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Mohammed Abu-Hadhoud

MSA, PMOC, PMP®, PRP®, PHS-IMP®, CS, ITIL®, MCPD, MCD



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لتعم الفائدة للجميع وانقاذ الاف الناس من التشتت جزاكم الله خيرا

لا تنسونا من دعائكم وادعو لوالدي بالرحمة

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**Algorithms & Problem Solving
Level 6**

Bubble Sort

Mohammed Abu-Hadhoud

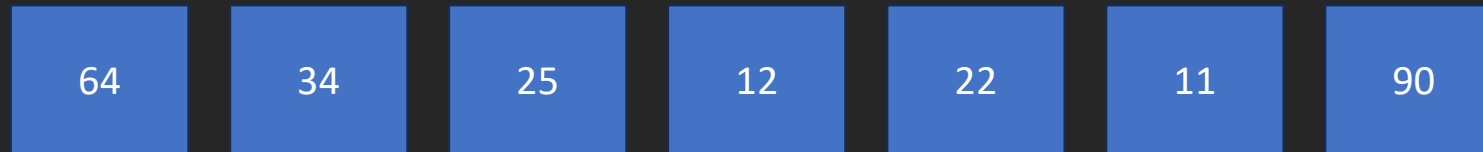
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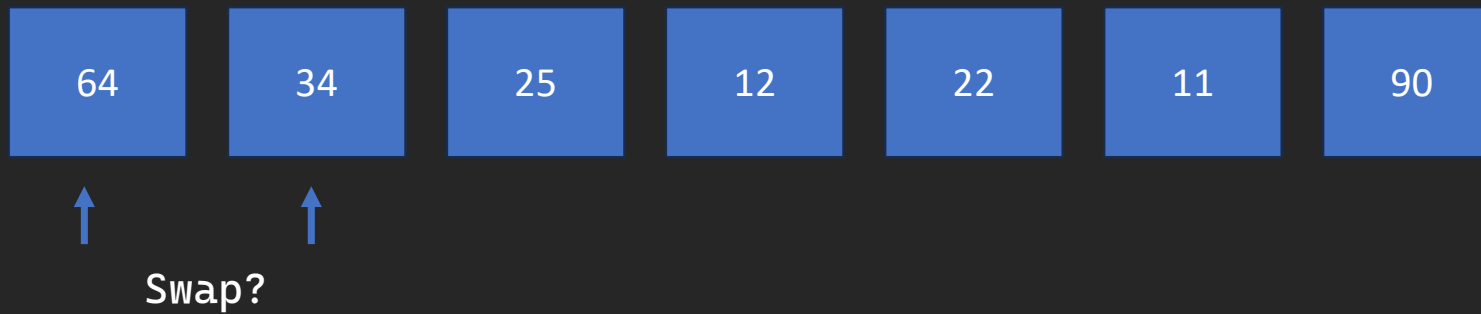
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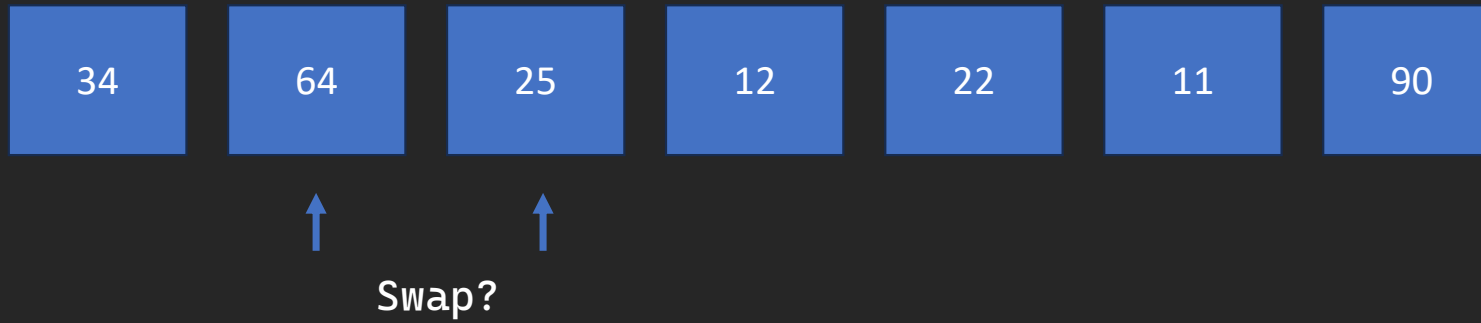


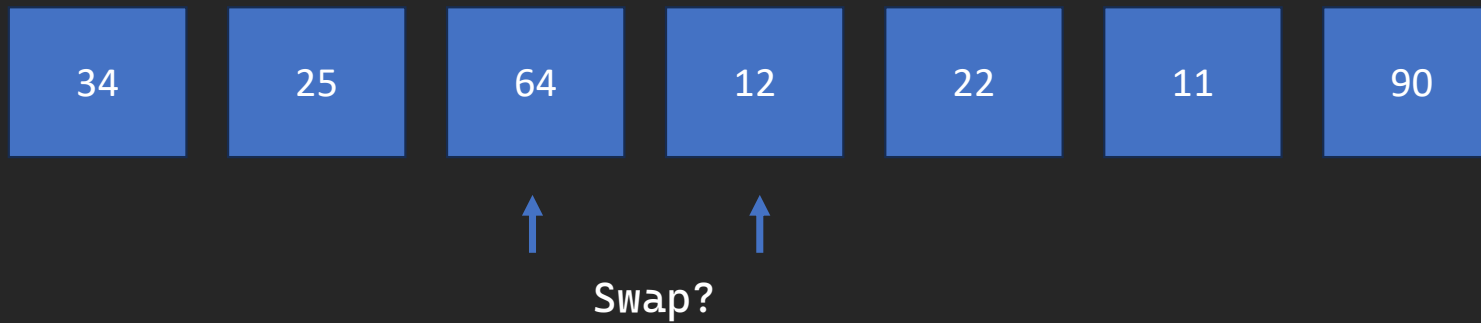
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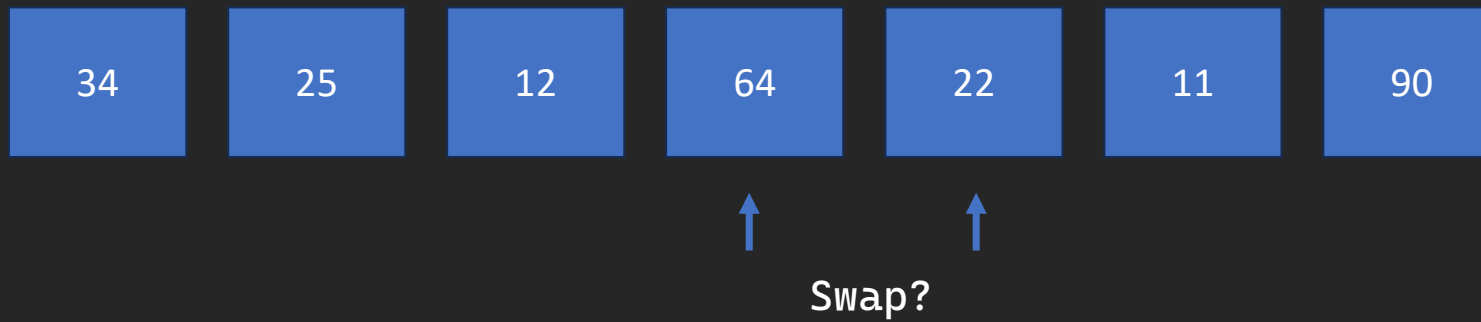
How it works? Example

