

# Problem 42: Trapping Rain Water

## Problem Information

**Difficulty:** Hard

**Acceptance Rate:** 66.22%

**Paid Only:** No

**Tags:** Array, Two Pointers, Dynamic Programming, Stack, Monotonic Stack

## Problem Description

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:**

**Input:** height = [4,2,0,3,2,5] **Output:** 9

**Constraints:**

$n == \text{height.length}$   $1 \leq n \leq 2 \times 10^4$   $0 \leq \text{height}[i] \leq 10^5$

## Code Snippets

**C++:**

```
class Solution {  
public:
```

```
int trap(vector<int>& height) {  
  
}  
};
```

### Java:

```
class Solution {  
    public int trap(int[] height) {  
  
    }  
}
```

### Python3:

```
class Solution:  
    def trap(self, height: List[int]) -> int:
```