AVL Tree

65, 95, 54, 63, 19, 21, 35, 75, 89, 53

① → 65

$\overset{0}{65}$

② → 95

$\overset{-1}{65}$
 $\overset{0}{95}$

③ → 54

$\overset{0}{65}$
$\overset{0}{54}$ $\overset{0}{95}$

④ → 63 & 19

$\overset{1}{65}$
$\overset{0}{54}$ $\overset{0}{95}$
$\overset{0}{19}$ $\overset{0}{63}$

⑤ → 21

$\overset{2}{65}$ 2
$\overset{1}{54}$ y
$\overset{-1}{19}$ x $\overset{0}{63}$ $\overset{0}{95}$
$\overset{0}{21}$
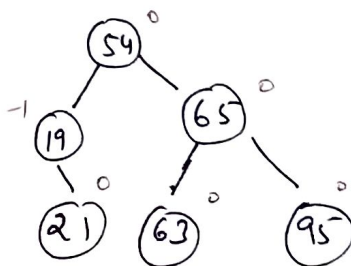
Considering z, y & x it is Left left Case so right rotation around z will be done

Similarly

2

(65)
y
(54)   95
x
(19)   63
(21)

$\xrightarrow{RR(2)}$

(54) 0
(19) -1   (65) 0
(21) (63)   (95) 0
0   0

⑥ → 35

(54) 1
? (19) -2   (65) 0
2
y (21) -1 (63) 0 (95) 0
x (35) 0
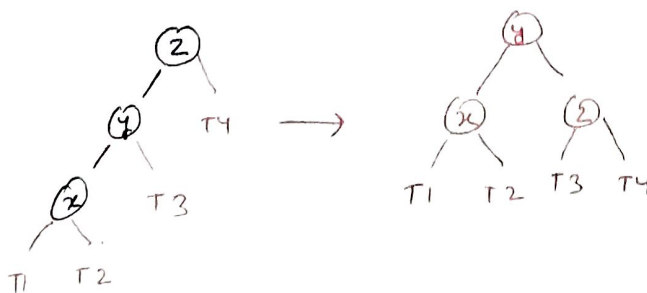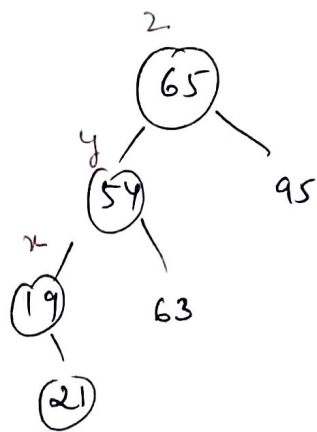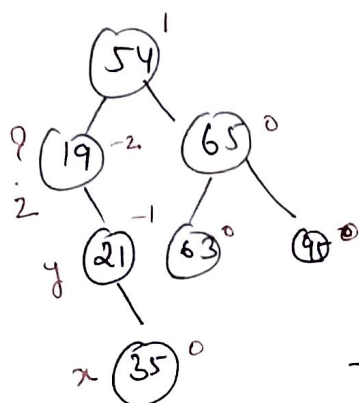
Right Right Case
So left rotate 2

$\xrightarrow{Left\ Rot(2)}$

(54) 0
(21) 0   (65) 0
(19) 0 (35) (63) 0 (95) 0

⑦ → 75

(54) -1
(21) 0   (65) -1
(19) 0 (35) 0 (63) 0 (95) 1
(75) 0

⑧ → 89

(54)
(21) 0   (65) -2
(19) (35) 0 (63) 0 z (95) 2
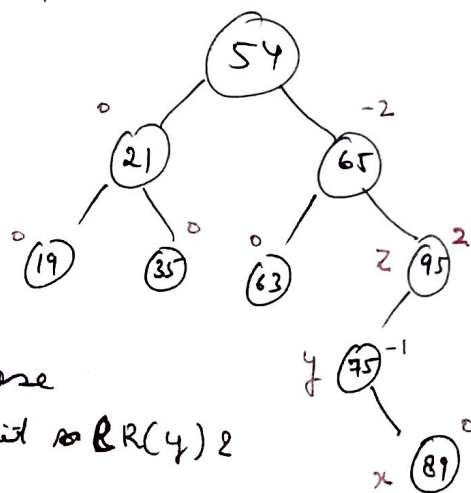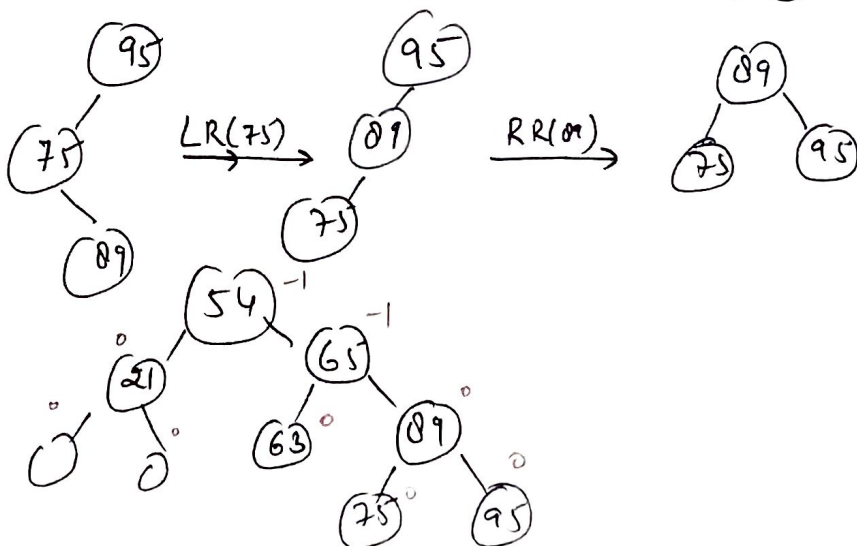y (75) -1
x (89) 0
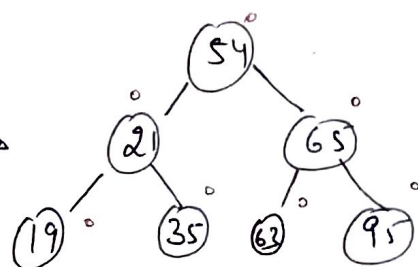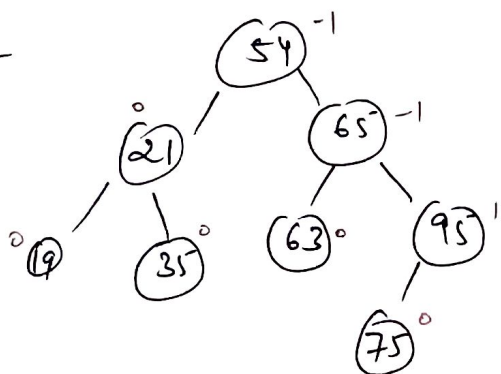
Considering z, y & x it is Left Right Case
therefore required two rotations first so RR(y) &
then   RR(z)

(95)
(75)
(89)

$\xrightarrow{LR(75)}$

(95)
(89)
(75)

$\xrightarrow{RR(89)}$

(89)
(75) (95)

∴ final b-

(54) -1
(21) 0   (65) -1
0 0 (63) 0 (89)
(75) 0 (95) 0