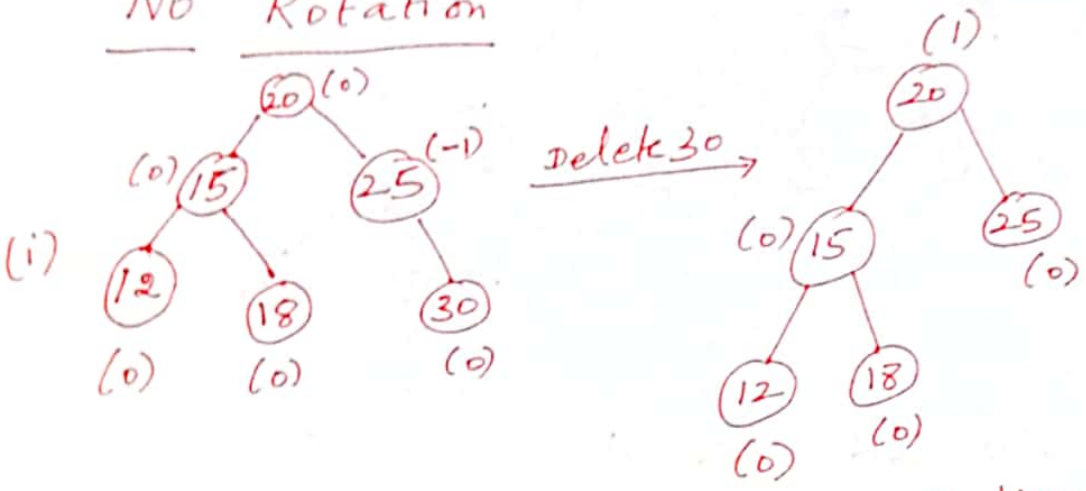
AVL TREE

DELETION

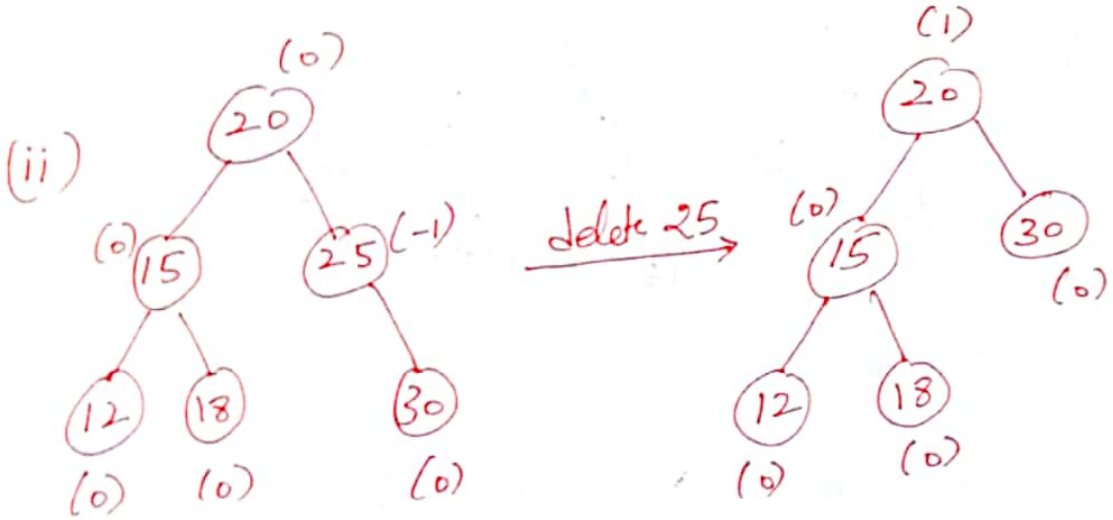
No Rotation

(i)



Balanced. Hence No rotation.

