

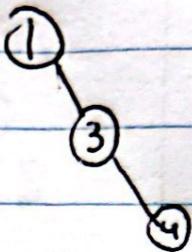
Insert 1



Insert 3



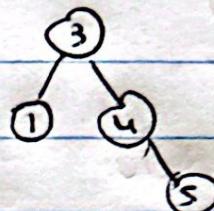
Insert 4



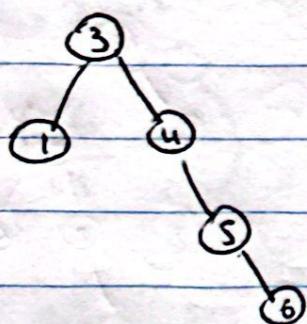
RR rotation



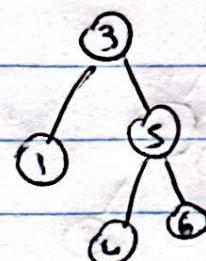
Insert 5



Insert 6

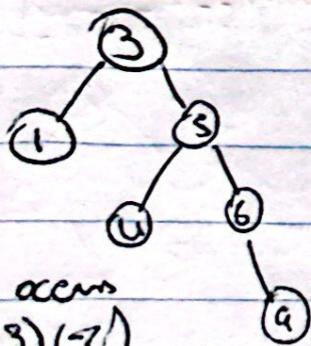


RR rotation



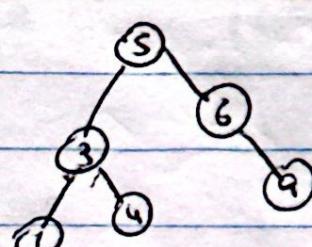
Violation occurs
at node 4 (-2)

Insert 9

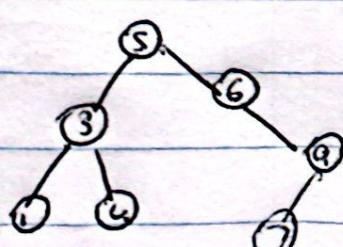


Violation occurs
at node (3) (-2)

RR rotation



Insert 7

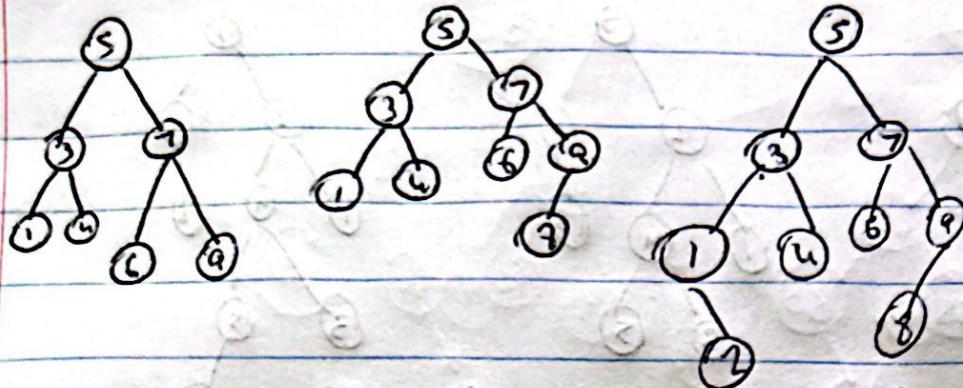


Violation occurs at
node 6

RL rotation

Insert 8

Insert 2



Sequence 2 9, 7, 2, 6, 1, 3, 5, 4, 6

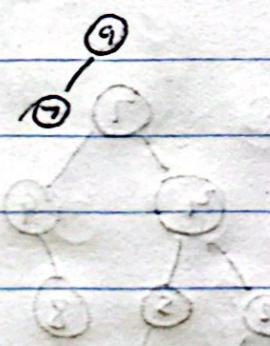
Insert 9

Insert 7

Insert 2

LL rotation

⑨



⑨

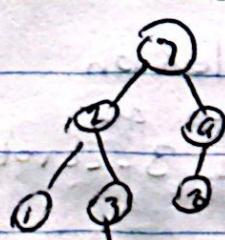
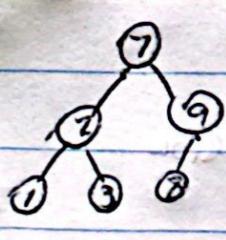
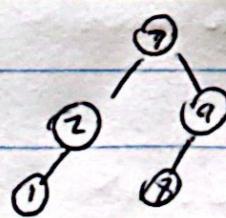
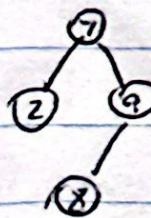
⑦

