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ZJUADS_cy2020_MidTermExam

判断题 10 A. 单选题 11 程序填空题 2

5-1 A binary tree is said to be "height balanced" if both its left and right subtrees are height balanced, and the heights of its left and right subtrees can differ by at most 1. That is, $|H_L - H_R| \le 1$ where H_L and H_R are the heights of the left and right subtrees, respectively. An empty binary tree is defined to be height balanced.

The function `IsBalanced` is to judge if a given binary tree `T` is height balanced. If the answer is yes then return `true` and store the tree height in the parameter `pHeight`, else simply return `false`. The height of an empty tree is defined to be 0.

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时间限制	400 ms
内存限制	64 MB

```
typedef struct TNode *BinTree;
struct TNode{
    int Key;
    BinTree Left;
    BinTree Right;
};

bool IsBalanced ( BinTree T, int *pHeight )
{
    int  LHeight, RHeight, diff;

    if( T == NULL) {
        *pHeight = 0;
        return true;
    }
    else if ( IsBalanced(T->Left, &LHeight) && IsBalanced(T->Right, &RHeight) ) {
        diff = LHeight - RHeight;
        if ( diff <= 1 && diff >= -1     (5分) )  {
            *pHeight = 1 + ( diff<0 ? RHeight : LHeight           (5分) );
            return true;
        }
        else return false;
    }
    return false;
}
```

5-1 答案正确 (10 分) 创建提问

5-2 The function `DeleteRt` is to delete the root of a subtree with index `Pos` from a binomial queue `H`. The rest of the subtree is then stored as a new binomial queue and returned.

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时间限制	400 ms
内存限制	64 MB

```
BinQ DeleteRt( BinQ H, int Pos )
{
        BinTree OldRoot, SubTree;
        BinQ NewBinQ;
        int p;

        OldRoot = H->TheTrees[Pos];
        SubTree = OldRoot->LeftChild;
        free(OldRoot);
        NewBinQ = Initialize();
        NewBinQ->CurrentSize = 2                          (5分);
        for ( p = 0; p < 2; p++              (5分) ) {
                NewBinQ->TheTrees[p] = SubTree;
                SubTree = SubTree->NextSibling;
                NewBinQ->TheTrees[p]->NextSibling = NULL;
        }
        return NewBinQ;
}
```

5-2 答案错误 ⓘ (0 分) 创建提问