homework • EN

Alice's Homework Challenge (homework)

Alice has N homework tasks, but she's already bored just thinking about them. To make it more exciting, she decides to set her own deadlines and rewards! She has M seconds in total to complete the tasks.

For each i = 0...N - 1, task i takes S_i seconds to complete, and Alice has assigned a deadline of D_i seconds to it. She rewards herself with 2 points if she finishes the task before the deadline (including finishing it in the same second as the deadline), or 1 point if she finishes it after the deadline, but still within M seconds.

Alice can only work on one homework at a time. Help her maximize her self-awarded score!



Figure 1: Alice doing her homework.

Among the attachments of this task you may find a template file homework.* with a sample incomplete implementation.

Input

The first line of the input file contains a single integer T, the number of test cases. T test cases follow, each preceded by an empty line.

Each test case consists of:

- a line containing integers N, M.
- N lines, the *i*-th of which consisting of integers S_i , D_i .

Output

The output file must contain T lines corresponding to the test cases, each consisting of integer P, the maximum number of points Alice can reward herself with.

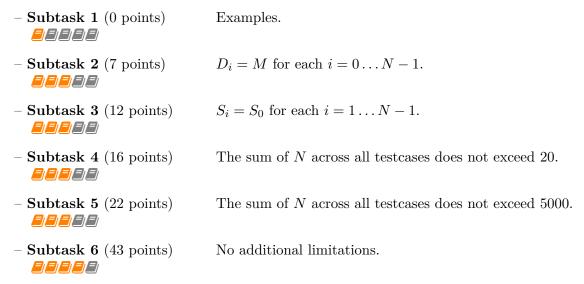
Constraints

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- $1 \le T \le 10000$.
- $1 \le N \le 200\,000$.
- $1 \le M \le 10000000000$.
- $1 \leq S_i, D_i \leq M$ for each $i = 0 \dots N 1$.
- The sum of N across all testcases does not exceed 200 000.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.



Examples

input	output
2	2
3	3
	6
3 2	2
1 1	
1 1	
1 1	
6 7	
1 1	
2 2	
3 7	
2 2	
2 2	
3 7	
4 100000000	
100000000 100000000	
100000000 100000000	
100000000 100000000	
100000000 1000000000	

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Explanation

In the first sample case, Alice has 3 tasks and 2 seconds to work on them. She can complete task 0 in the first second, which is within its deadline, so she gets 2 points for it. Then, she can do task 1 in the second second, so she finishes it after its deadline, but still within her total available time of 2 seconds, so she gets 1 point for it. She does not have time to do more tasks. Her total score is 3 points, and this is the maximum number of points achievable.

In the **second sample case**, Alice can complete tasks 0, 2, and 5, all within their deadlines, and she can get 6 points for that. It can be seen that she cannot get more than 6 points with any other scheduling of the tasks.

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