Mode	Standard IO
Created By	ta_david
Level	Hidden
Score	100
Tags	Show

Statistic Details



For test ID 1 - 4 (40% of total points):

- $n \leq 10$

For test ID 5 - 10 (60% of total points)

- No additional constraints

Language: C Theme: Solarized Light

1

Submit for Sample Test Submit

Sample Test Input

```
6 3
4 8 8 7 6 3
```

Sample Test Output