

Problem J

Mixing Solutions

Time Limit: 2 seconds

Let's prepare for an experiment with the chemical *Yokohama Yellow*, or *YY* in short. You have several containers of aqueous solution of *YY*. While *YY* is evenly dissolved in each solution, the concentration may differ among containers. You will take arbitrary amounts of solution from some of the containers and mix them to prepare a new solution with the predetermined total amount.

Ideally, the mixed solution should contain the *target amount* of *YY*, but there is a problem. While the exact amount of solution in each container is known, the amount of *YY* in each solution is guaranteed only to fall within a certain range. Due to this uncertainty, it is difficult to match the amount of *YY* in the mixed solution exactly to the target amount. Still, you can ensure that the error, the difference from the target amount, will never exceed a certain limit.

To be more precise, let the target and actual amounts of *YY* in the mixed solution be y_t mg (milligrams) and y_a mg, respectively. Given the amounts of solution taken from the containers, y_a is guaranteed to fall within a certain range. The *maximum error* is defined as the maximum of $|y_a - y_t|$ when y_a varies within this range.

Find the minimum achievable value of the maximum error, given that you can take any portion of the solution in each container as long as their total is equal to the predetermined amount.

Input

The input consists of a single test case of the following format.

```
n s c
a1 l1 r1
:
an ln rn
```

The first line contains three integers, n , s , and c , satisfying $1 \leq n \leq 1000$, $1 \leq s \leq 10^5$, and $0 \leq c \leq M$, where $M = 10^4$ here and in what follows. Here, n denotes the number of containers of *YY* solution. The predetermined total amount of the mixed solution is s mg, and the target amount of *YY* is $\frac{c}{M}s$ mg. The i -th of the following n lines contains three integers, a_i , l_i , and r_i , satisfying $1 \leq a_i \leq 10^5$ and $0 \leq l_i \leq r_i \leq M$. These integers indicate that the i -th container has a_i mg of solution and that the amount of *YY* in it is guaranteed to be between $\frac{l_i}{M}a_i$ mg and $\frac{r_i}{M}a_i$ mg, inclusive. They satisfy $\sum_{i=1}^n a_i \geq s$.

Output

The minimum achievable value of the maximum error can be proven to be a rational number. Express the value as an irreducible fraction p/q with $q > 0$, and output p and q separated by a space on a single line.



The 2024 ICPC Asia Yokohama Regional Contest

Sample Input 1

3 10 5000	1 2
10 2000 3000	
10 4000 6000	
10 7000 8000	

Sample Output 1**Sample Input 2**

2 10 5000	4 5
7 4500 5500	
12 3500 6000	

Sample Output 2**Sample Input 3**

3 1 4159	0 1
1 1 1	
1 100 100	
1 10000 10000	

Sample Output 3**Sample Input 4**

6 12345 6789	23901191037 67820000
2718 2818 2845	
9045 2353 6028	
7471 3526 6249	
7757 2470 9369	
9959 5749 6696	
7627 7240 7663	

Sample Output 4