Lazy DevG

Assignment 1
Data Structures
Due date: 10 January, 2019

Problem Statement: DevG wants to complete his Dual Degree as well as wants to go for Industry Internship. As we all know that this is quite a difficult situation he wants us to help him in his endeavor.

You are given N Paper Submission windows(range of numbers) as $l1_i$, left limit and $r1_i$ as right limit. Along with that you are given M intervals during which he can go for an internship, as $l2_i$, left limit and $r2_i$ as a right limit. All the ranges are inclusive.

Input
First line contains the number of test cases T. Each of these T test cases have 1st line as the number of Paper Submission intervals N. N following lines will contain two integers each, separated by a space denoting $l1$ and $r1$. Next line contains M, the duration when he can go for internships. M following lines will contain two integers each, separated by a space denoting $l2$ and $r2$.
Output
The absolute value of the largest difference between the ranges when he can do internship and can submit paper in submission window. If they are overlapping print 0.
Constraints
$1 \leq T \leq 10$
$1 \leq N, M \leq 20000$
$1 \leq l1, r1, l2, r2 \leq 1000000$
$l \leq r$
Time Limit: 1 sec
Memory Limit: 256 MB

Sample Test Case

Input	Output
2 3 1 5 2 6 2 3 2 2 4 6 8 3 1 5 2 6 3 7 2 2 4 1 4	3 0

Explanation
In first case, Paper can be submitted between [2,3] and he can go for internship during [6, 8]; hence 3.
In second case, the windows are overlapping.