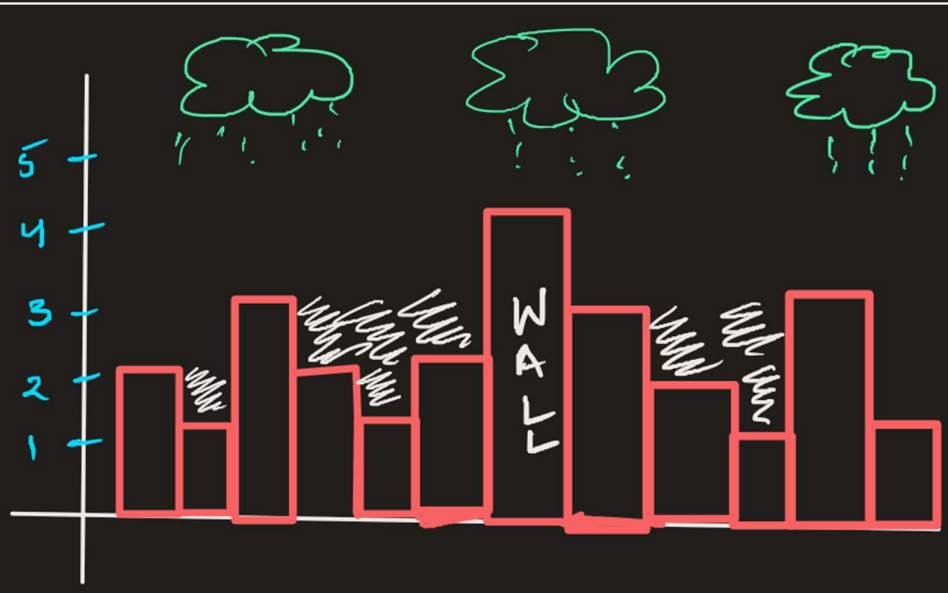
100-Days_of-DSA

Rain water Trapping:

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

Ex: arr[12]

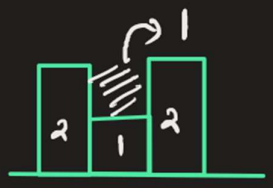
2 1 3 2 1 2 4 3 2 1 3 1



≈ → region where water trapped

* Calculate amount on each wall and add them ⟹ ans

Ex:



leftBound = 2

rightBound = 2

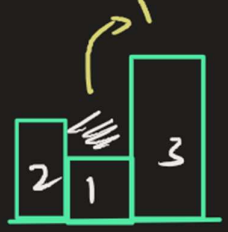
myBound = min(lb, rb)

= min(2, 2)

ans = myBound − wallSize

= 2 − 1 = 1

Ex



lb = 2

rb = 3

myBound = min(lb, rb)

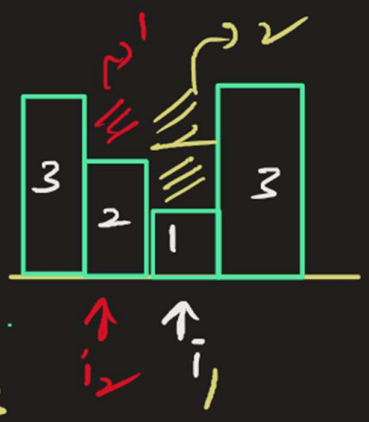
= min(2, 3)

= 2

amount = myBound − wallSize

= 2 − 1 = 1

Ex:-



Ub = 3

lb = 3 , myBound = 3

(i_1) amount = 3 - 1 = 2

(i_2) amount = 3 - 2 = 1

arr : 2 1 3 2 1 2 4 3 2 1 3 1

Pmax[] : 2 2 3 3 3 3 4 4 4 4 4 4

Smax[] : 4 4 4 4 4 4 4 3 3 3 3 1

At i^{th} wall,

$lb = Pmax[i-1] \Rightarrow myBound = \min(lb, rb)$

$rb = Smax[i+1]$

$$amount \mathrel{+}= (myBound - Size)$$