

① for  $i$  in  $[0, l]$   
 for  $j$  in  $[0, m]$

sum = 0

for  $k$  in  $[0, n]$ :

sum +=  $a[i, k] * b[k, j]$

$c[i, j] = \text{sum}$

→  $(n-1)$ th arithmetic operations

sum +=  $a[i, k] * b[k, j]$

$i$  is iterable of  $l$

$j$  is iterable of  $m$

$k$  is iterable of  $n$

sum is a func of  $i$  and  $j$

→  $(l-1)(m-1) \Rightarrow [(l-1)(n-1) + (n-1)(m-1)]$

→ sum +=  $a[i, k] * b[k, j]$

→  $8n + 8m + 8l + (l + m)$

→  $8n + 9m + 9l$

(if) →  $8n + 9m + 9l$  if  $l \neq m = n$

→  $8(n) + 9(n) + 9(n)$  for the existence of 2 for loop

→  $26n$  [complexity =  $n^2$ ]

⑥  $f(n) \leq cf(N) \mid N \geq n_0$

$f(n) \leq cf(N)$

$c \leq \frac{f(n)}{f(N)}$

$N \geq n_0$

$N_0 = n_0$

$\therefore c = 1$

if  $n_0 = N$

⑦

May 18

Bubble sort for any array

double Numbers[] = {5, 1.1, 4, 9, 6,}

↗ New-array

for (int i = 0, i < sizeof(Number); i++)

int check = 0

int check\_2 = 0

check = i, check\_2 = i+1

, if check > check\_2

New-array = check

New-array = check\_2

count value ++;

(In terms of n value, it would take  $n^2$ )

for the 2 for loops  $\Rightarrow n^2$

③ The comparison constitute one operation;  
The assignment constitute another,  
Then assignment to final array  
 $3 \times n = 3n$