Loud Snacks (snacks)

Eating is fundamental during contests. Valerio and his teammates are very hungry, since they didn't eat before the contest. Therefore, they brought N snacks to satisfy their needs.

Unfortunately, snacks are loud to eat: each of the N snacks (indexed from 0 to $N-1$) has a loudness L_i. Eating snacks may disturb other contestants, hence there is a *maximum acceptable noise level* X. The sum of the loudnesses of the snacks being eaten by a team in any minute must not exceed X. Each snack takes exactly one minute to eat, and each of their snacks is allowed to be eaten, i.e., $L_i \leq X$ for each $i = 0 \dots N-1$.

The snacks brought by Valerio's team

They decided that every minute, at most 2 team members who are not coding may eat snacks. In every minute, 2 students will choose 2 snacks that are allowed to be eaten at the same time, and finish them in one minute. If there is no such pair of snacks left, only one of them will select a snack and finish it in one minute.

This process may take different amounts of time, depending on the selections made in each minute. Over all possible choices of which snacks to eat, what is the **maximal** number of minutes they will be spending eating snacks?

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

Input

The first line contains two space-separated integers, N and X: the number of snacks and the *maximum acceptable noise level*. The second line contains N space-separated integers: the loudness levels L_i of snacks $0, 1, \dots, N-1$.

Output

You need to write a single line with an integer: the maximum number of minutes Valerio's team may spend eating snacks.

Constraints

- $1 \leq N \leq 100\,000$.
- $1 \leq X \leq 1\,000\,000$.
- $1 \leq L_i \leq X$ for each $i = 0 \ldots N-1$.

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** (18 points) $N \leq 10$.

– **Subtask 3** (21 points) $X = 100$ and $L_i \leq 20$ for each $i = 0 \ldots N-1$.

– **Subtask 4** (36 points) $N \leq 1000$.

– **Subtask 5** (25 points) No additional limitations.

Examples

input	output
5 10 5 2 6 10 1	4
10 30 10 30 4 12 20 1 2 26 17 3	7

Explanation

In the **first sample case**, the two students not coding can eat the snacks with loudnesses 1 and 2 in the first minute. In the second minute one of the students eats the snack with loudness 5, while the other cannot eat any other snack, since doing so would exceed the maximum acceptable noise level of 10. In the third minute one of them eats the snack with loudness 10. In the fourth minute one of them eats the snack with loudness 6. There are no snacks left, hence they ate for 4 minutes. It can be proven that they can't eat for longer.

In the **second sample case**, Valerio's teammates can eat for at most 7 minutes.