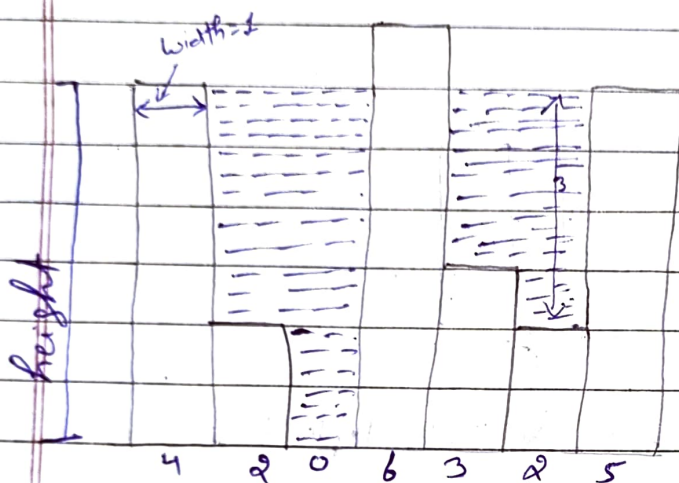Trapping Rainwater   height = [4, 2, 0, 6, 3, 2, 5]

→) Given n non-negative integer representing an elevation height
map where the width of each bar is 1, compute how
much water it can trap after raining.

4   2   0   6   3   2   5

we can assume these
bar as a building.

यहाँ trap water करने को
compute करने वाला है।

small logical talk

यह पानी तभी store होगा
जब कोई side boundary
होगी।

→) by using formula

(w - x) * width

1) (4 - 4) × 1 = 0

2) (4 - 2) × 1 = 2

3) (4 - 0) × 1 = 4

4 (5 - 6)×1 = -1 means 0

5 (5 - 3)×1 = 2

6 (5 - 2)×1 = 3

7 (5 - 5) × 1 = 0

    total   11
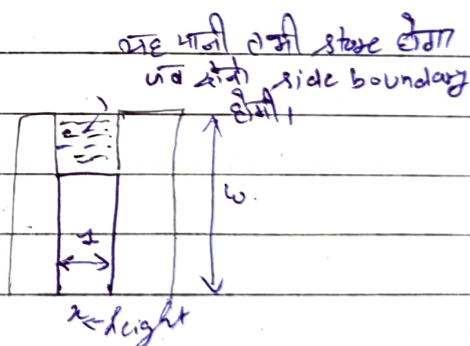
water trap = (w - x) * width

   waterlevel ↘ height

this is for आगे से करत देखना but
यही पीछे एगाते से भी है then हर बार
तो हमे water level को predict नहीं कर
सकते so we need a logical
formula.

x→height

1 Cases/ Scenario

1. If we have single bar

water tapped = 0 (bcz water tap के लिए boundary जरूरी होती है)

② two bar

(i)   (ii)   (iii)
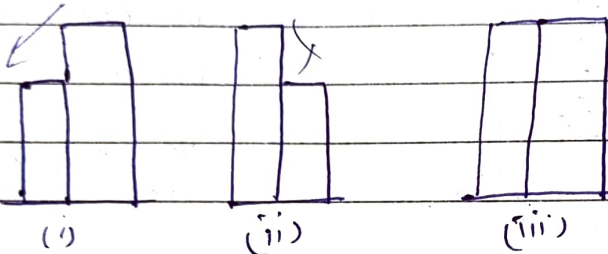
water tap = 0 (i) में पानी left से spill कर जायेगा
(ii) " " right " " " "
(iii) both side spill कर जायेगा.

It means we need minimum 3 bar
* [min no. of bar > 2]

3. Ascending / Descending ⇒ no water is tapped.
water tap = 0
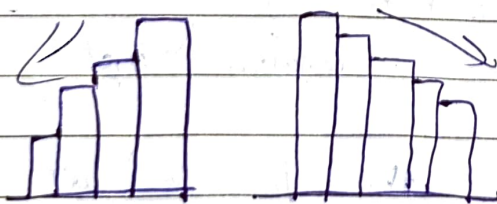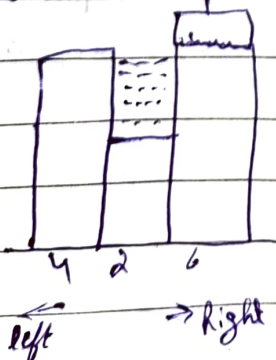
4.) water tap के लिए we need boundary.

