Halloween Candies (candies)

Halloween is over and Giorgio has collected a lot of candies! Since Giorgio has too many candies, he wants to give some to the IIOT participants.

Figure 1: Giorgio's candies.

N teams participate at IIOT this year, each team scored S_i points in the first round, Giorgio wants to give the candies in the following way:

- each team must receive at least one candy;
- each team must receive more candies than all teams that scored lower;
- the total number of candies given to the teams must be the lowest possible (Giorgio wants to keep for himself as many candies as possible).

Help Giorgio find the minimum number of candies to give to the IIOT teams.

> ☞ Among the attachments of this task you may find a template file `candies.*` with a sample incomplete implementation.

Input

The first line contains the only integer N. The second line contains N integers S_i.

Output

You need to write a single line with an integer: the minimum number of candies.

Constraints

- $1 \leq N \leq 300\,000$.
- $1 \leq S_i \leq 10^9$ for each $0 \leq i \leq N-1$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (30 points) $N \leq 100$, $S_i \leq 100$.

– **Subtask 3** (30 points) $S_i \neq S_j$ for each $0 \leq i < j \leq N - 1$.

– **Subtask 4** (40 points) No additional limitations.

Examples

input	output
5 200 150 900 690 425	15
4 100 100 200 200	6

Explanation

In the **first sample case**, Giorgio can give 2 candies to the first team, 1 to the second, 5 to the third, 4 to the fourth and 3 to the fifth.

In the **second sample case**, Giorgio can give 1 candy to the first two team and 2 to the other teams.