Trapping Rain Water - 2 pointer thought process

We Will Only Traverse the Smallest Building.

→ What does that mean?

We always try to find a Building Bigger than the opposite side, so in that process we are sure that the opposite Wall|Building is always greater|taller than wall|buildings on the same side.

i.e Max (Left_tallest_Building, Right_tallest_building) - We know for sure One is tallest, In the same way when we are traversing the Smallest building, we know for sure One is tallest

Next to calculate the amount of water trapped - In prefix Sum we take the min of 2 tallest building & subtract that with current Building Size

In here, if we know opposite side is alway tallest, than the min of 2 tallest building will always be on same side of current building, ie the tallest building amongst the smallest traversed building

To Compute Amount of water trapped → Subtract current Building Size with the tallest building on same side

Eg: [0 1 0 2 1 0 1 3 x x x]

↳ this is the right side tallest building

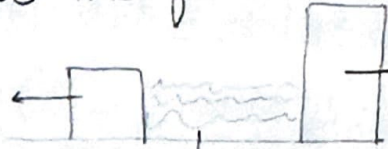Left=0 initially, there is no max building yet ^{Lyt}

So LytMax=0 & move Lyt

Lyt = 1 , this is greater than LytMax

LytMax = 1 , move Lyt

lyt=0, Now left side tallest building is 1, this means we can store water, why?

Because we are always sure right side building is tallest. & we also know there is a building on lyt that is greater than current building but smaller than right tallest Building → So this forms a container

Building size 1 ← [ ] ~~~ [ ] → Building Size 3

water stored — We cannot store more than 1, it will over flow

so water = 1-0 = 1 → move lyt

Now lyt=2, this is greater than all the building on lyt, so update lyt Max = 2, Move lyt

lyt=1, Lyt_Max = 2

. So = 2-1 = 1 → water
. move lyt

lyt=0, lyt_Max=2 → 2-0=2 → water
move lyt

lyt=1, lyt_max=2 → 2-1=1 → water
· move lyt

lyt=3 → Now we are same as tallest building on right we stop
↳ But if there were building inbetween we can continue