Insert 8

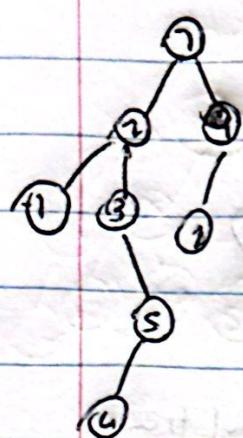
Insert 1

Insert 3

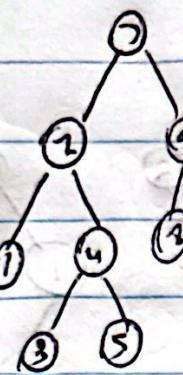
Insert 5



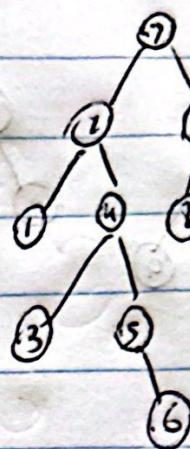
Insert 8 :



RL rotation



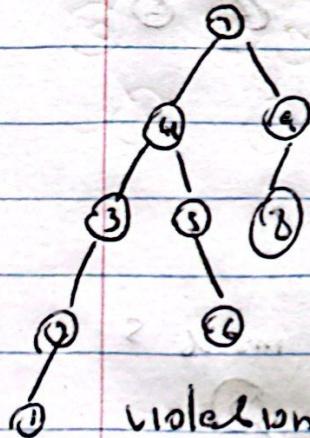
Insert 6 :



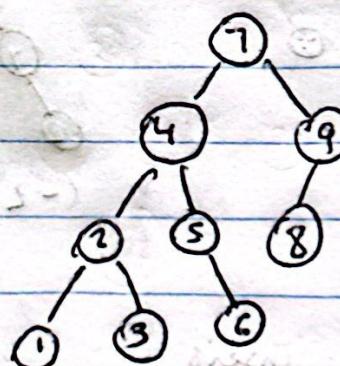
Violation occurs
at nodes (-2)
RL rotation

Violation occurs at
node 2
RR rotation

After RR rotation



Violation
occurs at
node 3 - LC rotation



Final avl tree

Sequence 3, 60, 35, 20, 55, 30, 25, 10, 75, 50, 15, 40, 95, 20, 45, 47, 65

70, 65

Insert 60

60

Insert 35

60
35

Insert 30

60
35
30

Insert 55

60
35
55
80

Insert 30

60
35
30
55
80

Insert 25

60
35
25
30
55
80

Violation occurs
at root (2 LL rotations)