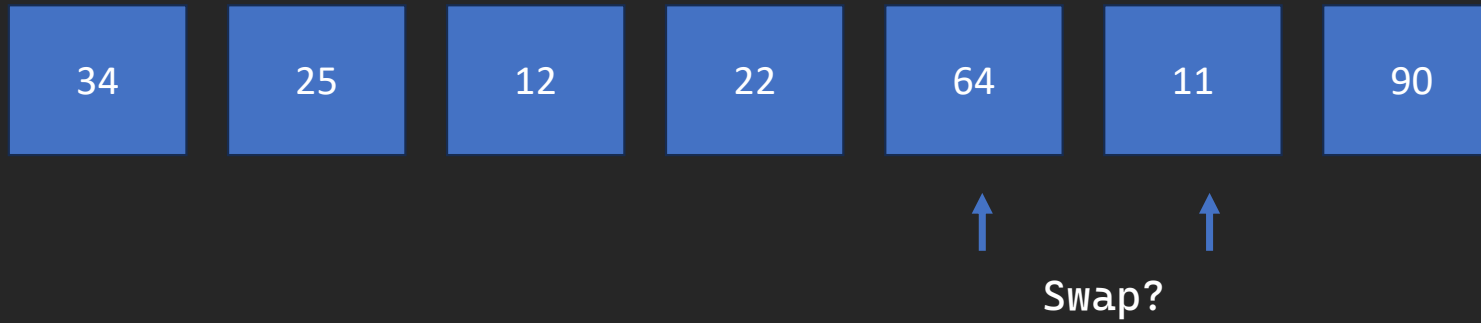


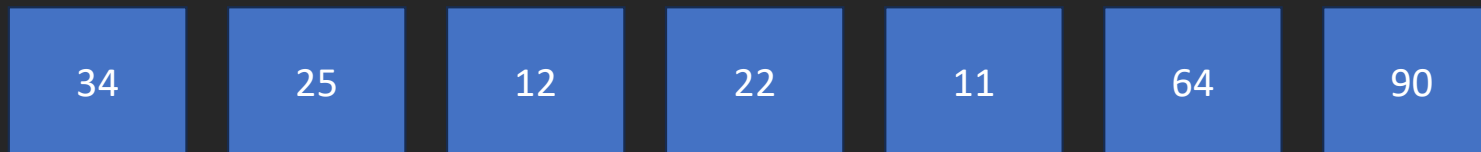






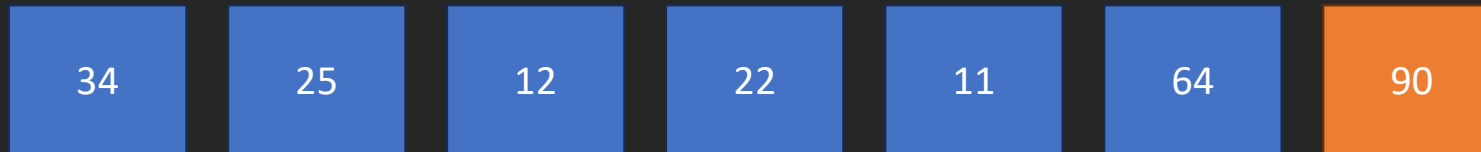






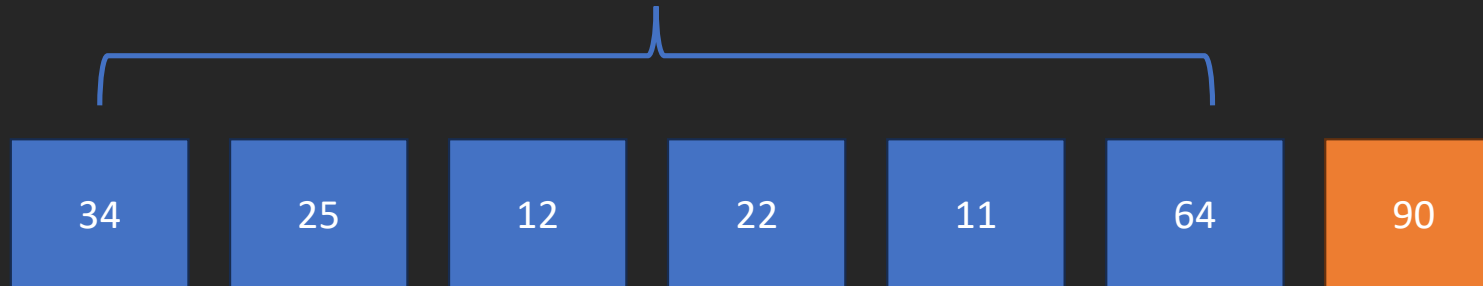
Swap?

