


Practical 10

{10, 5, 50, 35, 40, 15, 95, 65, 20}

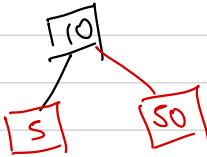
- Insert 10



- Insert 5



- Insert 50

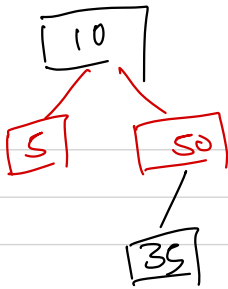


- Insert 35



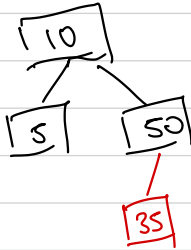
← Red parents can only have black childs.

• Swap
35 colour

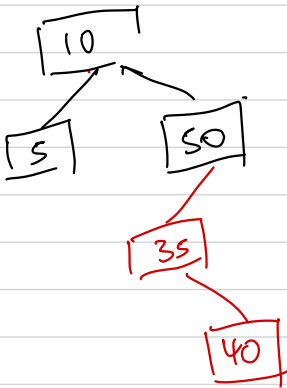


* Every path from root to a null child does not contain the same amount of black child -

• Swap
5, 50, 35
colour

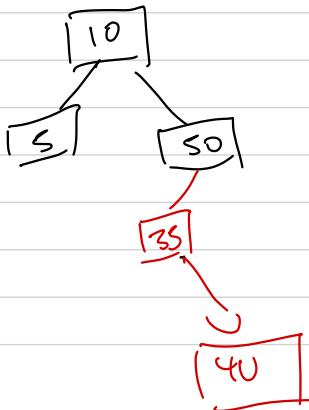


- Insert 40

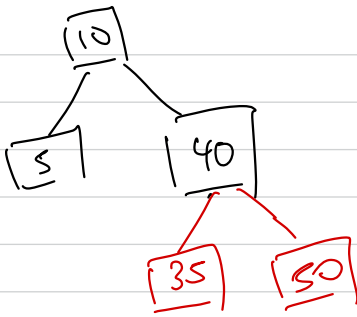


* Violation

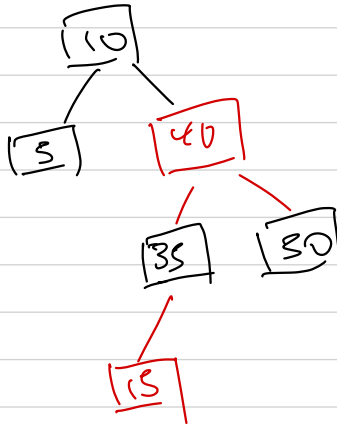
- Red parent has red child.



- Switch colour of grandparent
- switch colour of new node
- rotate about parent
- rotate about grandparent

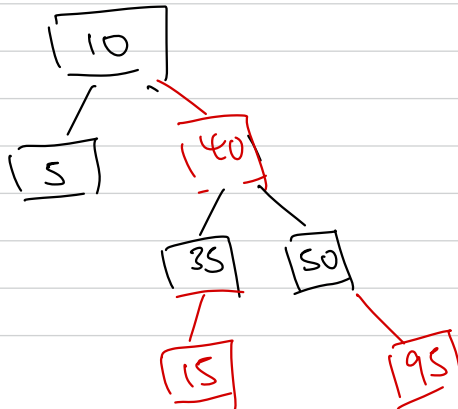


Insert 15

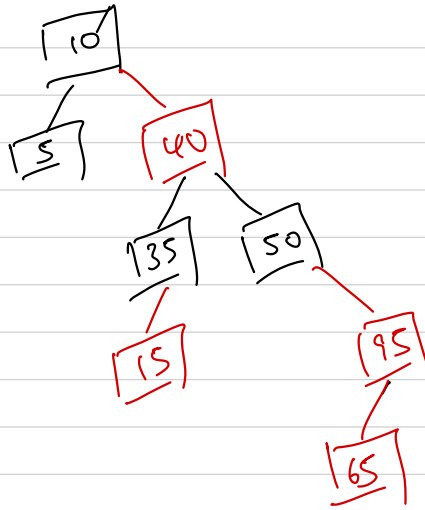


- Flip 40 and 35
- change 50 colour.

