

Time Complexity

Algorithm Analysis.

memory (RAM)
(space complexity)

(CPU) computational
(time complexity)

CPU time $\rightarrow \frac{1}{t}$
 \downarrow
 no. of operations
 second.
 \rightarrow clock speed

2.5 GHz
 $2.5 \times 10^9 \times 10^9$
 $\times 10^9$

AND U - 4 each ...

→ add 1, 2 → 4 x frequency

① Big O $\left[O(n) \right]$

→ focusses on the trend.

→ polynomial term with highest power.

→ only this term is relevant.

→ $f(x) = x + c$

→ $f(x) = x^2 + cx^0$

→ $O(f(x)) = x$

→ def foo(n):
 for i in range(n):
 print(i)

 for i in range(n):
 for j in range(n):
 print(i+j)

→ 1

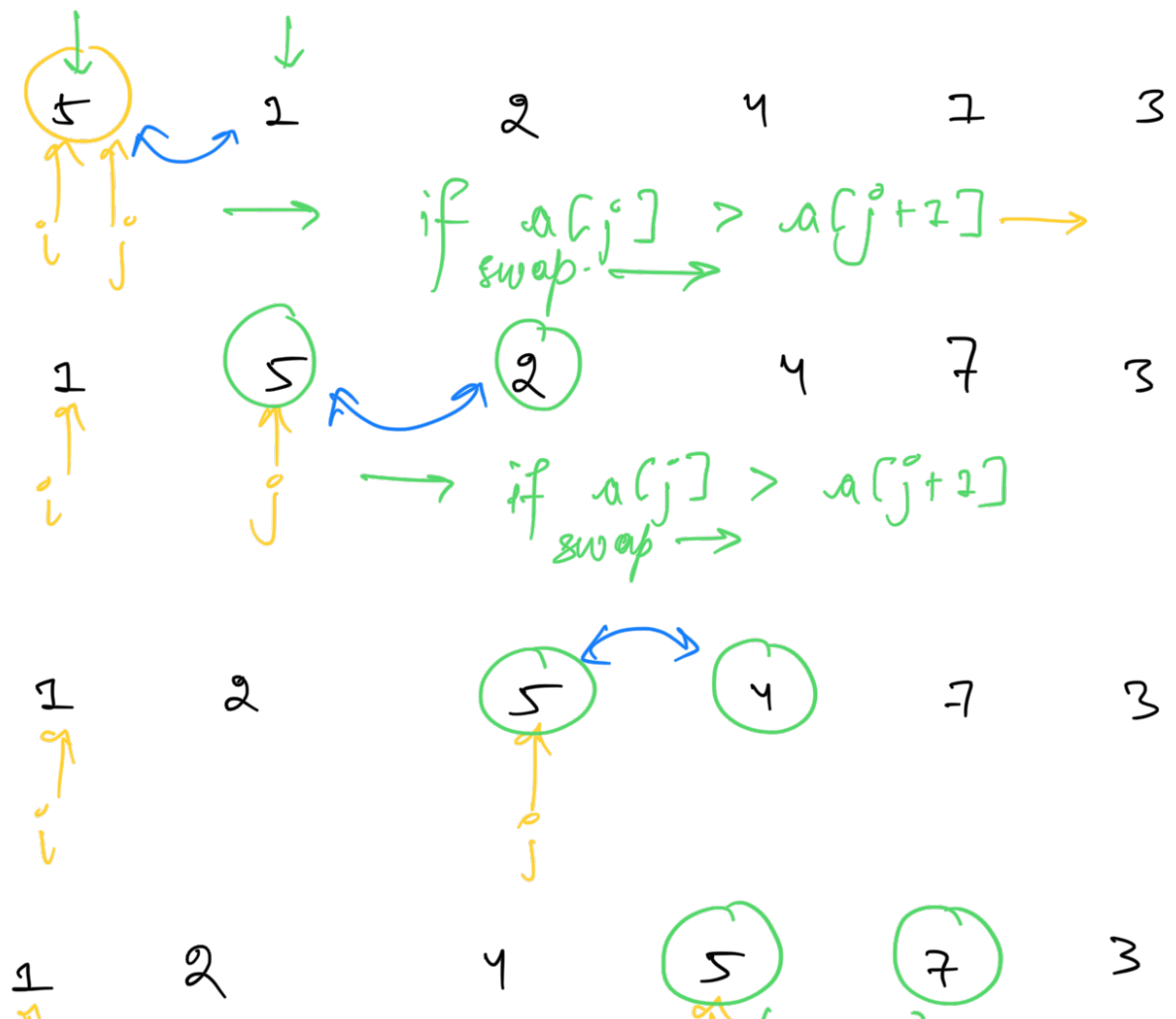
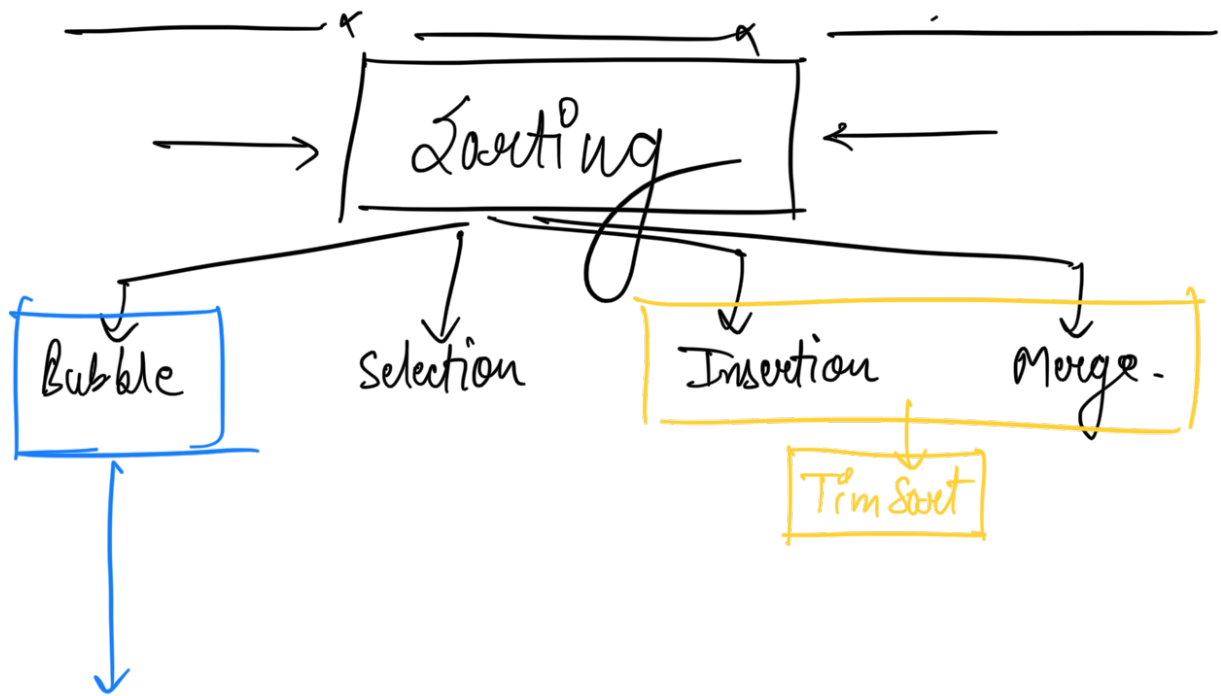
→ n

