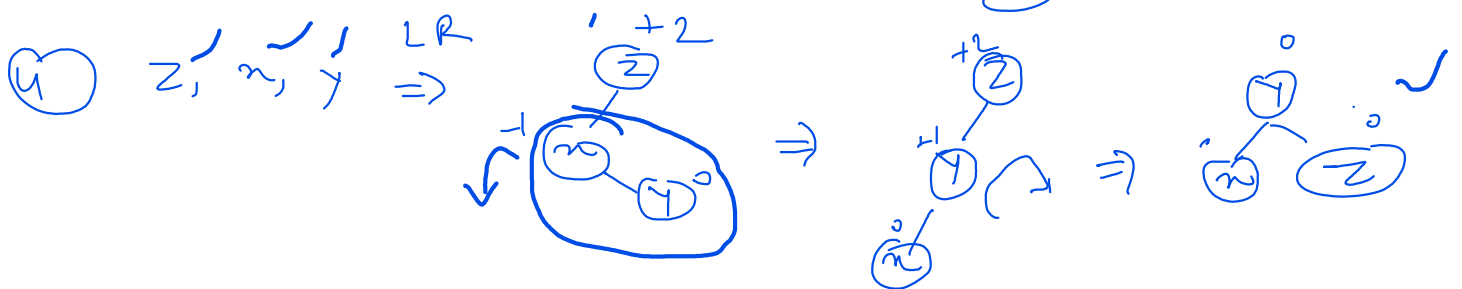
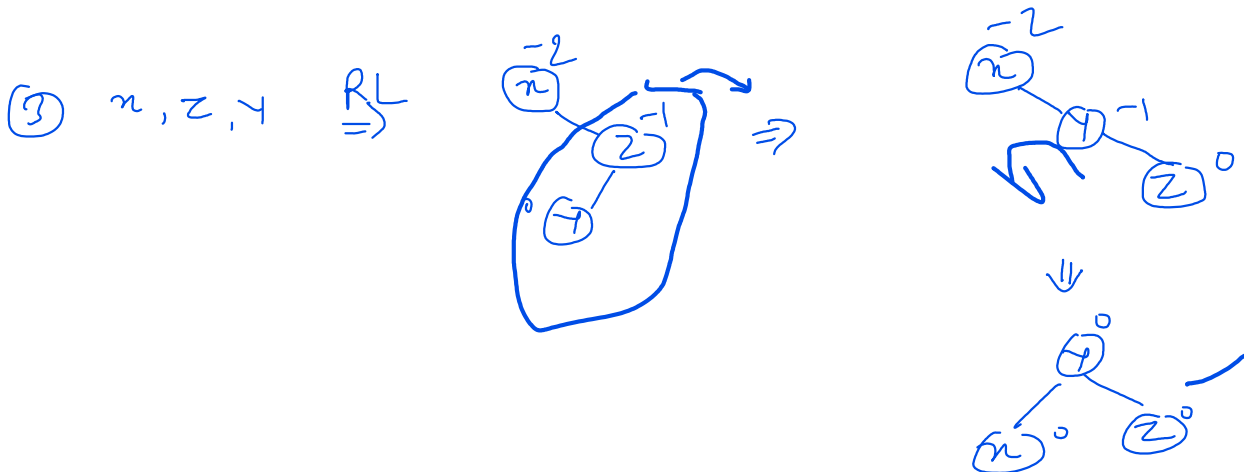
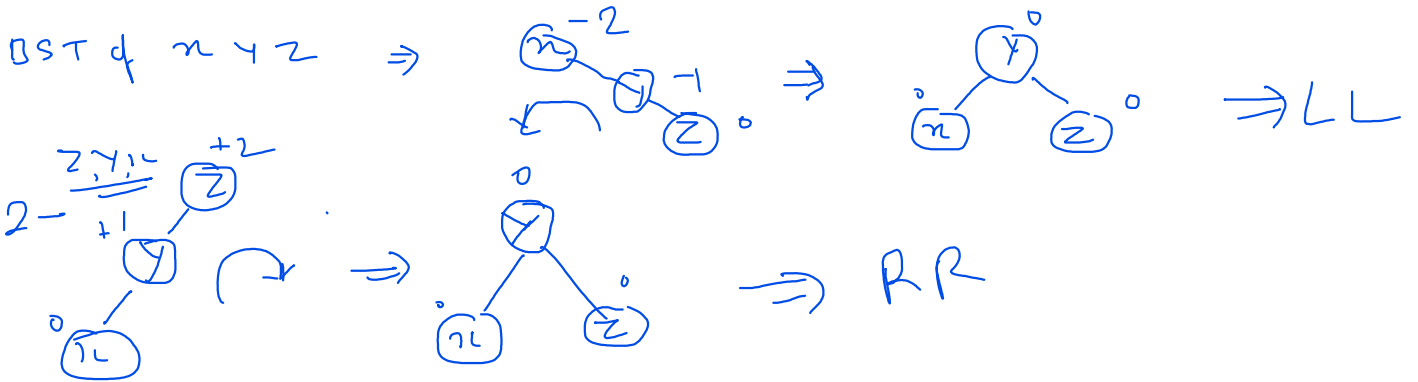


