Problem D
Register Allocation
Input File: *pd.in*
Time Limit: *3 seconds*

Problem Description

A computer program stores the values of its variables in memory. For arithmetic computations, the values must be stored in easily accessed locations called *registers*. Registers are expensive such that we need to use them efficiently. If two variables are never used simultaneously, then we can allocate them to the same register. Suppose that there are n variables used in a computer program. For convenience, we use $\mathsf{Var} = \{1, 2, \ldots, n\}$ to represent these n variables. For each variable i, we know the *start time* s_i and the *finish time* f_i when it is used. A variable i is *active* during the time interval $[s_i, f_i]$, where s_i and f_i are two positive integers with $s_i < f_i$. Two variables i and j can be stored in the same register if the corresponding time intervals are *disjoint*, that is, $[s_i, f_i] \cap [s_j, f_j] = \emptyset$. Note that even when $s_i < f_i = s_j < f_j$, the intervals $[s_i, f_i]$ and $[s_j, f_j]$ are not disjoint. Thus, such variables i and j cannot be placed in the same register. Given a set of n variables and the corresponding start time and finish time, your task is to write a computer program to compute the minimum number of used registers.

For example, consider $\mathsf{Var} = \{1, 2, 3, 4, 5, 6, 7, 8\}$ and the following table shows the start time and finish time for each variable. Note that variables $\{1, 3, 6\}$ can be stored in Register

Variable	s_i	f_i
1	1	3
2	2	6
3	4	8
4	5	11
5	7	9
6	10	14
7	12	15
8	13	16

A; variables $\{2, 5, 7\}$ can be stored in Register B; and variables $\{4, 8\}$ can be stored in Register C. The minimum number of the required registers equals 3.

Technical Specification

- $1 \leq n \leq 10000$.

- For each variable i, $1 \leq s_i \leq 10000$ and $2 \leq f_i \leq 30000$.

Input File Format

The first line of the input file contains an integer, denoting the number of test cases to follow. For each test case, the set of registers $\mathsf{Var} = \{1, 2, \ldots, n\}$ is given with the following format: The first line of each test case contains a positive integer n. In the following n lines, each line contains two positive integers separated by a single space. The first integer represents the start time and the second integer represents the finish time. The two positive integers

in the ith line of each test case represent s_i and f_i of variable i.

Output Format
For each test case, output the minimum number of the required registers.

Sample Input
2
8
1 2
3 4
5 6
7 8
9 10
11 12
13 14
15 16
6
1 2
2 3
3 4
4 5
5 6
6 7

Sample Output

1
2