(ii)



Balanced. Hence No Rotation

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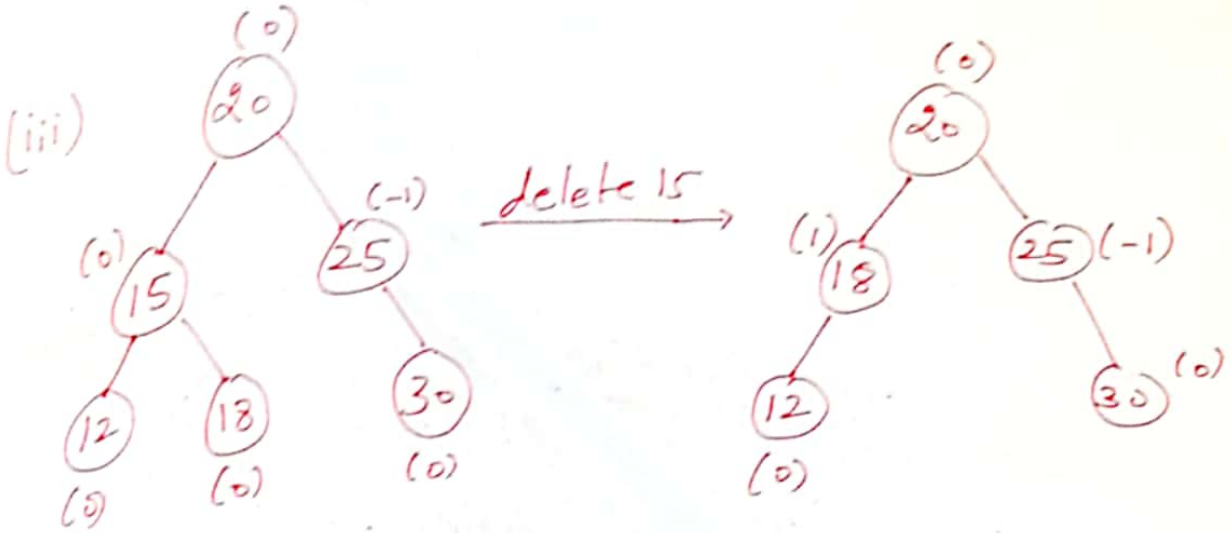
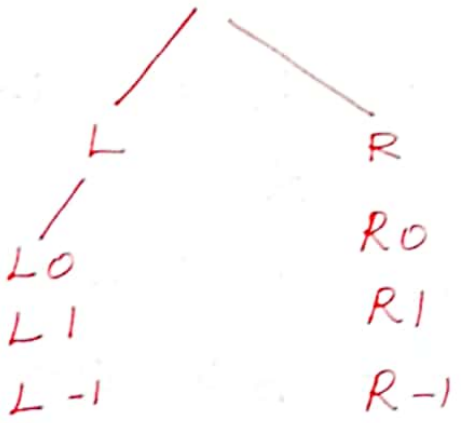
(iii)



Balanced. No Rotation

Deletion Calling Rotations



R0 Rotation

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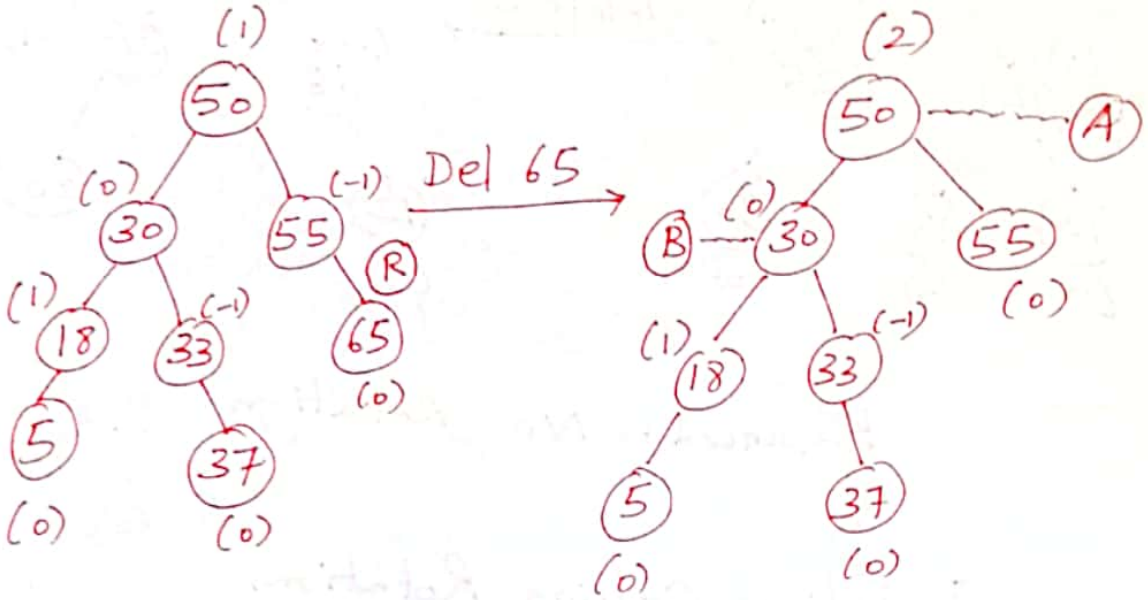
Example



Deletion is Right Child of Node 'A'.

