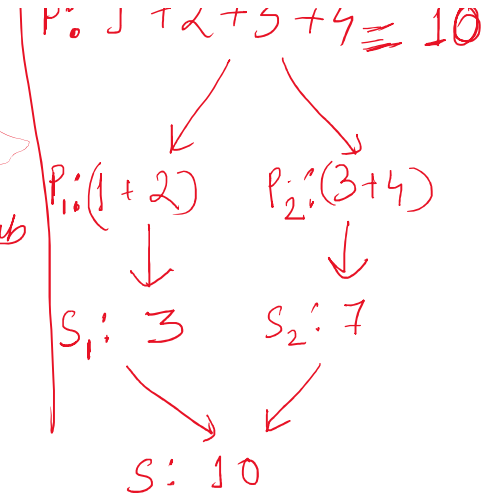
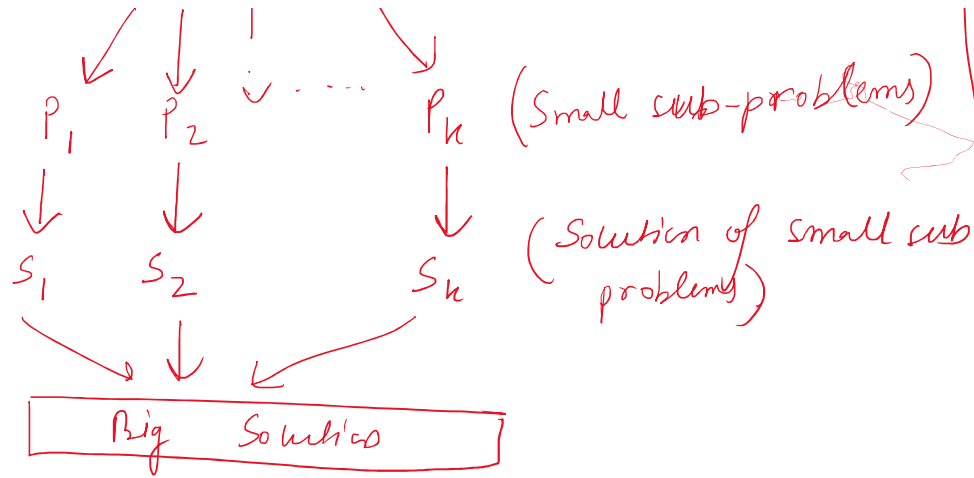


Divide & Conquer - Technique to design algorithms.

