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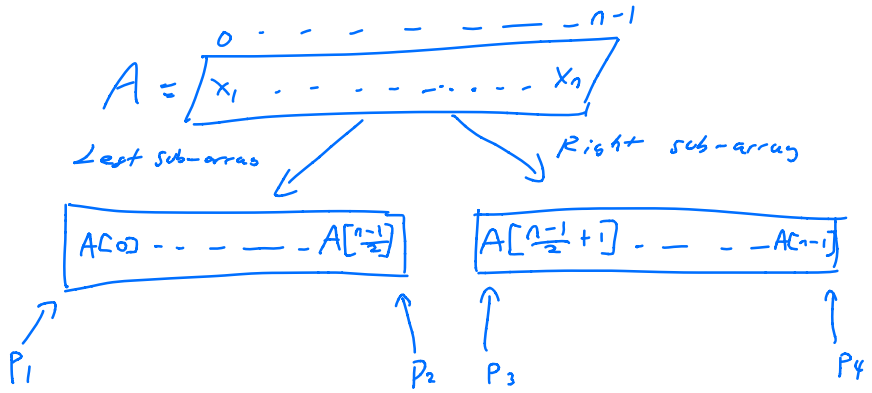
"MergeSort"

Following the Divide & Conquer Paradigm, 3 main steps involved:

1) Divide
2) Conquer
3) Merge/Combine

Thinking at a very High Level approach:

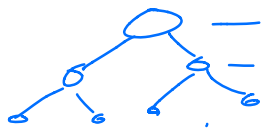


4-points p1 → p4 represent the beginning & ending points of the Left & Right sub-arrays respectively.

Using this information, we can easily call MergeSort recursively on both subarrays & Merge the two sorted arrays together.

Picturing just this diagram in mind is enough to code it. Thinking too much about each recursive call is quite confusing if not thought about at a high-level. Trust

Efficiency Analysis



level 0
level 1
level i (2^i) nodes
level ($\log_2 n$) nodes

Merge - $O(n)$ at level i

$2^i \times n\left(\frac{n}{2^i}\right)$ ← elements in each sub-array; performed to $\log(n)$ nodes

$= O(n \log n)$