444. Sequence Reconstruction

Description

You are given an integer array `nums` of length `n` where `nums` is a permutation of the integers in the range `[1, n]`. You are also given a 2D integer array `sequences` where `sequences[i]` is a subsequence of `nums`.

Check if `nums` is the shortest possible and the only **supersequence**. The shortest **supersequence** is a sequence **with the shortest length** and has all `sequences[i]` as subsequences. There could be multiple valid **supersequences** for the given array `sequences`.

- For example, for `sequences = [[1,2],[1,3]]`, there are two shortest **supersequences**, `[1,2,3]` and `[1,3,2]`.
- While for `sequences = [[1,2],[1,3],[1,2,3]]`, the only shortest **supersequence** possible is `[1,2,3]`. `[1,2,3,4]` is a possible supersequence but not the shortest.

Return `true` *if* `nums` *is the only shortest* ***supersequence*** *for* `sequences`*, or* `false` *otherwise*.

A **subsequence** is a sequence that can be derived from another sequence by deleting some or no elements without changing the order of the remaining elements.

Example 1:

```
Input: nums = [1,2,3], sequences = [[1,2],[1,3]]
Output: false
Explanation: There are two possible supersequences: [1,2,3] and [1,3,2].
The sequence [1,2] is a subsequence of both: [ 1 , 2 ,3] and [ 1 ,3, 2 ].
The sequence [1,3] is a subsequence of both: [ 1 ,2, 3 ] and [ 1 , 3 ,2].
Since nums is not the only shortest supersequence, we return false.
```

Example 2:

```
Input: nums = [1,2,3], sequences = [[1,2]]
Output: false
Explanation: The shortest possible supersequence is [1,2].
The sequence [1,2] is a subsequence of it: [ 1 , 2 ].
Since nums is not the shortest supersequence, we return false.
```

Example 3:

```
Input: nums = [1,2,3], sequences = [[1,2],[1,3],[2,3]]
Output: true
Explanation: The shortest possible supersequence is [1,2,3].
The sequence [1,2] is a subsequence of it: [ 1 , 2 ,3].
The sequence [1,3] is a subsequence of it: [ 1 ,2, 3 ].
The sequence [2,3] is a subsequence of it: [1, 2 , 3 ].
Since nums is the only shortest supersequence, we return true.
```

Constraints:

- `n == nums.length`
- `1 <= n <= 10^4`
- `nums` is a permutation of all the integers in the range `[1, n]`.
- `1 <= sequences.length <= 10^4`
- `1 <= sequences[i].length <= 10^4`
- `1 <= sum(sequences[i].length) <= 10^5`
- `1 <= sequences[i][j] <= n`
- All the arrays of `sequences` are **unique**.
- `sequences[i]` is a subsequence of `nums`.