

Metro Repair

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 512 megabytes

The metro station has been closed for m days for repair work. You are responsible for organizing the work at the station.

There are a total of n planned tasks that can be completed within the allotted time. According to the workers' estimates, the i -th task can take any number of days from l_i to r_i . Since all tasks are technically complex and estimating their execution time is very difficult, it is guaranteed that $\frac{r_i}{l_i} \geq \alpha$ for all i from 1 to n .

Your task is to create a repair plan: select some subset of tasks to complete. To avoid being fired for inefficient allocation of labor resources, the following conditions must be met:

- You must ensure that all tasks can be completed within m days. In other words, the inequality $r_{i_1} + r_{i_2} + \dots + r_{i_k} \leq m$ must hold, where i_1, i_2, \dots, i_k are the indices of the tasks you have chosen to complete.
- Let d be the number of days remaining until the station opens after all tasks have been completed. Then there should not exist any uncompleted j -th task that could be guaranteed to be completed within d days. Formally, for all j , the inequality $m - (l_{i_1} + l_{i_2} + \dots + l_{i_k}) < r_j$ must hold, where i_1, i_2, \dots, i_k are the indices of the tasks you have chosen to complete, and j is the index of the task that is **not** chosen for completion.

You want to know how many subsets of tasks exist that can be selected to satisfy both of these conditions. Since the answer can be quite large, find the remainder when divided by $10^9 + 7$.

Input

The first line contains two integers n and m — the number of tasks and the total time for repair work ($1 \leq n \leq 5 \cdot 10^5$, $1 \leq m \leq 10^9$).

The second line contains a real number α — the parameter for estimating tasks ($1.5 \leq \alpha \leq 2$).

Each of the following n lines contains a pair of numbers l_i, r_i ($1 \leq l_i \leq r_i \leq m$). It is guaranteed that $\frac{r_i}{l_i} \geq \alpha$.

Output

In a single line, output the number of possible subsets of tasks to be completed modulo $10^9 + 7$.

Scoring

Group	Points	Additional Constraints		Necessary Groups	Comment
		n	α		
0	0	–	–	–	Tests from the statement.
1	12	$n \leq 18$	$\alpha = 1.5$	0	–
2	13	$n \leq 25$	$\alpha = 1.5$	0–1	–
3	15	$n \leq 2000$	$\alpha = 2$	–	–
4	15	$n \leq 2000$	$\alpha = 1.5$	0–2	–
5	10	–	$\alpha = 2$	3	–
6	16	$n \leq 10^5$	$\alpha = 1.5$	0–2, 4	–
7	19	–	$\alpha = 1.5$	0–2, 4, 6	–

Examples

standard input	standard output
4 10 1.5 2 3 1 2 2 5 3 7	1
7 20 2 1 3 2 4 6 12 9 20 5 12 5 13 6 13	2

Explanation

In the first example, the only suitable subset consists of the first three tasks.