



UNIVERSIDADE FEDERAL DO CEARÁ

CK0215-2019.1 - T01

LABORATÓRIO DE PROGRAMAÇÃO

ÁVIA 6 - 13/03/2019

### 1. USO DE MEMÓRIA DO QUICKSORT: CONSIDERE

ESTA EXECUÇÃO DE UM QUICKSORT PADRÃO QUE ESCOLHE COMO PIVÔ O PRIMEIRO ELEMENTO:

ESQ DIR [ ]  
0 1 [3..3]

[9|8|7|6]

[4|1|5|2]

0 1 2 3  
1 2 3 4

PILHA DE CHAMADAS  
→ [0..3]

0 1 2 3  
1 2 3 4

[1..3]  
→ [0..3]

0 1 2 3  
1 2 3 4

[2..3]

[1..3]

→ [0..3]

0 1 2 3  
1 2 3 4

(2, 3)

[3..3]

[2..3]

[1..3]

→ [0..3]

4 CHAMADAS  
P/ 4 ELEMENTOS

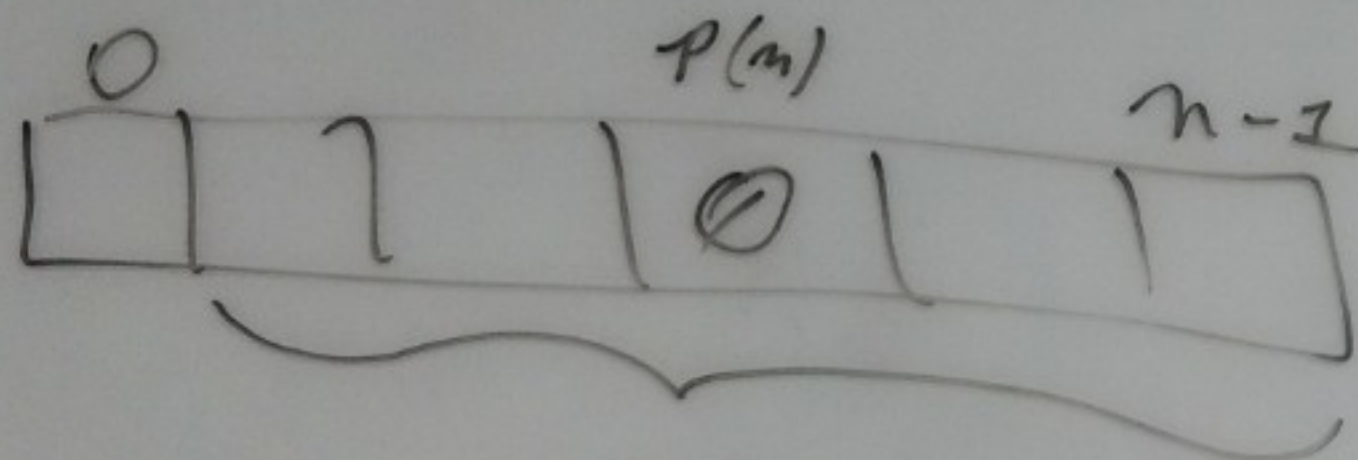
↑  
SÓ RETORNA

USO  $O(n)$  DE MEMÓRIA.

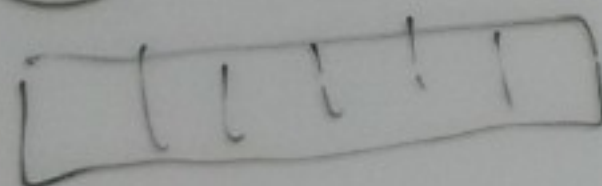


2.