NO

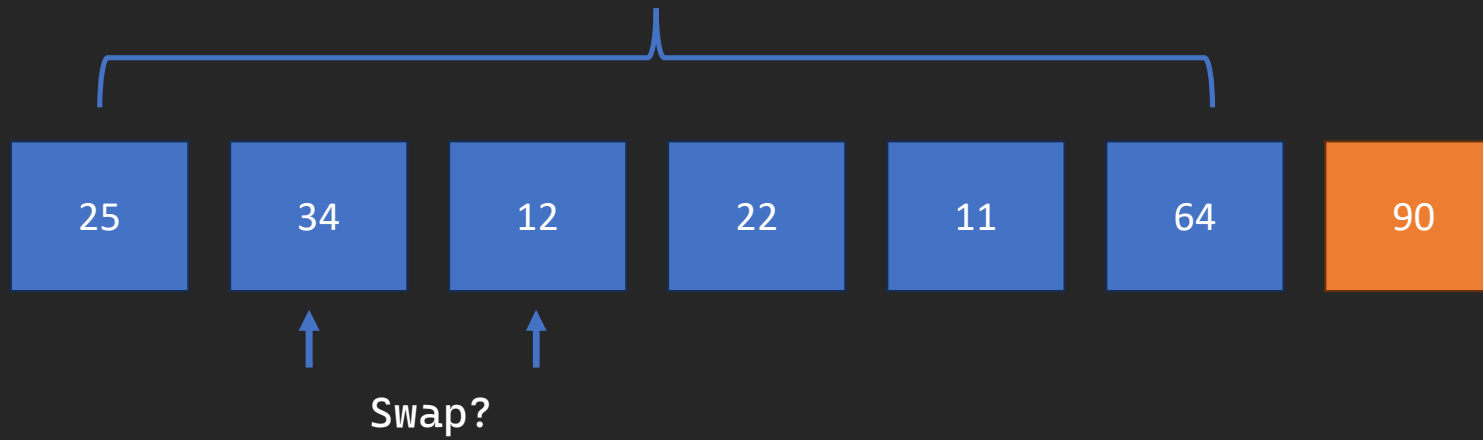


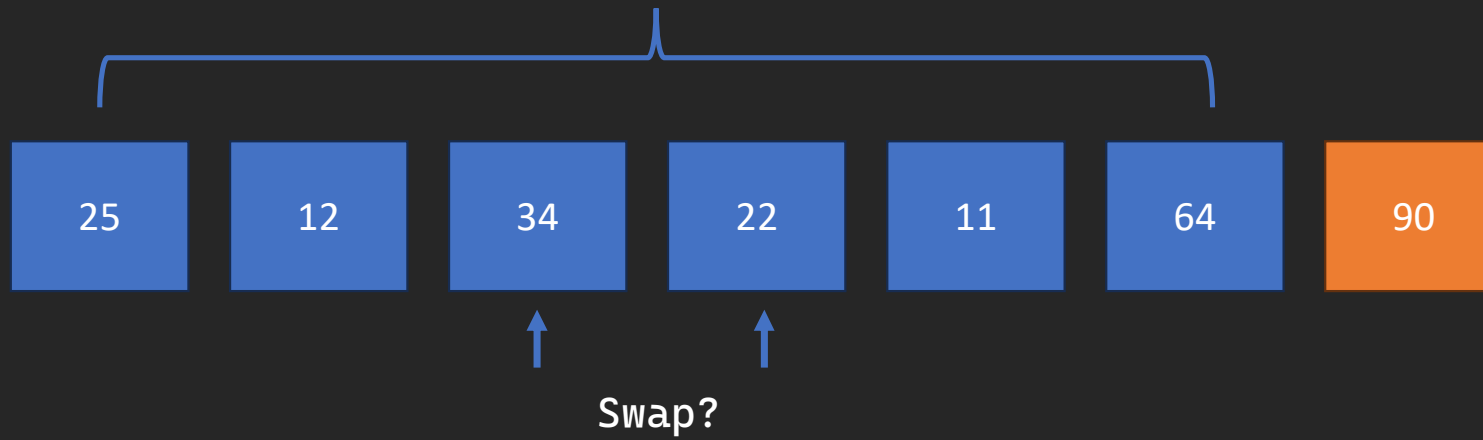
Largest Value Correctly
Placed at the bottom