Hence 'R'.

Left subtree root of A is called 'B'.

∴ Bf of B is 0.

Hence classification is R0.

R0 Rotation is LL over A w.r.t. B.

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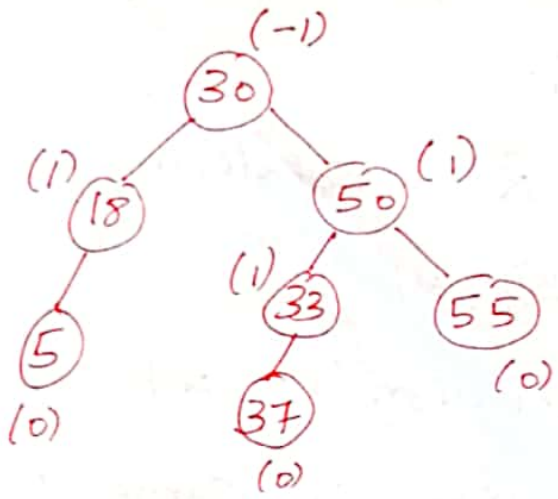
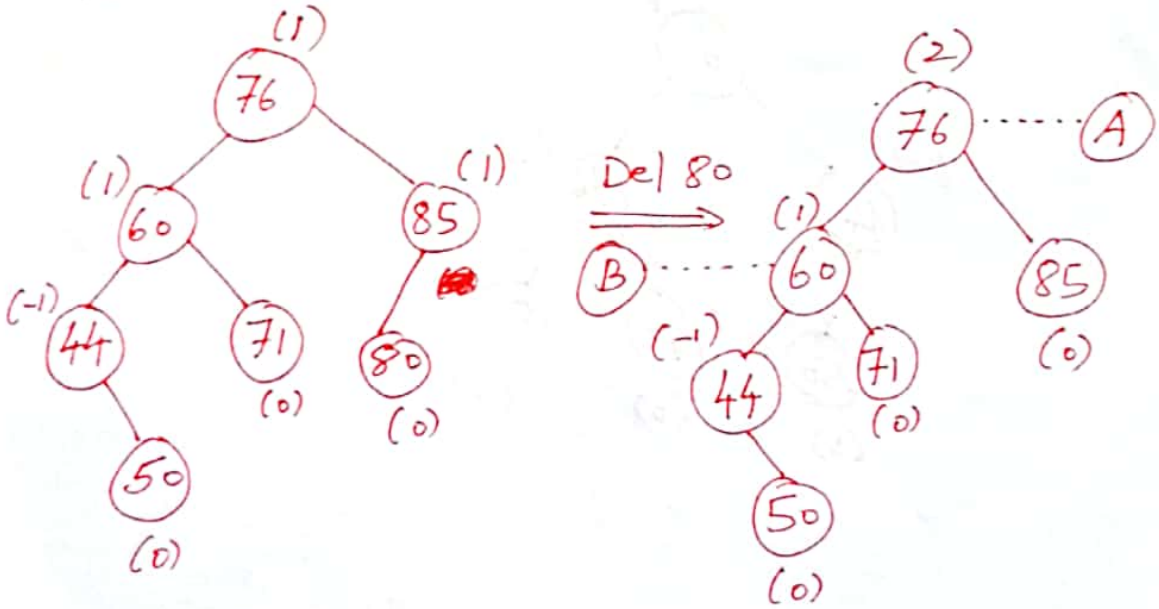
Doing RO



Balanced.

R1 Rotation

Example



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Deletion is Right Child of Node A

∴ R Rotation

Bf (B) = 1

∴ Rotation is R1

R1 Rotation is same as R0

(ie) R1 is LL over A w.r.t. B.

