Activity Selection

Time Limit: 2 seconds

Problem Description

Given a set of intervals (activities) $\{[s_1, f_1), \ldots, [s_n, f_n)\}$. Output the cardinality of the maximum-size subset of non-overlapping intervals (activities). Note: $f_1, f_2, \ldots, f_n$ may NOT be sorted.

Technical Specifications

1. The number of test cases is no more than 200.
2. Basic: $1 \leq n \leq 10^4$.
3. Hard: $1 \leq n \leq 4 \times 10^5$.
4. $0 \leq s_i < f_i < 10^5$ for every $i \in \{1, \ldots, n\}$.
5. The size of the input file will be less than 20MB.

Input Format

The first line of the input file contains an integer indicating the number of test cases. The first line of each test case contains an integer n which denotes the number of intervals (activities). The following n lines represent the intervals (activities). Each of them contains two integers s and f which represent the interval (activity) $[s, f)$.

Output Format

For each test case, output the cardinality of the maximum-size subset of non-overlapping intervals (activities).

Sample Input

```
3
3
1 5
2 4
3 6
2
1 2
2 3
3
0 1
1 2
2 3
```

Sample Output

```
1
2
3
```