

Applied Programming

Fall 2017

Quiz # 3

Registration # _____

Question: You are given the following declarations. Add a function named `removeLeaves(Node *v)` that removes all leaf nodes from the tree rooted at `v`.

```
struct Node{
int key, depth, height;
struct Node *parent, *leftChild, *rightChild;
};
class BinTree{
private:
    struct Node* root;
    int height, size;
public:
    BinTree();
    ~BinTree();
    // Other member functions are not shown here.
    // If you assume some function exists, clearly show the function
    name, return type
    // arguments and a description of what it does
    removeLeaves(struct Node *v){
        if ( ( v->leftChild == NULL ) &&( v->rightChild == NULL ) )
        {
            if (v->parent->leftChild == v)
                v->parent->leftChild = NULL;
            else
                v->parent->rightChild = NULL;
            delete v;
            return;
        }
        removeLeaves(v->leftChild);
        removeLeaves(v->rightChild);
    }
};
```