

Problem 9.5 Matching Pears

(page 1 of 2)

Overview: Compute the maximum number of pears that can be ripened given limited resources.

Description: Omega-Pears is a rather strange company specializing in the lucrative pear-ripening business. Pears ripen upon exposure to ethylene, and Omega-Pears analyzes each pear to determine the optimal range of ethylene exposure.

Through careful testing, Omega-Pears has determined the optimal ripening ranges for each of the n pears in its most recent batch. The i -th pear will ripen optimally in any ethylene concentration between the a minimum concentration of min_i and the maximum concentration max_i .

The company's laboratory has room for m different ripening chambers. The j -th chamber has an ethylene concentration of e_j and can hold up to c_j different pears. Pears ripen independently; that is, placing multiple pears into the same chamber will not affect the ripening process of other pears in the same chamber. Each pear can only be placed in one chamber, but not all chambers need be used.

Omega-Pears meet strict deadlines and has time for only one round of pear ripening. Omega-Pears has enlisted your help to match the pears to the available ripening chambers so that the maximum number of pears ripen. Good luck!

Time Allocation: 1 second

Input: The first line contains a single integer n , representing the number of pears.

The next n lines each contains two integers min_j max_j , separated by exactly one space, representing the minimum and maximum ethylene concentrations allowed for pear j .

The next line contains a single integer m , representing the number of ripening chambers.

The next m lines will each contain two integers e_k c_k , separated by exactly one space, representing the ethylene concentration and pear capacity of ripening chamber k .

Output: The output should consist of a single integer r , representing the maximum number of pears that can be ripened given the above conditions.

The output is to be formatted exactly like the sample output given below.

Problem 9.5 **Matching Pears**

(page 2 of 2)

Assumptions:

- n and m will each be an integer between 1 and 2009, inclusive.
- min_j will be an integer between 1 and 1000, inclusive.
- max_j will be an integer between min_j and 1000, inclusive.
- e_k will be an integer between 1 and 1000, inclusive.
- c_k will be an integer between 1 and 2009, inclusive.
- Multiple pears may have the same min_j and max_j .
- No two chambers will have the same e_k .
- r will be an integer between 0 and n , inclusive.
- All input will be valid.

Sample Input #1:

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

Sample Output #1: 3

Sample Input #2:

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

Sample Output #2: 0