399. Evaluate Division

Hint

You are given an array of variable pairs equations and an array of real numbers values, where equations[i] = [A_i, Bi] and values[i] represent the equation A_i / B_i = values[i]. Each Ai or Bi is a string that represents a single variable.

You are also given some queries, where queries[j] = [C_j, D_j] represents the jth query where you must find the answer for C_j / D_j = ?.

Return the answers to all queries. If a single answer cannot be determined, return -1.0.

Note: The input is always valid. You may assume that evaluating the queries will not result in division by zero and that there is no contradiction.

Note: The variables that do not occur in the list of equations are undefined, so the answer cannot be determined for them.

Example 1:

- **Input:** equations = [["a","b"],["b","c"]], values = [2.0,3.0], queries = [["a","c"],["b","a"],["a","e"],["a","a"],["x","x"]]
- **Output:** [6.00000,0.50000,-1.00000,1.00000,-1.00000]
- **Explanation:**
  - ***Given:*** a / b = 2.0, b / c = 3.0
  - ***queries are:*** a / c = ?, b / a = ?, a / e = ?, a / a = ?, x / x = ?
  - ***return:*** [6.0, 0.5, -1.0, 1.0, -1.0]
  - ***note:*** x is undefined => -1.0

Example 2:

- **Input:** equations = [["a","b"],["b","c"],["bc","cd"]], values = [1.5,2.5,5.0], queries = [["a","c"],["c","b"],["bc","cd"],["cd","bc"]]
- **Output:** [3.75000,0.40000,5.00000,0.20000]

Example 3:

- **Input:** equations = [["a","b"]], values = [0.5], queries = [["a","b"],["b","a"],["a","c"],["x","y"]]
- **Output:** [0.50000,2.00000,-1.00000,-1.00000]

Constraints:

- 1 <= equations.length <= 20
- equations[i].length == 2
- 1 <= Ai.length, Bi.length <= 5
- values.length == equations.length
- < values[i] <= 20.0
- 1 <= queries.length <= 20
- queries[i].length == 2
- 1 <= C_j.length, D_j.length <= 5
- A_i, B_i, C_j, D_j consist of lower case English letters and digits.