Chiaki With Intervals (Easy)

Chiaki has a set A of n intervals, the i-th of them is $[l_i, r_i]$. She would like to know the number of such interval sets $S \subset A$: for every interval $a \in A$ which is not in S, there exists at least one interval b in S which has non-empty intersection with a. As this number may be very large, Chiaki is only interested in its remainder modulo (10^9+7).

Interval a has intersection with interval b if there exists a real number x that $l_a \le x \le r_a$ and $l_b \le x \le r_b$.

Input

There are multiple test cases. The first line of input contains an integer T $$, indicating the number of test cases. For each test case:

The first line contains an integer n ($1 \le n \le 10^5$) -- the number of intervals.

Each of the following n lines contains two integers l_i and r_i ($1 \le l_i < r_i \le 10^9$) denoting the i-th interval.

It is guaranteed that for every $1 \le i < j \le n$, $l_i \ne l_j$ or $r_i \ne r_j$ and that the number of distinct r_i in each test case does not exceed 15.

Output

For each test case, output an integer denoting the answer.

Example

Input:

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

Output:

```
1
7
```