ESERCIZIO 5 - 2° parte

MAX3 (A[1..n])

if n=3 then return MAX (A[1], A[2], A[3])

else

m = n/3

return MAX (MAX3(A[1..m]), MAX3(A[m+1..2m]), MAX3(A[2m+1..n]))

$$T(n) = \begin{cases} 1 & \text{se } n=3 \\ 3T(n/3) + c & \text{altrimenti} \end{cases}$$

$T(n) = 3T(n/3) + c$ $\quad$ $T(n/3) = 3T(n/9) + c$

$T(n) = 3(3T(n/9)+c) + c$ $\quad$ $T(n/9) = 3T(n/27) + c$

$T(n) = 3(3(3T(n/27)+c)+c)+c$

$T(n) = 3^i T(n/3^i) + \sum_{j=0}^{i-1} 3^j \cdot c \Rightarrow T(n/3^i) = 1 \quad i = \log_3 n$

$T(n) = 3^{\log_3 n} T(1) + c\sum_{j=0}^{\log_3 n - 1} 3^j \Rightarrow T(n) = nT(1) + \frac{3^{\log_3 n} - 1}{3-1} = nT(1) + \frac{n-1}{2} = \Theta$

ESERCIZIO 6 - 2° parte (forse)

A[1..n] $\quad$ n = 3m interi

DETERMINARE $\quad A_1 = \{a \in A : a \geq \frac{3m}{4}\}$

$\quad A_2 = \{a \in A : a \leq \frac{3m}{4}\}$

ALG (A[1..n])

~~x=0 if ...~~ j=0 $\quad$ p=0

x = SELECT(A, 3m/4)

for i=1 to n do

if A[i] > x

A_2[j] = A[i] $\quad$ j++

else

A_1[p] = A[i] $\quad$ p++