Solutions for Written Assignment 3 CSCI 2100A 2017 Spring

Exercise 3.3 (10 points)

(3)

Infix: $\left(\frac{(2-1)+3}{4}+5\right)*6$

= 36

Exercise 3.9 (15 points)

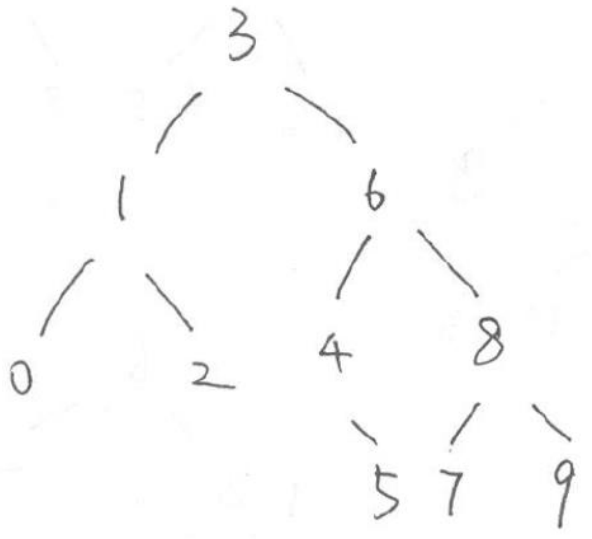
Prefix: -**ab+cde

Infix: a*b*(c+d)-e

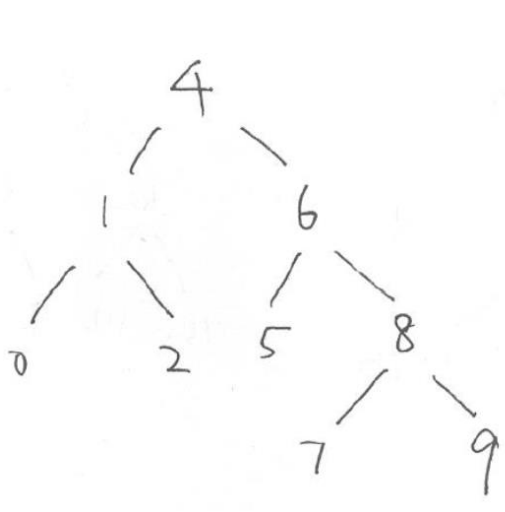
Postfix: ab*cd+*e-

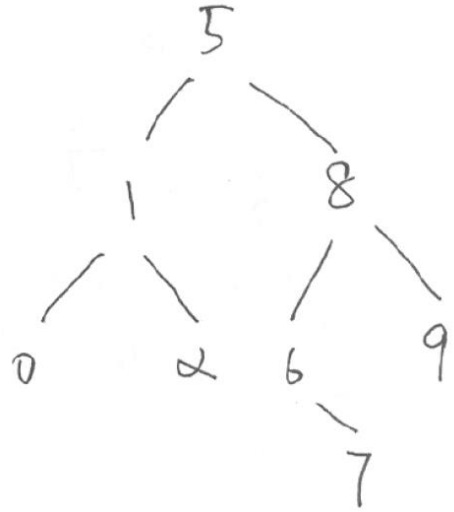
Exercise 3.11 (15 points)

(1) After insertion, the AVL tree is :

