Sorting Algorithms

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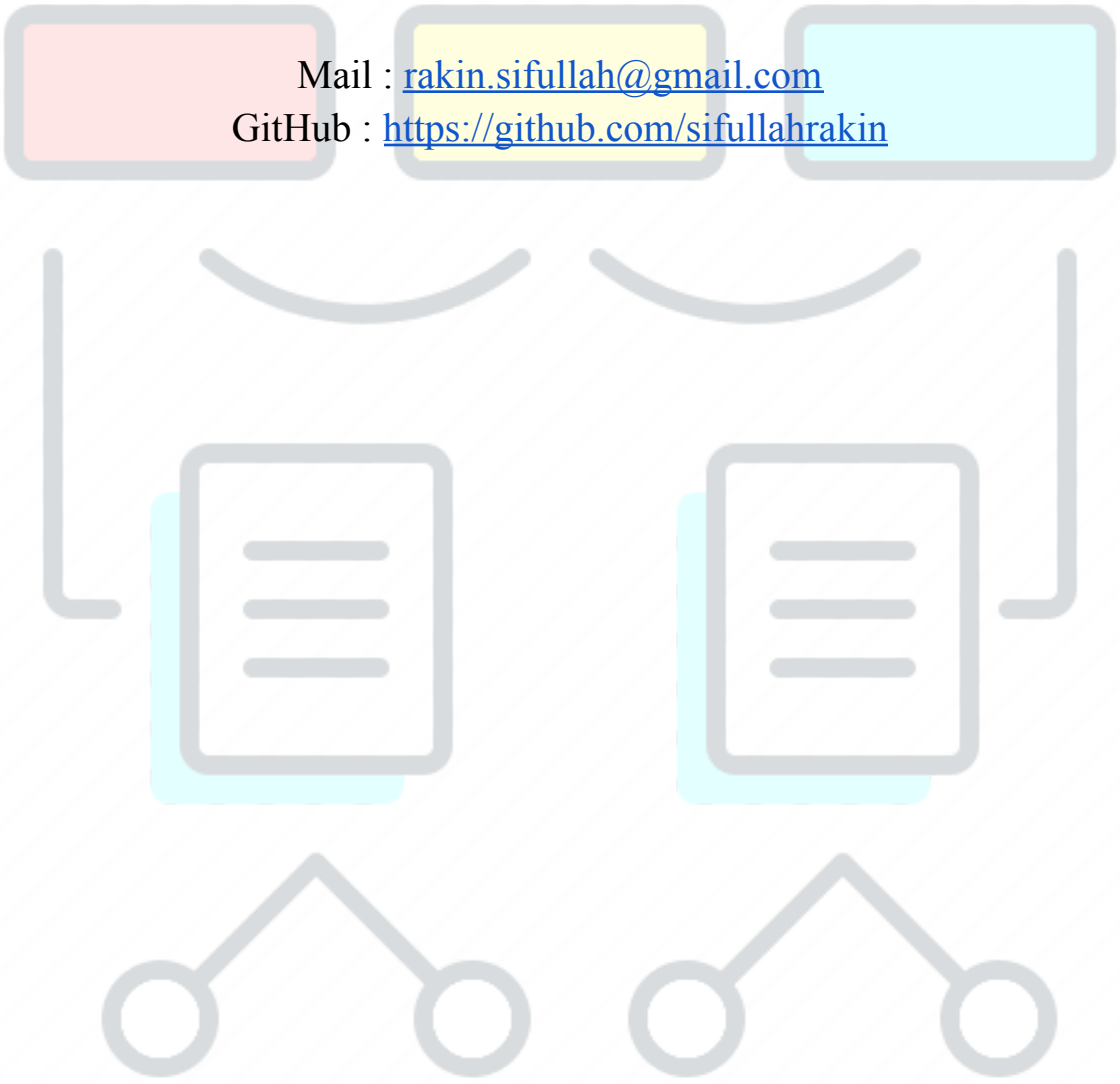