Doing R1

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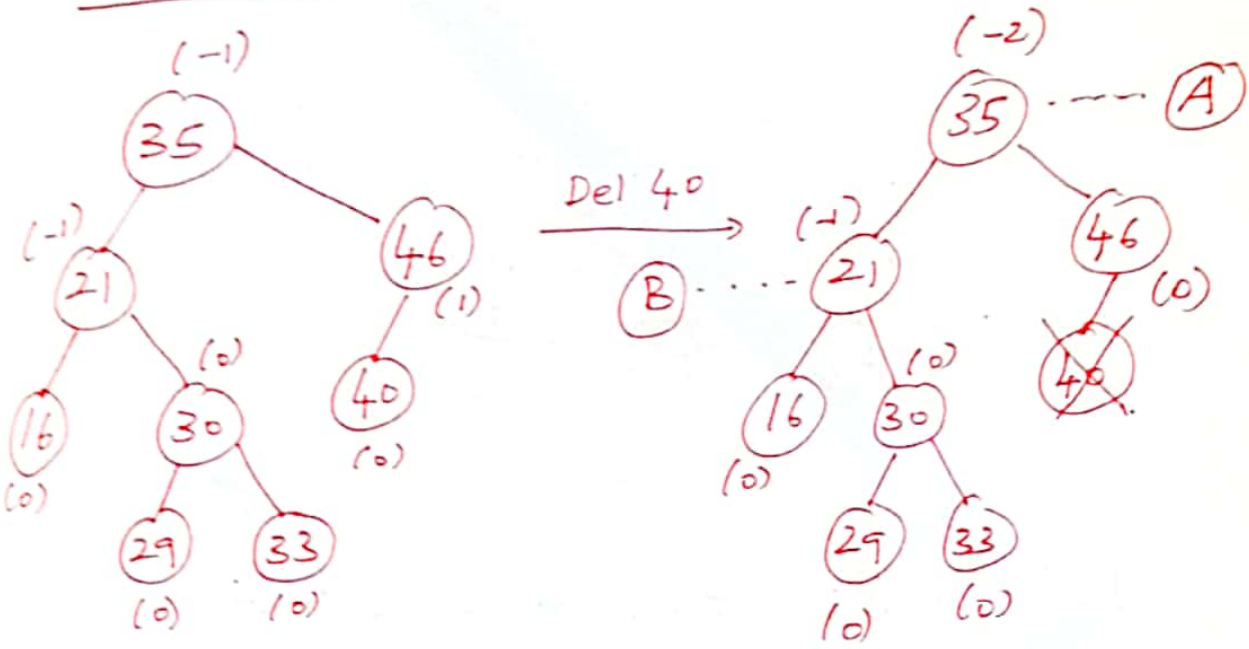
R-1 Rotation

Example



Deletion is Right child of A.

∴ R Rotation.

Bf (B) = -1

∴ R-1 Imbalance

Doing LR over A.

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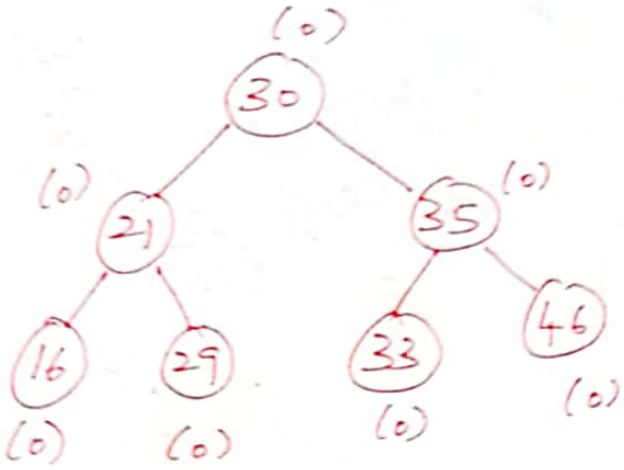
Doing R-1 Rotation



