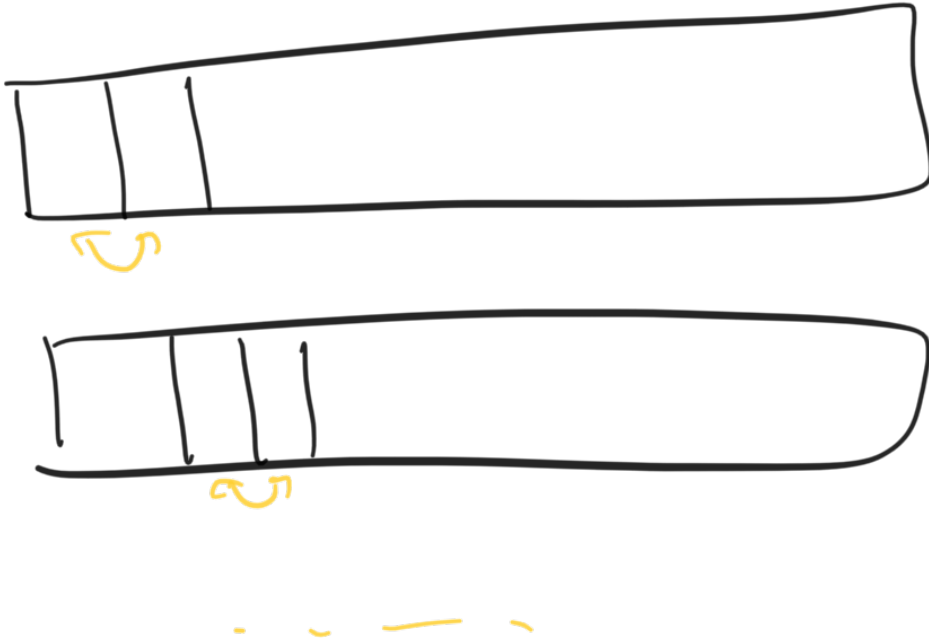


Sorting

Bubble sort



In n moves, max elt at end } 1 sweep

Begin next sweep ..

Time: $O(n^2)$ memory $O(1)$

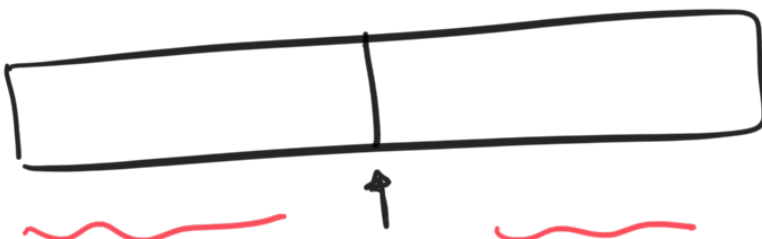
Selection sort

Find min, put it in first place

Find second min. (min is $A[1:]$), put it in
second place

Time: $O(n^2)$ memory $O(1)$

merge sort



sort

sort

merge -

$$f(n) = 2f(n/2) + n$$

$$= 4f(n/4) + n + n$$

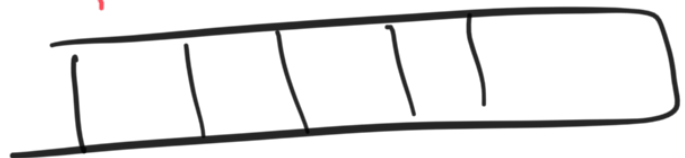
$$= \vdots$$
$$2^{\log n} f(1) + \dots + n$$

$$= n \log n$$

Insertion sort



Insert elem in right place



Time: $O(n^2)$

memory: $O(n)$

Radix sort

sort by first digit



then sort each group by next digit

Time: $O(kn)$,

$n =$ # of elements

$k =$ # of passes of
sorting algorithm