

Which predecessor? which food

- Time limit: 5 seconds
- Memory limit: 256 MB

Mamed is a student whose only pleasure is delicious food. In order to keep his spirits up during the quarantine, he made a plan for himself to go to his friends' universities to study as a guest and have meals with them, according to his predecessor's schedule and the schedule of his friends in different universities. Mamed in n There is a familiar university that from 1 to n are numbered. He for any university i He only has two opportunities to be a guest. a_i The first opportunity to be a guest and b_i Second chance so that $a_i < b_i$. Mamed can go to at most one university every day and decides to visit each university at most once. (because he doesn't want to disturb his friends too much and he has to face it). Also, he should visit all the universities, because if he doesn't, his friends will feel that there is a difference between them! (He must visit each university exactly once.)

Mamed wants to visit all the universities as soon as possible (because the quarantine period may end and after that he will attend the universities and he has to go only to his own university). If Mamed can visit all universities, print the earliest time he can do so. If he cannot visit all of them, the quantity- 1 print the

Input

The first line of input contains an integer value n is the number of universities.

At n The next line each contains two integer values a_i And b_i That a_i No. the first opportunity to visit and b_i Second opportunity to visit the university i M is

$$1 \leq n \leq 10^6$$

$$1 \leq a_i < b_i \leq 10^9$$

Output

If you can't visit all the universities - 1 print the Otherwise, it should be printed as soon as Mamed can do so.

Example

Sample input 1

```
2
1 5
1 7
```

Sample output 1

```
5
```

Mamed visits the second university on the first day and the first university on the fifth day.

Sample input 2

```
3
5 13
1 5
1 7
```

Sample output 2

7

Sample input 3

3
10 40
40 80
10 80

Sample output 3

80

Sample input 4

3
99 100
99 100
99 100

Sample output 4

-1