∴ R0, R1 - LL over A

R-1 - LR over A

Similarly,

L0, L-1 - RR over A

L1 - RL over A

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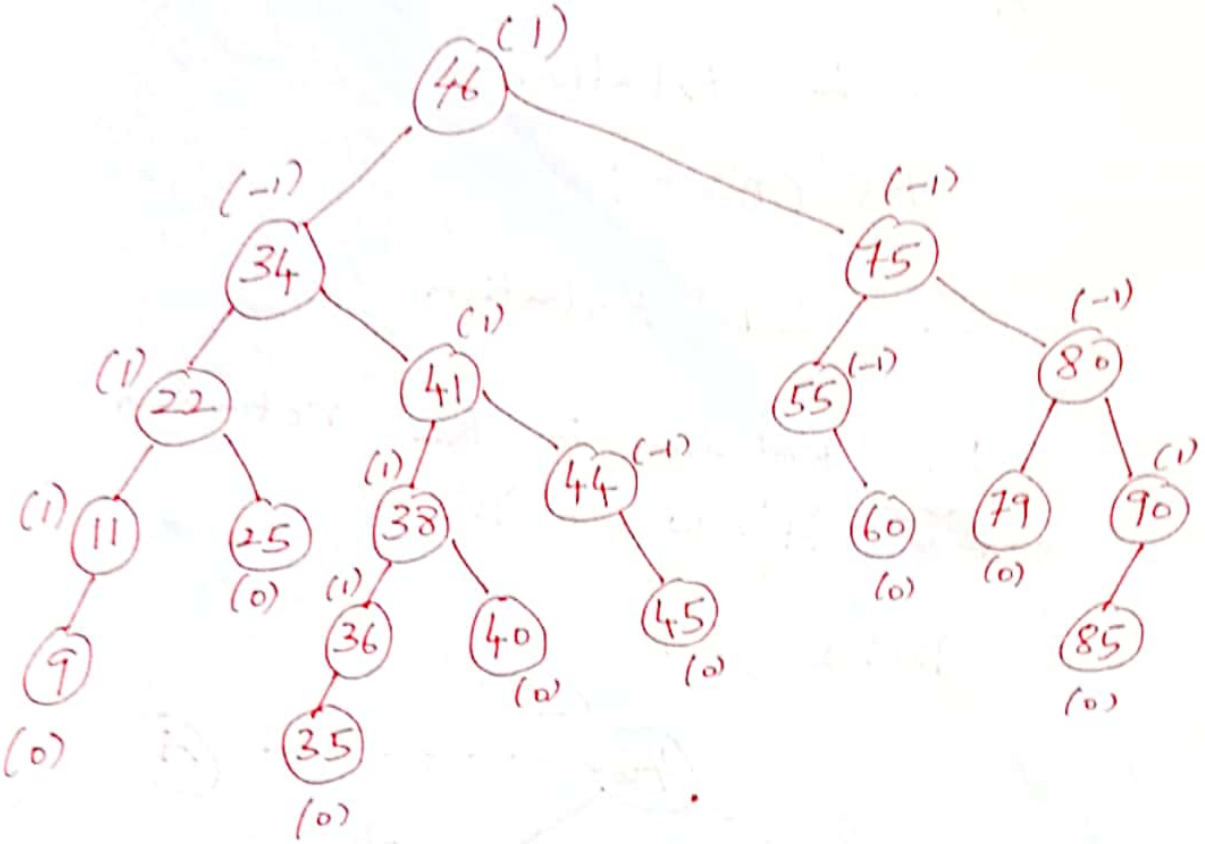
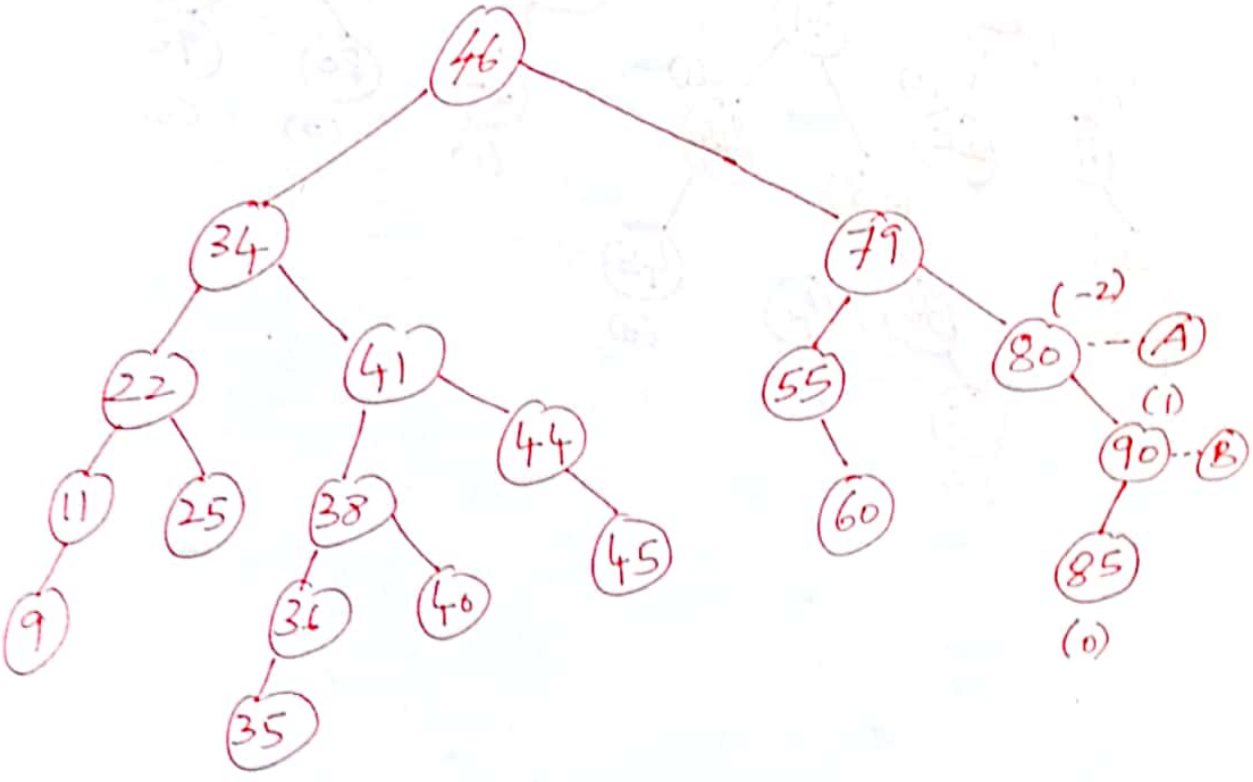
Delete 75.



