TLE '17 Contest 8 P4 - Gamma Waves

Fax McClad, Croneria's most talented bounty hunter, is competing in a sandwich making competition!

Fax is required to make N sandwiches for the judges. The ith sandwich is required to be made at time a_i. Fax can make sandwiches in 0 time.

All sandwiches are identical. In particular, the ith judge is happy to get any sandwich, as long as the sandwich is delivered at time b_i.

However, sandwiches that are left in the open, waiting to be delivered, will rot. In particular, if a sandwich is left out in the open for more than X time units, it will become inedible.

Fax McClad with his trusted gamma wave oven.

In order to prevent this, Fax has a super powerful gamma wave oven that can zap one sandwich in 0 time, making it fresh again. That is, a zapped sandwich can now be left out for another X time units. The gamma wave oven can be used many times in the same time unit.

However, the gamma wave oven is expensive to use, so Fax wants to use it as little as possible. Can you tell Fax the minimum number of times he will need to use the gamma wave oven?

Constraints

$1 \le N \le 10^5$

$1 \le X \le 10^5$

$1 \le a_1 \le \cdots \le a_N \le 10^9$

$1 \le b_1 \le \cdots \le b_N \le 10^9$

It is guaranteed that each judge can get a distinct sandwich. That is, $a_i \le b_i$ for all $1 \le i \le N$.

Subtask	Percentage	Additional Constraints
1	20	$X = 1$
2	20	$N \le 8$
3	20	$N \le 2000$
4	40	No additional constraints.

Input Specification

The first line of input will contain N and X.

N lines of input follow. The ith line will contain a_i and b_i. It is guaranteed that $a_i \leq b_i$, $a_i \leq a_{i+1}$, $b_i \leq b_{i+1}$.

Output Specification

On a single line, output the minimum number of times Fax needs to use the gamma wave oven.

Sample Input

```
5 10
1 1
2 32
12 33
50 61
51 70
```

Sample Output

```
5
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Explanation for Sample Output

Sandwich 1 should be given to judge 1.

Sandwich 2 should be zapped at time 12 and time 22, then given to judge 2.

Sandwich 3 should be zapped at time 22 and time 32, then given to judge 3.

Sandwich 4 should be zapped at time 60, then given to judge 5.

Sandwich 5 should be given to judge 4.

In total, 5 zaps were needed.