AVL Tree

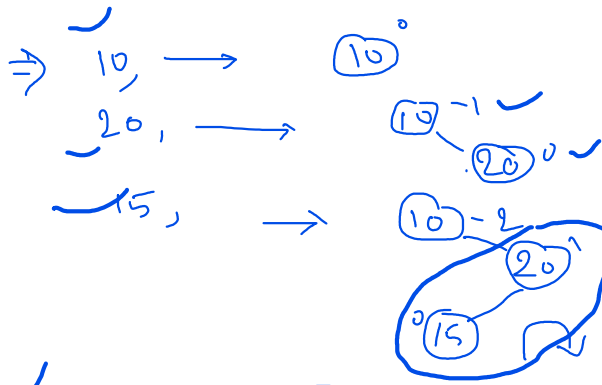
- It is a BST
- Balance factor $\Rightarrow (-1, 0, 1)$
- $\Rightarrow h_{L_{ST}} - h_{R_{ST}}$

Rule - 1

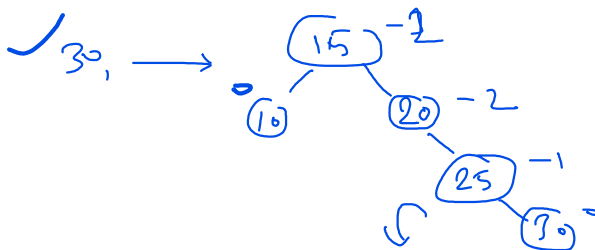
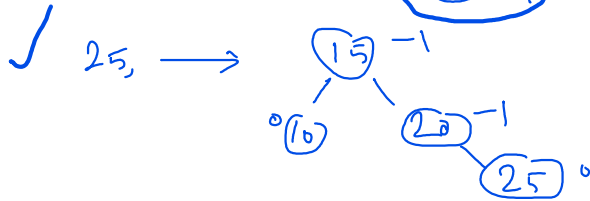
Let $x < y < z$



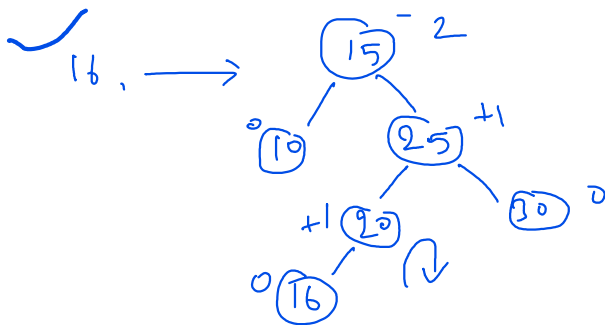
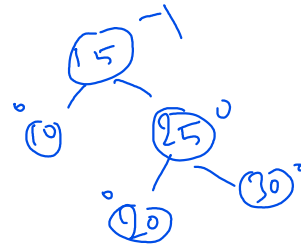
Ex make a AVL Tree —
10, 20, 15, 25, 30, 16, 18, 19



