A2SV Community
Sorting Learning Resource

What is Sorting?

Sorting

- Sorting is the process of arranging the elements of a collection so that they can be placed either in ascending or descending order.

Reading Options

- What is Sorting

Sorting Algorithms

Insertion Sort

- Let’s split the array into two parts -one sorted, one default- and insert default part’elements to the sorted part one by one.

Reading Options

- Insertion sort Explained

Practice Problems

- Insertion Sort Implementation

Selection Sort

- For each spot starting from the beginning, let’s find the right element for this spot.

Bubble Sort

- Let’s repeatedly swap the adjacent elements if they are in the wrong order.

Reading Options

- Selection Sort Explained

Practice Problems

- Selection Sort Implementation

Reading Options

- Bubble Sort Explained

Practice Problems

- Bubble Sort Implementation

Counting Sort

If the range of the numbers is small enough that can fit in memory;

1- Initialize counter array with 0, its size is the range of the numbers.
2- Iterate over the numbers, update corresponding counter for each of them (choose a or b for step 3).
3a- Generate output based on counts in counter array if sorting only numbers .
3b- Accumulate counter values, place input into output based on counter values in reverse order.

Reading Options

- Counting Sort Explained

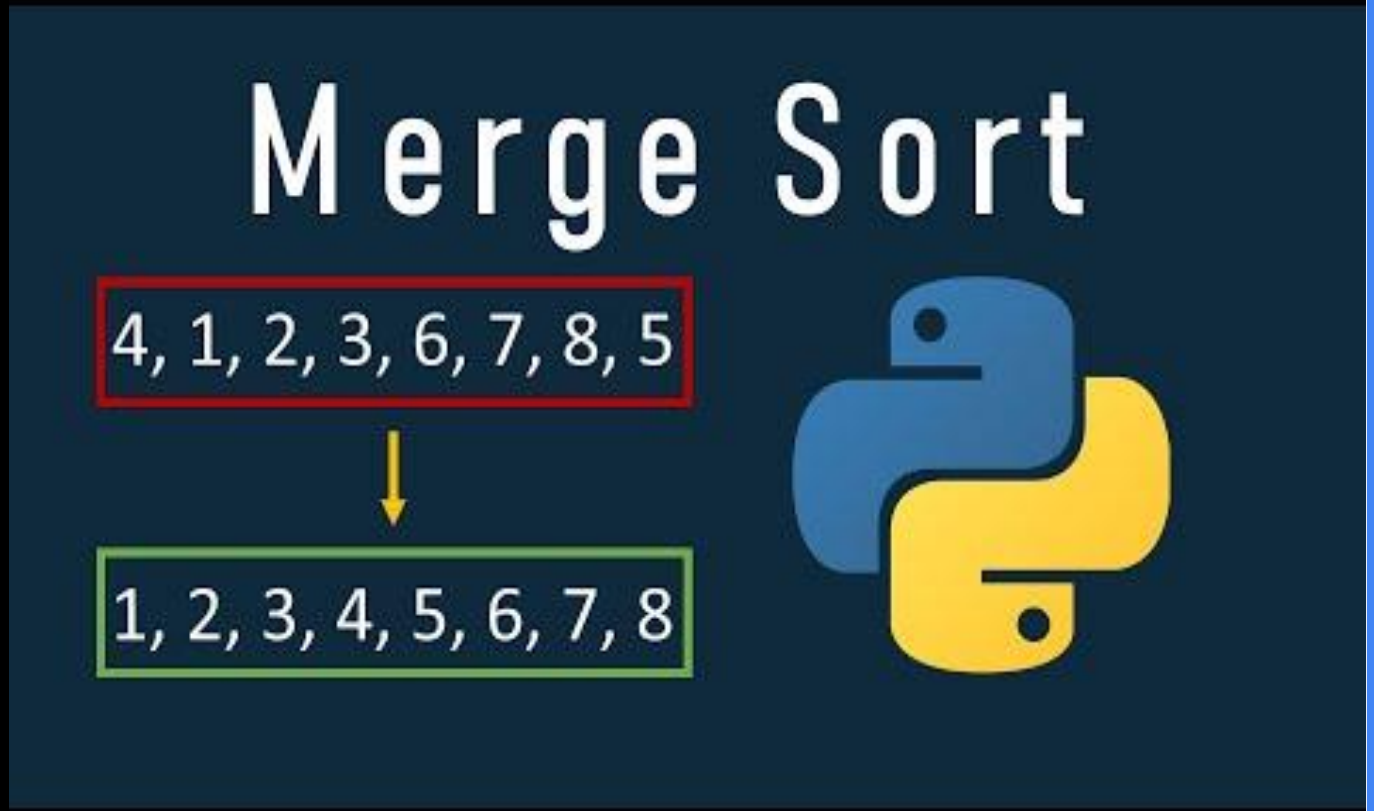
Practice Problems

- Counting Sort Implementation

Merging Sort

Divide and conquer:

1- Let the first half of the array be sorted
2- Let the second half of the array be sorted
3- Let’s merge them together Base case?



Reading Options

- Merge Sort Explained

Practice Problems

- Merge Sort Implementation

Practice Problems on Sorting

Problems:

- Question 1
- Question 2
- Question 3
- Question 4
- Question 5

Advanced Sorting Algorithms(optional)

Resource:

- Quick Sort
- Heap Sort
- Radix Sort