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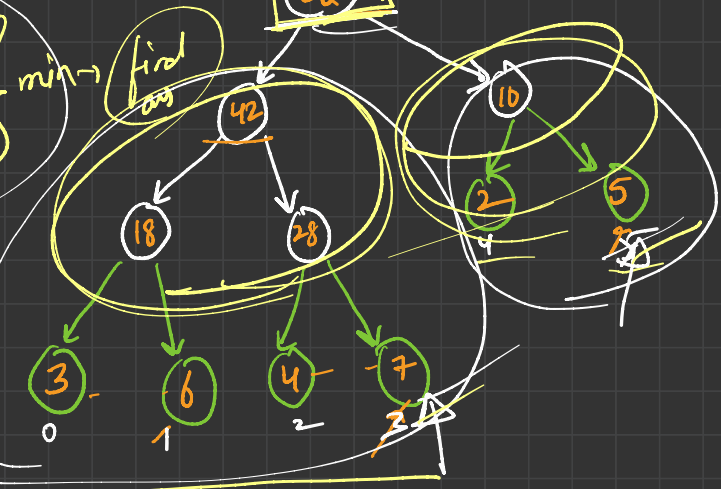


# Dynamic Programming

i/p  $\rightarrow$

LIS				RS	
0	1	2	3	4	5
3	6	4	7	2	5

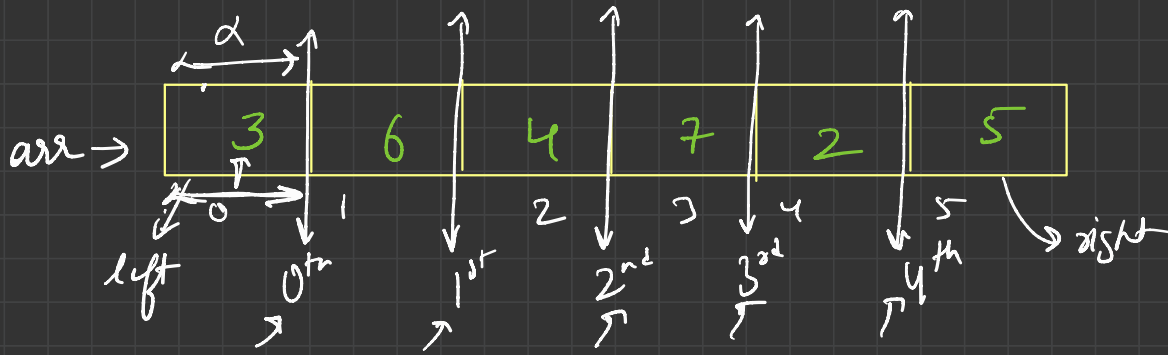
$01 \rightarrow 257 \rightarrow A$   
 $0-2 + 35 \rightarrow B$   
 $0-3 \rightarrow 45 \rightarrow C$



$[x, y]$

$i$   
 $\text{Max}(x, i) \star \text{Max}(i, y)$   
 $\uparrow \quad \uparrow$   
 $4$

$$\underline{f(i, j)} = \min \left[ \frac{\max(i, k) * \max(k+1, j)}{f(i, k) + f(k+1, j)} \right]$$



$f(\text{left}, \text{right})$

$f(0, 5)$

$i$   $j$

$f$

for (int k = left; k < right; k++)

k=0

$\rightarrow \max(0, 0) + \max(1, 5)$

$\rightarrow 3 + 7$

$i=j \rightarrow L \cdot N$

$f(0, 0) + f(1, 5)$

$\downarrow$   
0

+

$\rightarrow$

$O(n)$

$\rightarrow$  ans<sub>1</sub>  
 $k=1 \rightarrow$  ans<sub>2</sub>  
 $k=2 \rightarrow$  ans<sub>3</sub>  
 $\rightarrow$  ans<sub>4</sub>  
 $k=3 \rightarrow$  ans<sub>5</sub>  
 $k=4$

$\rightarrow$  min  $O(n^3)$