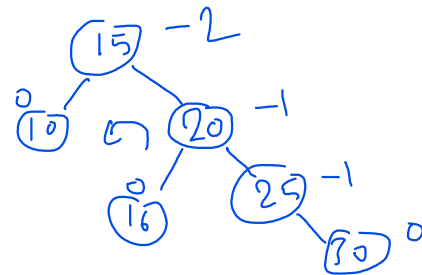
RL



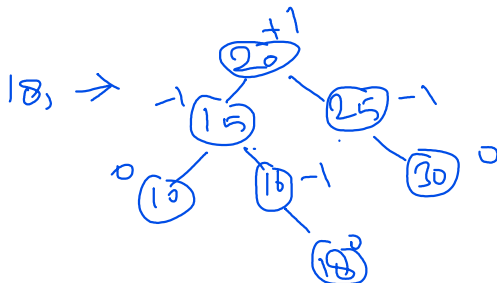
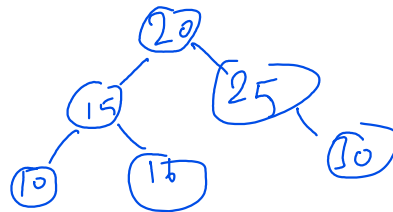
$\Rightarrow$

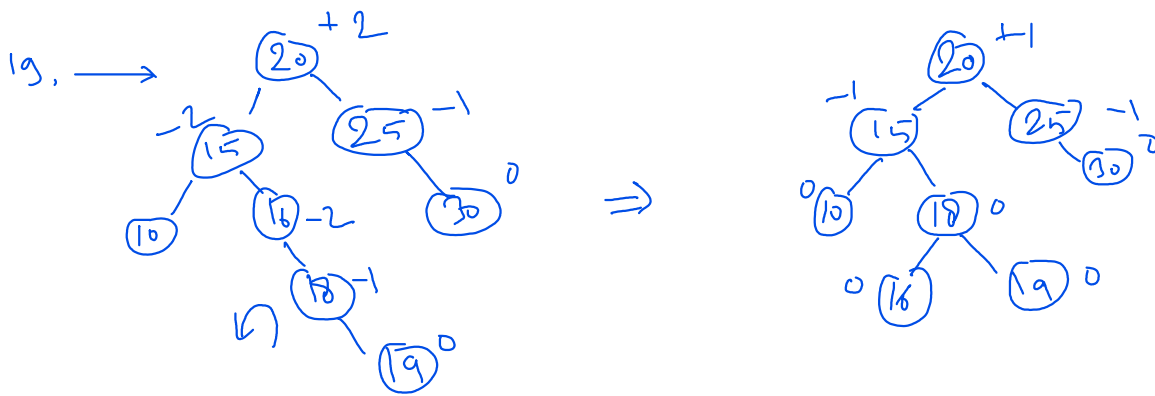


$\Rightarrow$



$\Downarrow$





Hashing

— Hashing is a concept of search element in $O(1)$ time

Ex — 4322, 1334, 1471, 9679, 1989, 6171, 6173, 4199

$$h(x) = x \bmod 10$$

Solution — $4322 \bmod 10 = 2$

$$1334 \bmod 10 = 4$$

$$1471 \bmod 10 = 1$$

$$9679 \bmod 10 = 9$$

$$1989 \bmod 10 = 9$$

$$6171 \bmod 10 = 1$$

$$6173 \bmod 10 = 3$$

$$4199 \bmod 10 = 9$$

collision

Q 2 — Linear Probing.

12, 18, 13, 2, 3, 23, 5, 15

$$h(x) = x \bmod 10$$

$$12 \bmod 10 = 2$$

$$18 \bmod 10 = 8$$

$$15 \bmod 10 = 5$$

in this collision occur