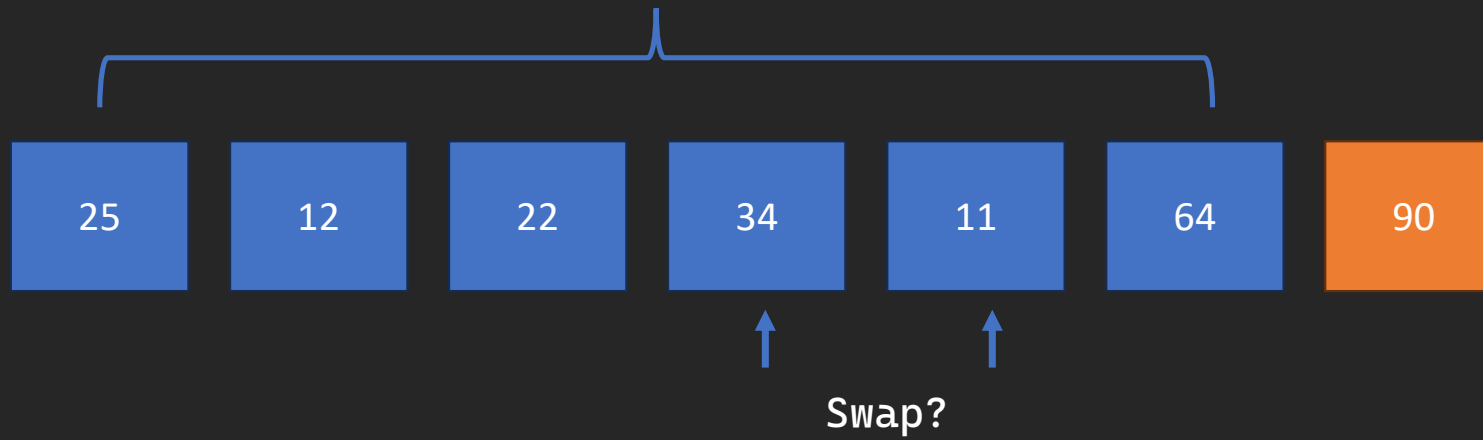
Repeat to N-1

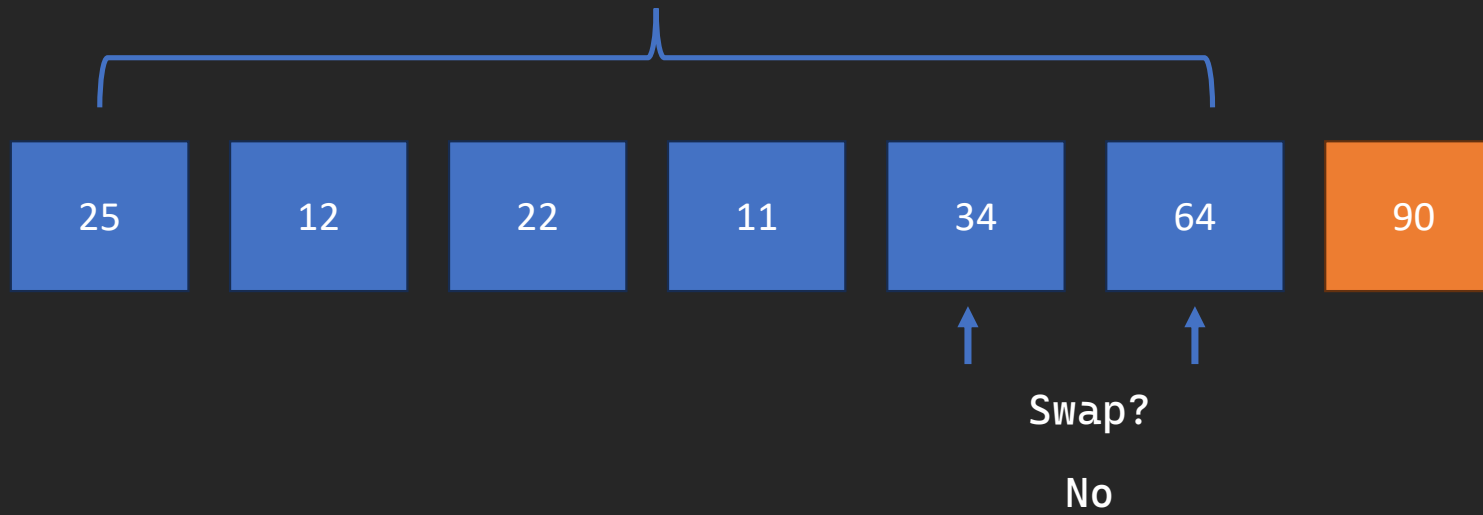








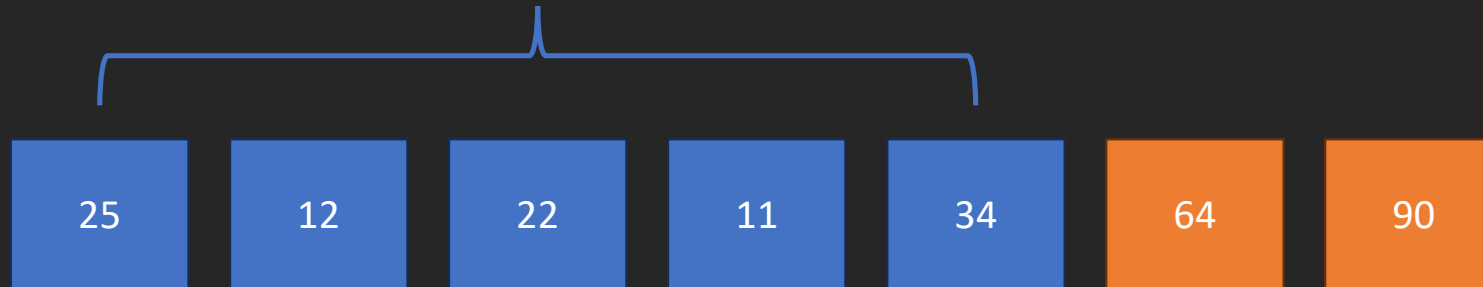