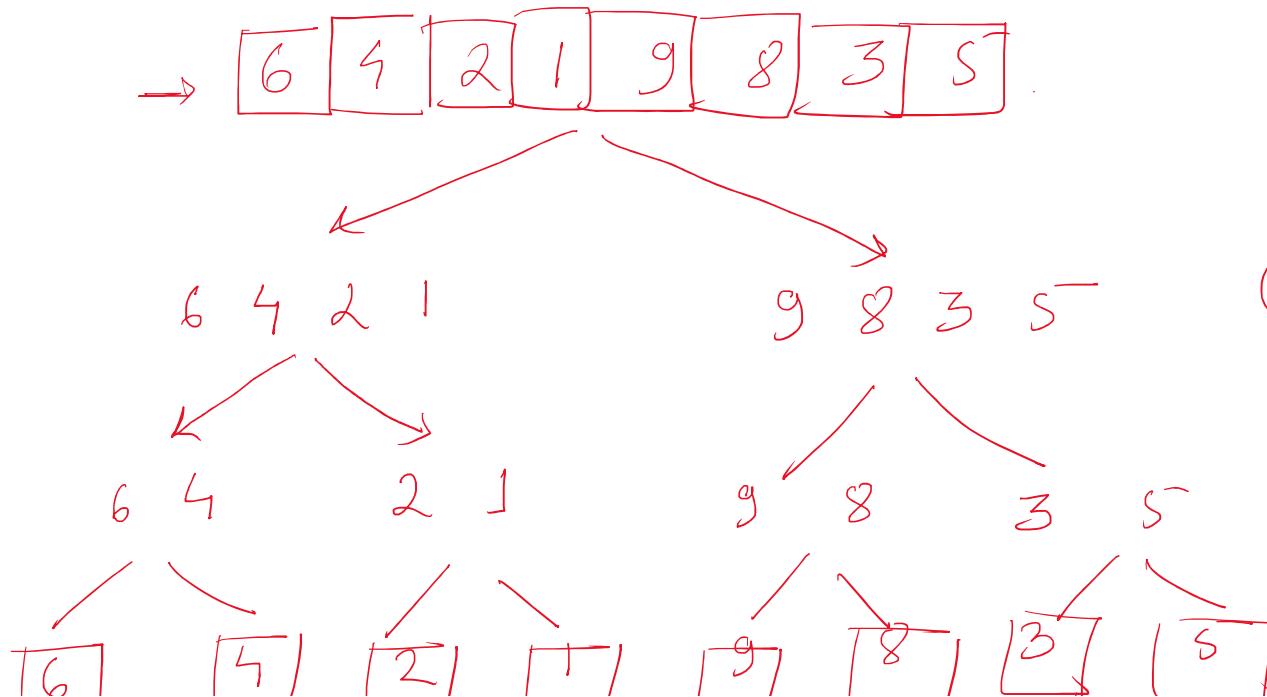


Eg -

$$P: 1 + 2 + 3 + 4 = 10$$

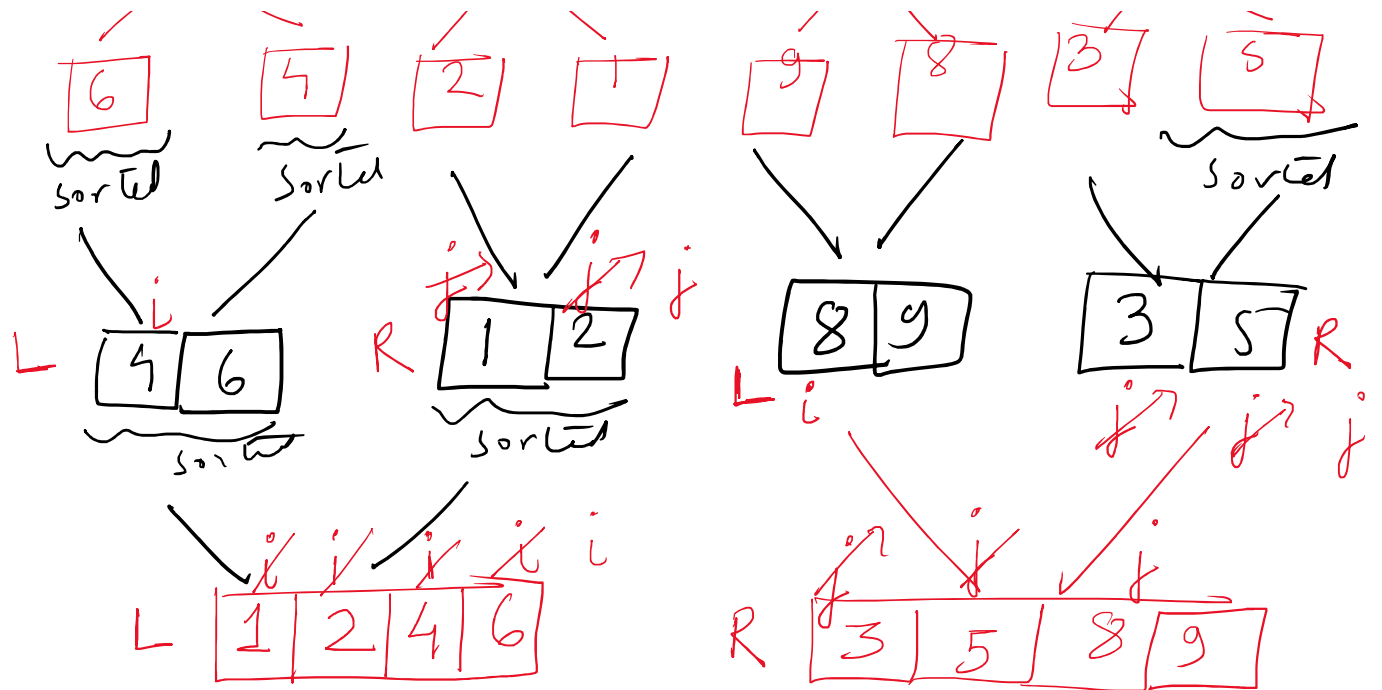


Merge Sort - Divide & Conquer Technique.



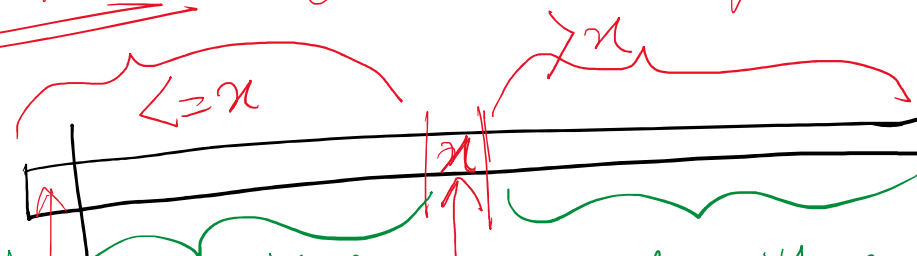
Note -

- ① Repeatedly divide the array into 2 equal parts.
- ② Combine / Merge 2 sorted arrays into 1 sorted array.

