

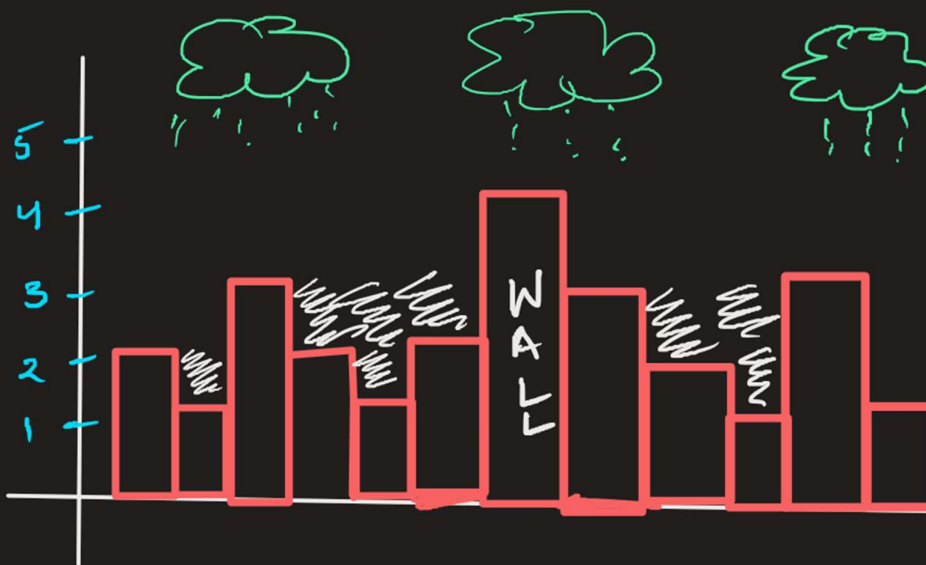
## 100-Days\_of-DSA

### 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:  $arr[12]$  ↓

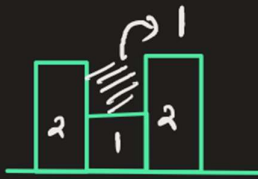
2 1 3 2 1 2 4 3 2 1 3 1



↗ → region where water trapped

\* calculate amount on each wall  
and add them ⇒ ans

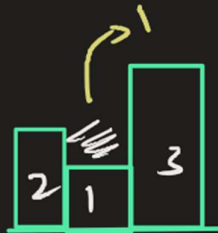
Ex:



$$\begin{array}{l|l} \text{left Bound} = 2 & \text{myBound} = \min(\text{lb}, \text{rb}) \\ \text{right Bound} = 2 & = \min(2, 2) \end{array}$$

$$\begin{aligned} \text{ans} &= \text{myBound} - \text{Wall Size} \\ &= 2 - 1 = 1 \end{aligned}$$

Ex



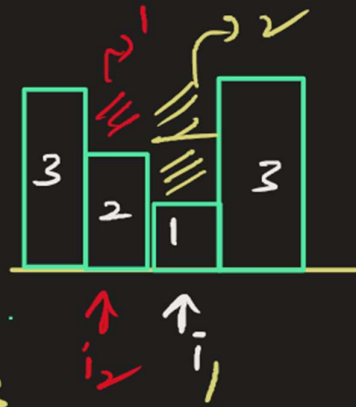
$$\text{lb} = 2$$

$$\text{rb} = 3$$

$$\begin{aligned} \text{myBound} &= \min(\text{lb}, \text{rb}) \\ &= \min(2, 3) \\ &= 2 \end{aligned}$$

$$\begin{aligned} \text{amount} &= \text{myBound} - \text{wallSize} \\ &= 2 - 1 = 1 \end{aligned}$$

Ex:-



$$ub = 3$$

$$lb = 3, \text{ myBound} = 3$$

$$(i_1) \text{ amount} = 3 - 1 = 2$$

$$(i_2) \text{ amount} = 3 - 2 = 1$$

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  $i^{\text{th}}$  wall,

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

amount += (myBound - size)