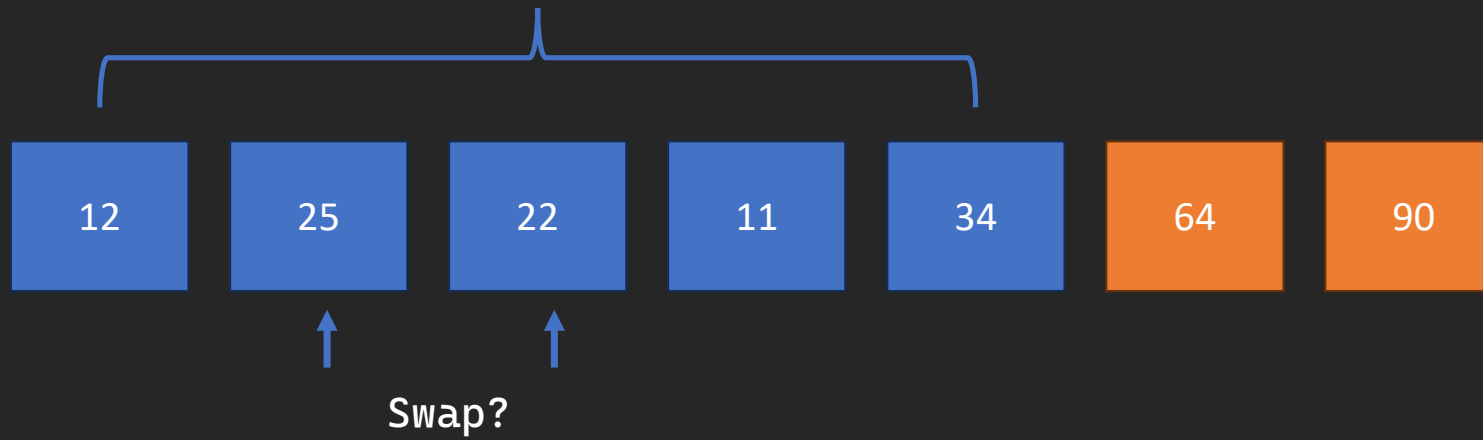


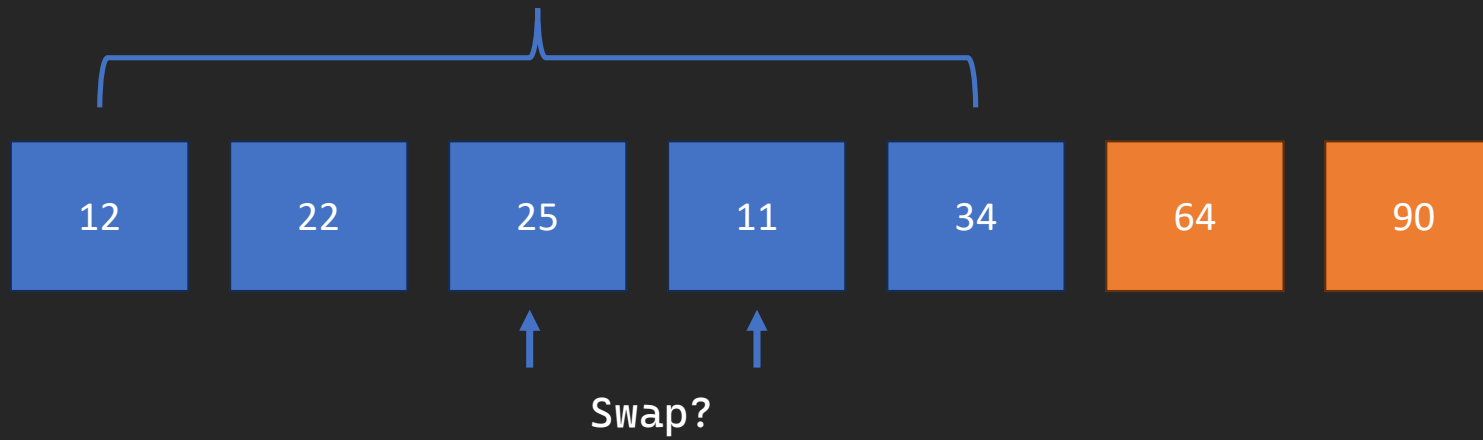
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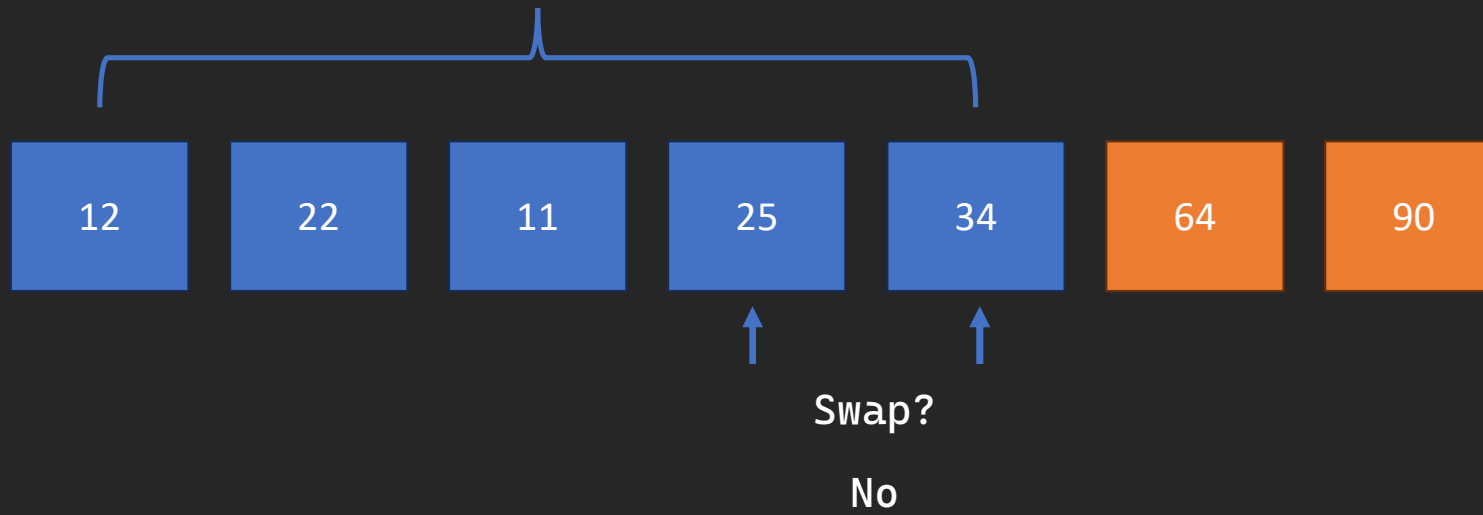
Repeat to N-2

