

2277. Closest Node to Path in Tree Premium

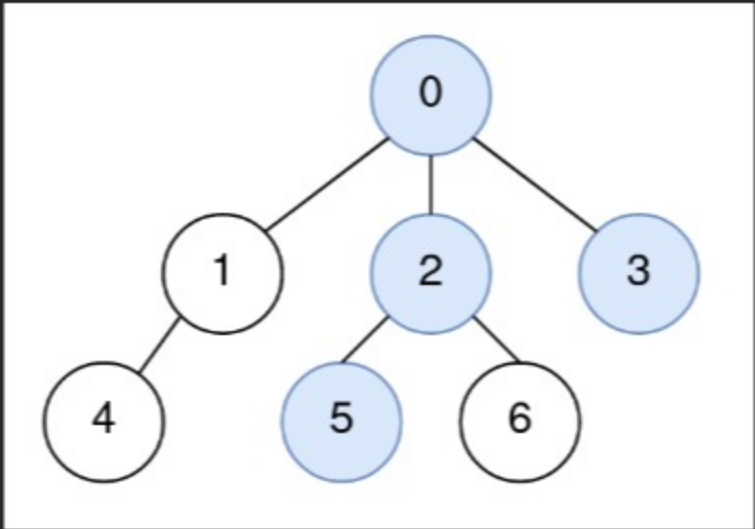
Hard Topics Hint

You are given a positive integer `n` representing the number of nodes in a tree, numbered from `0` to `n - 1` (**inclusive**). You are also given a 2D integer array `edges` of length `n - 1`, where `edges[i] = [node1i, node2i]` denotes that there is a **bidirectional** edge connecting `node1i` and `node2i` in the tree.

You are given a **0-indexed** integer array `query` of length `m` where `query[i] = [starti, endi, nodei]` means that for the `ith` query, you are tasked with finding the node on the path from `starti` to `endi` that is **closest** to `nodei`.

Return an integer array `answer` of length `m`, where `answer[i]` is the answer to the `ith` query.

Example 1:



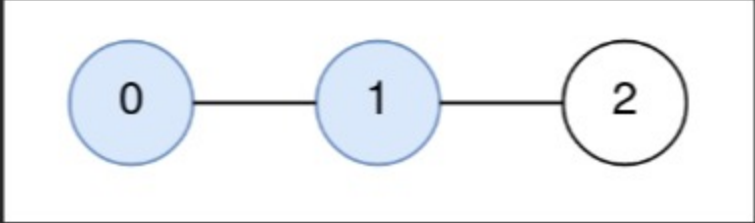
Input: `n = 7, edges = [[0,1],[0,2],[0,3],[1,4],[2,5],[2,6]], query = [[5,3,4],[5,3,6]]`

Output: `[0,2]`

Explanation:

The path from node 5 to node 3 consists of the nodes 5, 2, 0, and 3.
The distance between node 4 and node 0 is 2.
Node 0 is the node on the path closest to node 4, so the answer to the first query is 0.
The distance between node 6 and node 2 is 1.
Node 2 is the node on the path closest to node 6, so the answer to the second query is 2.

Example 2:



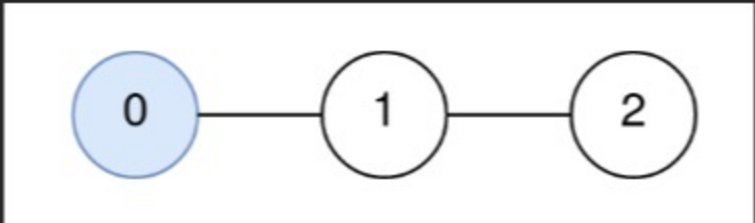
Input: `n = 3, edges = [[0,1],[1,2]], query = [[0,1,2]]`

Output: `[1]`

Explanation:

The path from node 0 to node 1 consists of the nodes 0, 1.
The distance between node 2 and node 1 is 1.
Node 1 is the node on the path closest to node 2, so the answer to the first query is 1.

Example 3:



Input: `n = 3, edges = [[0,1],[1,2]], query = [[0,0,0]]`

Output: `[0]`

Explanation:

The path from node 0 to node 0 consists of the node 0.
Since 0 is the only node on the path, the answer to the first query is 0.

Constraints:

- `1 <= n <= 1000`
- `edges.length == n - 1`
- `edges[i].length == 2`
- `0 <= node1i, node2i <= n - 1`
- `node1i != node2i`
- `1 <= query.length <= 1000`
- `query[i].length == 3`
- `0 <= starti, endi, nodei <= n - 1`
- The graph is a tree.

Seen this question in a real interview before? 1/5

Yes No

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Topics

Array Tree Depth-First Search Breadth-First Search

Hint 1

For the `i`th query, find the distance from `nodei` to every other node in the tree.

Hint 2

We can use a BFS to find the distances.

Hint 3

Use DFS to find all the nodes on the path from `starti` to `endi`.

Similar Questions

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