ECE30018 Problem Solving Studio, Fall 2023

C7. Way Back Home

| Submission due: 1:00 PM, 3 Nov Fri

C7. Way Back Home

Jacob and his folks had started to walk on a long road returning home. Since the road was narrow, everyone was separated and walking in his/her own tempos.

But all of a sudden, the sun went down, and it came so dark that nobody could see anything. From that moment, since it was too scary, each one started to move forward with a constant speed, and once one meets another, they form a group to move together at the slower speed between them.

Given positions and speeds of households at sunset, we can predict where each person will be located and with whom the person moves together after a given amount of time (assume that the night is not over by then).

Write a program that finds the number of groups of Jacob's folks after a given amount of time passed.

Input data

- Input is given as text via the standard input

- The first line has two numbers n and t for $1 \le n \le 100000$ and $1 \le t \le 1000000000$. n is the number peoples and t is the amount of times after which we want to know the status of the folks.

- From the second to the $(n+1)$-th lines, each line has a pair of integers p_i and v_i where p_i is the location and v_i is the speed of a person at the sunset moment. Both p_i and v_i do not exceed 1000000000.

Output data

- Print the number of groups (i.e., peoples moving together) formed after t time passed. Your program should return the answer within 0.5 second.

Test case example

Input

```
5 3
0 1
1 2
2 3
3 2
6 1
```

Output

```
3
```

C7 Teams

Team No.	Members
701	박세찬, 최혜림
702	박민지, 이원빈
703	백건하, 이신원
704	이준명, 나보림
705	강하림, 유건민
706	오인혁, 소병찬
707	최정겸, 최소미
708	이원빈, 전혜림