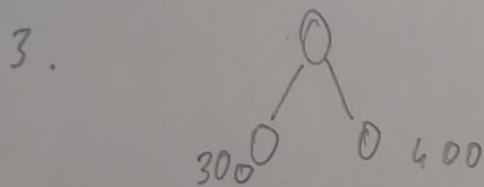


1. if (cond)  
     seg(1)  $\rightarrow \theta(m)$   
   else seg(2)  $\rightarrow \theta(1)$

Worst case:  $\theta(n)$

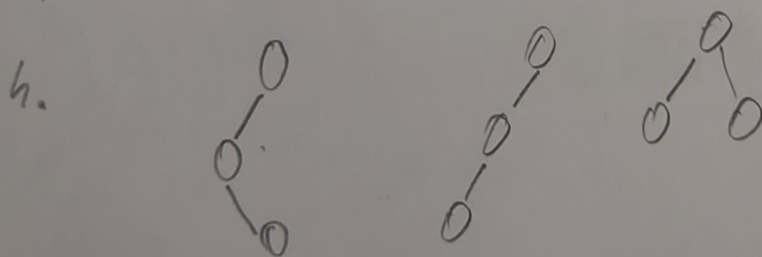
2. void get\_min(NODE x) {  
     while (x  $\rightarrow$  left)  
         x = x  $\rightarrow$  left;  
     return (x  $\rightarrow$  key);  
 }



PREORDER: 0

INORDER: 300

POSTORDER: 700

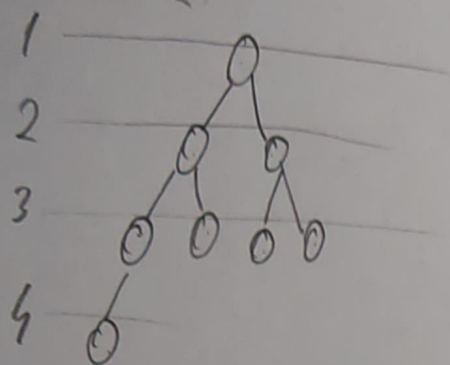


We need to do a left-rotation to transform it into left left and then a right-rotation to balance it

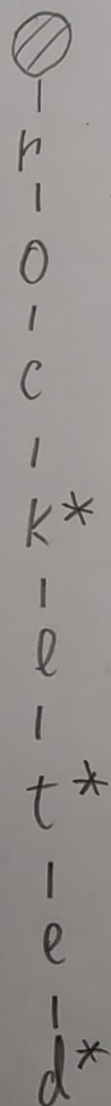
5. *Maximum Depth*

$$\max(h) = 1.44 \log_2 n = 1.44 \cdot \log_2 8 = 1.44 \cdot 3 = 4.32$$

$$\Rightarrow \max h_i = 4 \quad \Rightarrow \max = 4$$



6.



7.  $T=3 \Rightarrow 2 \leq K \leq 5$  (NOT EFFICIENT INSERT)

9. [9]

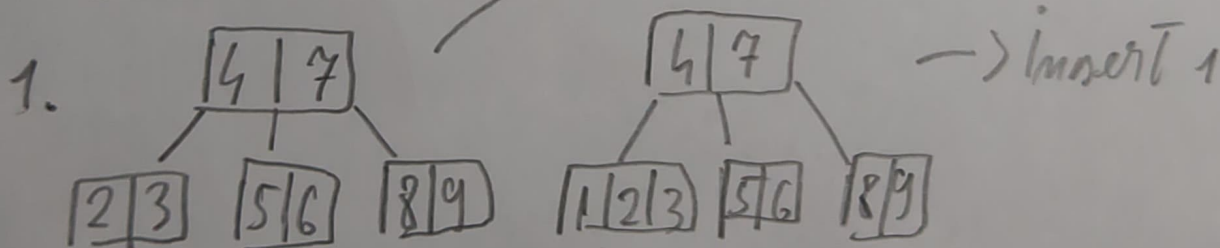
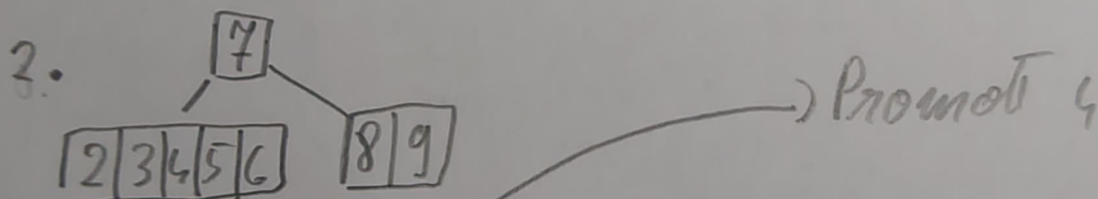
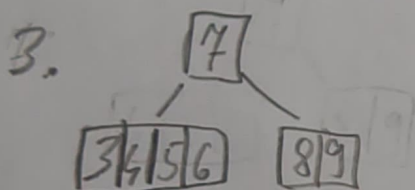
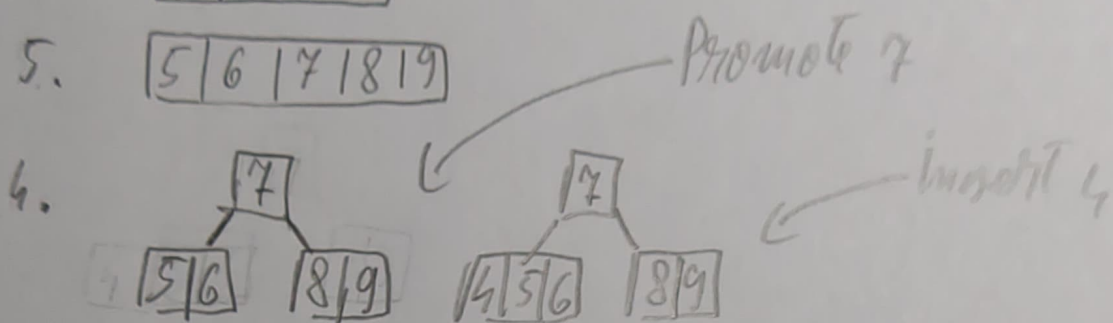
8. [8 | 9]

7. [7 | 8 | 9]

6. [6 | 7 | 8 | 9]

5. [5 | 6 | 7 | 8 | 9]

(PROMOTE  $\rightarrow$  INSERT)  
MAX LEAF = 5



Final

