Problem J

Juniper Networks

Time limit: 3 seconds

Memory limit: 1024 megabytes

Problem Description

Juniper Networks, Inc. is an American multinational corporation headquartered in Sunnyvale, California. The company develops and markets networking products, including routers, switches, network management software, network security products, and software-defined networking technology.

Aston Martin Lagonda, one of the most prestigious British sport car brands, deployed Juniper networking at its headquarters and around the world, empowering automotive designers and engineers to build new iconic British cars. Consistent network infrastructure supports diverse requirements at offices, manufacturing facilities, engineering centers, and performance centers. The simplicity of Juniper empowers the IT team to operate at the speed of business.

The network company has developed a new routing system, where there are n routers indexed from 1 to n. Each router is protected by two keys P_i and Q_i. To initialize the system, the terminal has to send packets to unlock the routers sequentially.. A packet holding two keys is sent from the terminal each time, which is able to unlock any number of the remaining routers matching at least one key value. As a professional computer scientist, you are asked to minimalize the network usage for the system. Given the keys on each router, determine the minimum number of packets needed to initialize to system.

Input Format

The first line contains an integer n indicating the number of routers. Each of the following lines contains two space seperated integers P_i and Q_i indicating the key values on each router.

Output Format

Output a single integer, the minimum number of packets needed to initialize the system.

Technical Specification

- $1 \leq n \leq 10000$
- $1 \leq P_i \leq Q_i \leq 2n$

Sample Input 1

```
5
1 2
3 4
5 6
7 8
1 2
```

Sample Output 1

```
3
```

Sample Input 2

```
5
1 2
3 4
2 6
4 5
2 4
```

Sample Output 2

```
1
```