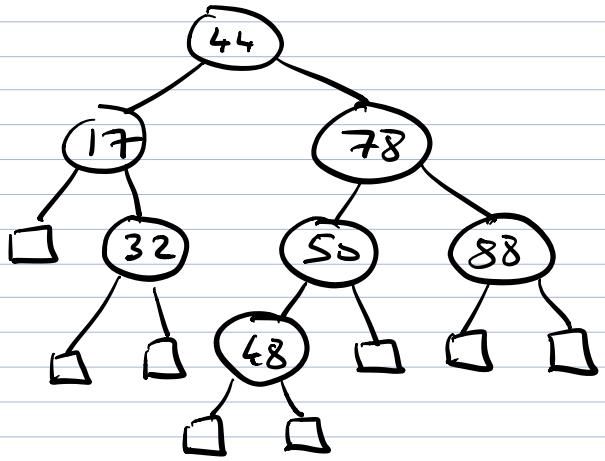


HEIGHT - BALANCE PROPERTY

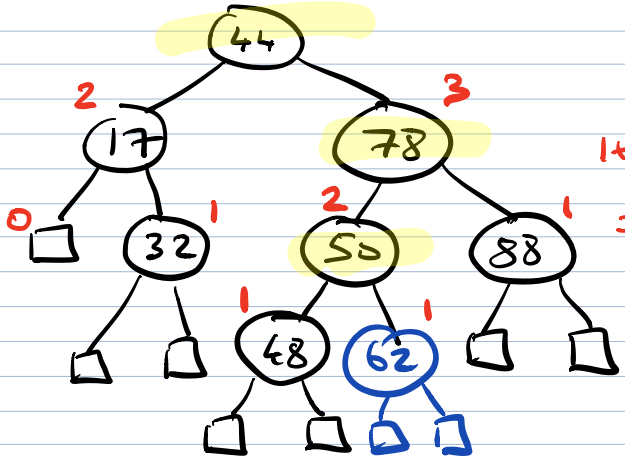
FOR EVERY INTERNAL NODE THE HEIGHTS OF ITS CHILDREN CAN DIFFER BY AT MOST 1

AFTER INSERT, CHECK THE HEIGHT BALANCE OF THE ANCESTORS OF THE NEWLY EXPANDED NODE, WORKING UPWARDS FROM THE BOTTOM OF THE TREE.

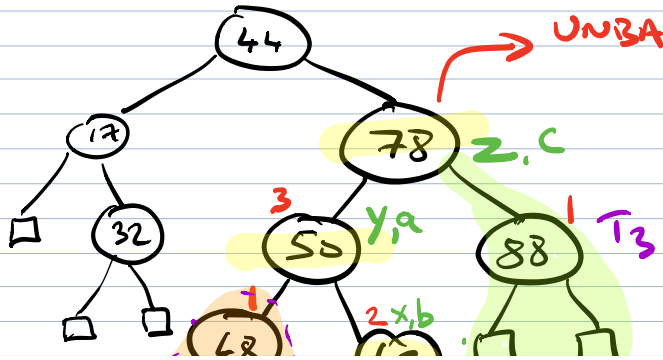
IF AN UNBALANCED NODE IS FOUND RESTRUCTURE TO RESTORE THE BALANCE

AFTER INSERT, RESTRUCTURING ONCE WILL BALANCE THE TREE

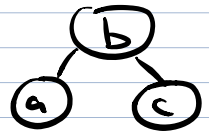
TRY: INSERT 62
INSERT 54

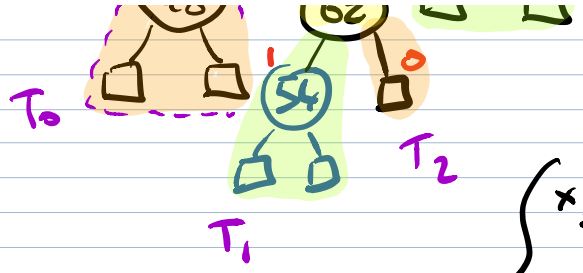


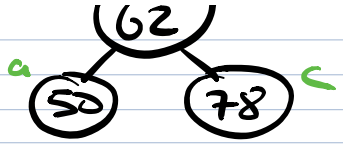
height(78) =
1 + max(height(50), height(88))
= 1 + max(2, 1)
= 1 + 2 = 3



Outcome of restructure







{ x,y,z say which nodes to restructure.

a,b,c say where these nodes finish }

Double rotation