Get Merge

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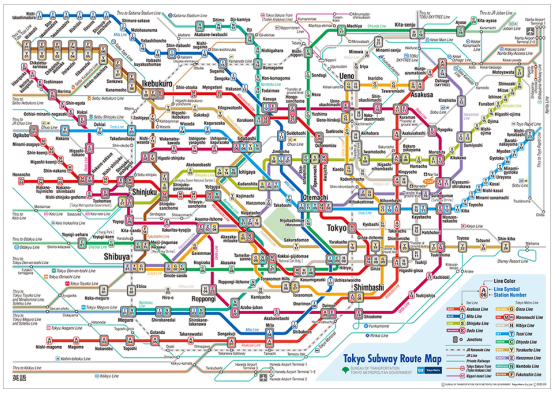


Description

As you look through the city's train route, you realise that there are overlapping routes. Two routes can overlap if those routes intersect with each other and you can merge them by taking the union of those routes. You thought to yourself that if you are able to merge those routes, there will be less trains to operate thus you can use the excess budget for yourself.

Input Format

First line is `n`, the number of routes given. The next `n` lines consist of two numbers, `start[i]` and `end[i]` indicating the start and destination of the `i`-th route. The routes are guaranteed to be given ascendingly.

Output Format

After you have merged the overlapping routes, print the fixed routes ascendingly where each line is a route that consists of two numbers, its start and destination.

Constraints and Rules

- `n` ∈ [2,1000]
- `start[i]` < `end[i]`, `start[i]` ≤ `start[i+1]`
- Arrays are FORBIDDEN, you may implement linked lists, stacks, queues, or any of your custom made data structures

- You MUST store all input values in a data structures first and THEN you can do the merging process

Example 1

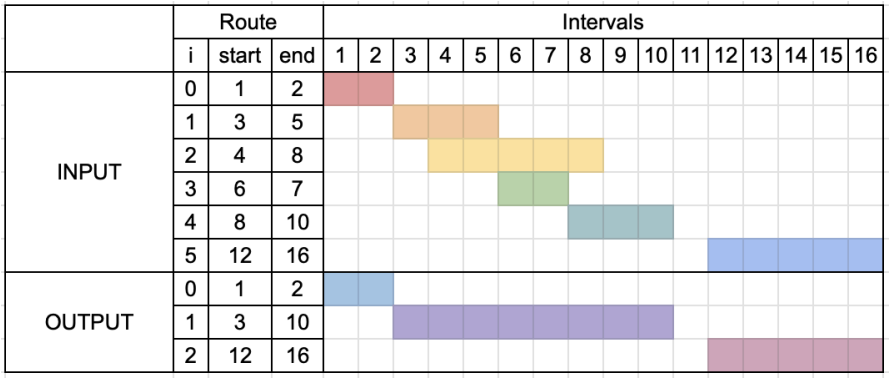
Input

```
6
1 2
3 5
4 8
6 7
8 10
12 16
```

Output

```
1 2
3 10
12 16
```

Explanation



	Route			Intervals														
	i	start	end	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INPUT	0	1	2																
	1	3	5																
	2	4	8																
	3	6	7																
	4	8	10																
	5	12	16																
OUTPUT	0	1	2																
	1	3	10																
	2	12	16																

Route 0 does not overlap with anyone. Route 1 overlaps with 2, 2 with 3, and 2 with 4 which means that we can merge them together. Route 5 does not overlap with route.

Example 2

Input

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

Output

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

Explanation

There are no overlapping routes

References

- LeetCode 57