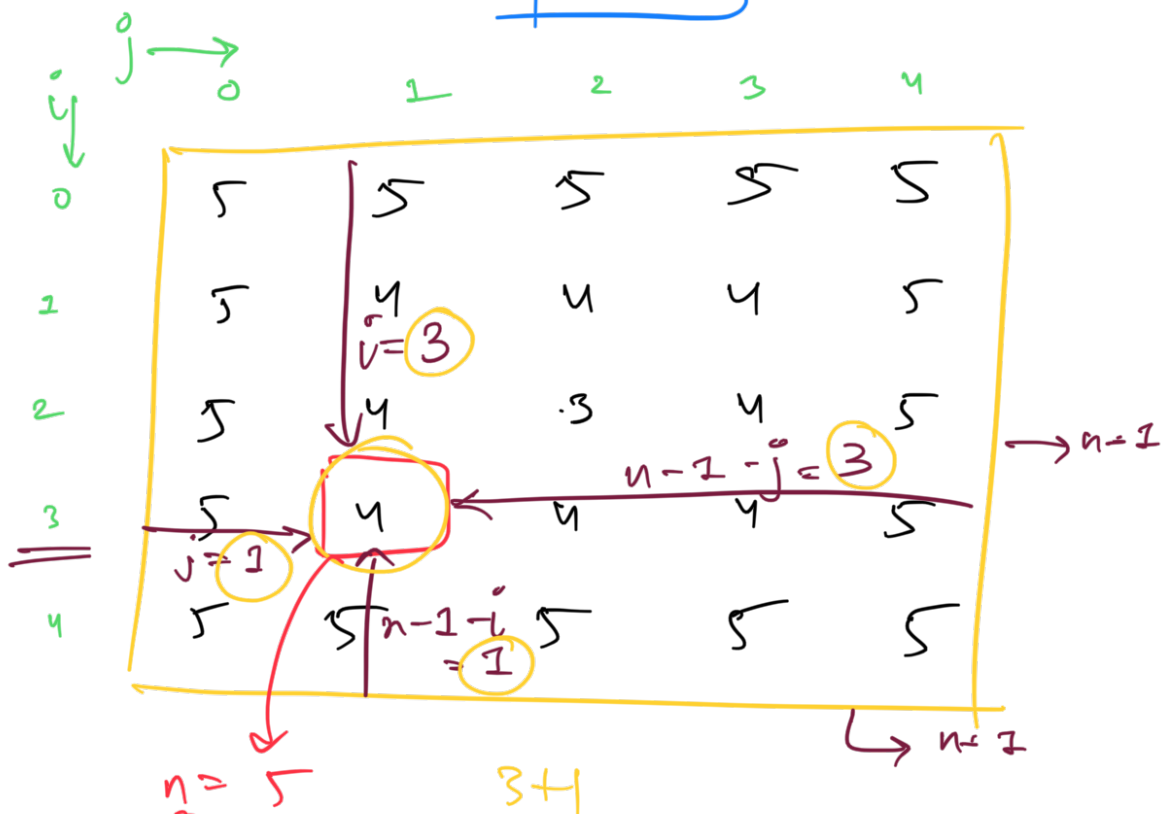
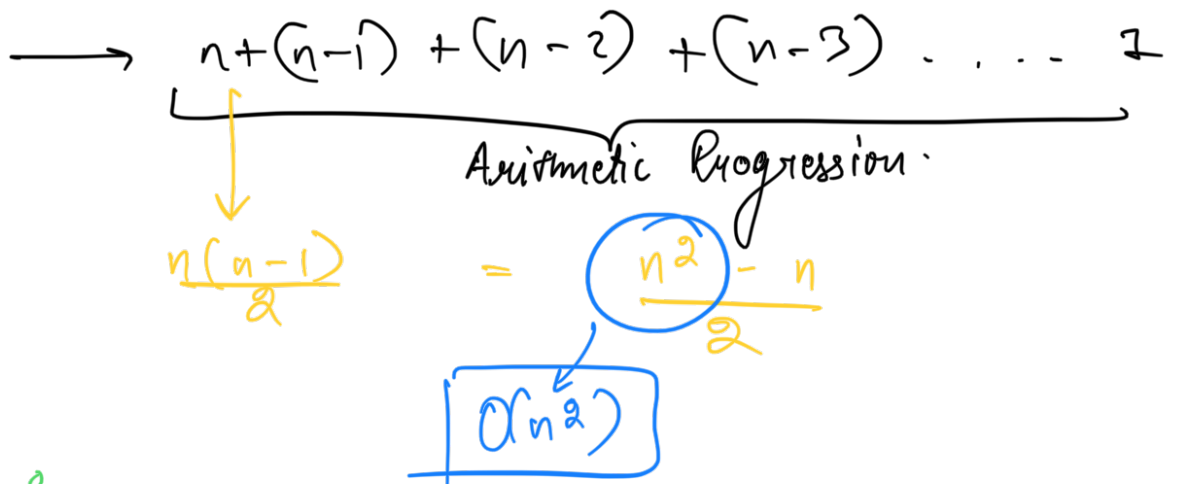
→ n

