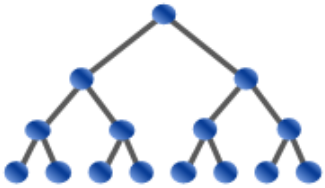

# USACO 2022 January Contest, Platinum
## Problem 1. Minimizing Haybales

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Contest has ended.

**Log in to allow submissions in analysis mode**

English (en)

Bessie is bored and yet again causing trouble in Farmer John's barn. FJ has $N$ ($1 \le N \le 10^5$) stacks of haybales. For each $i \in [1, N]$, the $i$th stack has $h_i$ ($1 \le h_i \le 10^9$) haybales. Bessie does not want any haybales to fall, so the only operation she can perform is as follows:

- If two adjacent stacks' heights differ by at most $K$ ($1 \le K \le 10^9$), she can swap the two stacks.

What is the lexicographically minimum sequence of heights that Bessie can obtain after some sequence of these operations?

****Note: the time and memory limits for this problem are 4s and 512MB, twice the defaults.****

**INPUT FORMAT (input arrives from the terminal / stdin):**

The first line of input contains $N$ and $K$. The $i+1$-st line contains the height of the $i$-th haybale.

**OUTPUT FORMAT (print output to the terminal / stdout):**

Please print out $N$ lines, the $i$-th containing the height of the $i$-th haybale in the solution.

**SAMPLE INPUT:**

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

**SAMPLE OUTPUT:**

```
6
7
7
2
3
```

One way that Bessie can swap the stacks is as follows:

```
   7 7 3 6 2
-> 7 7 6 3 2
-> 7 7 6 2 3
-> 7 6 7 2 3
-> 6 7 7 2 3
```

**SCORING:**

- In 10% of all input cases, $N \le 100$
- In another 20% of all input cases, $N \le 5000$
- In the remaining 70% of input cases, there are no additional constraints

Problem credits: Daniel Zhang and Benjamin Qi

Contest has ended. No further submissions allowed.