ASSIGNMENT-2

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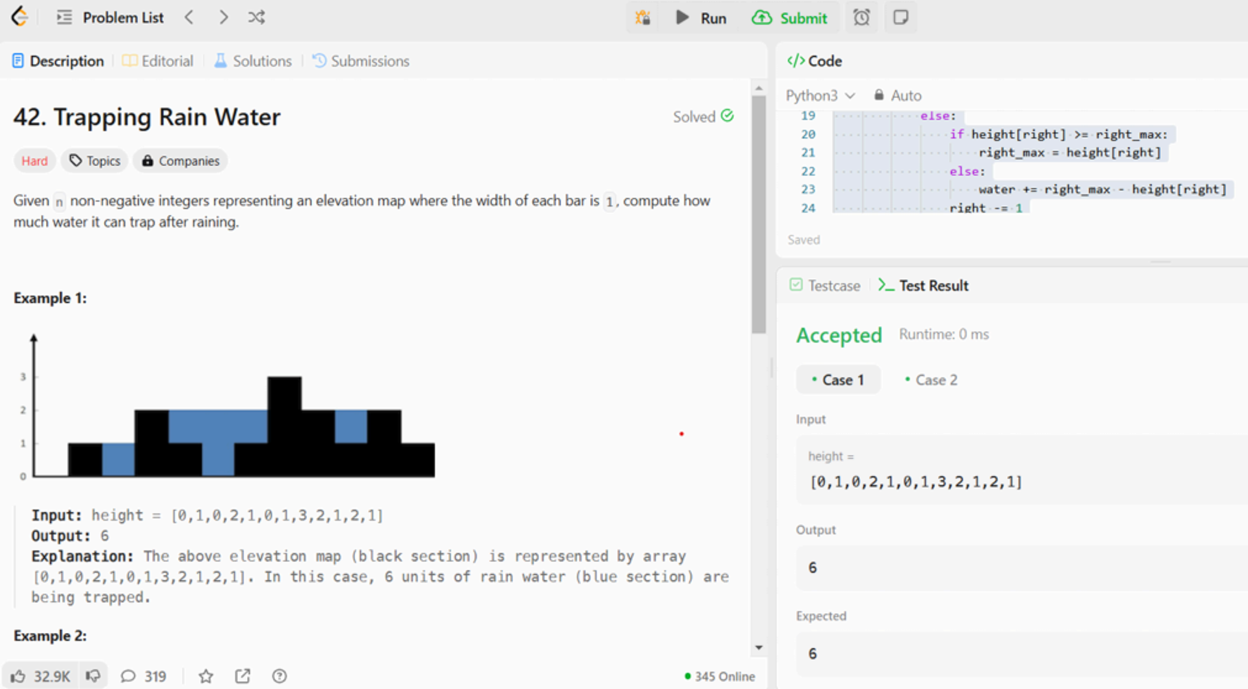
CODE:

```
from typing import List

class Solution:
    def trap(self, height: List[int]) -> int:
        if not height:
            return 0

        left, right = 0, len(height) - 1
        left_max, right_max = 0, 0
        water = 0

        while left < right:
            if height[left] < height[right]:
                if height[left] >= left_max:
                    left_max = height[left]
                else:
                    water += left_max - height[left]
                left += 1
            else:
                if height[right] >= right_max:
                    right_max = height[right]
                else:
                    water += right_max - height[right]
                right -= 1

        return water
```

OUTPUT:



42. Trapping Rain Water

Given n non-negative integers representing an elevation map where the width of each bar is 1, compute how much water it can trap after raining.

Example 1:

```
Input: height = [0,1,0,2,1,0,1,3,2,1,2,1]
Output: 6
Explanation: The above elevation map (black section) is represented by array
[0,1,0,2,1,0,1,3,2,1,2,1]. In this case, 6 units of rain water (blue section) are
being trapped.
```

Example 2:

```
        else:
            if height[right] >= right_max:
                right_max = height[right]
            else:
                water += right_max - height[right]
            right -= 1
```

Saved

Accepted Runtime: 0 ms

Input

height =

[0,1,0,2,1,0,1,3,2,1,2,1]

