A. Cottage Village

time limit per test: 2 seconds
memory limit per test: 64 megabytes

A new cottage village called «Flatville» is being built in Flatland. By now they have already built in «Flatville» n square houses with the centres on the Ox-axis. The houses' sides are parallel to the coordinate axes. It's known that no two houses overlap, but they can touch each other.

The architect bureau, where Peter works, was commissioned to build a new house in «Flatville». The customer wants his future house to be on the Ox-axis, to be square in shape, have a side t, and touch at least one of the already built houses. For sure, its sides should be parallel to the coordinate axes, its centre should be on the Ox-axis and it shouldn't overlap any of the houses in the village.

Peter was given a list of all the houses in «Flatville». Would you help him find the amount of possible positions of the new house?

Input

The first line of the input data contains numbers n and t ($1 \le n, t \le 1000$). Then there follow n lines, each of them contains two space-separated integer numbers: x_i a_i, where x_i — x-coordinate of the centre of the i-th house, and a_i — length of its side ($-1000 \le x_i \le 1000$, $1 \le a_i \le 1000$).

Output

Output the amount of possible positions of the new house.

Examples

input Copy

```
2 2
0 4
6 2
```

output Copy

```
4
```

input Copy

```
2 2
0 4
5 2
```

output Copy

```
3
```

input Copy

```
2 3
0 4
5 2
```

output Copy

```
2
```

Note

It is possible for the x-coordinate of the new house to have non-integer value.

→ Attention

The package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, a solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then the value 800 ms will be displayed and used to determine the verdict.

Codeforces Beta Round 15

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++23 14.2 (64 bit, ms

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
326632593	Jun/30/2025 12:33	Accepted

→ Problem tags

implementation sortings *1200

No tag edit access

→ Contest materials

- Announcement
- Tutorial #1 (ru)
- Tutorial #2 (en)