Criminals

The police commissioner of the city has decided to undertake a project to estimate the number of criminals in the city. The city consists of N hideouts, numbered 1 to N. The commissioner has M policemen working under him. For policeman i, he has given the job of investigating hideouts a_i to b_i (inclusive) for the presence of criminals. At the end of the day, he asks how many criminals were there in each interval of hideouts, and interestingly, all M policemen say there was exactly one criminal in their respective intervals. The commissioner then comes to you and asks you to help him estimate the maximum number of criminals in the city. If there is some inconsistency due to perhaps some policeman having lied about the number of criminals found, output -1.

Program and Grader

Implement one function in the file `criminals.cpp`.

```
int criminalEstimate(int N, int M, int* a, int* b);
```

that counts the maximum number of criminals in the city, or returns `-1` if there is some inconsistency with the reporting. For `i` in `[1..M]`, `a[i]` and `b[i]` describe the interval investigated by policemen `i`.

Input and Output

The program `grader_criminals.cpp` takes input in the following format:

- The first line has two integers: N and M.
- This is followed by M lines having two integers each: $a[i]$, $b[i]$.

`grader_criminals.cpp` then calls your function `criminalEstimate()` and outputs the value that your function returns.

Test data

- Subtask 1 (30 marks) : $N, M \leq 100$
- Subtask 2 (15 marks) : $N, M \leq 2000$
- Subtask 3 (55 marks) : $N \leq 200000$, $M \leq 100000$

Sample input	Sample output
5 3	1
1 4	
2 5	
3 4	

Limits

- *Memory limit* : 128 MB
- *Time limit* : 4s