

ALGORITHMIC THINKING

SAMPLE QUESTIONS



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SAMPLE QUESTION 1

Task

You are given a free pass to watch premiere shows on the Blue Moon Festival. On this day, there are n number of shows, each with specific start x and end y times. Some shows may occur at the same time as the others. Once you sit down to watch a show, you cannot watch another show until the current show is over. What is the maximum number of shows you can watch?

First line contains n (number of shows). Next n lines include x and y , respectively the start and end times of each show.

Example Input

```
5
1 7
2 5
5 8
7 9
8 10
```

Example Output

```
3
```

Constraints

$1 \leq n \leq 200,000$ $1 \leq a < b \leq 10,000,000$

SAMPLE QUESTION 2

Task

You are given an array containing x positive integers. Your goal is to divide this array into n subarrays such that the maximum sum in the created subarray is minimized (as small as possible).

The first line contains n , the number of subarrays in the division. The next line contains x positive integers (contents of the original array). All elements of the array are within a 32-signed integer range.

Example Input

```
3
2 4 7 3 5
```

Example Output

```
8
```

Constraints

$1 \leq x \leq 200,000$ $1 \leq n \leq x$

SAMPLE QUESTION 3

Task

You are given a tree consisting of x nodes. Your goal is to determine for each node the maximum distance to another node.

The first line consists of the integer x , the number of nodes. The nodes are numbered in the range from 1 to 5. The next $x-1$ lines describe the edges connecting a and b . Your output should include spaced integers representing the maximum distance to another node for each in 1, 2 ... x

Example Input

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

Example Output

```
2 3 2 3 3
```

Constraints

$1 \leq x \leq 200,000$ $1 \leq a, b \leq x$