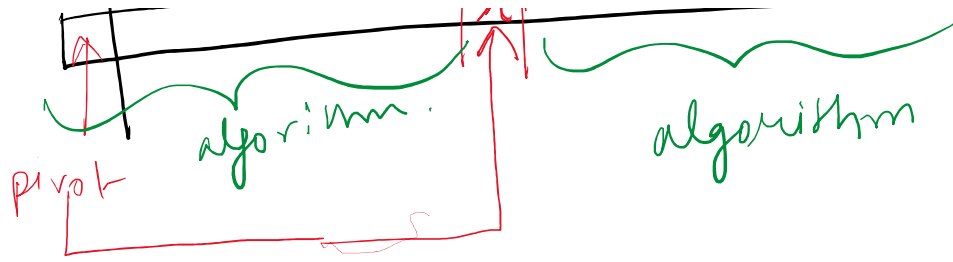


Compare
 $L[i]$ $R[j]$

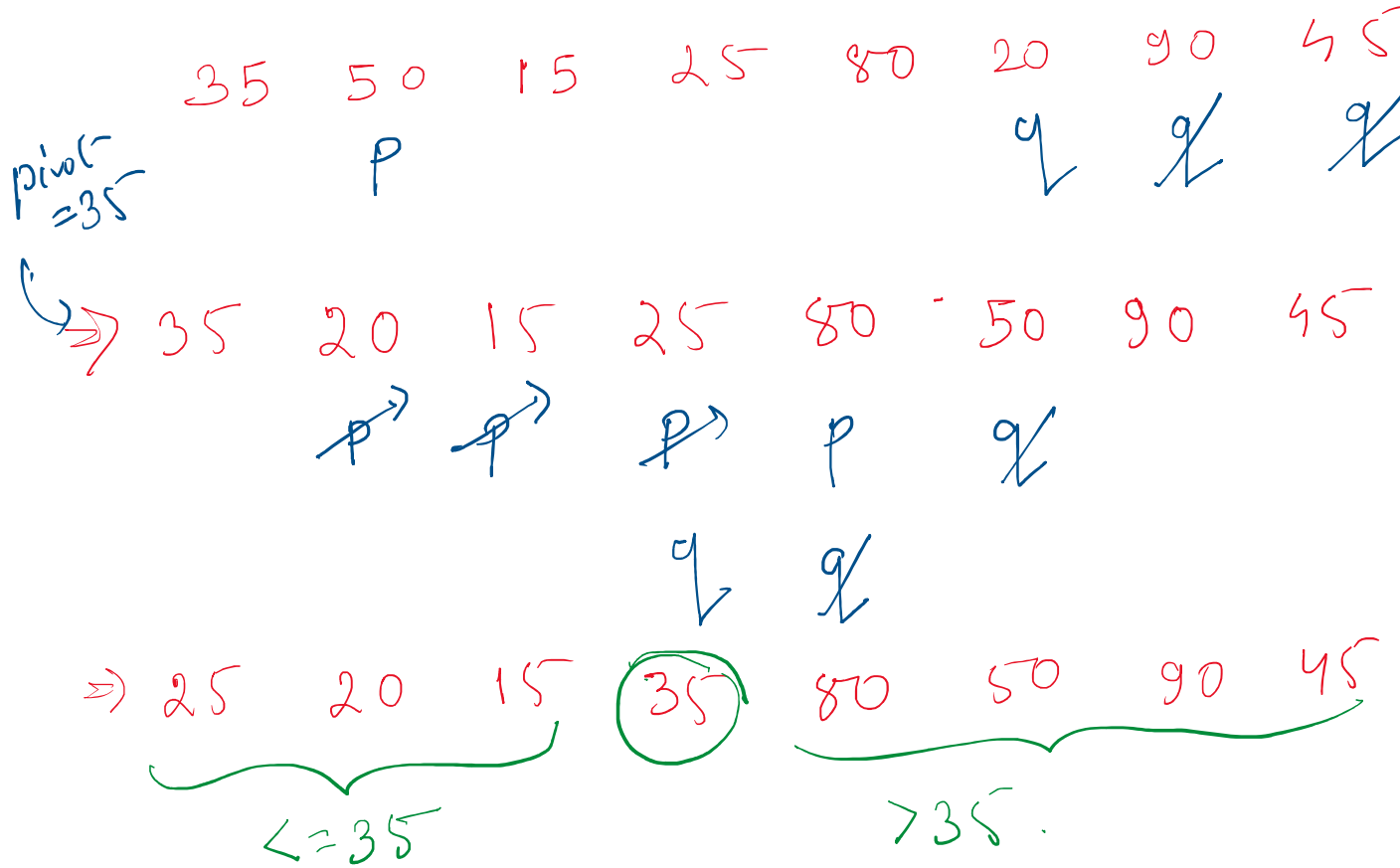
Quick Sort - Divide & Conquer Technique



Not
 pivot element.
 ↓



↓
Aapko choose
karna hain.



Algo-

- ① $p \rightarrow \text{arr}[p] \leq \text{pivot.}$
 $q \leftarrow \text{arr}[q] > \text{pivot.}$
- ② p & q have crossed each other
 $\text{swap}(\text{pivot}, \text{arr}[q])$
- ③ p & q havenot crossed each other -
 $\text{swap}(\text{arr}[p], \text{arr}[q])$

25 20 15 \Rightarrow 15 20 25

$\frac{25}{20} \Rightarrow 15 \quad 20 \quad 25$
 pivot = 25
 2
 p
 op

PMZ	80	50	90	45
PMZ = 80		P \nearrow	P	Q

⇒ 80 50 45 90

\nearrow \nearrow

\nwarrow \nwarrow

⇒ 45 50 80 90
↑
op