Q4. King and the Crisis

Functions used:-

1)`tree NNode(long long int val):-`

This function is used to create a new node for tree. When the tree is null it will create a root node. And we use other functions to use this function to create left and right nodes.

2)`tree insert(tree t, long long int val):-`

This function is used to insert an input value to the tree. It compares the given val with the data in the node and inserts it either in left or right depending on the relation. And we use the function recursively as it takes the left node as main root or right and inserts the value in desired place.

3)`long long int temp = 0; long long int total = 0:-`

These are the global variables used and temp is used in the function modify(it is in the next paragraph how will we use it). And total is used the get the “Max Possible Sale (Sum of all the values of Updated Binary Search Tree)” as per the question. These are used as global variables because we increase them in recursive function and the they will not get the previous value and we are using them again to print them in main() function.

4)`void modify(tree root):-`

As I observed the Question i have seen that the node values are added to each other as they are traversing in Inorder as like the ascending order. So I used the Inorder function and instead of printing I modified the function to add the nodes to themselves in a recursive function by using temp and total is used to get the total sum from it.

5)`long long int height(tree t):-`

This function is used to get the height of the tree. We return the values of left and right node heights recursively and we will compare them and the highest will be returned each time.

6)`void currdata(tree t,long long int length):-`

This function will take the tree and length which is height and prints the value in the level from left to right. It is used to print the LevelOrder. It is the part of the function which works to print the value in a single level only.

7)`void levorder(tree t, long long int h):-`

The above function is used and it is used in for loop to print the values from 1 to height of tree. Before we do that modify() function is used to get the modified tree.

8)`tree ListToBST(long long int *arr, long long int len):-`

This function takes the array from the main() function and enter the each element to the tree and it returns a tree which we will use to return the tree in main() to use other functions.