

18/11/20

## ADS LAB 6

Pseudocode:

```
void insertFix (Node *k) {  
    Node u;  
    while k->parent->color == 1  
        if k->parent == k->parent->parent->right  
            u = k->parent->parent->left;  
            if u->color == 1  
                u->color = 0;  
                k->parent->color = 0  
                k->parent->parent->color = 1  
                k = k->parent->parent  
            else  
                if k == k->parent->left  
                    k = k->parent  
                    rightRotate(k);  
                    k->parent->color = 0  
                    k->parent->parent->color = 1  
                    leftRotate(k->parent->parent)  
                else  
                    u = k->parent->parent->right  
                    if u->color == 1  
                        u->color = 0  
                        k->parent->color = 0  
                        k->parent->parent->color = 1  
                        k = k->parent->parent  
                    else  
                        if k == k->parent->right  
                            k = k->parent  
                            leftRotate(k)  
                        k->parent->color = 0
```

```

R → parent → parent → color = 1
rightRotate (R → parent → parent)
if k == root
    break;
root → color = 0;

```

```

void insert (int key)
Node node = new Node
node → parent = null;
node → data = key
node → left = TNULL
node → right = TNULL
node → color = 1

```

```

Node y = null;
Node x = this → root
while (x != TNULL)
    y = x
    if (node → data < x → data)
        x = x → left
    else
        x = x → right
    node node → parent = y
if y == null
    root = node;
else if (node → data < y → data)
    y → left = node
else y → right = node
if node → parent == null
    node → color = 0
return
if node → parent → parent = null
    return;

```

```

insertFix (node)

```