Problem B. Social King

Time limit 1000 ms
Memory limit 256MB

Problem Description

Bill is the central figure of a social group. Although he's busy with many responsibilities, he always strives to gain everyone's admiration. One day, Bill invites Benson to join a grand social event. To make Benson feel more welcome, Bill wants to find a suitable position for Benson within the group.

Assume that the social event has a total of N people attending, and everyone is arranged linearly from position 1 to L. The i-th person is located at position a_i (people may share the same position), and each person has a social radius p_i, representing the range within which the i-th person can interact with others in the interval $[a_i - p_i, a_i + p_i]$.

Can you help Bill find the best position on the line, from 1 to L, that allows Benson to interact with the maximum number of people?

Input format

The first line contains two integers N, L ($1 \leq N \leq 2 \times 10^5$; $1 \leq L \leq 10^9$).

The second line contains N integers a_i ($1 \leq a_i \leq L$) representing the position of the i-th person.

The third line contains N integers p_i ($0 \leq p_i \leq 10^9$) representing the social radius of the i-th person.

Output format

Output two numbers x, m, representing the position Benson should choose and the maximum number of people who can interact with Benson.

If there are multiple positions where the maximum number of people m can interact with Benson, output the smallest x.

Subtask score

Subtask	Score	Additional Constraints
1	30	$1 \leq N \leq 5000$; $1 \leq L \leq 5000$
2	45	$1 \leq N \leq 2 \times 10^5$; $1 \leq L \leq 2 \times 10^5$
3	25	No constraints

Sample

Sample Input 1

```
6 10
7 5 1 3 7 7
0 1 3 2 1 0
```

Sample Output 1

```
4 3
```

Notes