

# Lubenica

[English](#)

[Vietnamese](#)

The traffic network in a country consists of  $N$  cities (labeled with integers from 1 to  $N$ ) and  $N-1$  roads connecting the cities. There is a unique path between each pair of different cities, and we know the exact length of each road. Write a program that will, for each of the  $K$  given pairs of cities, find the length of the shortest and the length of the longest road on the path between the two cities.

## Input

- The first line of input contains an integer  $N$ ,  $2 \leq N \leq 100\,000$ .
- Each of the following  $N-1$  lines contains three integers  $A$ ,  $B$  and  $C$  meaning that there is a road of length  $C$  between city  $A$  and city  $B$ . The length of each road will be a positive integer less than or equal to  $1\,000\,000$ . The next line contains an integer  $K$ ,  $1 \leq K \leq 100\,000$ .
- Each of the following  $K$  lines contains two different integers  $D$  and  $E$  – the labels of the two cities constituting one query.

## Output

Each of the  $K$  lines of output should contain two integers – the lengths from the task description for the corresponding pair of the cities.

## Example

### Input

```
1 6 5 100
25
50
50
10
20
23
```

### Output

```
100 200
50 150
50 100
```

### Input

```
7
3 6 4
1 7 1
1 3 2
1 2 6
2 5 4
2 4 4
5
6 4
7 6
1 2
1 3
3 5
```

### Output

```
2 6
1 4
6 6
2 2
2 6
```

### Input

```
9
1 2 2
2 3 1
3 4 5
2 7 4
1 5 3
5 6 1
5 9 2
1 8 3
5
6 9
7 8
9 4
1 2
7 3
```

### Output

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