Class 02

Sunday, March 7, 2021 10:15 PM

Kadane's Algo → maximum sum sub-array
O(N)

$^{N}C_2 \rightarrow \frac{N(N-1)}{2} \rightarrow N^2$

$[0, N-1]$

N

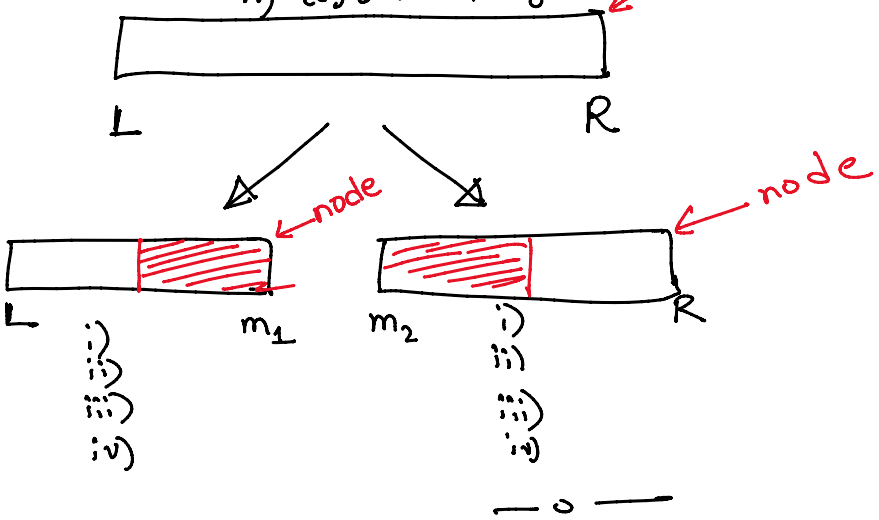
max

L R → subarray → Kadane's Algo → Output

1) Segment Tree

i) max(left.mps, left.sum + right.mps)
ii) max(right.mss, right.sum + left.mss)
iii) max(left.mts, right.mts, left.mss + right.mps)
iv) left.sum + right.sum

i) max Prefix Sum
ii) max Suffix Sum
iii) max Total Sum
v) Sum



Lazy Propagation:

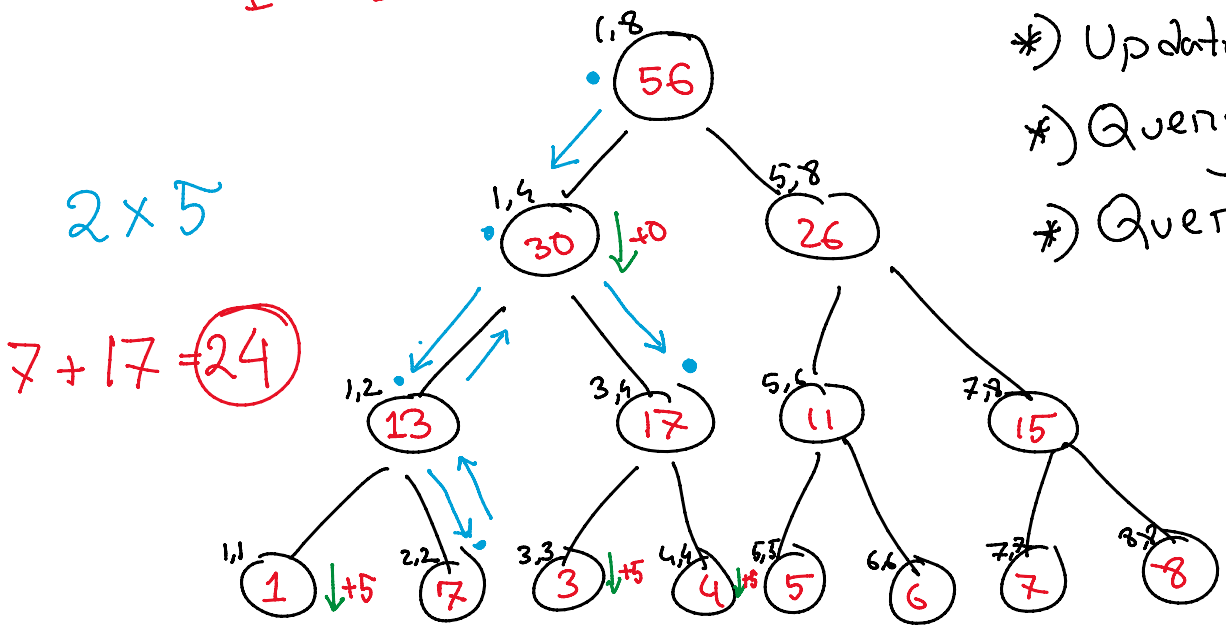
Range Update → ~~N log N~~ → log N

1) Update : L R +v

2) Query : L R

arr[ ] = 1 (+5), 2 (+5), 3 (+5), 4 (+5), 5, 6, 7, 8

1 2 3 4 5 6 7 8



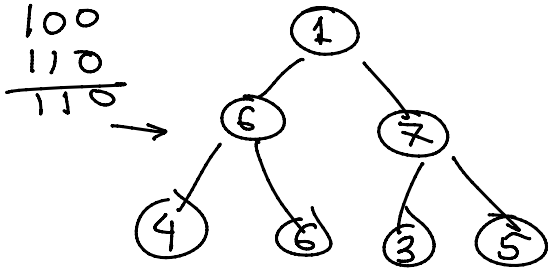
2 x 5

7 + 17 = 24

*) Update: 1 4 +5

*) Query : 1 6

*) Query : 2 4



100
110
110

011
101
111

1 = 001
6 = 100
111

110
111
1