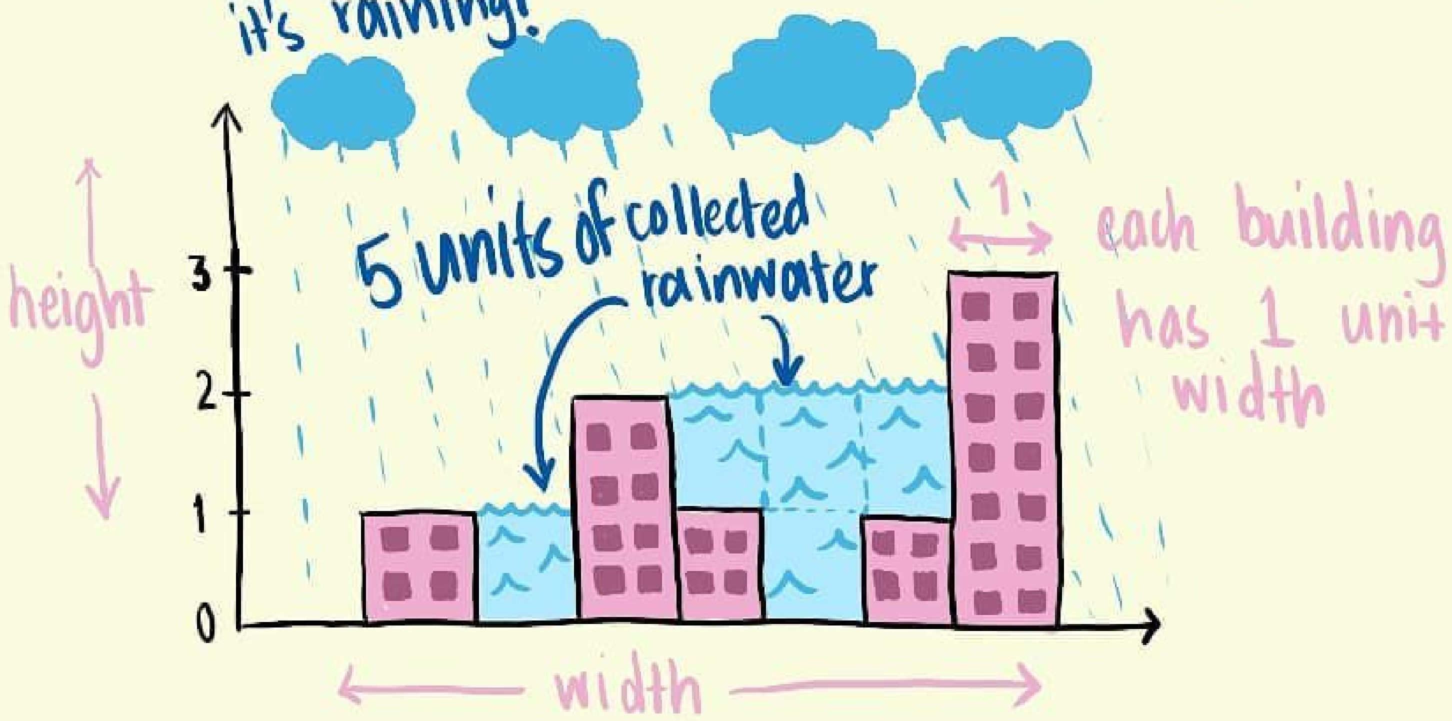
TRAPPING RAINWATER


it's raining!
5 units of collected rainwater
1
each building has 1 unit width
height
3
2
1
0
width

Given an array 'heights' of size 'n' which represents height of n buildings each of width 1, compute how much water will be trapped in between these buildings.

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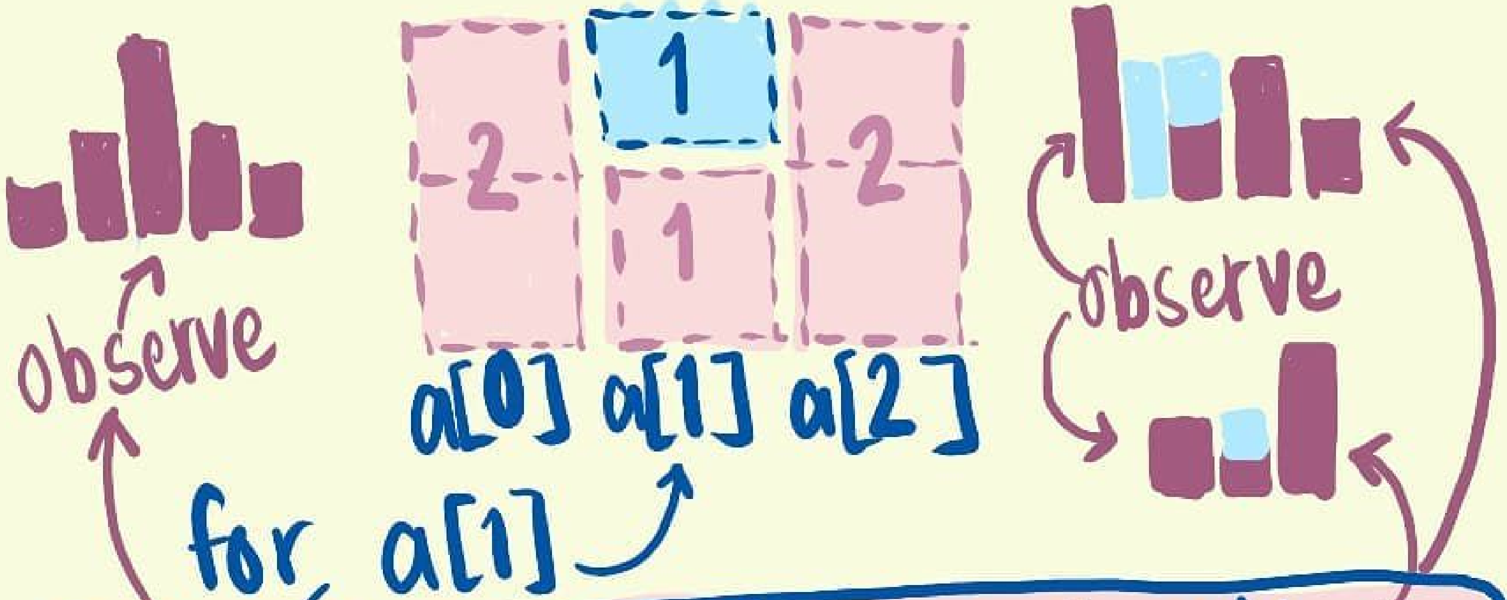
INTUITION-

