3067. Count Pairs of Connectable Servers in a Weighted Tree Network

Description

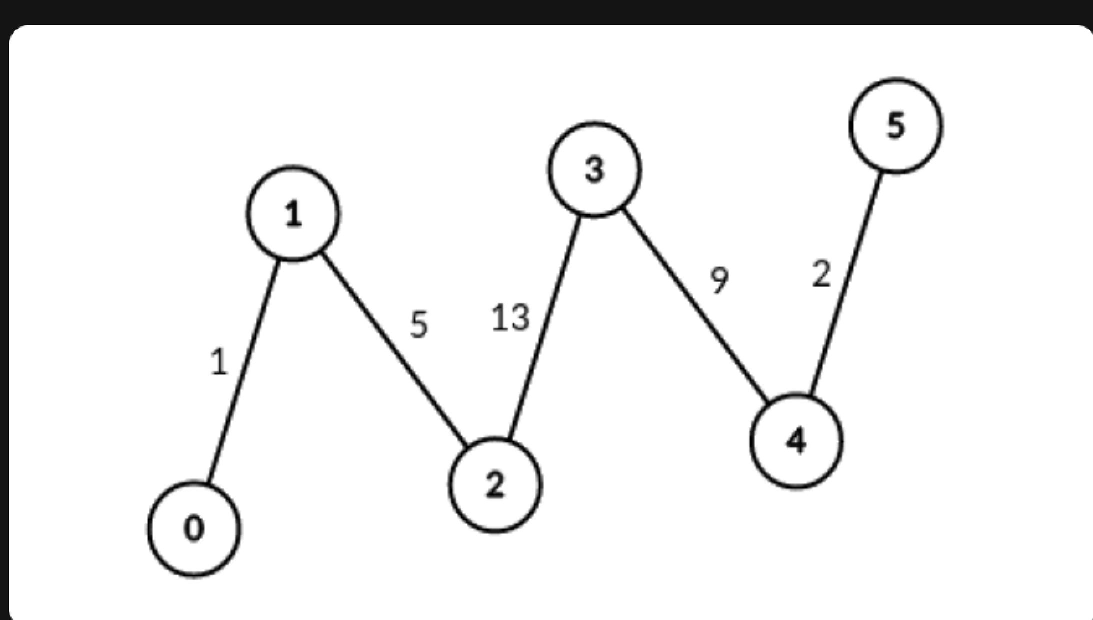
You are given an unrooted weighted tree with `n` vertices representing servers numbered from `0` to `n - 1`, an array `edges` where `edges[i] = [a i, b i, weight i]` represents a bidirectional edge between vertices `a i` and `b i` of weight `weight i`. You are also given an integer `signalSpeed`.

Two servers `a` and `b` are **connectable** through a server `c` if:

- `a < b`, `a != c` and `b != c`.
- The distance from `c` to `a` is divisible by `signalSpeed`.
- The distance from `c` to `b` is divisible by `signalSpeed`.
- The path from `c` to `b` and the path from `c` to `a` do not share any edges.

Return *an integer array* `count` *of length* `n` *where* `count[i]` *is the* ***number*** *of server pairs that are* ***connectable*** *through* *the server* `i`.