Index :

Sorting

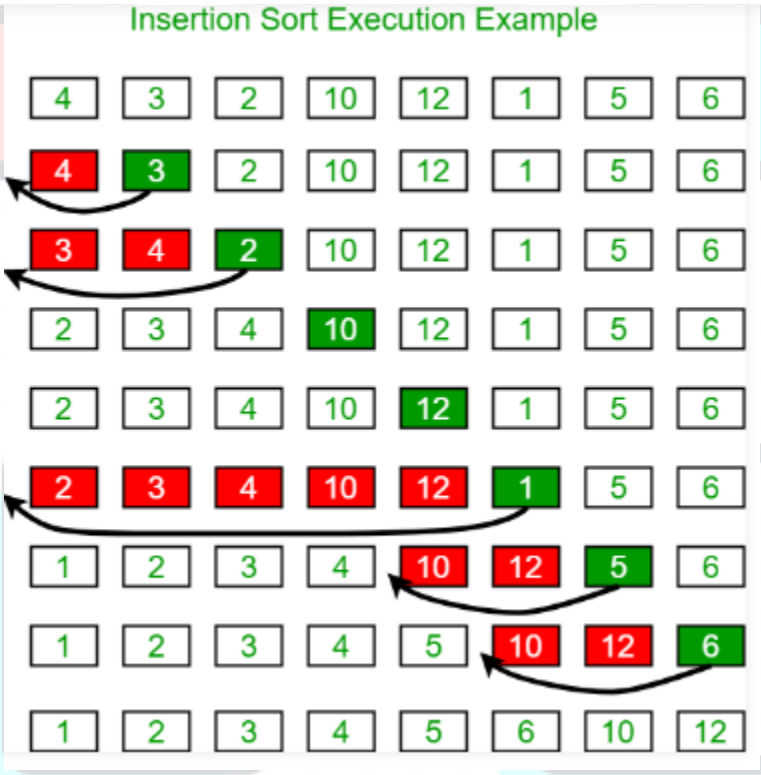
Sorting is a basic building block that many other algorithms are built upon. It's related to several exciting ideas that you'll see throughout your programming career. Understanding how sorting algorithms in Python work behind the scenes is a fundamental step toward implementing correct and efficient algorithms that solve real-world problems.

Some Sorting algorithms are -

1. **Insertion Sort**
2. **Selection Sort**
3. **Bubble Sort**
4. **Merge Sort**
5. **Counting Sort**

1. Insertion Sort

Insertion sort is a simple sorting algorithm that works similar to the way you sort playing cards in your hands. The array is virtually split into a sorted and an unsorted part. Values from the unsorted part are picked and placed at the correct position in the sorted part.



Code Link :
https://github.com/sifullahrakin/Searching-and-Sorting-Algorithms-Python-/blob/main/Insertion%20Sort

