

# Sorting

## Merge sort

- Merge sort implemented using the merge  $O(n)$  algo
- Runtime analysis
- Counting inversions using merge sort  
<https://www.geeksforgeeks.org/problems/inversion-of-array-1587115620/1>

## Quicksort & Quickselect

- quick sort algo, time complexity analysis
- quick select: avg runtime  $O(n)$  <https://leetcode.com/problems/kth-largest-element-in-an-array/description/>

## Questions

- Classic algo : <https://leetcode.com/problems/merge-intervals/description/> overlapping subsegments
- <https://leetcode.com/problems/maximum-gap/description/> Weird question with pigeonhole (bucket kind of)
- <https://leetcode.com/problems/smallest-range-covering-elements-from-k-lists/>
- <https://leetcode.com/problems/kth-smallest-element-in-a-sorted-matrix/description/>
- <https://codeforces.com/contest/1174/problem/B> simple but nice
- <https://codeforces.com/contest/1203/problem/E>
- <https://codeforces.com/contest/1197/problem/C>
- <https://leetcode.com/problems/make-array-empty/description/>
- <https://leetcode.com/problems/maximum-profit-in-job-scheduling>

- <https://leetcode.com/problems/count-of-smaller-numbers-after-self/description/>