Problem 1782: Count Pairs Of Nodes

Problem Information

Difficulty: Hard
Acceptance Rate: 41.84%
Paid Only: No
Tags: Array, Hash Table, Two Pointers, Binary Search, Graph, Sorting, Counting

Problem Description

You are given an undirected graph defined by an integer `n`, the number of nodes, and a 2D integer array `edges`, the edges in the graph, where `edges[i] = [ui, vi]` indicates that there is an **undirected** edge between `ui` and `vi`. You are also given an integer array `queries`.

Let `incident(a, b)` be defined as the **number of edges** that are connected to **either** node `a` or `b`.

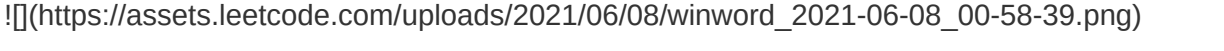
The answer to the `jth` query is the **number of pairs** of nodes `(a, b)` that satisfy **both** of the following conditions:

* `a < b` * `incident(a, b) > queries[j]`

Return _an array_`answers` _such that_`answers.length == queries.length` _and_`answers[j]`_is the answer of the_`jth` _query_.

Note that there can be **multiple edges** between the same two nodes.

Example 1:



Input: n = 4, edges = [[1,2],[2,4],[1,3],[2,3],[2,1]], queries = [2,3] **Output:** [6,5] **Explanation:** The calculations for incident(a, b) are shown in the table above. The answers for each of the queries are as follows: - answers[0] = 6. All the pairs have an incident(a, b) value greater than 2. - answers[1] = 5. All the pairs except (3, 4) have an incident(a, b) value greater than 3.

Example 2:

Input: n = 5, edges = [[1,5],[1,5],[3,4],[2,5],[1,3],[5,1],[2,3],[2,5]], queries = [1,2,3,4,5]
Output: [10,10,9,8,6]

Constraints:

* `2 <= n <= 2 * 104` * `1 <= edges.length <= 105` * `1 <= ui, vi <= n` * `ui != vi` * `1 <= queries.length <= 20` * `0 <= queries[j] < edges.length`

Code Snippets

C++:

```
class Solution {
public:
vector<int> countPairs(int n, vector<vector<int>>& edges, vector<int>&
queries) {

}
};
```

Java:

```
class Solution {
public int[] countPairs(int n, int[][] edges, int[] queries) {

}
}
```

Python3:

```
class Solution:
def countPairs(self, n: int, edges: List[List[int]], queries: List[int]) ->
List[int]:
```