B. Young Photographer

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

Among other things, Bob is keen on photography. Especially he likes to take pictures of sportsmen. That was the reason why he placed himself in position x_0 of a long straight racetrack and got ready to take pictures. But the problem was that not all the runners passed him. The total amount of sportsmen, training at that racetrack, equals n. And each of them regularly runs distances within a particular segment of the racetrack, which is the same for each sportsman. For example, the first sportsman runs from position a_1 to position b_1, the second — from a_2 to b_2

What is the minimum distance that Bob should move to have a chance to take pictures of each sportsman? Bob can take a picture of a sportsman, if he stands within the segment that this sportsman covers on the racetrack.

Input

The first line of the input file contains integers n and x_0 ($1 \le n \le 100$; $0 \le x_0 \le 1000$). The following n lines contain pairs of integers a_i, b_i ($0 \le a_i, b_i \le 1000$; $a_i \ne b_i$).

Output

Output the required minimum distance in the same units as the positions on the racetrack. If there is no such a position, output -1.

Examples

input Copy

```
3 3
0 7
14 2
4 6
```

output Copy

```
1
```

→ 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 14 (Div. 2)

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
326383869	Jun/28/2025 11:38	Accepted

→ Problem tags

implementation *1000

No tag edit access

→ Contest materials

- Announcement
- Tutorial

Codeforces (c) Copyright 2010-2025 Mike Mirzayanov
The only programming contests Web 2.0 platform
Server time: Jun/28/2025 15:39:58 UTC+7 (k3).
Desktop version, switch to mobile version.
Privacy Policy | Terms and Conditions

Supported by