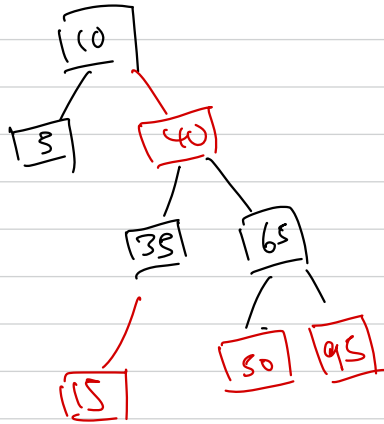
Insert 95



- Insert 65

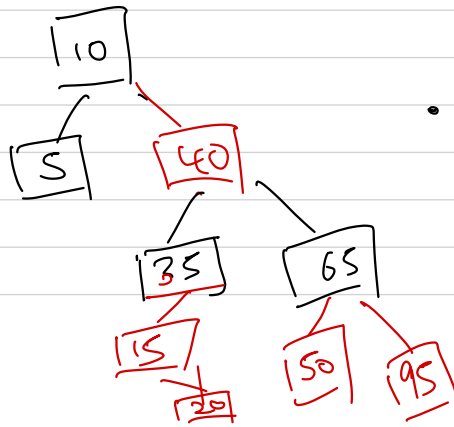


- violates red parent red child.

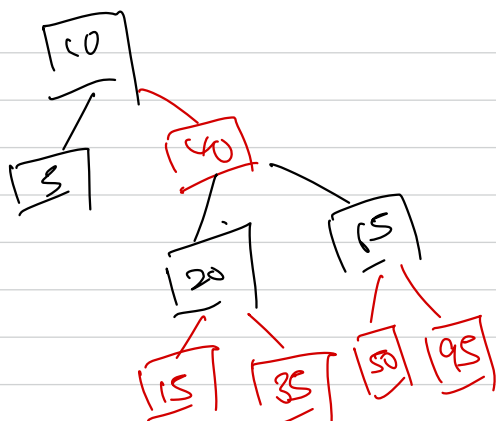


- rotate parent
- rotate grandparent
- change grandparent
- change new node

- Insert 20



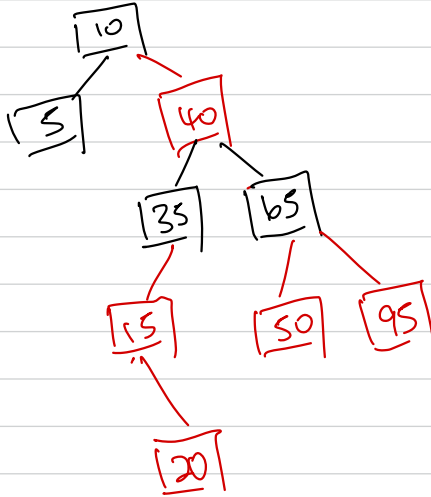
- Violate red parent red child



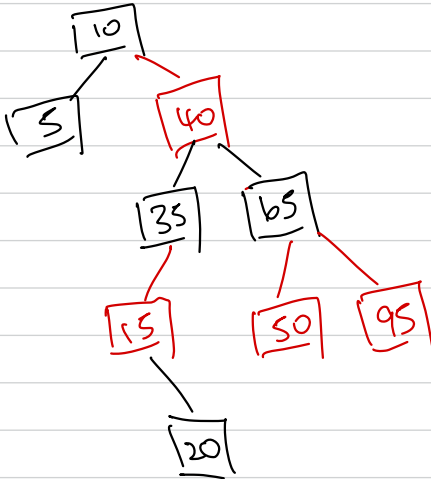
- Rotate parent
- rotate grandparent
- swap grandparent and new node.

1 or 1

Insert 20

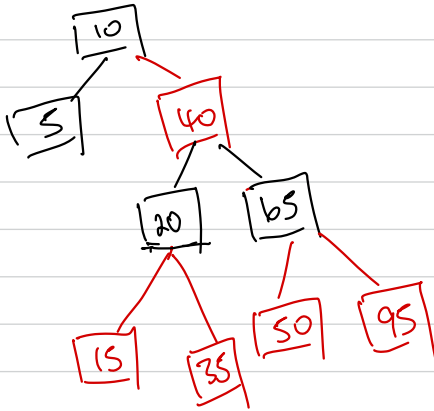


* violation
Red parent with
red child.



* violation

• Not the same black
nodes for each
path.



does not differ
from demo.