Deleting 75



Scanned with CamScanner

Deletion is done to Left of A.

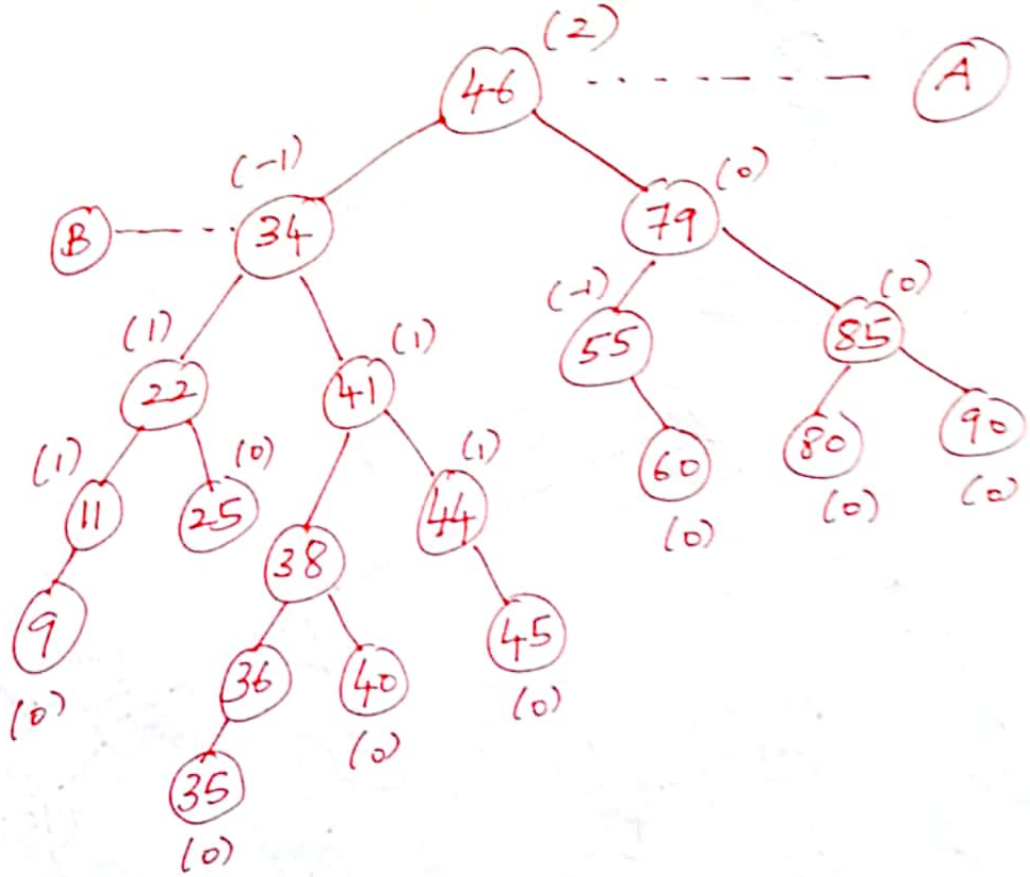
∴ L Rotation.

