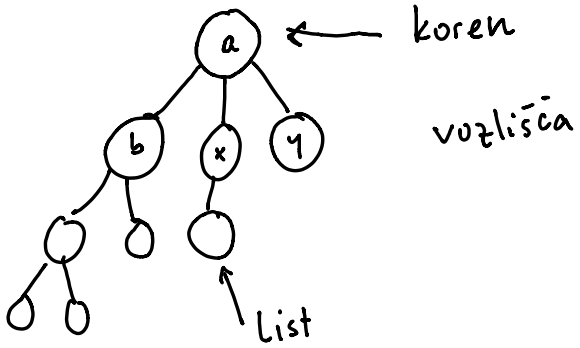
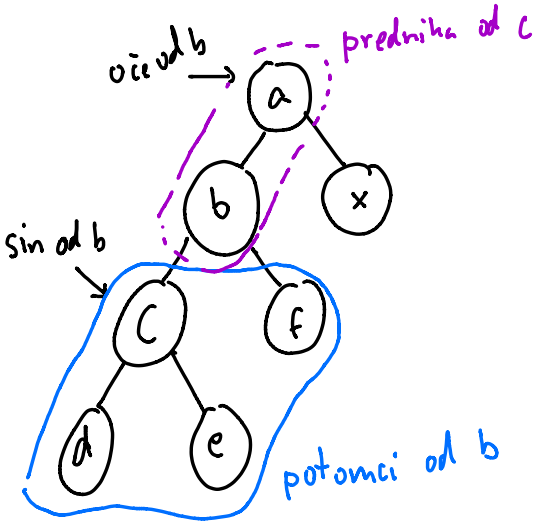
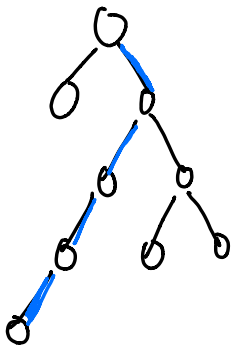
Drevesa





Dvojiško drevo: vsako vozlišče ima ≤ 2 sinova.



globina: dolžina najdaljše poti od korena do lista

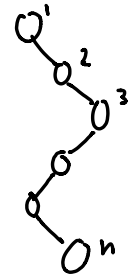
5

velikost: število vozlišč

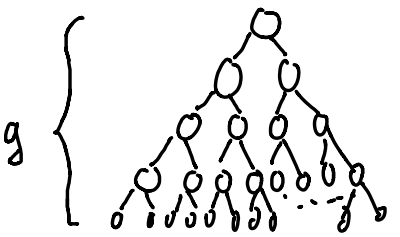
9

V dvojiškem drevesu velikosti n in globine g velja

$? \leq g \leq n$



polno drevo



$g=3$ 

$$n \leq 2^0 + 2^1 + 2^2 + \cdots + 2^{g-2} + 2^{g-1} = 2^g - 1$$

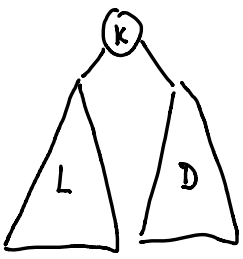
$$n+1 \leq 2^g$$

$$\log_2(n+1) \leq g$$

$$\boxed{\log_2(n+1) \leq g \leq n}$$

Obhod drevesa:

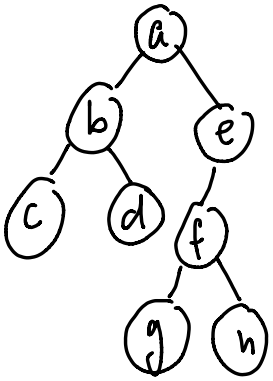
pregledamo vsa vozlišča



levo desno poddrevo korena

LKD - najprej obdelamo L, potem K, potem D

KLD - najprej K potem L potem D



KLD: a b c d e f g h

LKD: c b d a g f h e

Rekurzivna struktura:

drevo je sestavljeno iz (manjših) dreves:

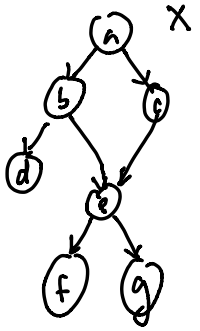
Vsako drevo je:

- prazno ali
- sestavljeno iz korena in poddreves

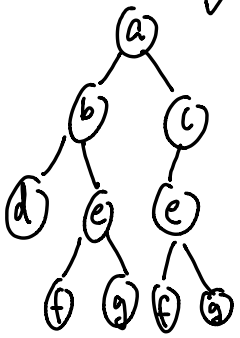
Seznam je:

- prazen ali
- sestavljen iz prvega elementa in preostanka seznama

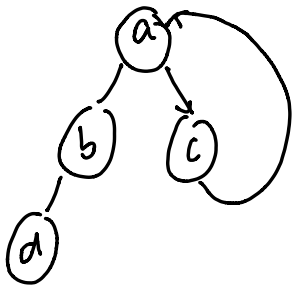
Ali dovolimo:



X

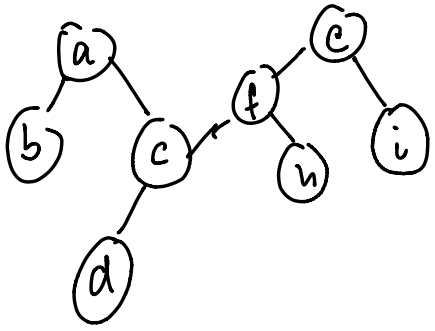


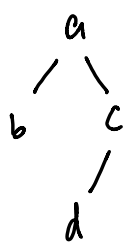
✓

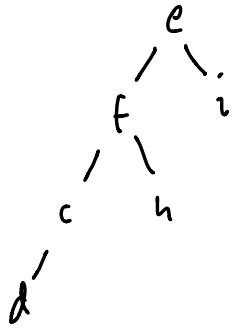


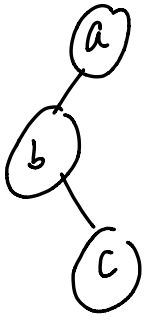
neshonirno drevo?

