


PEKING UNIVERSITY

JUDGE ONLINE FOR ACM/ICPC



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Stall Reservations

Time Limit: 1000MS
Memory Limit: 65536K

Total Submissions: 7726
Accepted: 2736
Special Judge

Language:

Description

Oh those picky N ($1 \leq N \leq 50,000$) cows! They are so picky that each one will only be milked over some precise time interval A..B ($1 \leq A \leq B \leq 1,000,000$), which includes both times A and B. Obviously, FJ must create a reservation system to determine which stall each cow can be assigned for her milking time. Of course, no cow will share such a private moment with other cows.

Help FJ by determining:

- The minimum number of stalls required in the barn so that each cow can have her private milking period
- An assignment of cows to these stalls over time

Many answers are correct for each test dataset; a program will grade your answer.

Input

Line 1: A single integer, N

Lines 2..N+1: Line i+1 describes cow i's milking interval with two space-separated integers.

Output

Line 1: The minimum number of stalls the barn must have.

Lines 2..N+1: Line i+1 describes the stall to which cow i will be assigned for her milking period.

Sample Input

```
5
1 10
2 4
3 6
5 8
4 7
```

Sample Output

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

Hint

Explanation of the sample:

Here's a graphical schedule for this output:

Time	1	2	3	4	5	6	7	8	9	10
Stall 1	c1	>	>	>	>	>	>	>	>	>
Stall 2	..	c2	>	>	>	>	c4	>	>	>
Stall 3	..	..	c3	>	>	>	>	..	..	..
Stall 4	..	..	..	c5	>	>	>	>	..	..

Other outputs using the same number of stalls are possible.

Source

USACO 2006 February Silver

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