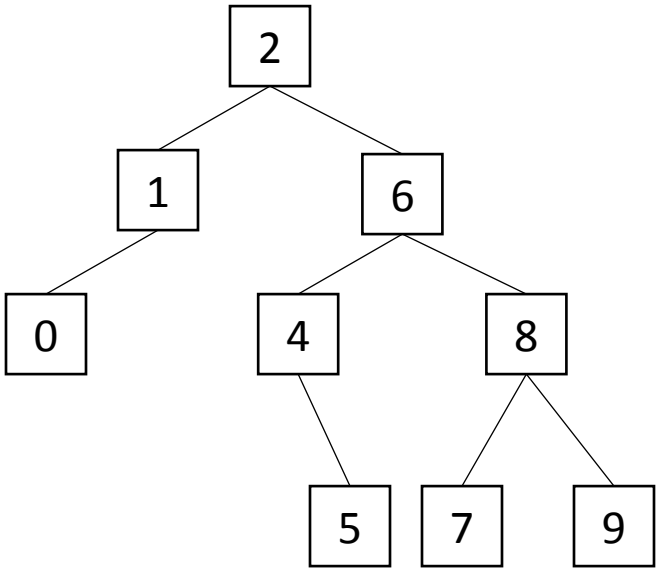


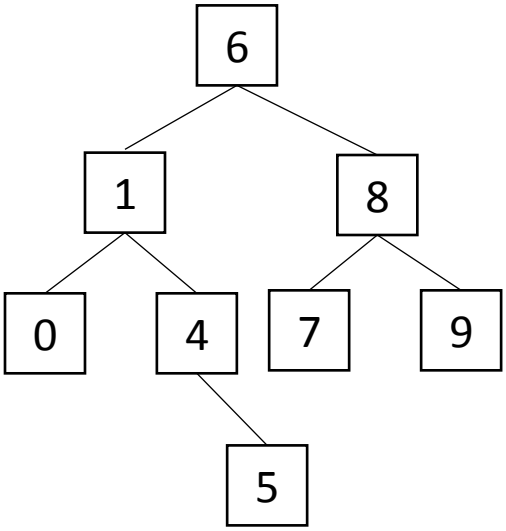
(2) After deleting the root twice, the trees are:





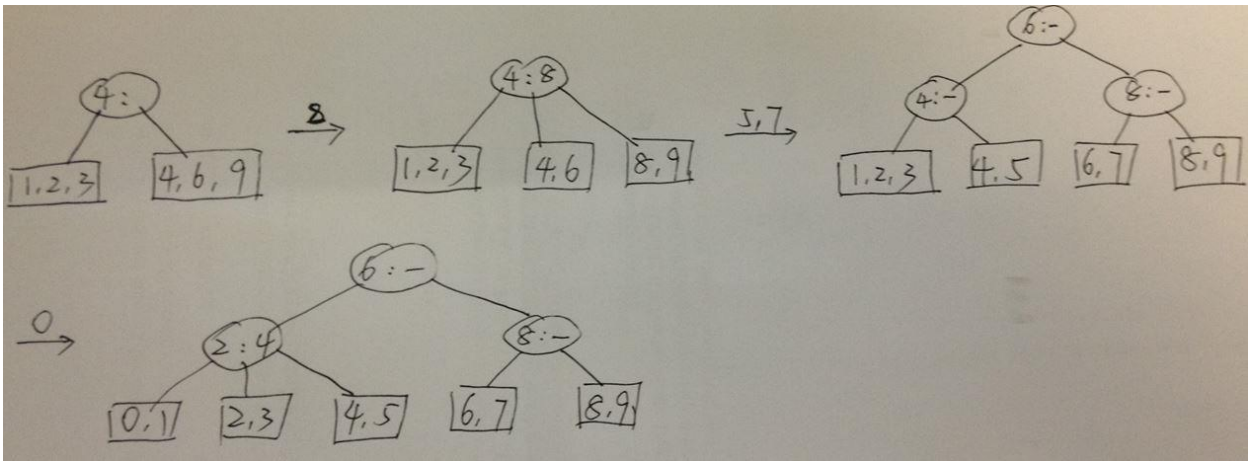
Alternatively, the trees can also be:



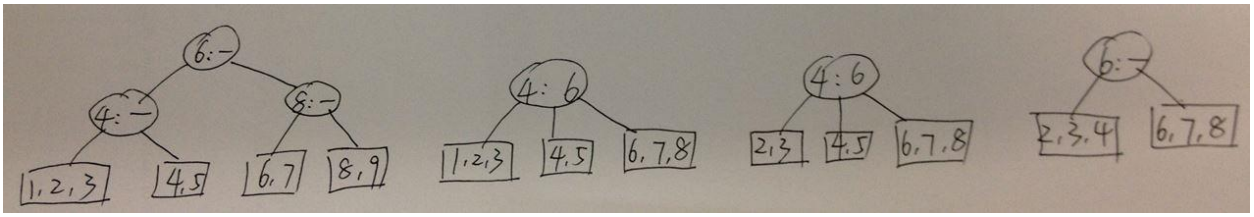


Exercise 3.18 (15 points)

(1) After insertion, the 2-3 tree is:

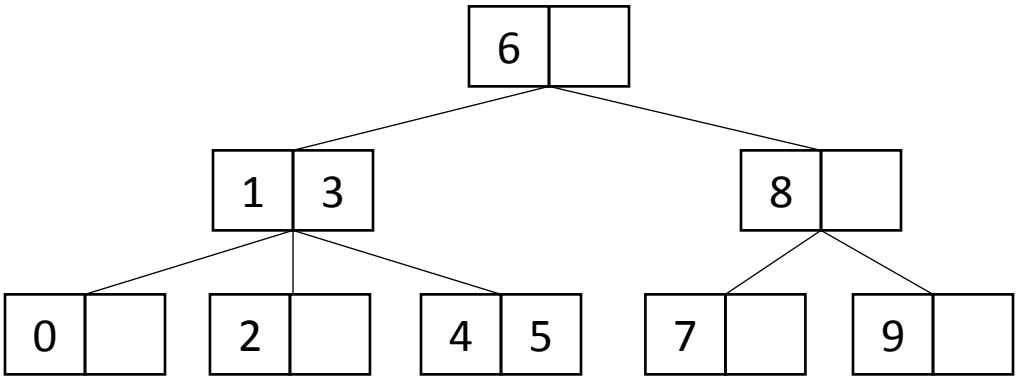


(2) After deleting 0, 9, 1 and 5, the tree are as follows:

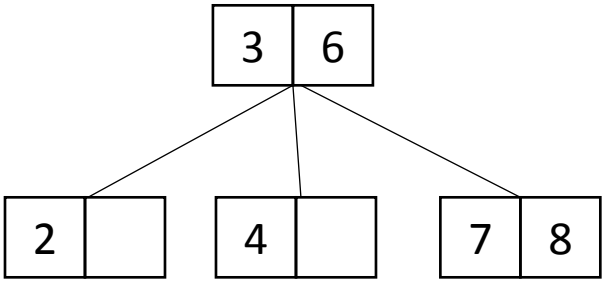


Alternatively,

(1) After insertion, the 2-3 tree is:

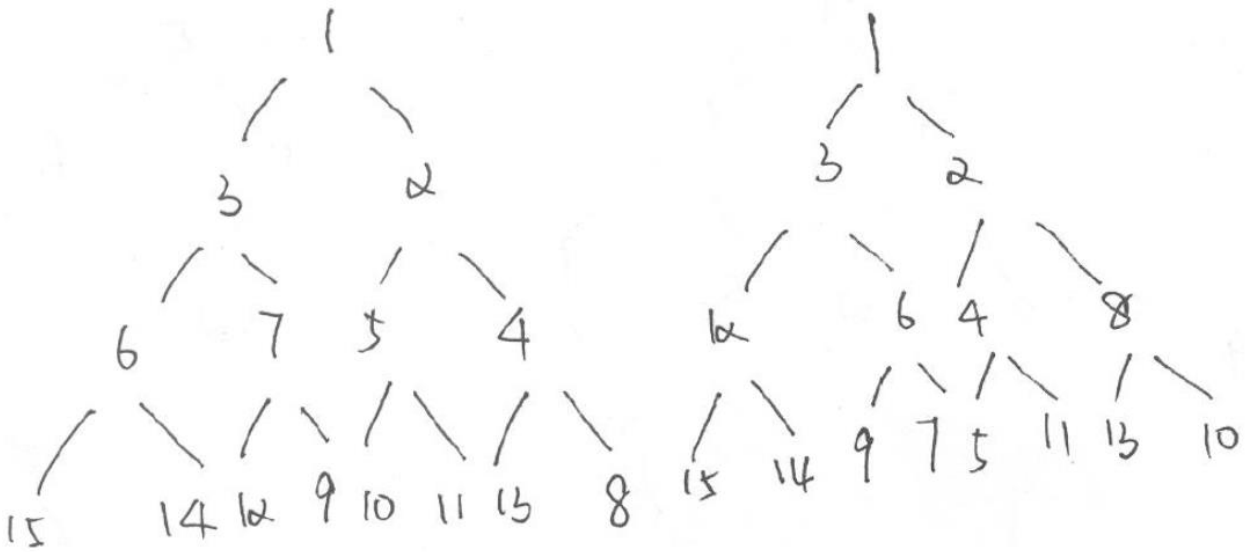


(2) After deleting 0, 9, 1 and 5, the resulting tree is:



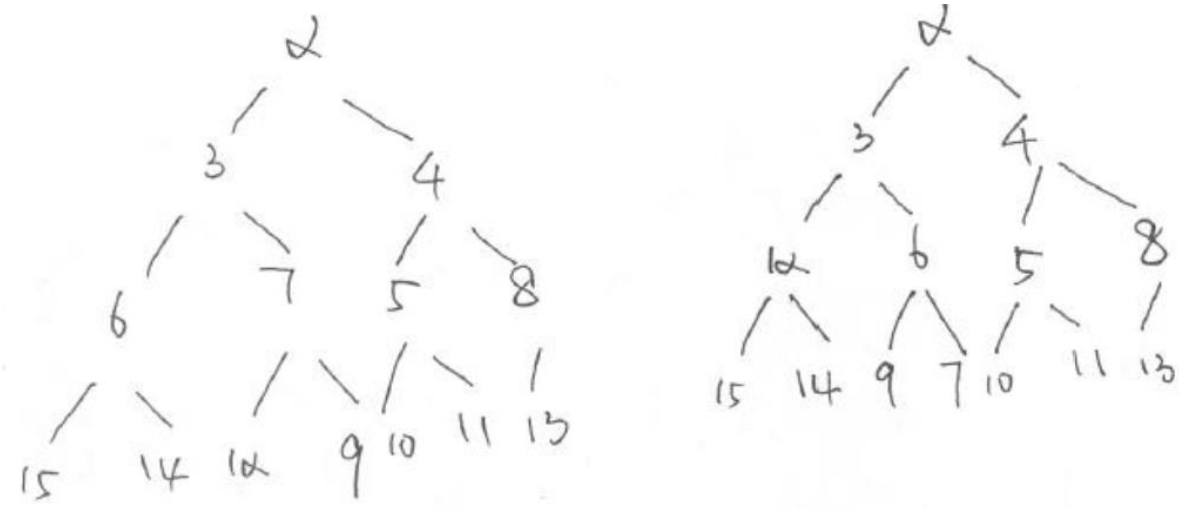
Exercise 5.1 (20 points)

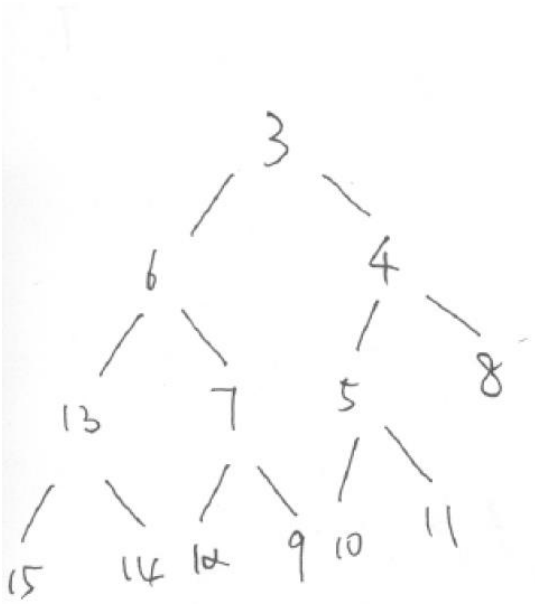
The built trees are as follows, corresponding to (1) and (2):

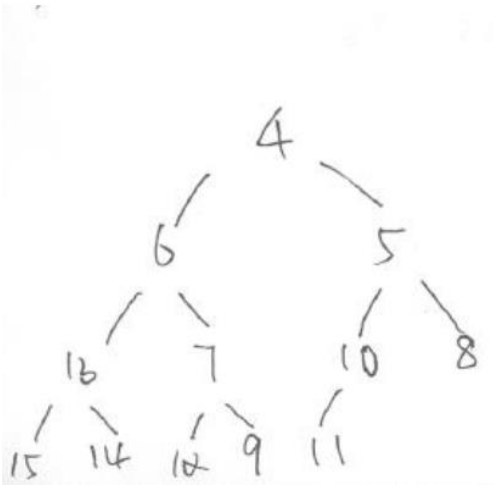


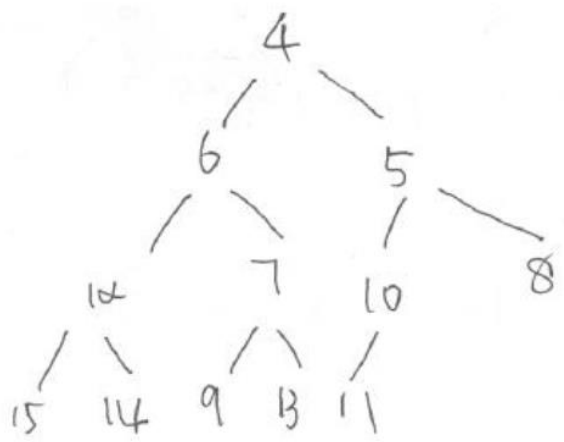
Exercise 5.2 (10 points)

After deleting the minimal value for the above heaps three times, the heaps are listed in the following. The left is for 5.1 (1); while the right is for 5.1(2).









Exercise 5.6 (15 points)

B,E