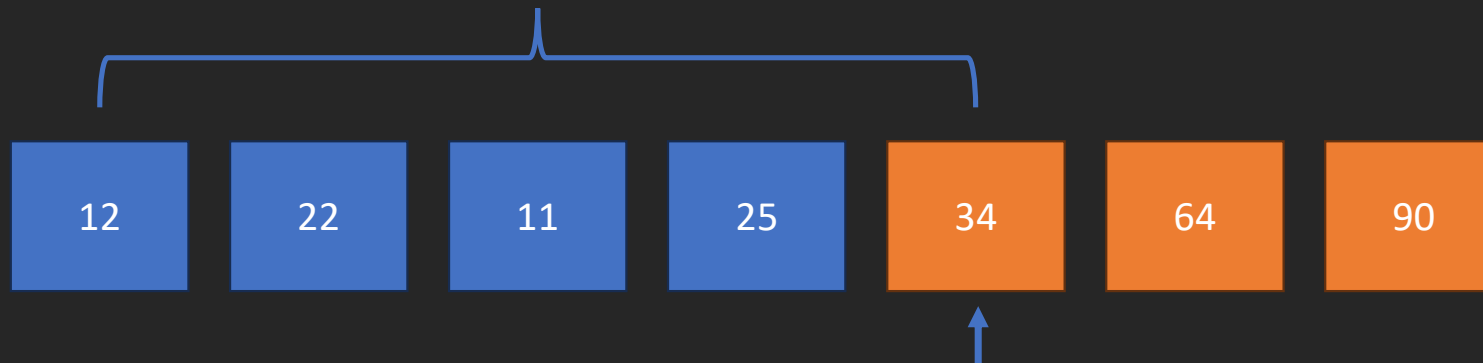






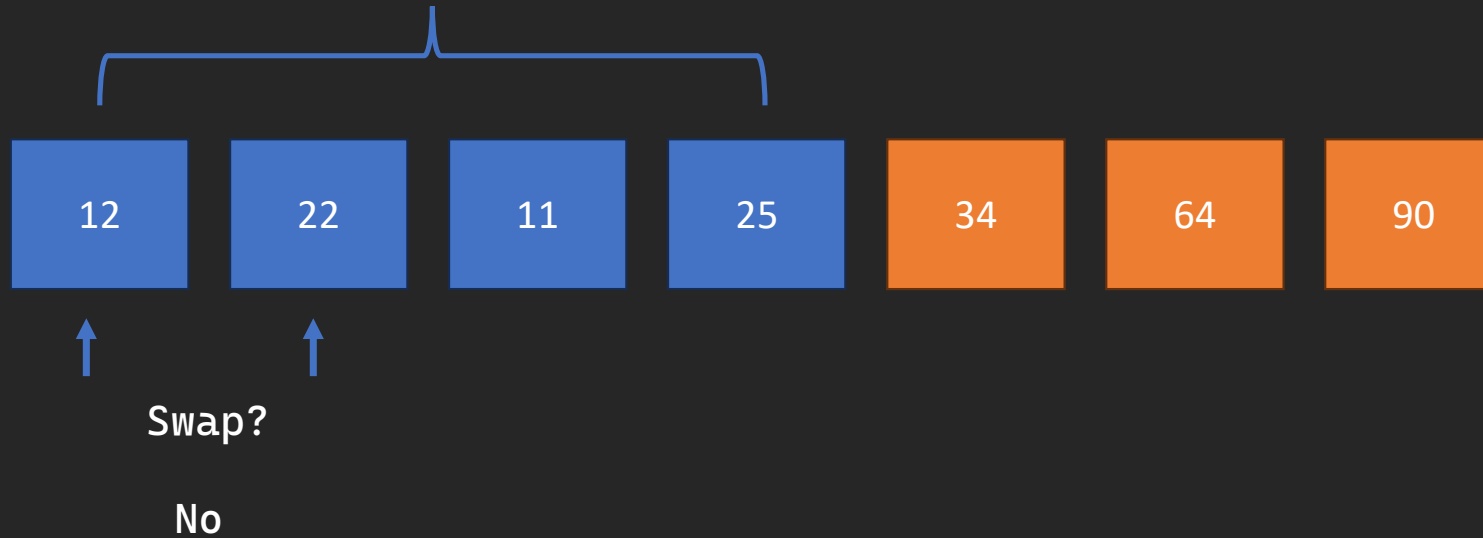


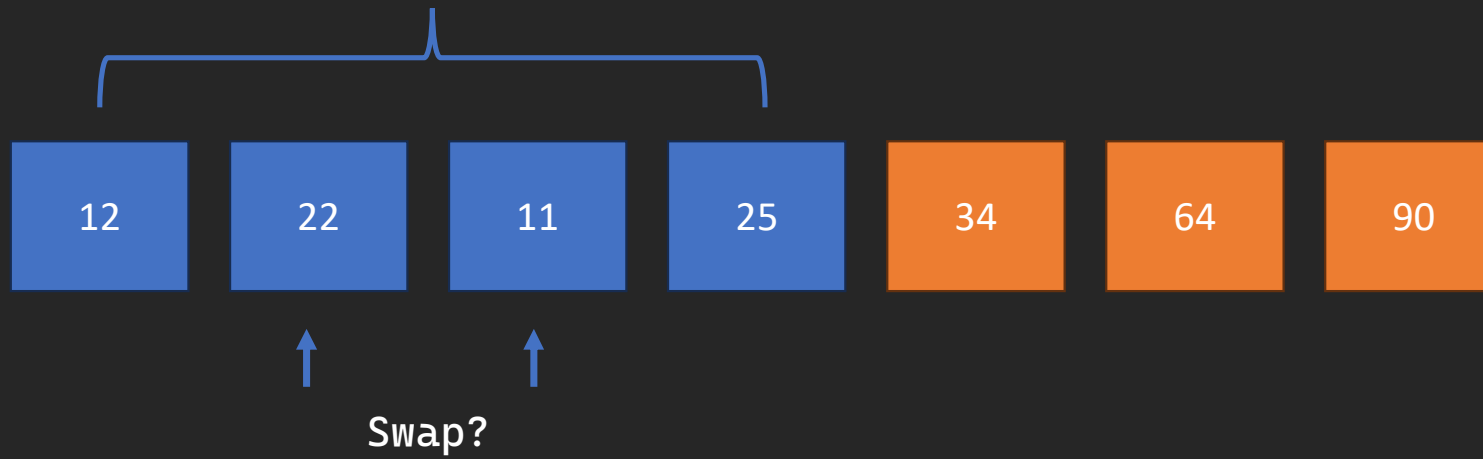


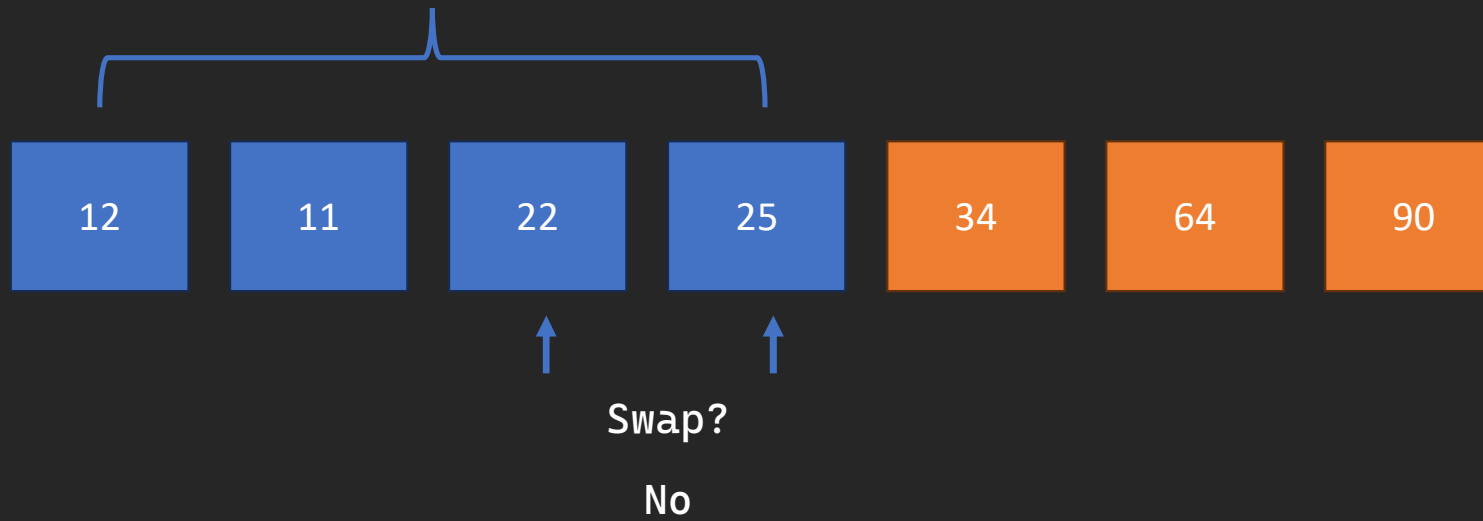


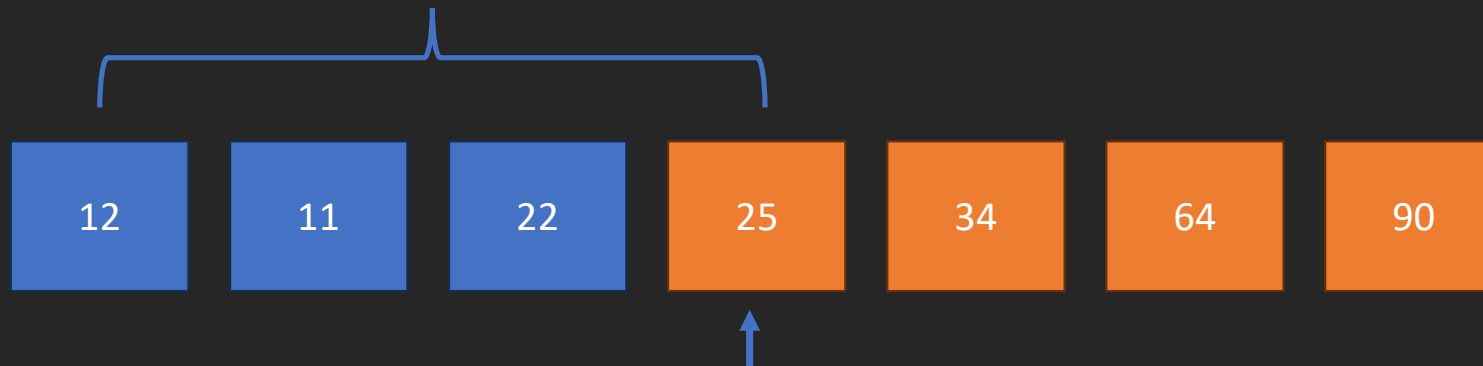
Largest Value Correctly
Placed at the bottom

