

## HOMEWORK 04

### AVL Tree

Insert 50:

50

Insert 70:

50  
 \  
 70

Insert 90:

70  
 / \  
50 90

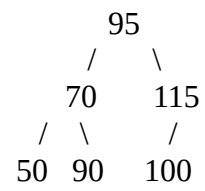
Insert 115:

70  
 / \  
50 90  
 \  
 115

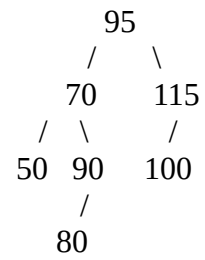
Insert 95:

70  
 / \  
50 95  
 / \  
 90 115

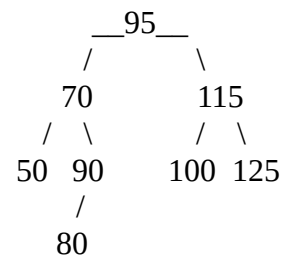
Insert 100:



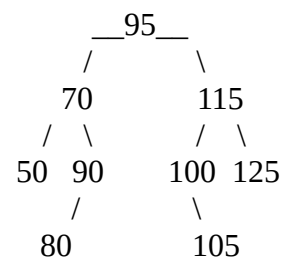
Insert 80:



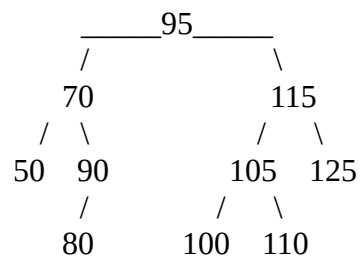
Insert 125:



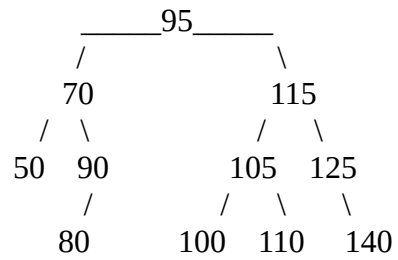
Insert 105:



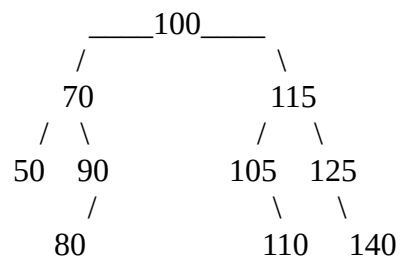
Insert 110:



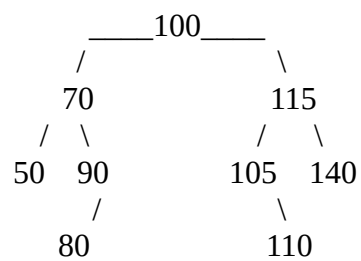
Insert 140:



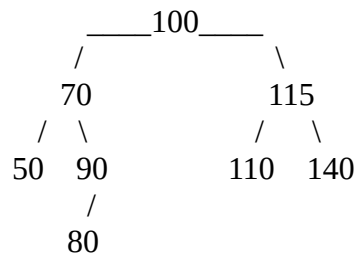
Delete 95:



Delete 125:



Delete 105:



## 2-3 Tree

Insert 50:

50

Insert 70:

50 70

Insert 90:

70  
/ \  
50 90

Insert 115:

70  
/ \  
50 90 115

Insert 95:

70 95  
/ | \  
50 90 115

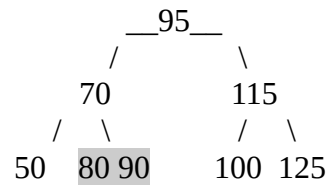
Insert 100:

70 95  
/ | \  
50 90 100 115

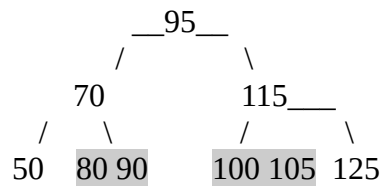
Insert 80:

70 95  
/ | \  
50 80 90 100 115

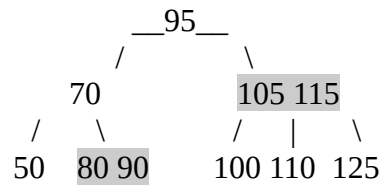
Insert 125:



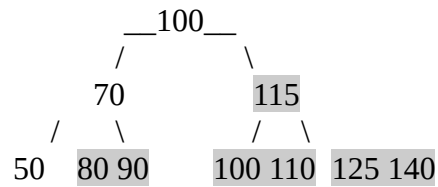
Insert 105:



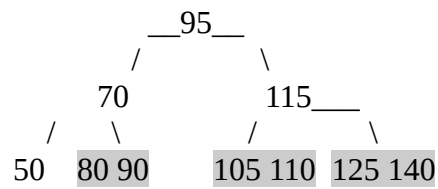
Insert 110:



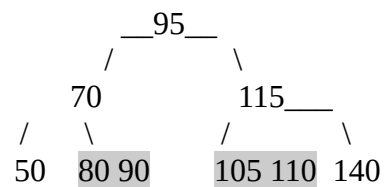
Insert 140:



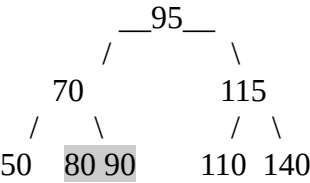
Delete 95:



Delete 125:



Delete 105:



**2-3-4 Tree**

Insert 50:



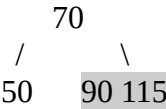
Insert 70:



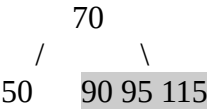
Insert 90:



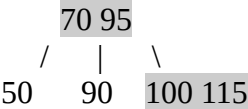
Insert 115:



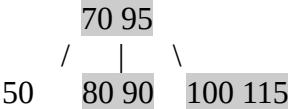
Insert 95:



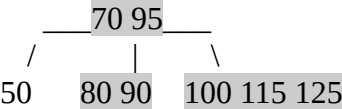
Insert 100:



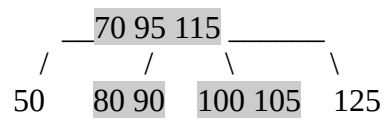
Insert 80:



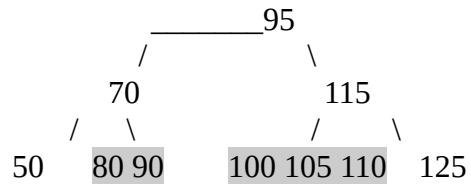
Insert 125:



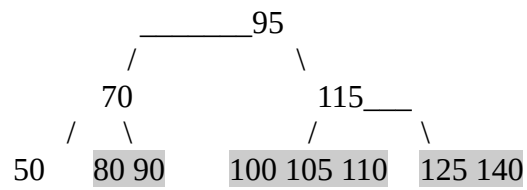
Insert 105:



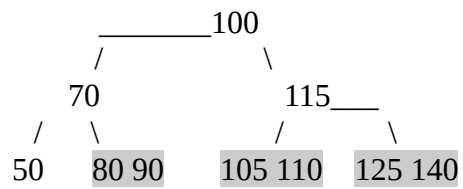
Insert 110:



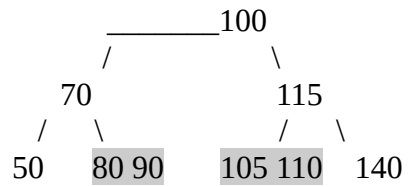
Insert 140:



Delete 95:



Delete 125:



Delete 105:

