

★ Bubble Sort ★

classmate

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- It is the Simplest sorting technique that works by swapping repeatedly adjacent values if they are in wrong order.
- Not Suitable for large datasets as Average & Worst case time complexity is High.

Bubble Sort Working

$i=0$:

5	6	1	3
---	---	---	---

↓ swap ↓

$i=1$:

5	6	1	3
---	---	---	---

↓ swap ↓

$i=2$:

5	1	6	3
---	---	---	---

↓ swap ↓

$i=3$:

5	1	3	6
---	---	---	---

 - element i Sorted

↓ swap ↓

$i=4$:

1	5	3	6
---	---	---	---

$i=5$:

1	3	5	6
---	---	---	---

 - All elements Sorted

★ Selection Sort ★

- It is a Comparison Based Sorting Algorithm.

It sorts an array by repeatedly selecting the smallest or largest element from the unsorted portion & swapping it with first unsorted element.

arr[] = 5 10 7 3 1

↑ ↑
current element minimum element

Swap

arr[] = 1 10 7 3 5

↑ ↑
current element minimum element

Swap

arr[] = 1 3 7 10 5

↑ ↑
current element minimum element

Swap

arr[] = 1 3 7 5 10

↑ ↑
current element minimum element

Swap

arr[] = 1 3 5 7 10

array sorted

★ Insertion Sort ★

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- It is a simple sorting algorithm that works iteratively sorting each element of unsorted list into a proper order.

Initially:

7	10	5	3	1
---	----	---	---	---

 →

7	10	5	3	1
---	----	---	---	---

First Pass:

7	10	5	3	1
---	----	---	---	---

 →

5	7	10	3	1
---	---	----	---	---

Second Pass:

5	7	10	3	1
---	---	----	---	---

 →

5	7	10	3	1
---	---	----	---	---

Third Pass:

3	5	7	10	1
---	---	---	----	---

 →

3	5	7	10	1
---	---	---	----	---

Fourth Pass:

1	3	5	7	10
---	---	---	---	----

 →

1	3	5	7	10
---	---	---	---	----

Sorting Complete