X

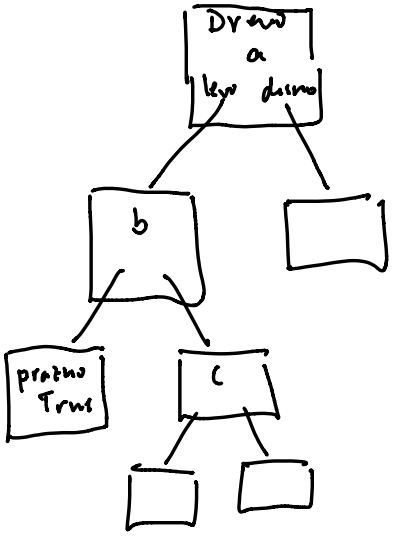


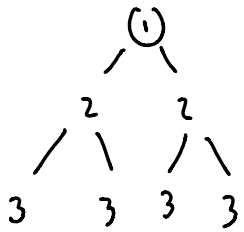






Objekti:

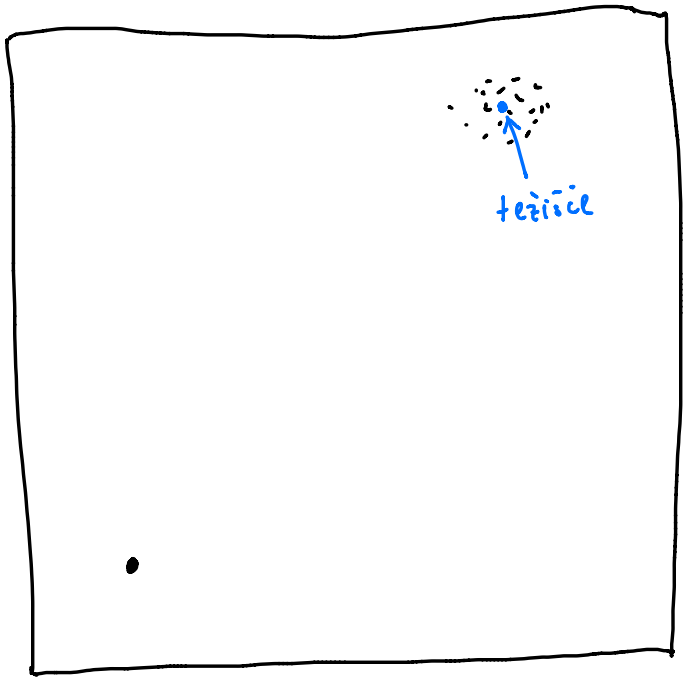


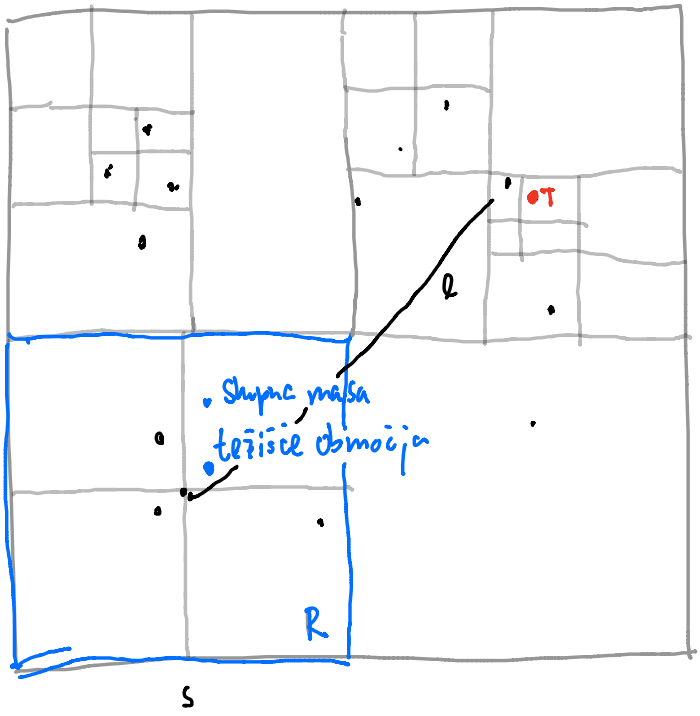


Barnes - Hut

$O(n)$ pospešek na eno telo

n teles: $O(n^2)$ vsi pospeški





pospešek območja R na telo T

$d(T, \text{središče } R) = l$

širina $R = s$

R obravnavam kot celoto, če

$$s < \Theta \cdot l$$

↑ magični faktor

npr. $\Theta = 0.1$

$\Theta = 0$ ... originalni algoritem, ki poračuna vseh $O(n^2)$ sil