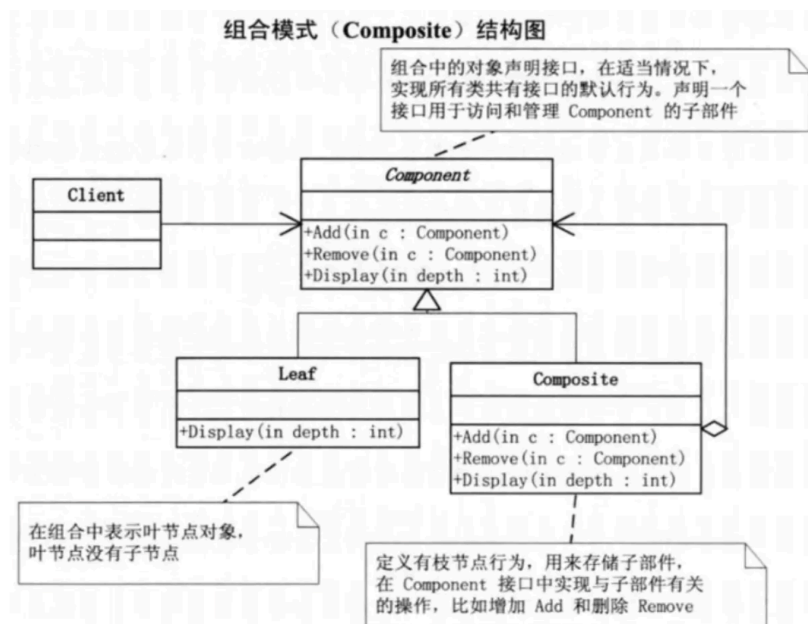


定义:将对象组合成树形结构以表示"部分-整体"的层次结构. Composite使得用户对单个对象和组合对象的使用具有一致性. ---<设计模式>GoF



```

1 #include <iostream>
2 #include <list>
3 #include <string>
4 using namespace std;
5 class Component{
6 protected:
7     string m_strName;
8 public:
9     virtual ~Component(){}
10    Component(string n){
11        m_strName = n;
12    }
13    virtual void Add(Component* c) = 0;
14    virtual void Delete(Component* c) = 0;
15    virtual void Display(int depth) = 0;
16 };
17 class Leaf : public Component{
18 public:
19     Leaf(string name):Component(name){}
20     void Add(Component* c){}
21     void Delete(Component* c){}
22     void Display(int depth){
23         cout << m_strName << " " << depth << endl;
24     }
25 };
26 class Composite : public Component{
27 private:
28     list<Component*> listChild;
29 public:

```

```

30     Composite(string name):Component(name){}
31     void Add(Component* c){
32         listChild.push_back(c);
33     }
34     void Delete(Component* c){
35         listChild.remove(c);
36     }
37     void Display(int depth){
38         cout << m_strName << " " << depth << endl;
39
40         for (list<Component*>::iterator iter = listChild.begin();
41             iter != listChild.end(); iter++)
42         {
43             (*iter)->Display(depth+2);
44         }
45     }
46 };
47 int main(){
48     Composite* root = new Composite("root");
49     root->Add(new Leaf("Leaf A"));
50     root->Add(new Leaf("Leaf B"));
51
52     Composite *com1 = new Composite("Composite one");
53     com1->Add(new Leaf("Leaf C1A"));
54     com1->Add(new Leaf("Leaf C1B"));
55     root->Add(com1);
56
57     Composite *com2 = new Composite("Composite two");
58     com2->Add(new Leaf("Leaf C2A"));
59     com2->Add(new Leaf("Leaf C2B"));
60     root->Add(com2);
61
62     root->Display(1);
63     delete root;
64     delete com1;
65     delete com2;
66     return 0;
67 }

```

```

192:DesignPattnsStudy weishichun$ g++ -o com.out Composite_1.cpp
192:DesignPattnsStudy weishichun$ ./com.out
root 1
Leaf A 3
Leaf B 3
Composite one 3
Leaf C1A 5
Leaf C1B 5
Composite two 3
Leaf C2A 5
Leaf C2B 5
192:DesignPattnsStudy weishichun$ █

```