To Tell the Truth

There are *n* people in a room, each of whom always tells the truth, or always lies. Each of them makes a statement of the form: "Some number between *a* and *b* (inclusive) of us are telling the truth." What is the maximum number of truth-tellers in the room?

Input

Each input will consist of a single test case. Note that your program may be run multiple times on different inputs.

Each test case will begin with a line containing an integer *n* ($1 \leq n \leq 1,000$) which is the number of people in the room.

Each of the next *n* lines will have two space-separated integers, *a* and *b* ($0 \leq a \leq b \leq n$). Each line represents the statement of one person that "Some number between *a* and *b* (inclusive) of us are telling the truth."

Output

Output a single integer, which is the largest possible number of truth-tellers, or **-1** if the statements are inconsistent.

Sample Input	Sample Output
3 1 1 2 3 2 2	2
8 0 1 1 7 4 8 3 7 1 2 4 5 3 7 1 8	-1