1. Find a way to know how much water is collected on top of each building
2. Add all those up to get final answer



water on top = min(tallest building on left, tallest building on right) − a[1] ← height of 1th building

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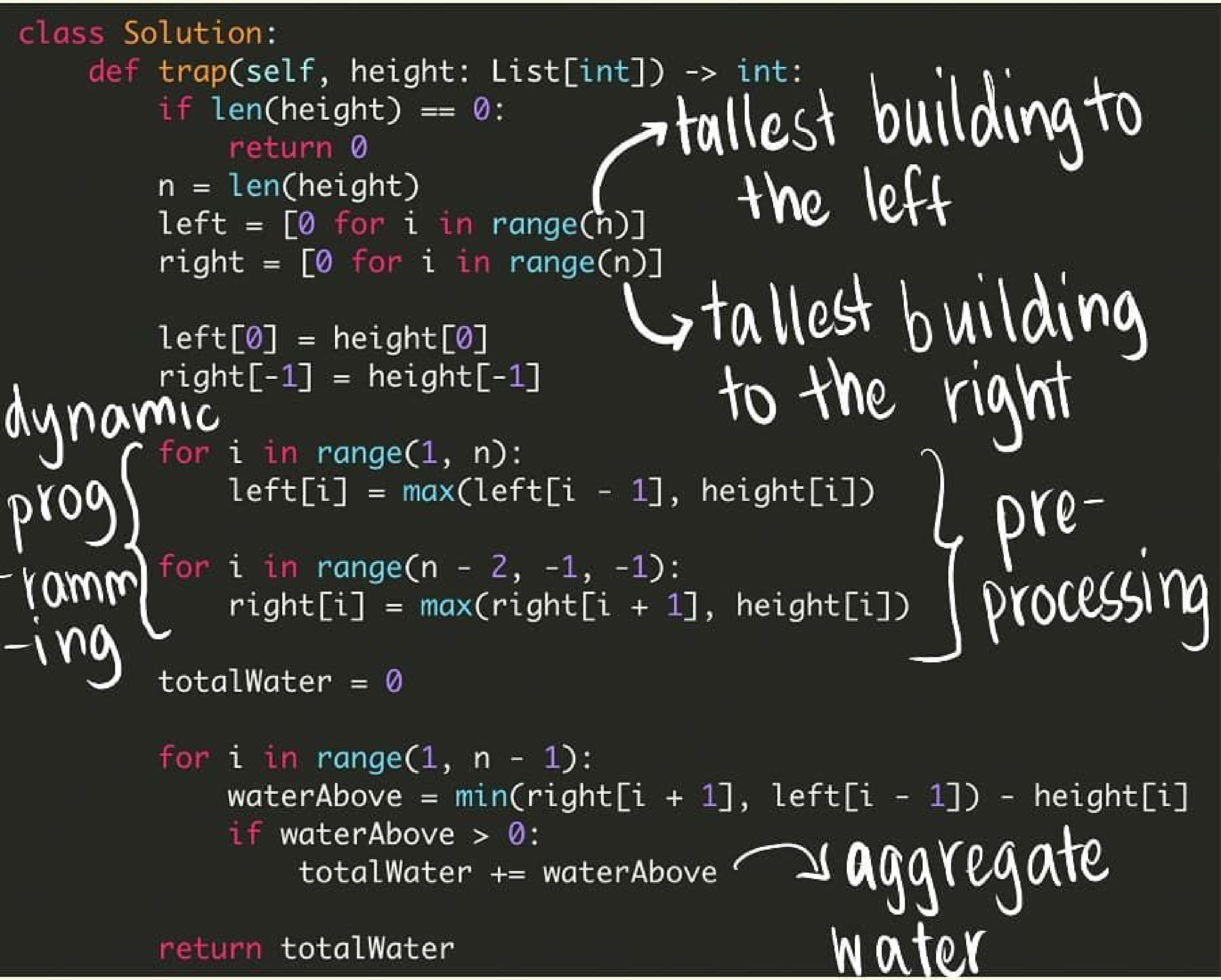
How will the code look like?



```python
class Solution:
    def trap(self, height: List[int]) -> int:
        if len(height) == 0:
            return 0
        n = len(height)
        left = [0 for i in range(n)]
        right = [0 for i in range(n)]

        left[0] = height[0]
        right[-1] = height[-1]

        for i in range(1, n):
            left[i] = max(left[i - 1], height[i])

        for i in range(n - 2, -1, -1):
            right[i] = max(right[i + 1], height[i])

        totalWater = 0

        for i in range(1, n - 1):
            waterAbove = min(right[i + 1], left[i - 1]) - height[i]
            if waterAbove > 0:
                totalWater += waterAbove

        return totalWater
```

tallest building to the left

tallest building to the right

dynamic prog-ramm-ing

pre-processing

aggregate water

TRY IT ON LEETCODE (42.)