यहाँ पर पानी store heigh = 4 तक ही होगा cz ज्यादा और पानी overflow हो जायेगा.

It mean right से max boundary A left से max boundary से minimum boundary का पानी store कर सकती है।

$(u-x) * width$

$(4 - 2*1) = 2$

4 2 6

left   → right

5
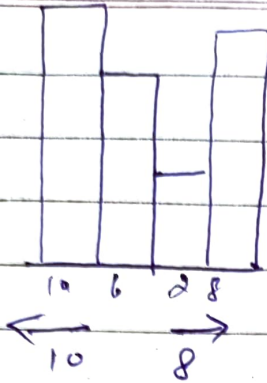
$WL = minimum (leftmaxboundary, rightmaxboundary)$

10 6 2 8

10   8

$Trapped water = (water level - height) * width$

$min \begin{pmatrix} max\ left \\ boundary \end{pmatrix}, \begin{pmatrix} max\ Right \\ boundary \end{pmatrix}$

letmax = 4
jmax = 6

6

5

4

3

2

2

0

4 6 4 6 4 6
(4,6)
$(4-4)*1 = (4-2)*1$
↓   ↓
0   2 $(4-0)*1$
↓
1

Left Max boundary

4	4	4	6	6	6	6

Right max boundary

6	6	6	6	5	5	5

↗
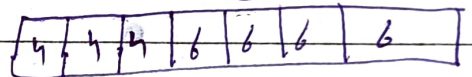
→ Now Question is how we calculate max boundary ?

* for that we use auxillary arrays (helper arrays)
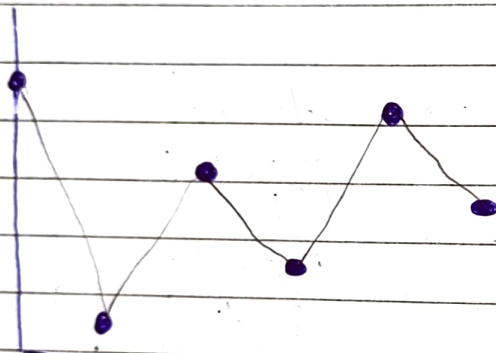   ↓ like normal array but acts as helper.

so for calculating एक पहले ही 1 एर एक bar के लिए
left & right max boundary अलगअलग में ही calculate कर लेते।

Compare करने के लिए side वाले बार की max boundary की बार
की heigh से compare करेंगे। for e.g. bar 0 के लिए, 2 bar
की Rightest/max लेंगे, 2 की max 4 है अतःो 0 से साथ compare
करेंगे। तो 4 को select कर लेगो

Note: It's not important की ये question trapped water की ही आए, for e.g.
maximum ही game ही। किताना jump कर सकते है।

Buy & Sell Stocks

You are given an array prices where prices [i] is the price of the price of a given stock on the ith day. You want to maximize your profit by choosing a single day to buy one stock and choosing a different day in the future to sell that stock. Return the maximum profit you can achieve from this transaction. If you cannot achieve any profit return 0.

(selling price) prices = [7, 1, 5, 3, 6, 4]

be know,

profit = Selling price - Buying P.

इसमें इसे हमें मिनी minimum से लेके अपने buy करना है ∮ max सं sell so that ज्यादा से ज्यादा profit मिले

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6

Day 1
BP 7
no loss
no profit
इसलिए to day 1
में एक buy कर सकते है।

Day 2
SP = 1
BP = 7
P = 1-7 = -6
(x)

Day 3
SP = 5
BP = 1
P = 5-1 = 4

Day 4
SP = 3
BP = 1
= 3-1 = 2

Day 5
SP = 6
BP = 1
P = 6-1 = 5

Buy Price =
track min price.

Day 6
SP = 4
BP = 1
P = 4-1 = 3

BP → buying price आगे तक जी minimum होगी.

var buy price = + ∞
↳ track lowest buy price

var maxprofit = 0

for (int i = 0 to n) {

(buy price < sell price) {

p = SP - BP }
↳ max profit ?

Case 1.

if buyprice > sellprice {
BP = sell price

Case 2