Bf (B) = 1

∴ L1 Rotation.

L1 Rotation is RL rotation over 'A'. w.r.t. 'B'.

Doing L1



Scanned with CamScanner

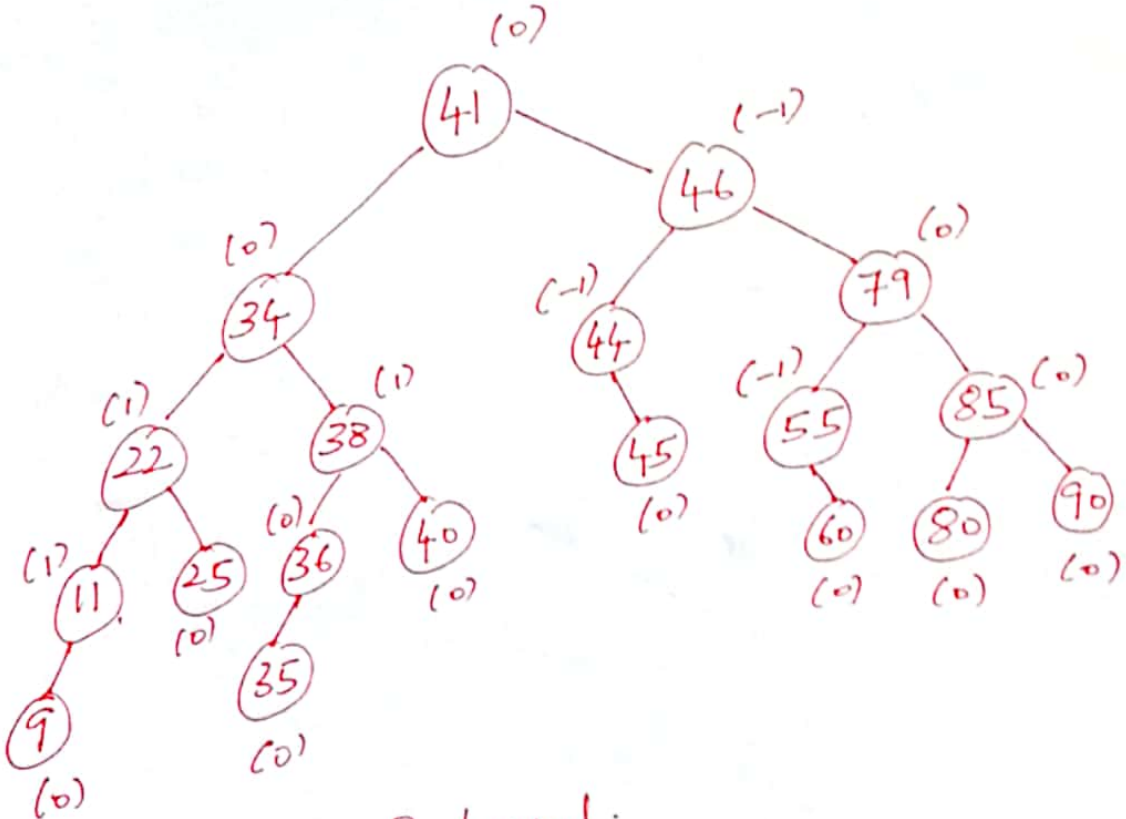
Deletion is done to Right of A.

∴ R Rotation

Bf (B) = -1

∴ R -1 Rotation.

R -1 Rotation is LR over A w.r.t. B.



Balanced.

Scanned with CamScanner