LL rotation

35
70
25
55
60
70

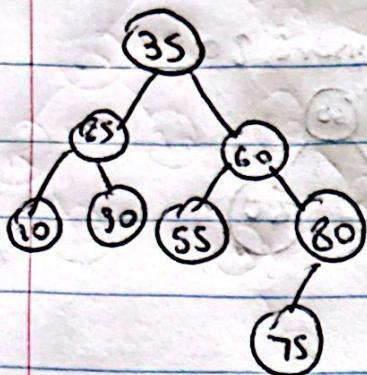
Insert 10

35
70
25
55
60
10

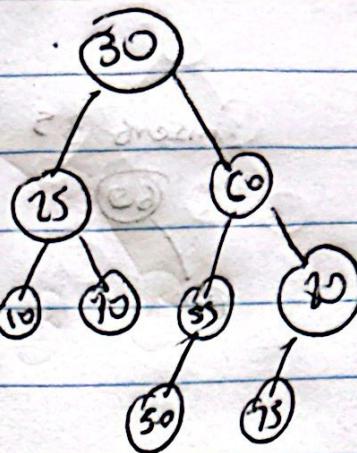
LL rotation

35
25
10
30
55
60

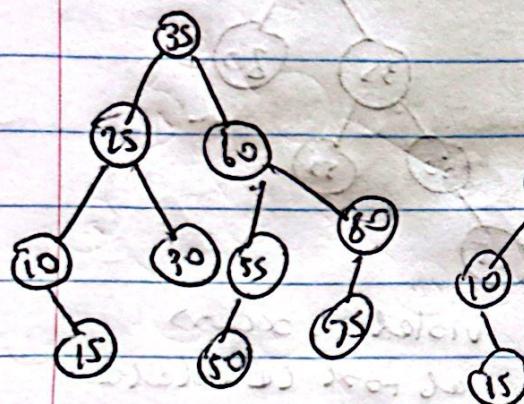
Insert 75



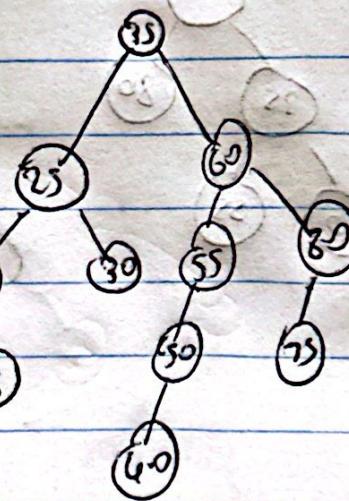
Insert 50



Insert 15



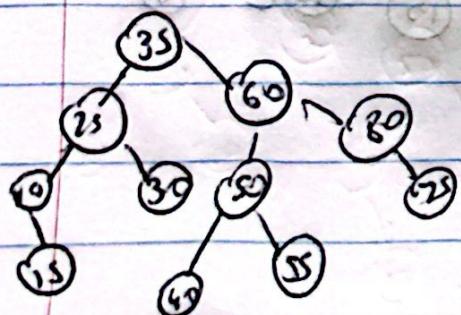
