PIB '20 P7 - Karnaugh Maps

Time limit: 0.5s **Memory limit:** 128M

You have a one-indexed array a of length N. This array is special: each value will occur at most K times in the array.

You also decided on a value d, where $d > 1$. You can then perform the following operation any number (possibly zero) of times:

- Choose an index i ($1 \leq i \leq N - d$), and swap a_i with a_{i+d}.

Please output the lexicographically smallest array that can be made if you choose the optimal value of d. An array a is lexicographically smaller than an array b if there is some index i such that $a_i < b_i$ and $a_j = b_j$ for all $j < i$.

Input Specification

The first line will contain the integer N ($1 \leq N \leq 5 \times 10^4$).

The next line will contain N integers, a_i ($1 \leq a_i \leq 10^9$). It is guaranteed that each value of a_i will occur at most K times.

Output Specification

Output the lexicographically smallest array that can be made if the optimal value of d is chosen.

Subtasks

Subtask 1 [12%]

$K = 1$

Subtask 2 [27%]

$K \leq 4$

Subtask 3 [61%]

$K \leq 500$

Sample Input for Subtask 1

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

Sample Output for Subtask 1

```
1 2 3 4 5
```

Sample Input for Subtask 2

```
6
3 1 1 1 1 2
```

Sample Output for Subtask 2

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

Explanation for Sample for Subtask 2

One optimal value of d is 4.

Sample Input for Subtask 3

```
11
5 1 2 1 2 1 2 1 1 2 100
```

Sample Output for Subtask 3

```
1 1 1 1 2 5 2 2 1 2 100
```