Output

6

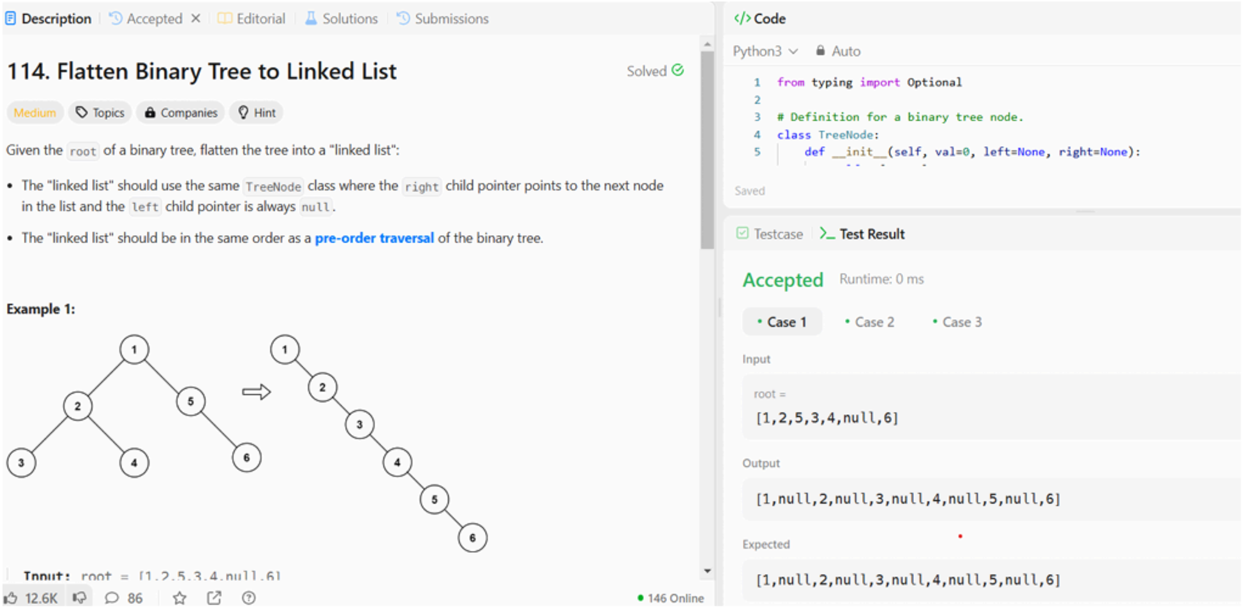
Expected

6

CODE:

```
from typing import Optional
class TreeNode:
    def __init__(self, val=0, left=None, right=None):
        self.val = val
        self.left = left
        self.right = right
class Solution:
    def flatten(self, root: Optional[TreeNode]) -> None:
        """
        Do not return anything, modify root in-place instead.
        """
        if not root:
            return

        # Helper function to recursively flatten the tree
        def flatten_tree(node):
            if not node:
                return None

            # Flatten the left and right subtrees
            left_tail = flatten_tree(node.left)
            right_tail = flatten_tree(node.right)

            # If there is a left subtree, attach it to the right of the current node
            if node.left:
                if left_tail:
                    left_tail.right = node.right  # Connect the tail of the left subtree to the start of the right subtree
                node.right = node.left  # Move the left subtree to the right
                node.left = None  # Set the left child to None

            # Return the tail of the flattened tree
            return right_tail if right_tail else left_tail if left_tail else node

        flatten_tree(root)
```

OUTPUT:



114. Flatten Binary Tree to Linked List

Given the `root` of a binary tree, flatten the tree into a "linked list":

- The "linked list" should use the same `TreeNode` class where the `right` child pointer points to the next node in the list and the `left` child pointer is always `null`.
- The "linked list" should be in the same order as a **pre-order traversal** of the binary tree.

Example 1:

```
Input: root = [1,2,5,3,4,null,6]
```

```python
from typing import Optional

# Definition for a binary tree node.
class TreeNode:
    def __init__(self, val=0, left=None, right=None):
```

Accepted   Runtime: 0 ms

Input

root =

```
[1,2,5,3,4,null,6]
```

Output

```
[1,null,2,null,3,null,4,null,5,null,6]
```

Expected

```
[1,null,2,null,3,null,4,null,5,null,6]
```