Insert 40



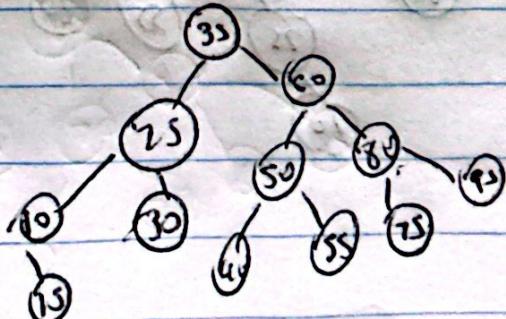
Violation occurs at

55 LL rotation

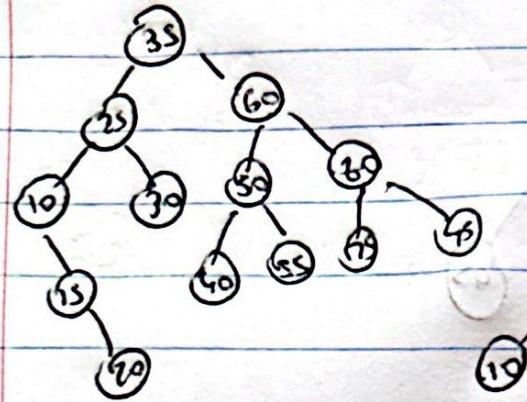
LL rotation



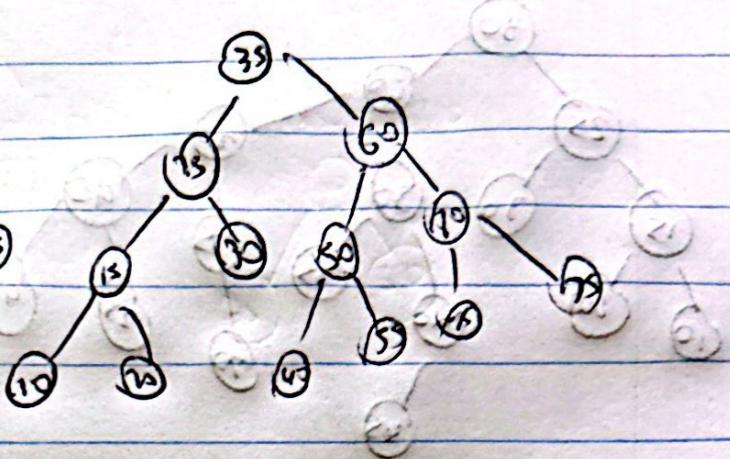
Insert 95



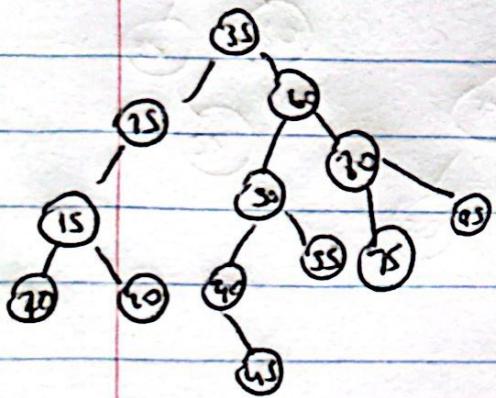
insert 20



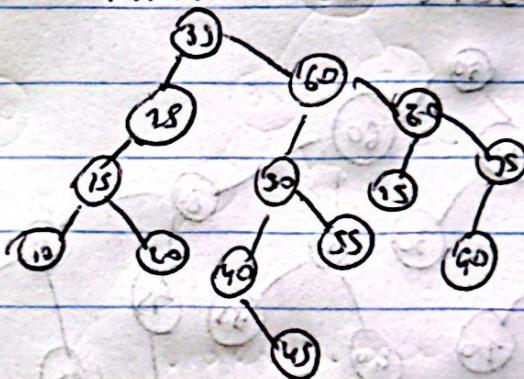
