Problem 1899: Merge Triplets to Form Target Triplet

Problem Information

Difficulty: Medium
Acceptance Rate: 68.46%
Paid Only: No
Tags: Array, Greedy

Problem Description

A **triplet** is an array of three integers. You are given a 2D integer array `triplets`, where `triplets[i] = [ai, bi, ci]` describes the `ith` **triplet**. You are also given an integer array `target = [x, y, z]` that describes the **triplet** you want to obtain.

To obtain `target`, you may apply the following operation on `triplets` **any number** of times (possibly **zero**):

* Choose two indices (**0-indexed**) `i` and `j` (`i != j`) and **update** `triplets[j]` to become `[max(ai, aj), max(bi, bj), max(ci, cj)]`. * For example, if `triplets[i] = [2, 5, 3]` and `triplets[j] = [1, 7, 5]`, `triplets[j]` will be updated to `[max(2, 1), max(5, 7), max(3, 5)] = [2, 7, 5]`.

Return `true` _if it is possible to obtain the_`target` _**triplet** _`[x, y, z]`_as an**element** of _`triplets` _, or_`false` _otherwise_.

Example 1:

Input: triplets = [[2,5,3],[1,8,4],[1,7,5]], target = [2,7,5] **Output:** true **Explanation:** Perform the following operations: - Choose the first and last triplets [_[2,5,3]_ ,[1,8,4],_[1,7,5]_]. Update the last triplet to be [max(2,1), max(5,7), max(3,5)] = [2,7,5]. triplets = [[2,5,3],[1,8,4],_[2,7,5]_] The target triplet [2,7,5] is now an element of triplets.

Example 2:

Input: triplets = [[3,4,5],[4,5,6]], target = [3,2,5] **Output:** false **Explanation:** It is impossible to have [3,2,5] as an element because there is no 2 in any of the triplets.

Example 3:

Input: triplets = [[2,5,3],[2,3,4],[1,2,5],[5,2,3]], target = [5,5,5] **Output:** true **Explanation:** Perform the following operations: - Choose the first and third triplets [_[2,5,3]_ ,[2,3,4],_[1,2,5]_ ,[5,2,3]]. Update the third triplet to be [max(2,1), max(5,2), max(3,5)] = [2,5,5]. triplets = [[2,5,3],[2,3,4],_[2,5,5]_ ,[5,2,3]]. - Choose the third and fourth triplets [[2,5,3],[2,3,4],_[2,5,5]_ ,_[5,2,3]_]. Update the fourth triplet to be [max(2,5), max(5,2), max(5,3)] = [5,5,5]. triplets = [[2,5,3],[2,3,4],[2,5,5],_[5,5,5]_]. The target triplet [5,5,5] is now an element of triplets.

Constraints:

* `1 <= triplets.length <= 105` * `triplets[i].length == target.length == 3` * `1 <= ai, bi, ci, x, y, z <= 1000`

Code Snippets

C++:

```
class Solution {
public:
bool mergeTriplets(vector<vector<int>>& triplets, vector<int>& target) {

}
};
```

Java:

```
class Solution {
public boolean mergeTriplets(int[][] triplets, int[] target) {

}
}
```

Python3:

```
class Solution:
def mergeTriplets(self, triplets: List[List[int]], target: List[int]) ->
bool:
```