1932. Merge BSTs to Create Single BST

Description

You are given `n` **BST (binary search tree) root nodes** for `n` separate BSTs stored in an array `trees` (**0-indexed**). Each BST in `trees` has **at most 3 nodes**, and no two roots have the same value. In one operation, you can:

- Select two **distinct** indices `i` and `j` such that the value stored at one of the **leaves** of `trees[i]` is equal to the **root value** of `trees[j]`.
- Replace the leaf node in `trees[i]` with `trees[j]`.
- Remove `trees[j]` from `trees`.

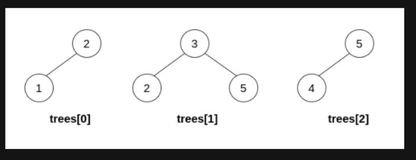
Return *the* ***root*** *of the resulting BST if it is possible to form a valid BST after performing* `n - 1` *operations, or* `null` *if it is impossible to create a valid BST*.

A BST (binary search tree) is a binary tree where each node satisfies the following property:

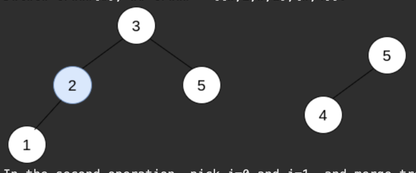
- Every node in the node's left subtree has a value **strictly less** than the node's value.
- Every node in the node's right subtree has a value **strictly greater** than the node's value.

A leaf is a node that has no children.

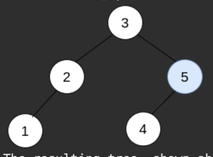
Example 1:




```
Input: trees = [[2,1],[3,2,5],[5,4]]
Output: [3,2,5,1,null,4]
Explanation:
In the first operation, pick i=1 and j=0, and merge trees[0] into trees[1].
Delete trees[0], so trees = [[3,2,5,1],[5,4]].
```

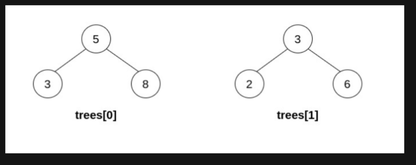



```
In the second operation, pick i=0 and j=1, and merge trees[1] into trees[0].
Delete trees[1], so trees = [[3,2,5,1,null,4]].
```

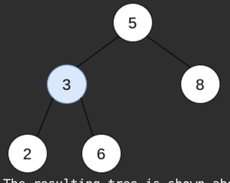



```
The resulting tree, shown above, is a valid BST, so return its root.
```

Example 2:

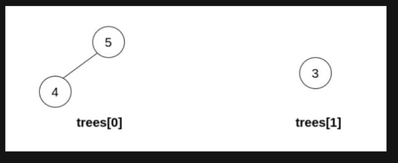



```
Input: trees = [[5,3,8],[3,2,6]]
Output: []
Explanation:
Pick i=0 and j=1 and merge trees[1] into trees[0].
Delete trees[1], so trees = [[5,3,8,2,6]].
```




```
The resulting tree is shown above. This is the only valid operation that can be performed, but the resulting tree is not a valid BST, so return
null.
```

Example 3:




```
Input: trees = [[5,4],[3]]
Output: []
Explanation: It is impossible to perform any operations.
```

Constraints:

- `n == trees.length`
- `1 <= n <= 5 * 10^4`
- The number of nodes in each tree is in the range `[1, 3]`.
- Each node in the input may have children but no grandchildren.
- No two roots of `trees` have the same value.
- All the trees in the input are **valid BSTs**.
- `1 <= TreeNode.val <= 5 * 10^4`.