rr rebalance



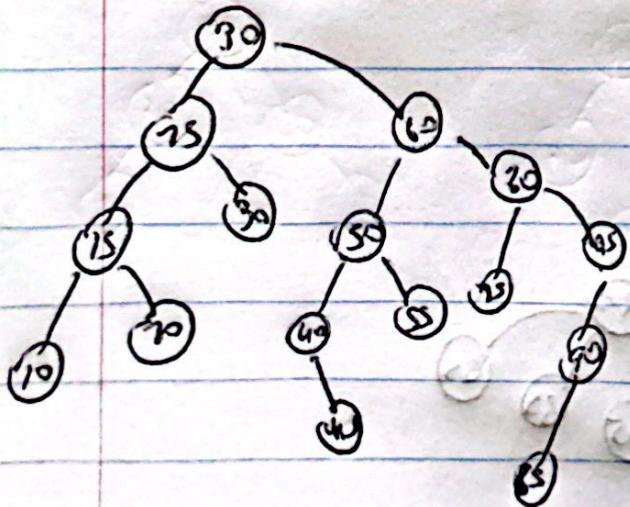
insert 45



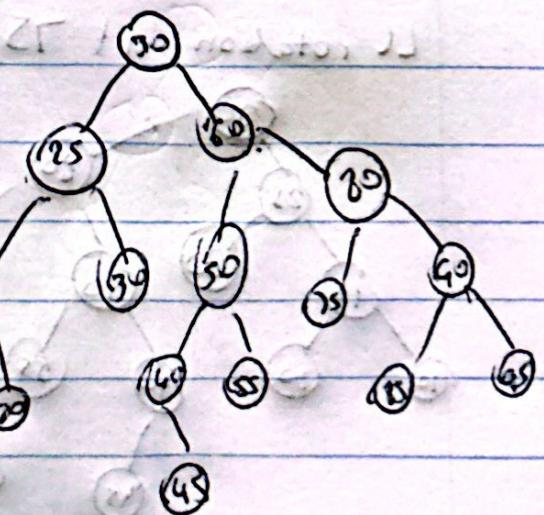
insert 90

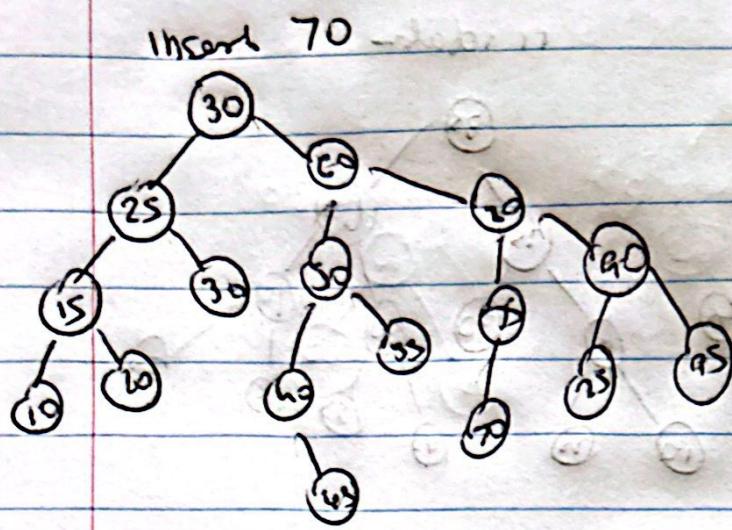


insert 85

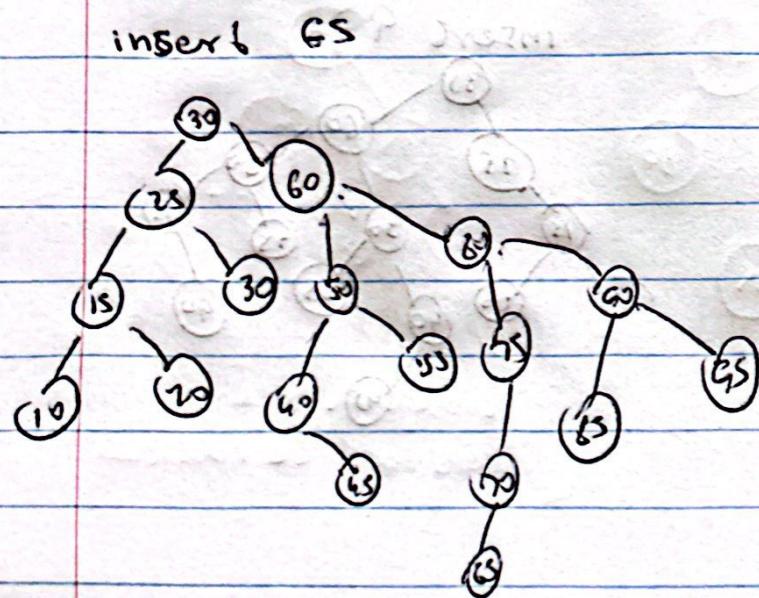


LL rebalance



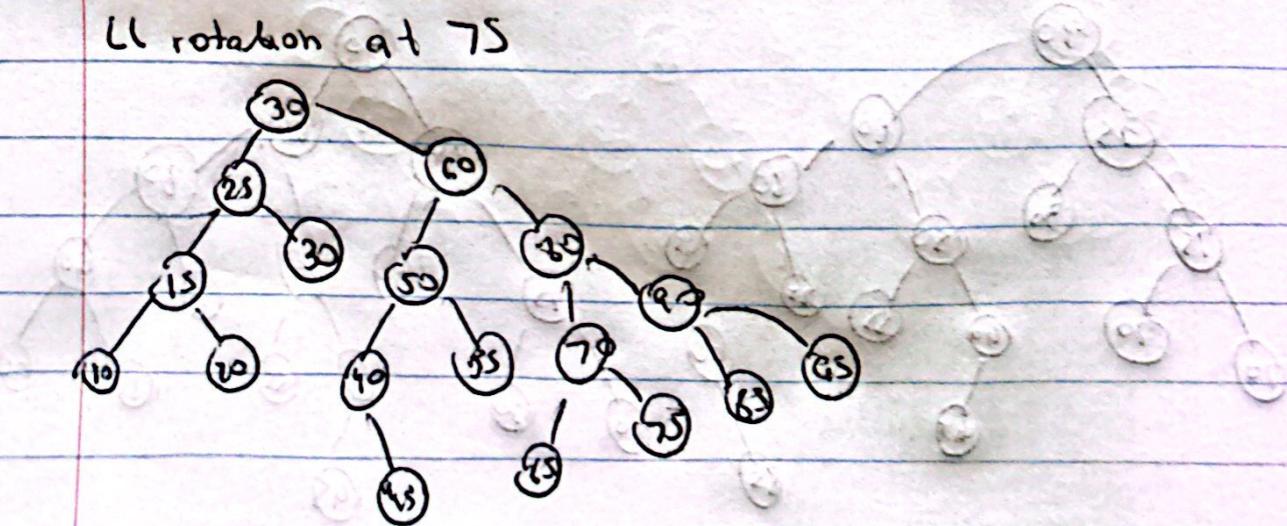


as done



as done

LL rotation at 75



as done