Pay That Box! (gameshow)

William got selected for the famous game show *Pay That Box!* He will start with a budget of M euros, then open a sequence of N boxes one at a time, from $i = 0$ to $N - 1$. Each box contains a prize, which he can *get* using P_i euros from his budget, or he can *pass* getting a compensation of C_i euros.

Figure 1: Boxes... what will be in there?

Since William is notoriously impulsive, he will pay for every box that he can afford, fearing that it may be his last chance to get a prize. Given the list of boxes that he will open, how many prizes will he be able to get, and how many euros will he have left by the end of the game?

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

Input

The first line contains integers N, M. The second line contains N integers P_i. The third line contains N integers C_i.

Output

You need to write a single line two integers: the number of prizes that William will get, and how may euros will he spare at the end.

Constraints

- $1 \leq N \leq 100\,000$.
- $0 \leq M \leq 10^9$.
- $0 \leq P_i, C_i \leq 10^9$ 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** (20 points) $M = 10^9$, $P_i \leq 10\,000$ for each i.

– **Subtask 3** (20 points) $M, C_i \leq 10\,000$, $P_i = 10^9$ for each i.

– **Subtask 4** (25 points) $N \leq 100$.

– **Subtask 5** (35 points) No additional limitations.

Examples

input	output
4 10 42 23 35 17 13 55 11 7	1 18
6 0 6 50 40 20 60 80 0 90 70 30 50 0	3 0

Explanation

In the **first sample case**, William cannot afford the first prize, thus he has to pass gaining 13 euros. He then starts the second round with $10 + 13 = 23$ euros, which are enough for the second prize, so he pays all of his money for it remaining without a budget. Afterwards, he has to pass on the third prize, gaining 11 euros. Those are not enough to pay for the fourth prize, so he will pass that also, ending the game with $11 + 7 = 18$ euros.

Notice that William could have followed better strategies, allowing him to get two prizes... but he can't help to be greedy!

In the **second sample case**, William will pay for the 3rd, 4th and 6th prizes.