Pattern - 5 : (Second Largest / Second Smallest)

A pattern where we find the 2nd rank element (largest or smallest) without sorting the array.

→ When to use -
- ▢ sorting is not allowed / inefficient
- ▢ You are asked for 2nd largest / 2nd smallest.
- ▢ Ranking is required in one pass.

→ Core Idea -
Maintain two variables, while traversing :-
- largest / smallest & secondlargest / second smallest

→ Time Complexity - $O(n)$

Space Complexity - $O(1)$

→ Common logic -

Second largest -

If current > largest :
→ update second = largest
largest = current
else if current < largest and current > second
→ second = current

same logic applies for second smallest.

→ ▢ One liner - "We use ranking logic by tracking the largest & second largest elements in a single traversal without sorting.

→ Questions on Day - 13 at the skillians sheet

1