```
AVI Tree Insertion & Deletion: [IBM1805083
1 # insertion */
        Struct Node* insert (Struct Node* node, int key) &
         if (node == NULL)
              return (newwoode (key));
          if ( key & node - key)
                  node -> left = insert (node >left, key) 3
          elseil (key > node > key)
                    node-lef = insert (node-right, key) &
           else
                octourn node 3
        node - height = It max (height (node > left).
                                 height (node - right) ) i
                int balance = getBalance(node);
         if (bolonce > 1 bb Eng < node > left -> leeg)
                   return rightRotate (node):
          if (balance 2 - 1 bb key Z node - right - key)
                    return left Rotate (node) 3
          it (balance > 1 bb key > node -> left -> key) &
                 node-left = leftRotate (node -) left):
                  retwin right Rotate (node) = }
          il (balance 2-1 6& key & node - right - key) &
                  node - right = rightRotate (node - Right);
                  return leftRotate (noce);
           retwen node ;
```

Round

```
[BM18 ( 5083]
 It Deletion of wode
Struct Noder delete Node (Struct Noder root, int ky) &
        if ( root == NULL)
                reterm root;
   if ( key 2 root skey)
           root - lett = delete Node (root - lett , key) i
    elseil ( key > root -> key)
         root - oright = delete Node (root - right key);
    else 1
        if ((root -) left == NULL) 11 (root - right == NULL))

    Struct Node * temp = root → left 5 root → left:

                                            root-right;
         it (temp = = NUCO) &
                temp=root;
                 1000 t = NULL'S
             ALEDOT = + + + LUD ?
             free (temp) i
       else &
         Struct Node + temp = minValue Node
                                          (soot -right);
          root - key = temp -> key >
          root -right = delete Node (root -right.
```

Court

trub-1662)?

```
[BMIECSOES]
if (root == NULL)
        setuon roots
root - sheight = 1 + max (height (soot - left),
                          height (root = right));
      int balance = getBalance (8001);
     it (bolance > 1 Ob get Bolance (root steft)>=0)
             return sign+Rotate (5001) 3
     it ( balance 2 -1 Ob get Balance (800+ +81911)20)

    Toot → right = right Rotate (root → right);

           retevin left Rotate ( root) i
      if (balance >1 4& getBalance (root >1ett) 20) &
            root - left = left Rotate (800+ sleft);
             return rightRotate (root);
      if (balance <- 1 && getBalance (root-right) <= )
           return left Rotate (300t);
      return root ;
```

Penil