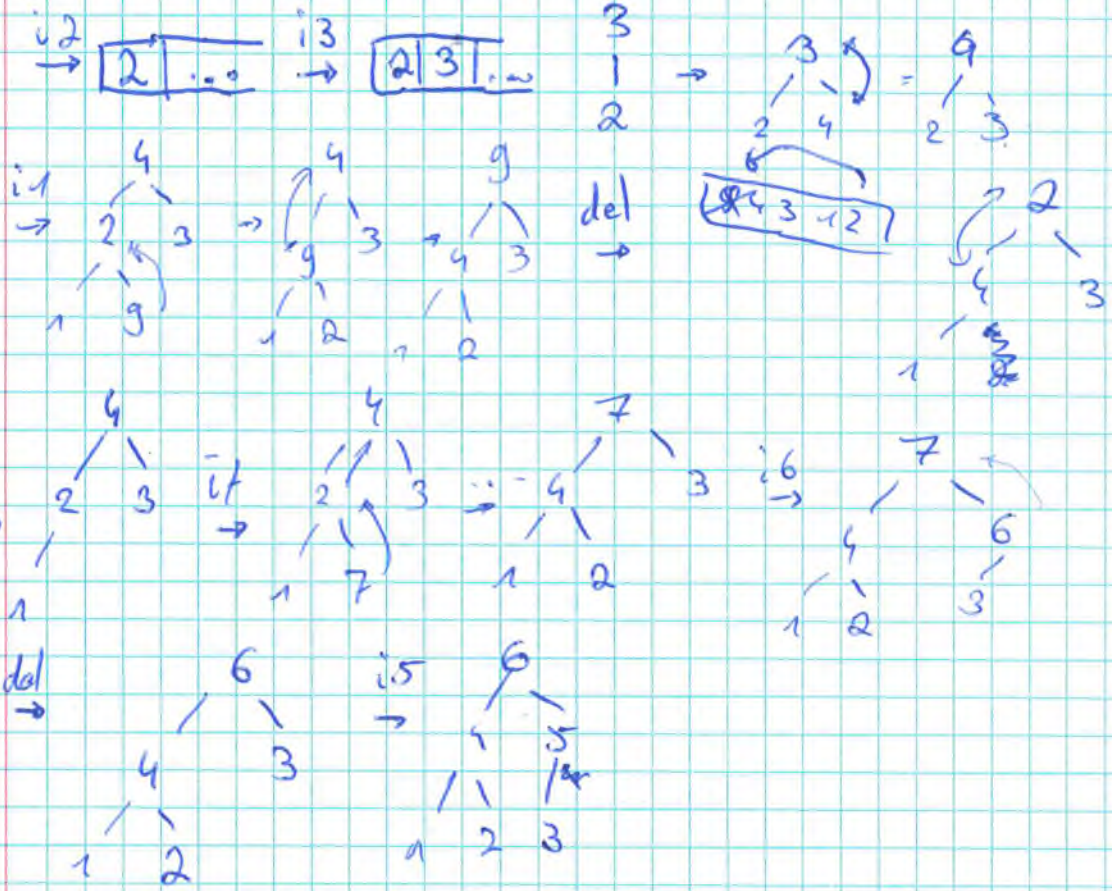
Gap oefeningen SO3 - Mathijs