Example 1:




```
Input: edges = [[0,1,1],[1,2,5],[2,3,13],[3,4,9],[4,5,2]], signalSpeed = 1
Output: [0,4,6,6,4,0]
Explanation: Since signalSpeed is 1, count[c] is equal to the number of pairs of paths that start at c and do not share any edges.
In the case of the given path graph, count[c] is equal to the number of servers to the left of c multiplied by the servers to the right of c.
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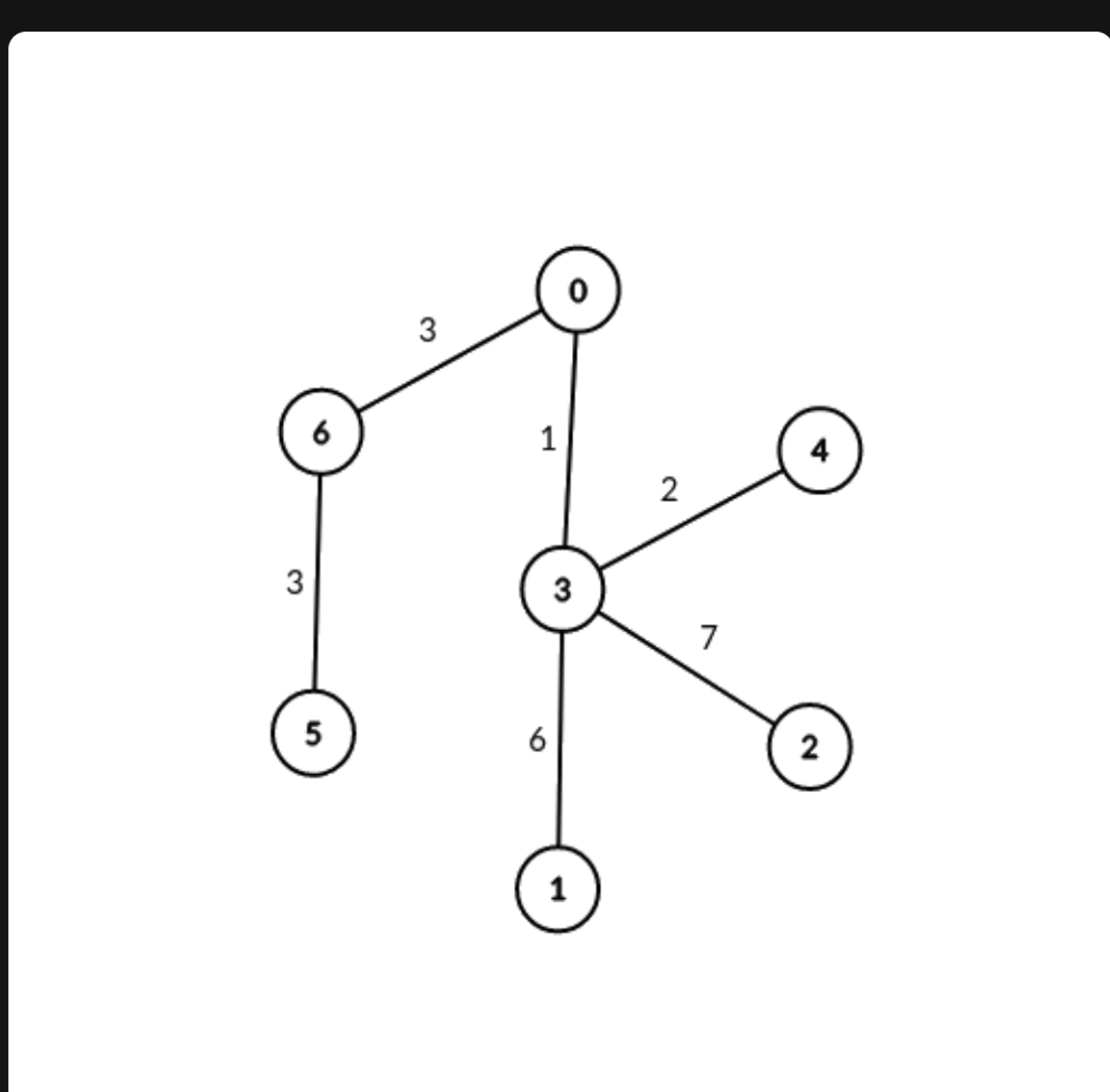
Example 2:




```
Input: edges = [[0,6,3],[6,5,3],[0,3,1],[3,2,7],[3,1,6],[3,4,2]], signalSpeed = 3
Output: [2,0,0,0,0,0,2]
Explanation: Through server 0, there are 2 pairs of connectable servers: (4, 5) and (4, 6).
Through server 6, there are 2 pairs of connectable servers: (4, 5) and (0, 5).
It can be shown that no two servers are connectable through servers other than 0 and 6.
```

Constraints:

- `2 <= n <= 1000`
- `edges.length == n - 1`
- `edges[i].length == 3`
- `0 <= a i, b i < n`
- `edges[i] = [a i, b i, weight i]`
- `1 <= weight i <= 10 6`
- `1 <= signalSpeed <= 10 6`
- The input is generated such that `edges` represents a valid tree.