Lab 4

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```
insert (node, key)
    if !node
        return newNode(key)
    if key < node->key
        node->left = insert(node->left, key)
    else if key > node->key
        node->right = insert(node->right, key)
    else
        return node
    node->height = 1 + max( height(node->left), height(node->right))
balance (node)
    int bal = getBalance(node)
    if bal > 1 and key < node->left->key
        return rotateRight(node)
    if bal < -1 and key > node->right->key
        return rotateLeft(node)
    if bal > 1 and key > node->left->key
        node->left = rotateLeft(node->left)
        return rotateRight(node)
    if bal < -1 and key < node->right->key
        node->right = rotateRight(node->right)
        return rotateLeft(node)
    return Node
```

```
delete [redacted] (root, key)
    if !root
        return root
    if key < root->key
root->left = delete (root->left, key)
 else if key > root->key
        root->right = delete (root->right, key)
 else {
        if !root->left || root->right
            root = (root->left) ?
                    root->left : root->right
        else
            temp = minval (root->right)
            root->key = temp->key
            root->right = delete (root->right, temp->key)

 if !root
        return root
 root->height = 1 + max (height (root->left), height (root->right))

 return balance (root)
```