$p(n)$  |  $p(n-1)$  ?  
 $p = \text{RAND}() \% m;$

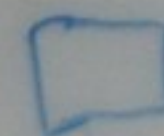


$m$

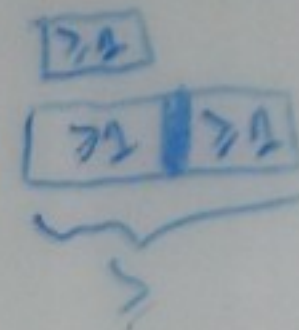


$m/2$   
 $\lg m$

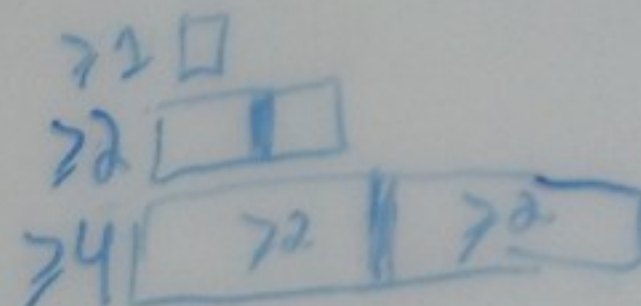
$n \rightarrow k$



$k$  |  $n$   
 $\rightarrow 1 \text{ chamada} \rightarrow n \geq 1 \rightarrow 2^0$



$\rightarrow 2 \text{ chamadas} \rightarrow n \geq 2 \rightarrow 2^1$



$\rightarrow k \text{ chamadas} \rightarrow n \geq 2^{k-1}$

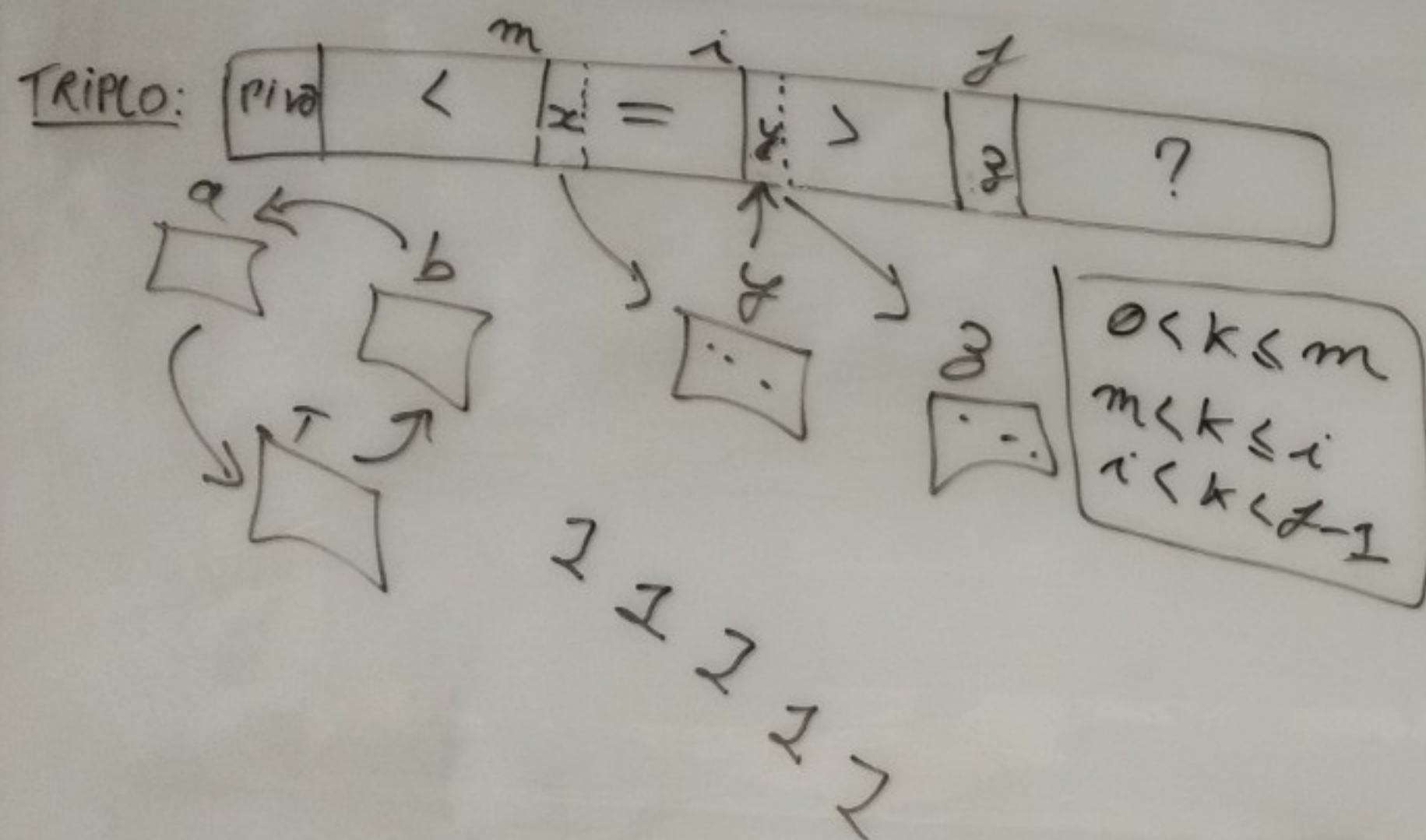
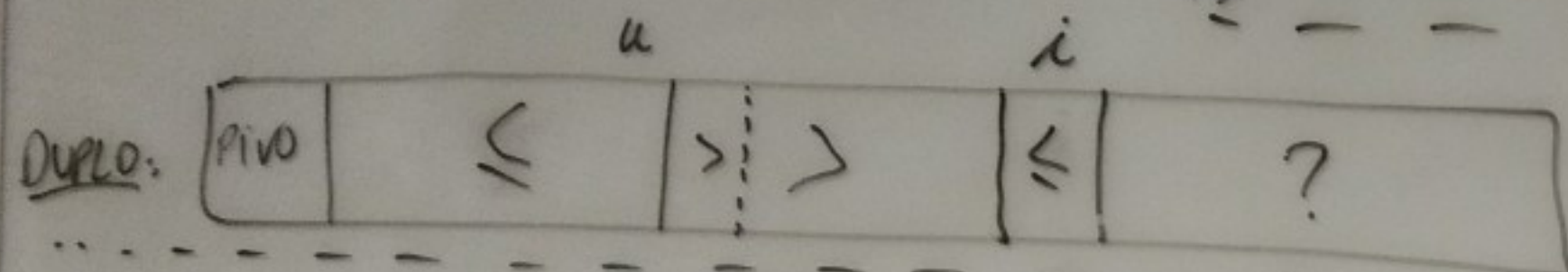
$\therefore \lg m \geq k-1 \therefore k \leq \lg m + 1 \therefore k = O(\lg m)$



