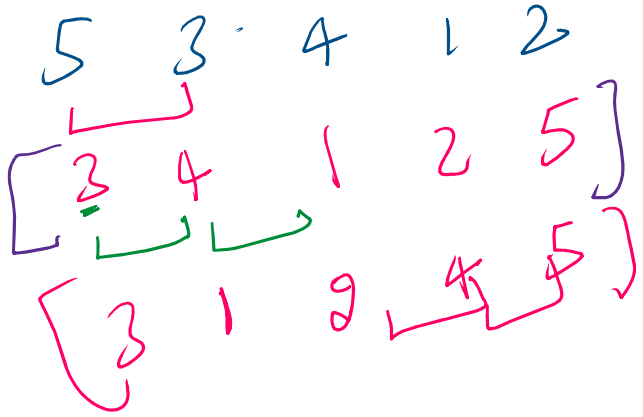
1.16 - Sorting

Saturday, September 20, 2025 4:59 PM

→ Arranging the elements of a data structure in ascending | descending.

[5, 3, 1, 2, 4] ⇒ [1, 2, 3, 4, 5]

Bubble Sort



→ In one pass of Bubble sort, one element comes to the correct position.

→ To sort the entire array, we need to do max 'n' passes.

→ In first pass, greatest element comes to the

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2nd pass → 2nd greatest

Eg: 13 15 7 4 1

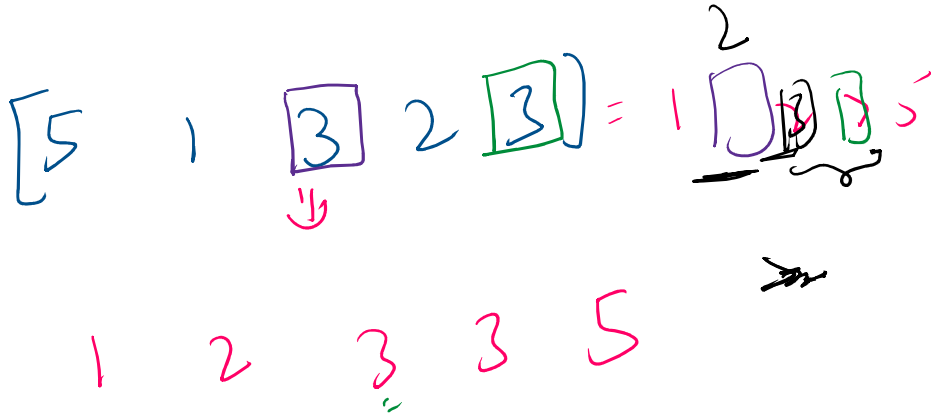
→ 13 7 4 1 15

T.C of Bubble sort → $O(n^2)$

→ Best case occurs when array is already sorted $\rightarrow O(n)$

→ Worst case occurs when array is reverse sorted

Stability of a sorting algo



A stable sorting algo maintains the relative order of the

relative order of the elements.