→ n^2

→ $c(f(x)) = n^2 + n + c$

→ $O(n^2)$



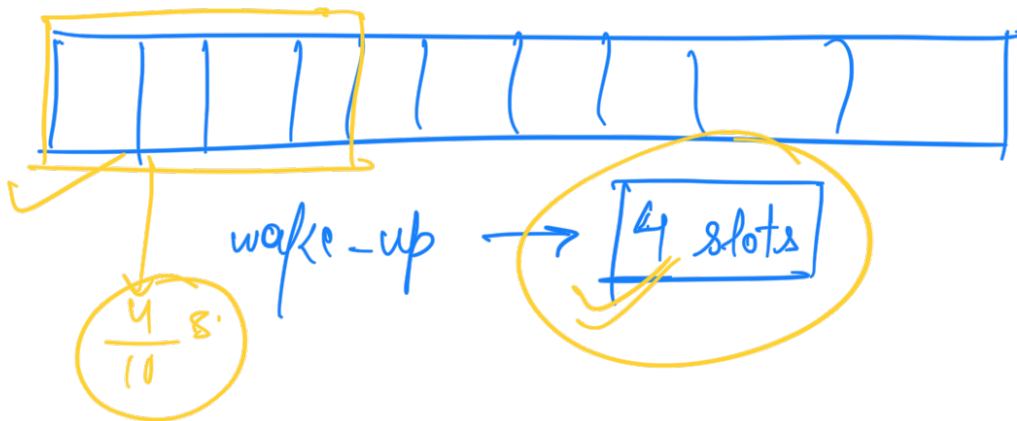


$$j = 1$$

$$n-1-j = 5-1-1 = 3$$

$$5-1-1 = 3$$

$$\text{frequency} \rightarrow \frac{1}{10}$$



$$\text{frequency} = \frac{1}{20}$$

