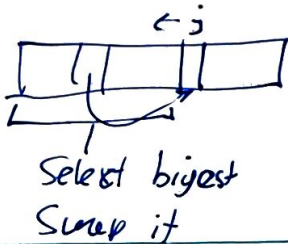


# Sorting

Selection Sort  $O(n^2)$  Non stable  
In-place

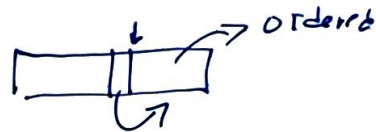
$n$ : Size of the array

- 1) find largest in  $[0, \dots, n-1]$
- 2) Swap it with  $n-1$
- 3  $n--1$ , Goto 1

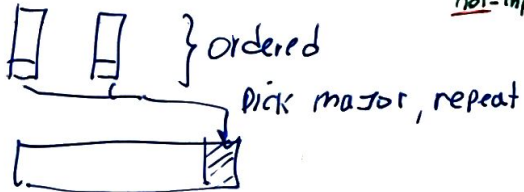


Insertion Sort  $O(n^2)$  stable  
In-place

- 1) start with one
- 2) pick next one
- 3) Insert in Right position



Merge Sort  $O(n \log n)$  stable  
not-inplace



③ needs to allocate memory

Quick Sort

non-stable  
In-place

\* uses partition