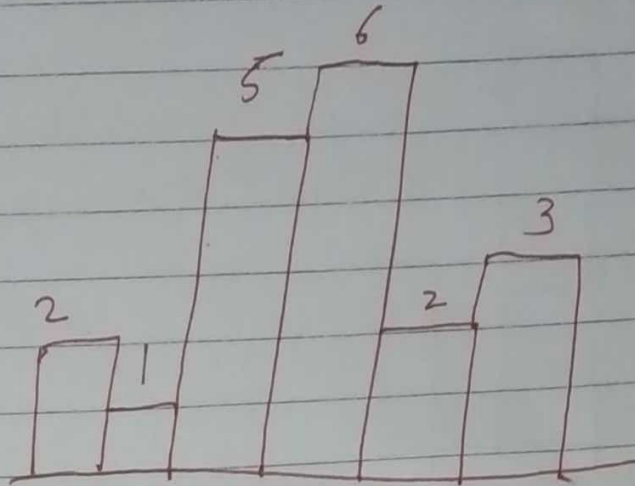


## ★ Largest Rectangle in Histogram



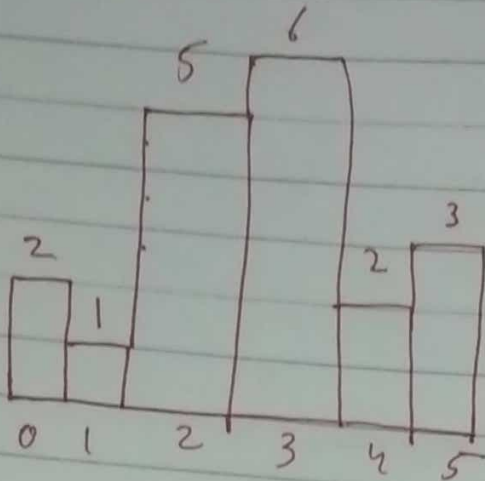
Har ek bar ke liye check karo ki kya hum usse right or left me extend kar sakte hai ya nahi

jese agar 2 ko dekhe

leftside ← 2 → Right me 1 hai jo chota hai to right me bhi extend nahi kar sakte  
Koi rectangle nahi hai to extend mat karo

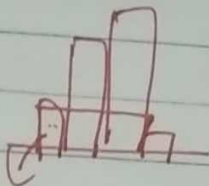
Similarly, agar 5 ko dekhe, 5 ke right me 6 hai to extend kar sakte hai but 6 ke right me 2 hai jo 5 se chota hai to or extend nahi kar sakte, 5 ke left me 1 hai jo ki 5 se chota hai to 5 ko left me extend nahi kar sakte.

Is tarah ham sare areas nikalenge

Approach 2.

in approach me ham ek bar ko tab tak extend karege jab tak hame koi smaller bar nahi mil jati

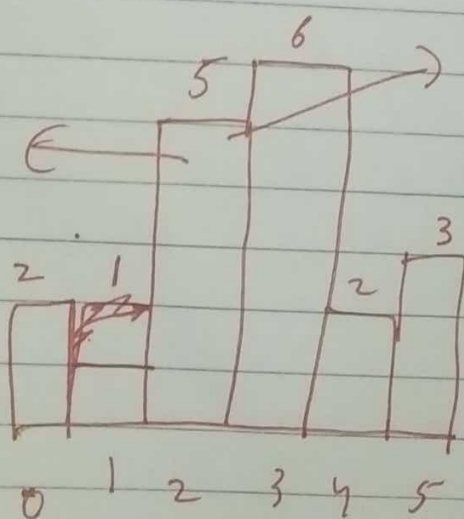
jese



is bar ko tab tak extend kiya jab tak koi smaller bar nahi mil gazi

agur 5 wali bar ko dekhe

5 ke left me jo sabse chota element hai wo 1 hai



5 ke right me sabse phle jo chota rectangle hai wo 2 hai

$$\text{width} = \text{next} - \text{prev} - 1$$

$$= 4 - 1 - 1 = 2$$

Prev

next

Date .....

next  $\rightarrow$  smallest element at right  
prev  $\rightarrow$  smallest element at left

$$\begin{aligned}\text{Area} &= \text{length} \times \text{width} \\ &= \text{arr}[i] \times \text{width}\end{aligned}$$