Seminarul 3 - 4

Radix Sort

V: 8, 3, 13, 7, 77, 9, 55

3, 13, 55, 77, 8, 9

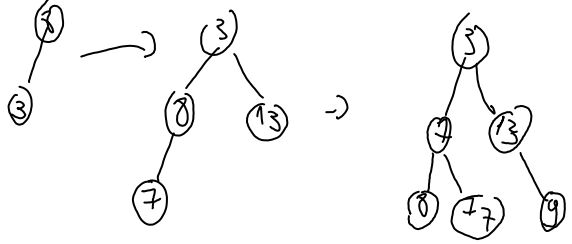
O(nd)

C0	3, 7, 8, 9
C1	13
C2	
C3 : 3, 13	
C4	
C5 : 55	55
C6	
C7 : 7, 77	77
C8 : 8	
C9 : 9	

Fie n numere naturale în intervalul $[0, n^3 - 1]$

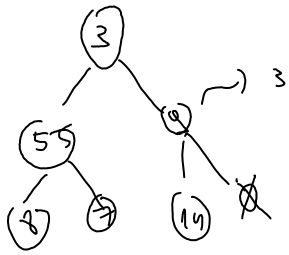
Sortați aceste numere

up = O(log n)

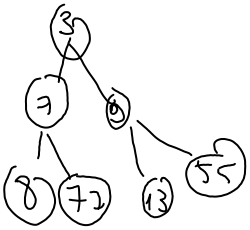


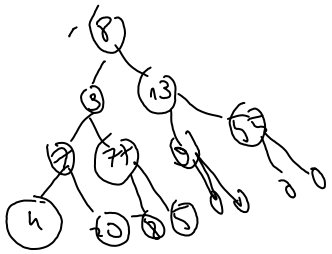
Heapuri binare

Min Heap



3 55 9 8 7 13 5





$$\frac{n}{4} + 2\frac{n}{8} + 3\frac{n}{16} + \dots +$$

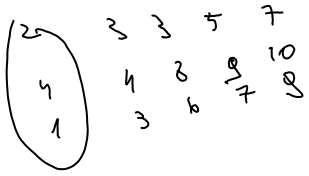
$$n\left(\frac{1}{4} + \frac{2}{8} + \frac{3}{16} + \dots + \frac{}{2^k}\right)$$

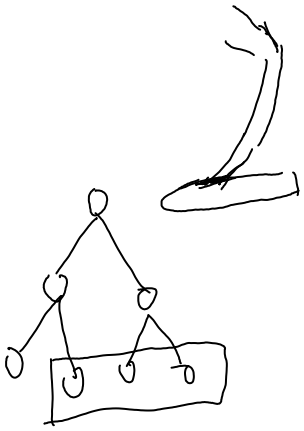
$$\leq 2$$

$V_{11} < V_{12} < V_{13} < \dots < V_{1n}$

$V_{k1} \quad V_{k2} \dots \leq V_{k4}$

$O(kn \log k)$



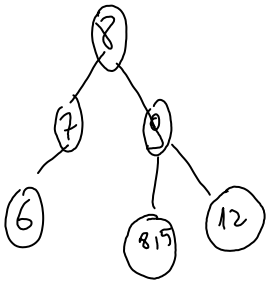


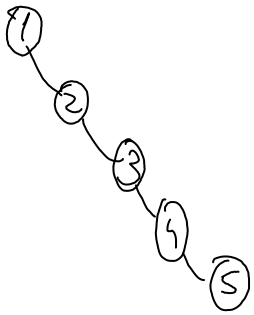
MAX / MIN h

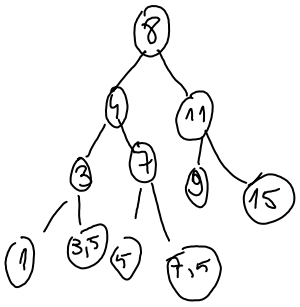
$2^{h+1}-1$ 2^h

$1+2+4+8+\dots+2^h = 2^{h+1}-1$

ABC / BST

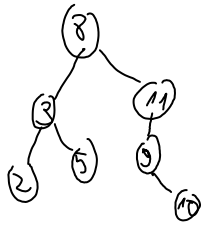






Fie T un ABC și t un nod din el

Se poate să succesorul lui x nu aibă fiu stâng ci predecesorul lui nu aibă fiu drept



Presupunem că $P(x) \to$ pred lui x
$S(x) \to$ succesorul lui x

PP că $S(x)$ nu este în st5ng not(y)

$$\left.\begin{array}{l} S(x) > y \\ S(x) > x \\ y > x \end{array}\right| \Rightarrow x < y < S(x) \text{ (Fals)}$$

Pp că $P(x)$ are în drept (not y)

$$\left.\begin{array}{l} P(x) < y \\ P(x) < x \\ x > y \end{array}\right| \Rightarrow P(x) < y < x \text{ (Fals)}$$

SRD

$O(n) / O(\sqrt{n}) \to$ RMQ

V: 8 2 9 | 4 6 9 | 1 5 3 , $n = 9$

$b = \sqrt{9} = 3$

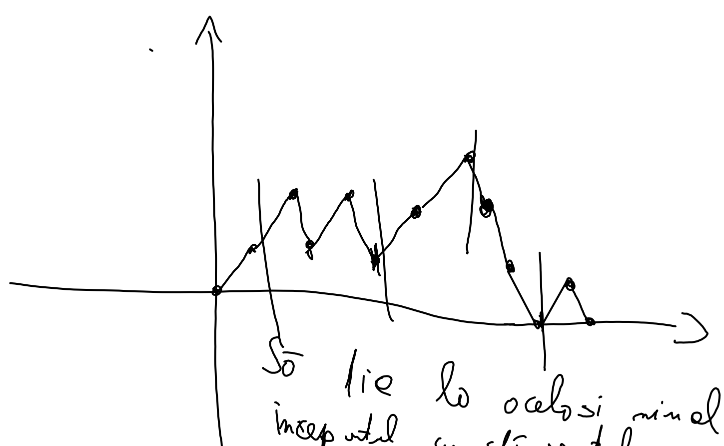
$[2, 8] \to 1$

B. 2 , 4 , 1

$\to \sqrt{n}$
$\to 2(\sqrt{n} - 1)$

(( ) ( ) (( ))) ( )

(1, 9)
(2, 5) → Da
(2, 7) → Nu



Să fie la aceeași nivel începutul cu sfârșitul și graful să fie mereu pozitiv