P3029 [USACO11NOV] Cow Lineup S

题目描述

Farmer John has hired a professional photographer to take a picture of some of his cows. Since FJ's cows represent a variety of different breeds, he would like the photo to contain at least one cow from each distinct breed present in his herd.

FJ's N cows are all standing at various positions along a line, each described by an integer position (i.e., its x coordinate) as well as an integer breed ID. FJ plans to take a photograph of a contiguous range of cows along the line. The cost of this photograph is equal its size -- that is, the difference between the maximum and minimum x coordinates of the cows in the range of the photograph.

Please help FJ by computing the minimum cost of a photograph in which there is at least one cow of each distinct breed appearing in FJ's herd.

输入格式

* Line 1: The number of cows, N (1 <= N <= 50,000).

* Lines 2..1+N: Each line contains two space-separated positive integers specifying the x coordinate and breed ID of a single cow. Both numbers are at most 1 billion.

输出格式

* Line 1: The smallest cost of a photograph containing each distinct breed ID.

输入输出样例 #1

输入 #1

```
6
25 7
26 1
15 1
22 3
20 1
30 1
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输出 #1

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4
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说明/提示

There are 6 cows, at positions 25,26,15,22,20,30, with respective breed IDs 7,1,1,3,1,1.

The range from x=22 up through x=26 (of total size 4) contains each of the distinct breed IDs 1, 3, and 7 represented in FJ's herd.