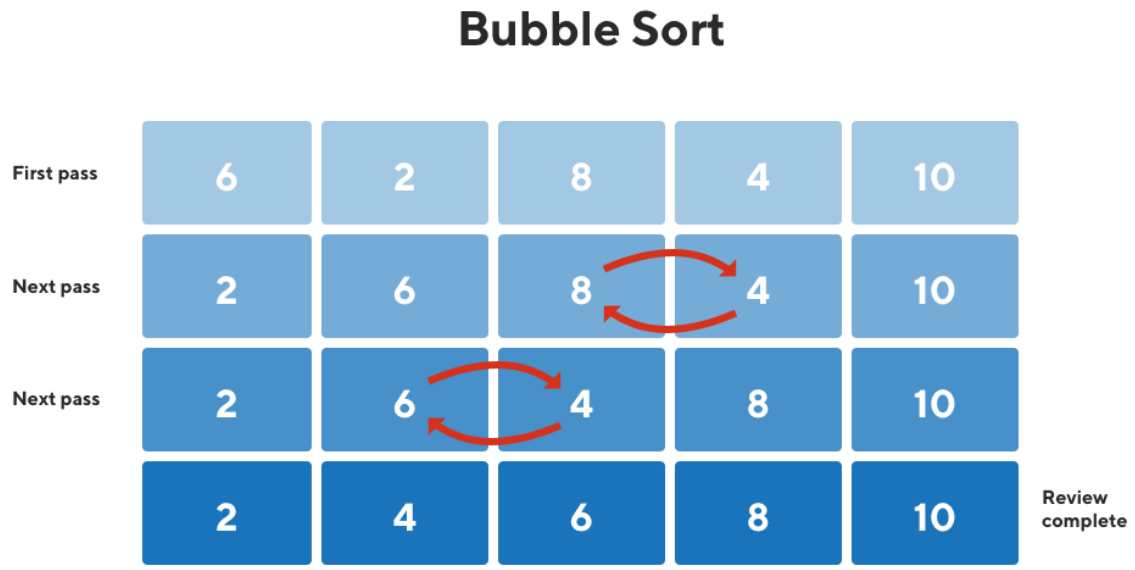
2. Selection Sort

Selection sort is another sorting technique in which we find the minimum element in every iteration and place it in the array beginning from the first index. Thus, a selection sort also gets divided into a sorted and unsorted subarray.

Code Link :
https://github.com/sifullahrakin/Searching-and-Sorting-Algorithms-Python-/blob/main/Selection%20Sort

3. Bubble Sort

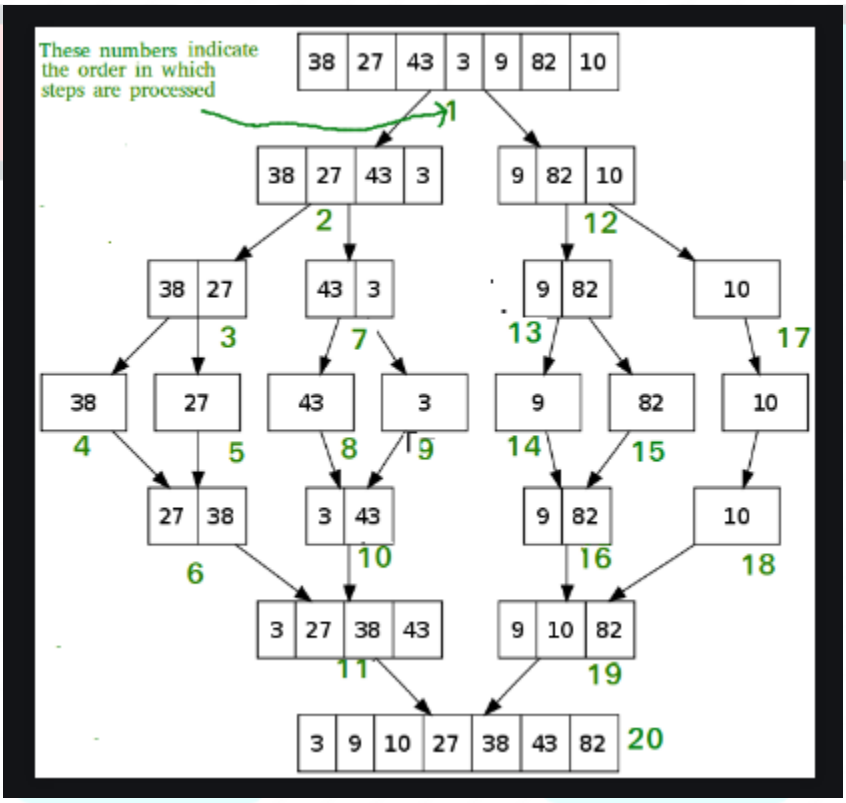
Sort by comparing each adjacent pair of items in a list in turn, swapping the items if necessary, and repeating the pass through the list until no swaps are done. Also known as sinking sort, exchange sort.



