Terror in Terminus

locked

Problem Submissions Discussions

Time Limit: $C/C++$ $(2s)$, $Java$ $(4s)$
Memory Limit: $512MB$

On the distant planet Terminus, cities are interconnected in a vast, tree-like structure. There are N cities on the planet and and the cities are linked through bidirectional roads. Terminus is a peaceful planet, but recently a group of rebels has hidden bombs at crucial locations.

Your mission, as the mayor of Terminus, is to locate these bombs before they detonate. Unfortunately, you don't know the location of the bombs. But you have a list of pair of cities and intel suggests the bombs are located at the middle city of the path between the two given cities.

Formally, you have to answer Q queries of the following type:

- Given cities u and v, find city x such that $|(distance(u, x) - distance(v, x))|$ is minimized. If there are multiple such cities, output the one where $distance(u, x)$ is minimized.

Note: $distance(u, v)$ is defined as the minimum number of edges in the path from node u to v.

Input Format

The first line of input contains an integer T denoting the number of test cases. Then T testcases follow.

The first line of each test case contains an integer N — the number of cities.

The next $N - 1$ lines contains two integers u and v, denoting that there is a road between cities u and v.

The next line contains an integer Q — the number of queries.

The next Q lines describe queries. Each line contains two integers u and v — indicating a bomb is located between city u and v.

Constraints

$1 \leq T \leq 10$

$1 \leq N, Q \leq 10^5$

$1 \leq u, v \leq N$

Sum of N over all testcases does not exceed 5×10^5

Sum of Q over all testcases does not exceed 5×10^5

Output Format

For each query, output a single integer denoting the answer for that query.

Sample Input 0

```
2
3
1 2
3 1
```

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

Sample Output 0

```
1
1
2
1
7
5
7
7
8
```

Submissions: 380
Max Score: 1

Rate This Challenge:

More

C

```
2s

#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {

    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}

undefined
```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code