

beCP 2024

Task 2.2: Submission History (submission)

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Time limit: 0.5 s Memory limit: 8 MB

In an alternate world, the Belgian team for IOI is selected based on submissions of each contestant on the online contest platform Codeforces. An ideal candidate for IOI has k times more correct submissions than incorrect submissions. If there are more correct submissions than k times the number of incorrect submissions, this might be sign of something suspicious and you could be suspected of cheating. If it's less, this might be a sign of lacking programming skills.

In order to select the team, you are asked to show your submission history. However, it's not mandatory to show it in its entirety. You can choose any consecutive period of time for which you will show all of your submissions for each day in that period. Your goal is to select l and r so that the total number of correct submissions on days l through r is as close as possible to k times the number of incorrect submissions in the same time period.

If there are multiple solutions, you may choose which one to output.

Input

The first line of the input contains two integers, N and k , respectively the total number of days and the ideal factor k . This is followed by N lines, each containing the integers a_i and b_i , respectively the number of correct and incorrect submissions on day i .

Output

Output two integers, l and r , the bounds of the time period that you will show.

General limits

- $1 \leq N \leq 10^5$
- $1 \leq k \leq 5$
- $0 \leq a_i, b_i \leq 3 \cdot 10^8$

Additional constraints

Subtask	Points	Constraints
A	6	You are lazy. That is, there is at least one day where you didn't make any submissions.
B	7	You show lack of programming skills every day. That is, each day, the number of correct submissions is smaller or equal to k times the number of incorrect submissions on that day.
C	20	$N \leq 500$
D	9	You are training very inefficiently - your programming skills get worse every day. That is, each day, the difference between the number of correct submissions and k times the number of incorrect submission decreases compared to the previous day. This value can be negative.
E	9	You are training efficiently - your programming skills improve every day. That is, each day, the difference between the number of correct submissions and k times the number of incorrect submission increases compared to the previous day. This value can be negative.
F	24	$N \leq 10^4$
G	25	No additional constraint

Example 1

sample1.in	sample1.out
6 2 18 4 6 10 22 3 6 7 16 3 8 21	3 4

If days 3 to 4 are chosen, there is a total of 22 correct and 10 incorrect submissions. The number of correct submissions is only 2 away from k (2) times the number of incorrect submissions, which is the lowest possible value here.