Have you ever dreamt that you were the main character in a computer game? The protagonist of this story, Branimir, is having that dream right now.

The world in Branimir's dream consists of N skyscrapers ordered from left to right. For the ith skyscraper, we know the height H_i and the number of gold coins G_i on the roof of the skyscraper. The game begins with a jump on any of the skyscrapers and consists of several steps. In each step, Branimir can jump on a skyscraper to the **right** from the one he's currently on (it is possible for him to jump over a couple of them too) and if it **is not lower** than the current one. On each skyscraper roof he's on, Branimir will collect all the gold coins. Branimir can end the game after any number of steps (zero as well), but he must collect at least K gold coins in order to advance to the next level.

Branimir wants to know the number of different ways for him to play the game in order to advance to the next level. Two games are played in different ways if there is a skyscraper that was visited in one game, and not in the other.

INPUT

The first line of input contains positive integers N ($1 \le N \le 40$) and K ($1 \le K \le 4 \cdot 10^{10}$), the numbers from the task.
The ith of the following N lines contains two positive integers, H_i and G_i ($1 \le H_i, G_i \le 10^9$), the numbers from the task.

OUTPUT

You must output the number of different ways to play the game from the task.

SCORING

In test cases worth 40% of total points, it will hold $N \le 20$.

SAMPLE TESTS

input	input	input
4 6	2 7	4 15
2 1	4 6	5 5
6 3	3 5	5 12
7 2		6 10
5 6		2 1

output	output	output
3	0	4

Clarification of the first test case:

The following three games will take Branimir to the next level (the numbers represent the labels of the skyscrapers he visited): {1, 2, 3}, {1, 4} and {4}.