void f(..., int \*p, int \*q)

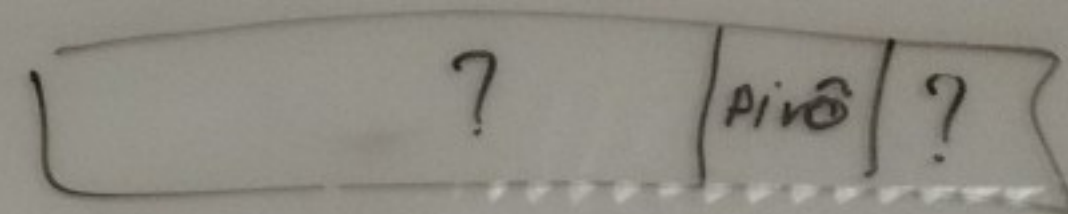
### 3. PARTICIONAMENTO TRIPLO:

\*p = ...;  
\*q = ...;

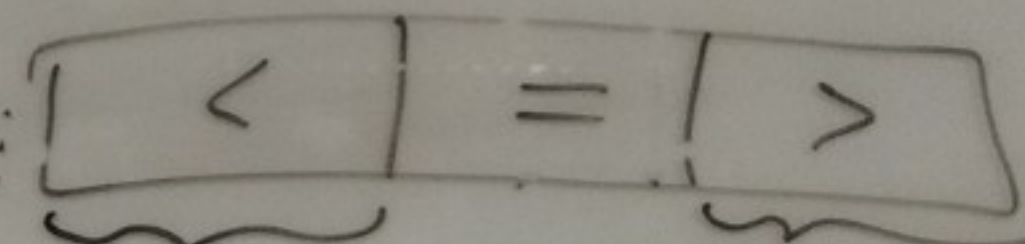


### 4. QUICKSORT COM PARTICIONAMENTO TRIPLO:

INÍCIO:



APÓS PARTIC.:



NÃO NECESS. ORD

