Problem 587: Erect the Fence

Problem Information

Difficulty: Hard
Acceptance Rate: 52.60%
Paid Only: No
Tags: Array, Math, Geometry

Problem Description

You are given an array `trees` where `trees[i] = [xi, yi]` represents the location of a tree in the garden.

Fence the entire garden using the minimum length of rope, as it is expensive. The garden is well-fenced only if **all the trees are enclosed**.

Return _the coordinates of trees that are exactly located on the fence perimeter_. You may return the answer in **any order**.

Example 1:

Input: trees = [[1,1],[2,2],[2,0],[2,4],[3,3],[4,2]] **Output:** [[1,1],[2,0],[4,2],[3,3],[2,4]] **Explanation:** All the trees will be on the perimeter of the fence except the tree at [2, 2], which will be inside the fence.

Example 2:

Input: trees = [[1,2],[2,2],[4,2]] **Output:** [[4,2],[2,2],[1,2]] **Explanation:** The fence forms a line that passes through all the trees.

Constraints:

* `1 <= trees.length <= 3000` * `trees[i].length == 2` * `0 <= xi, yi <= 100` * All the given positions are **unique**.

Code Snippets

C++:

```
class Solution {
public:
vector<vector<int>> outerTrees(vector<vector<int>>& trees) {

}
};
```

Java:

```
class Solution {
public int[][] outerTrees(int[][] trees) {

}
}
```

Python3:

```
class Solution:
def outerTrees(self, trees: List[List[int]]) -> List[List[int]]:
```