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tree_traverse.cpp

```
#include <stdio.h>
#include <stdlib.h>

struct Node
{
    int data;
    Node *left;
    Node *right;
};

Node *Root;

void InitTree(int data)
{
    Root=(Node *)malloc(sizeof(Node));
    Root->data=data;
}

Node *AddChild(Node *Parent,int data,bool bLeft)
{
    Node *New;

    New=(Node *)malloc(sizeof(Node));
    New->data=data;
    New->left=NULL;
    New->right=NULL;
```

```
    if (bLeft) {
        Parent->left=New;
    } else {
        Parent->right=New;
    }
    return New;
}

void PreOrder(Node *R)
{
    printf("%d ",R->data);
    if (R->left) PreOrder(R->left);
    if (R->right) PreOrder(R->right);
}

void InOrder(Node *R)
{
    if (R->left) InOrder(R->left);
    printf("%d ",R->data);
    if (R->right) InOrder(R->right);
}

void PostOrder(Node *R)
{
    if (R->left) PostOrder(R->left);
    if (R->right) PostOrder(R->right);
    printf("%d ",R->data);
}

void FreeTree(Node *R)
{
    if (R->left) FreeTree(R->left);
    if (R->right) FreeTree(R->right);
    free(R);
}

void main()
{
    Node *Left,*Right;

    InitTree(1);
    Left=AddChild(Root,2,true);
    Right=AddChild(Root,3,false);
    AddChild(Left,4,true);
    AddChild(Left,5,false);
    AddChild(Right,6,true);

    PreOrder(Root);puts(" ");
    InOrder(Root);puts(" ");
    PostOrder(Root);puts(" ");
}
```

```
FreeTree( Root );
```

```
}
```

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