Code Link :
https://github.com/sifullahrakin/Searching-and-Sorting-Algorithms-Python-/blob/main/Bubble%20Sort

4. Merge Sort

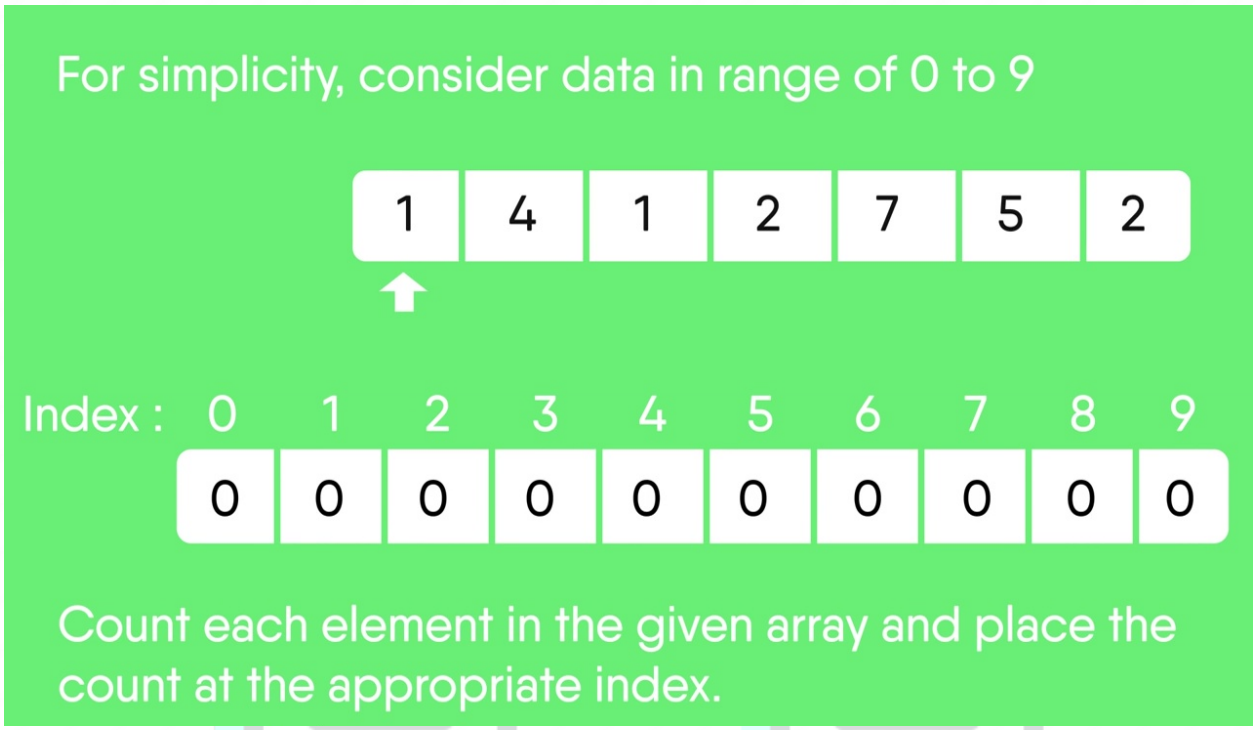
Merge sort is one of the most efficient sorting algorithms. It works on the principle of Divide and Conquer. Merge sort repeatedly breaks down a list into several sublists until each sublist consists of a single element and merging those sublists in a manner that results in a sorted list.



Code Link :
https://github.com/sifullahrakin/Searching-and-Sorting-Algorithms-Python-/blob/main/Merge%20Sort

5. Counting Sort

Counting sort is a sorting technique based on keys between a specific range. It works by counting the number of objects having distinct key values.



Code Link :
https://github.com/sifullahrakin/Searching-and-Sorting-Algorithms-Python-/blob/main/Counting%20Sort

References :

1. ***Data Structure & Algorithms*** *by Goodrich, Tamassia and Goldwasser*
2. ***https://www.geeksforgeeks.org/***
3. ***Programming contest, Data structure and Algorithms*** *by Mahbubul Hasan*