Problem AO. Benches

Time limit 1000 ms
Mem limit 262144 kB

There are n benches in the Berland Central park. It is known that a_i people are currently sitting on the i-th bench. Another m people are coming to the park and each of them is going to have a seat on some bench out of n available.

Let k be the maximum number of people sitting on one bench after additional m people came to the park. Calculate the minimum possible k and the maximum possible k.

Nobody leaves the taken seat during the whole process.

Input

The first line contains a single integer n $(1 \le n \le 100)$ — the number of benches in the park.

The second line contains a single integer m $(1 \le m \le 10\,000)$ — the number of people additionally coming to the park.

Each of the next n lines contains a single integer a_i $(1 \le a_i \le 100)$ — the initial number of people on the i-th bench.

Output

Print the minimum possible k and the maximum possible k, where k is the maximum number of people sitting on one bench after additional m people came to the park.

Examples

Input	Output
4 6 1 1 1 1	3 7

Input	Output
1 10 5	15 15

Input	Output
3 6 1 6 5	6 12

Input	Output
3 7 1 6 5	7 13

Note

In the first example, each of four benches is occupied by a single person. The minimum k is 3. For example, it is possible to achieve if two newcomers occupy the first bench, one occupies the second bench, one occupies the third bench, and two remaining — the fourth bench. The maximum k is 7. That requires all six new people to occupy the same bench.

The second example has its minimum k equal to 15 and maximum k equal to 15, as there is just a single bench in the park and all 10 people will occupy it.