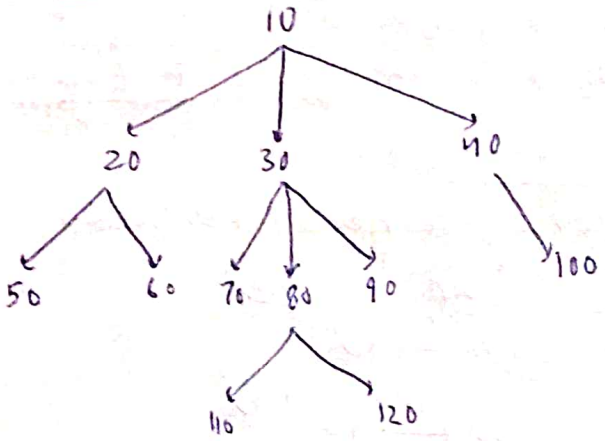
LOWEST COMMON ANCESTOR (GENERIC TREE)

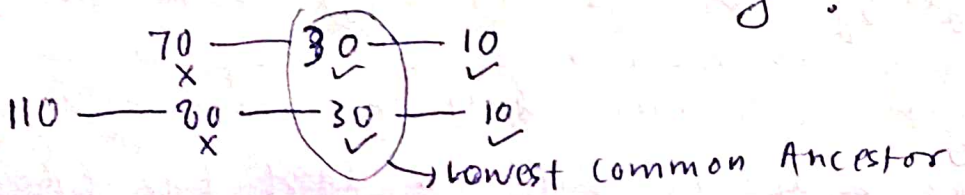


Hume ek tree given hai, aur hume 2 nodes given hai vo guaranteed tree me present hogay!

Hum unn Dono nodes ka LOWEST COMMON ANCESTOR nikalana hai

∴ LCA(120, 130) = 10 LCA(40, 150) = 40
LCA(130, 140) = 80
LCA(90, 130) = 30

* Jahan hume unequal element detect hoga usse pichla element Lowest common Ancestor hoga!



Code

```
public static ArrayList<Integer> nodeToRootPath(Node node, int data) {
    if (node.data == data) {
        ArrayList<Integer> path = new ArrayList<>();
        path.add(node.data);
        return path;
    }
    for (Node child : node.children) {
        ArrayList<Integer> ptc = nodeToRootPath(child, data);
        if (ptc.size() > 0) {
            ptc.add(node.data);
            return ptc;
        }
    }
    return ArrayList<>();
}
public static int lca(Node node, int d1, int d2) {
    ArrayList<Integer> p1 = nodeToRootPath(node, d1);
    ArrayList<Integer> p2 = nodeToRootPath(node, d2);
    int i = p1.size() - 1;
    int j = p2.size() - 1;
    while (i >= 0 && j >= 0 && p1.get(i) == p2.get(j)) {
        i--;
        j--;
    }
    i++; j++;
    return p1.get(i);
}
```

= Dono nodes ka nodeToRootPath nikala
p1 : 110 = [110, 80, 30, 10]
p2 : 90 = [90, 30, 10]

= Aab (i) aur (j) ko (p1) aur (p2) ke last pe rakhengy aur last se check krty ayengy!

= Jab-Jab p1(i) = p2(j) atty hai toh i--, j-- krengy

= Jaise hi loop(while) end hoga toh (i) aur (j) unequal element pe hoga fir hum i++, j++ krke pichley element jayengy vo humara Lowest Common Ancestor hoga (30)