Min Max Riddle

Given an integer array of size n, find the maximum of the minimum(s) of every window size in the array. The window size varies from 1 to n.

For example, given $arr = [6, 3, 5, 1, 12]$, consider window sizes of 1 through 5. Windows of size 1 are $(6), (3), (5), (1), (12)$. The maximum value of the minimum values of these windows is 12. Windows of size 2 are $(6, 3), (3, 5), (5, 1), (1, 12)$ and their minima are $(3, 3, 1, 1)$. The maximum of these values is 3. Continue this process through window size 5 to finally consider the entire array. All of the answers are $12, 3, 3, 1, 1$.

Function Description

Complete the *riddle* function in the editor below. It must return an array of integers representing the maximum minimum value for each window size from 1 to n.

riddle has the following parameter(s):

- *arr*: an array of integers

Input Format

The first line contains a single integer, n, the size of arr.
The second line contains n space-separated integers, each an $arr[i]$.

Constraints

$1 \leq n \leq 10^6$

$0 \leq arr[i] \leq 10^9$

Output Format

Single line containing n space-separated integers denoting the output for each window size from 1 to n.

Sample Input 0

```
4
2 6 1 12
```

Sample Output 0

```
12 2 1 1
```

Explanation 0

Here $n = 4$ and $arr = [2, 6, 1, 12]$

window size	window1	window2	window3	window4	maximum of all windows
1	2	6	1	12	12
2	2	1	1		2
3	1	1			1
4	1				1

Sample Input 1

```
7
1 2 3 5 1 13 3
```

Sample Output 1

```
13 3 3 2 1 1 1 1
```

Explanation 1

Here $n = 7$ and $arr = [1, 2, 3, 5, 1, 13, 3]$

win size	w_1	w_2	w_3	w_4	w_5	w_6	w_7	maximum of all windows
1	1	2	3	5	1	13	3	13
2	1	2	3	1	1	3		3
3	1	2	1	1	1			2
4	1	1	1	1				1
5	1	1	1					1
6	1	1						1
7	1							1

Sample Input 2

```
6
3 5 4 7 6 2
```

Sample Output 2

```
7 6 4 4 3 2
```

Explanation 2

Here $n = 6$ and $arr = [3, 5, 4, 7, 6, 2]$

win size	w_1	w_2	w_3	w_4	w_5	w_6	maximum of all windows
1	3	5	4	7	6	2	7
2	3	4	4	6	2		6
3	3	4	4	2			4
4	3	4	2				4
5	3	2					3
6	2						2