Repeat to N-3



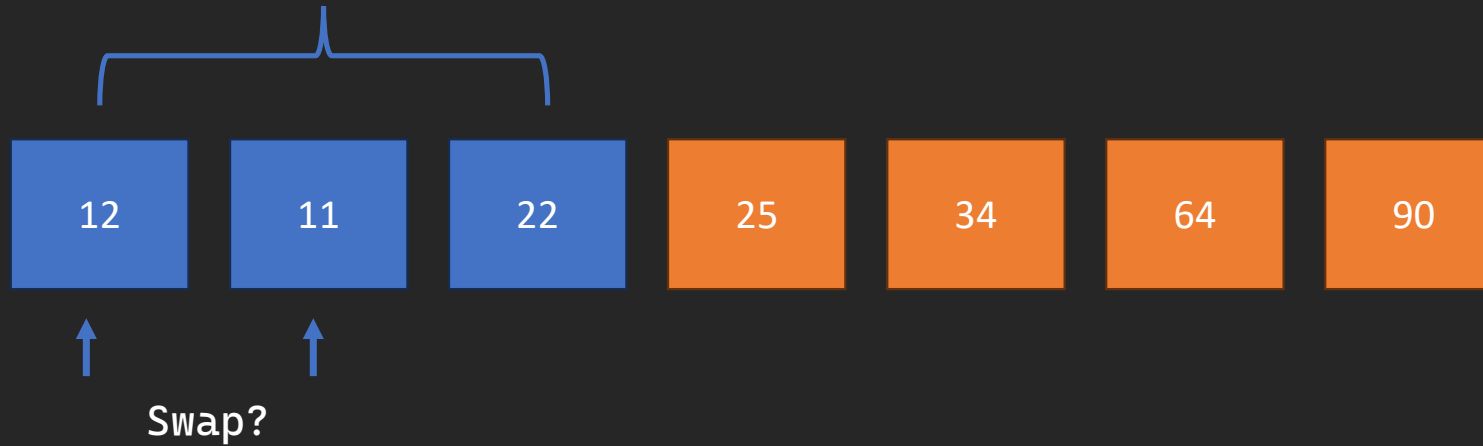


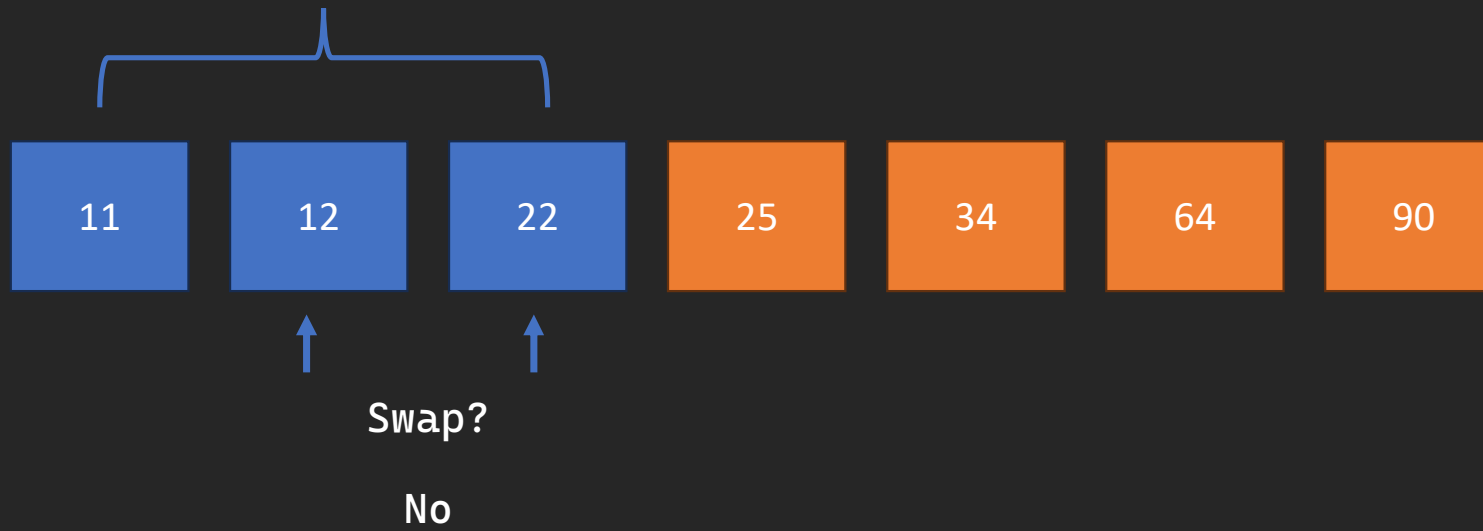


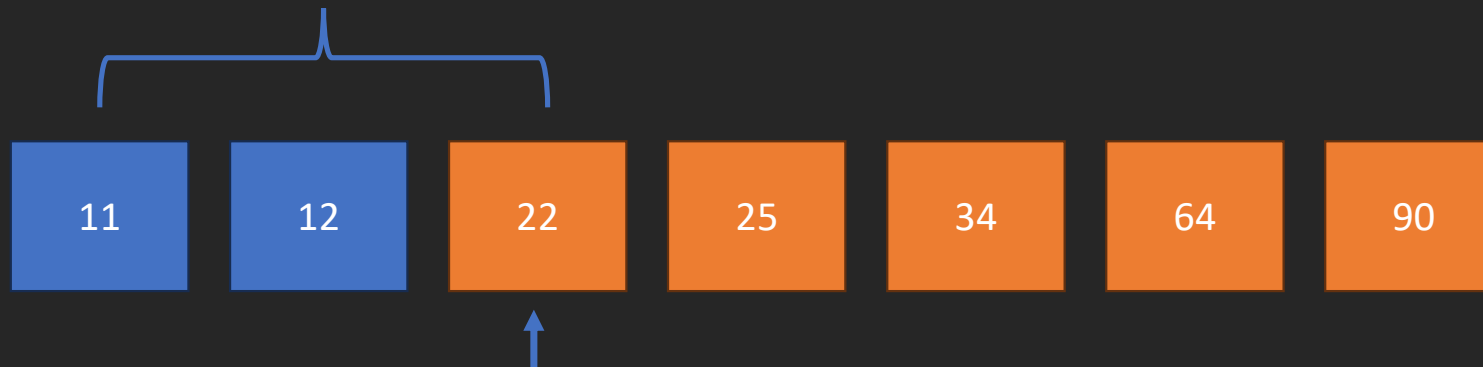


Largest Value Correctly
Placed at the bottom

Repeat to N-4





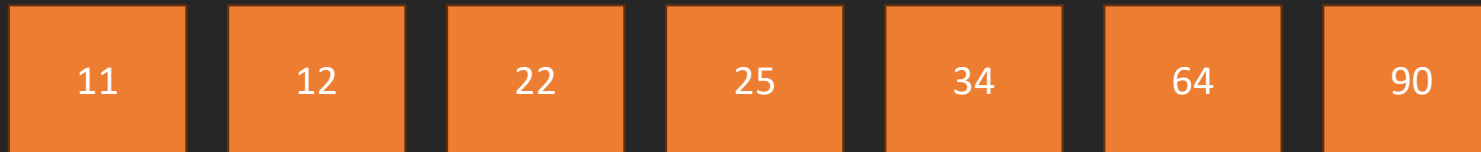


Largest Value Correctly
Placed at the bottom

Repeat to N-5



Done: Array Sorted 😊



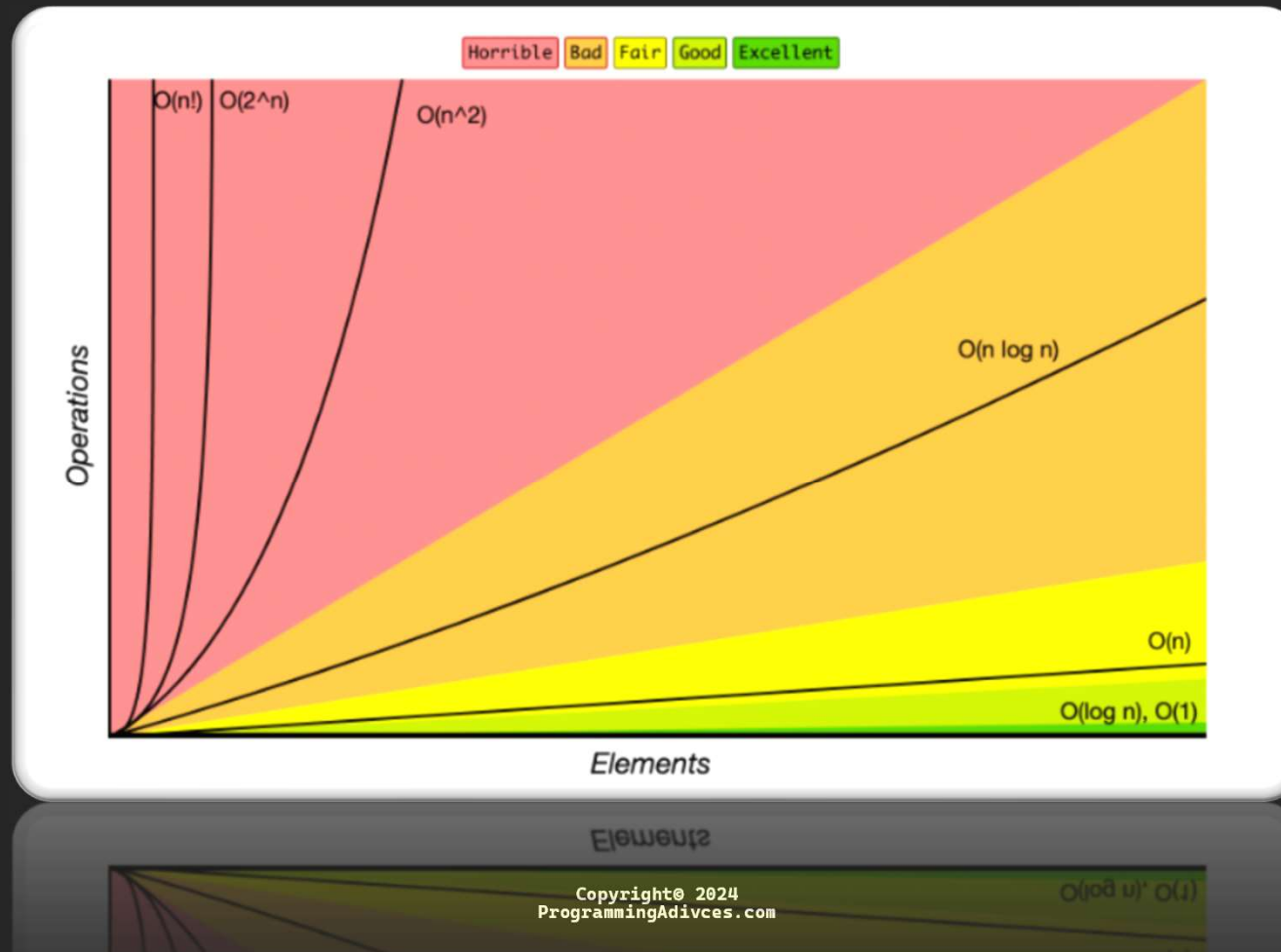
What is Bubble Sort?

- Bubble sort is a simple sorting algorithm that repeatedly steps through the list, compares adjacent elements, and swaps them if they are in the wrong order.
- The pass through the list is repeated until the list is sorted.
- The algorithm gets its name from the way smaller elements "bubble" to the top of the list (beginning of the list) as the sorting process goes on, while the larger elements sink to the bottom (end of the list).

What is Bubble Sort?

- Despite its simplicity, Bubble Sort is not suitable for large datasets as its average and worst-case complexity are both $O(n^2)$
- $O(n^2)$, where n is the number of items being sorted.

Bubble Sort is $O(N^2)$





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Thank You

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