Pitfoors

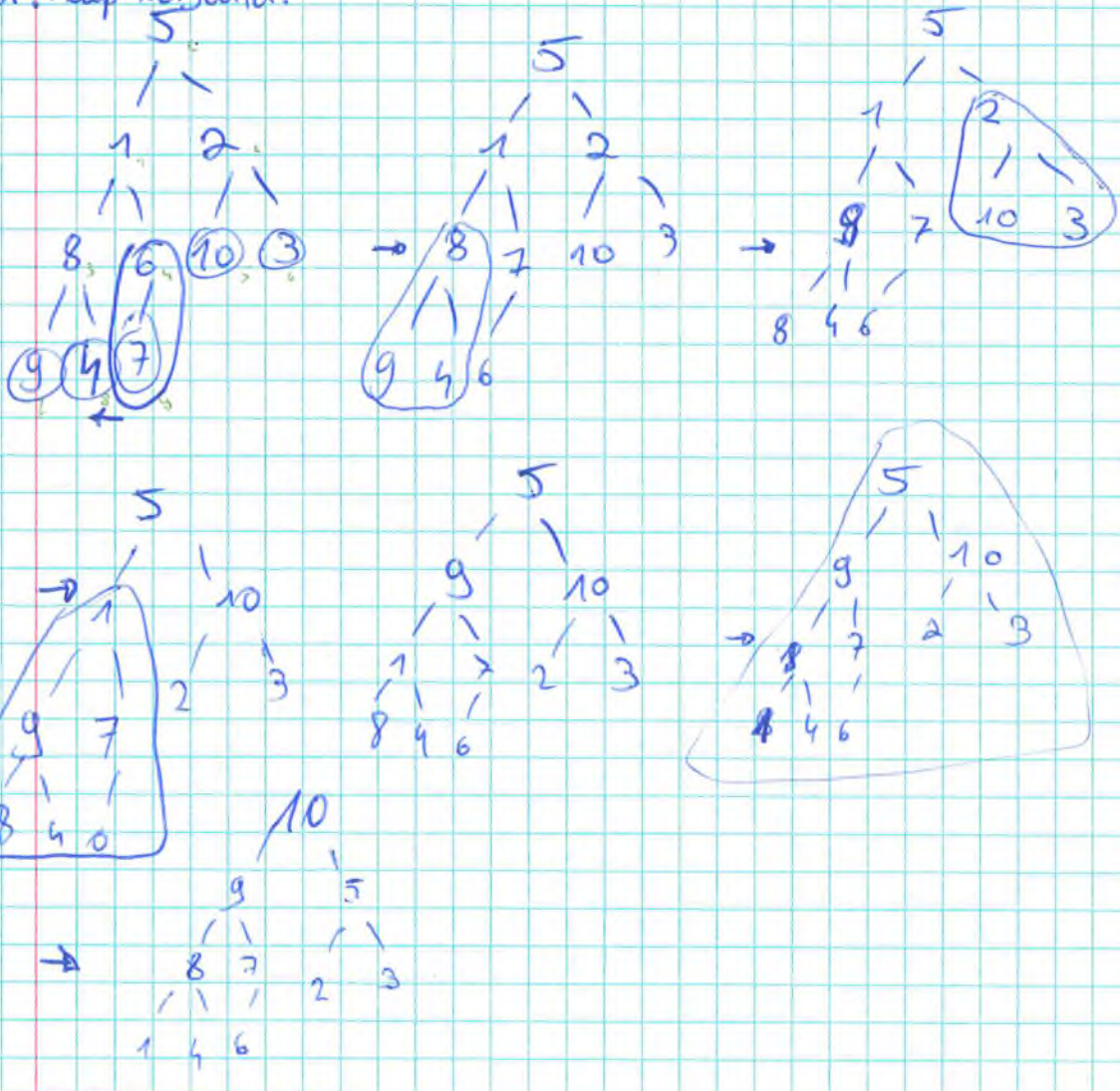
Heaps:

Oef 1:



Oef 2: 5 1 2 8 6 10 3 9 4 7

1. Heap rebuild:

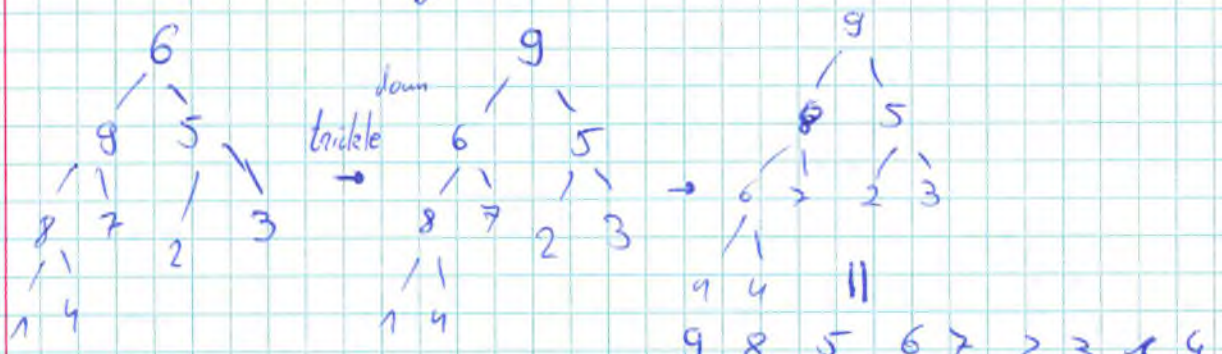


2. Sort I

10 9 5 8 7 2 3 1 4 6

6 9 5 8 7 2 3 1 4 1 10

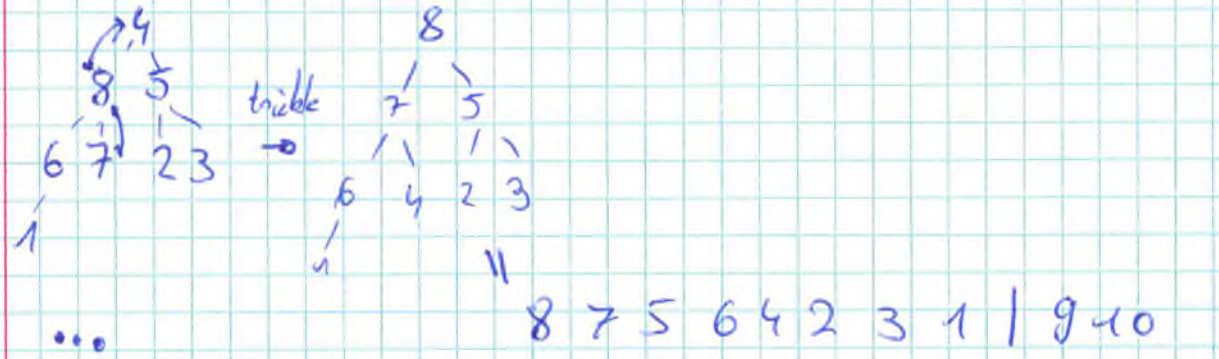
nict gesorteerd // ↳ gesorteerd



3. Sort II

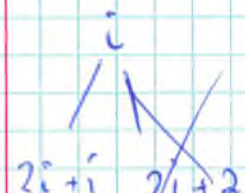
9 8 5 6 7 2 3 1 4 10

4 8 5 6 7 2 3 1 9 10



...

Oef 3



2i+1 is geldig als len - 1

Dus loop start pas als op $\left\lfloor \frac{len}{2} - 1 \right\rfloor$

i.p.v. op len - 1

4

Oef 4

De volgorde verandert dan niet, de positie kan wel anders zijn.

Hashing

Oef 1.

22, 277, 97, 187

$h_1(key) = key \bmod 15$

a) Linear probing

i 22 : $h_1(22) = 7$: table [7] = 22

i 277: $h_1(277) = 7$: table [7+1] = 277

i 97 : $h_1(97) = 7$: table [7+1+1] = 97

i 187: $h_1(187) = 7$: table [7+1+1+1] = 187

b) Quadratic probing

i 22 : $h_1(22) = 7$: table [7] = 22

i 227: " $(227) = 7$: table [7+1²] = 277

i 97 : " $(97) = 7$: table [7+2²] = 97

i 187: $h_1(187) = 7$: table [7+3²] = 187

c) Double hashing

h_2 $h_2(key) = 6 - (key \bmod 6)$

i 22 : $h_2(22) = 6-4 = 2$ table [7] = 22

i 277: $h_2(277) = 6-1 = 5$ table [7+5] = 277

i 97 : $h_2(97) = 6-1 = 5$ table [7+2·5 mod 15] = 97

i 187: $h_2(187) = 6-1 = 5$ ~~table~~ [

Om problemen te vermijden door mod priemgetallen te gebruiken

Oef 2. probe seq key 19

$h_1(key) = key \bmod 11 \overset{19}{=} 8$

$h_2(key) = 7 - (key \bmod 7) \overset{19}{=} 7 - 5 = 2$

8, 10, 1, 3, 5, 7, 9, 0, 2, 4, 6,

Oef 3: separate chaining by gelinkte lijsting en BST

$h(key) = key \bmod 7$

$h(8) = 1$ table [1] = 8

$h(10) = 3$ table [3] = 10

$h(24) = 3$ table [3] = LC: 24, 10

$h(15) = 1$ table [1] = LC: 15, 10

BST

8

15

$h(32) = 4$ table [4] = 32

$h(17) = 3$ table [3] = LC: 17, 24, 10

BST

10

24

17