Week 08
Composite

Cảm ơn thầy Trần Duy Quang đã cung cấp template cho môn học

1

Notes

Create a single solution/folder to store your source code in a week.

Then, create a project/sub-folder to store your source code of each assignment.

The source code in an assignment should have at least 3 files:

- A header file (.h): struct definition, function prototypes/definition.
- A source file (.cpp): function implementation.
- Another source file (.cpp): named YourID_Ex01.cpp, main function. Replace 01 by id of an assignment.

Make sure your source code was built correctly. Use many test cases to check your code before submitting to Moodle.

2

Content

In this lab, we will review the following topics:

- How to apply a design pattern to solve a realworld problem.

3

Assignments

Use class string and class vector.

A: YY: 05

H: YY: 10 (methods)

3.1 Assignment File System

A drive contains a number of files and folders. A file has name, size, read-only attribute and hidden attribute. A folder contains a number of files and folders. Size of a folder = size of all its files and its subfolders.

You are asked to draw a class diagram and implement a file system so that the following main function runs properly.

```cpp
int main() {
    CFolder C("C"); // (1)
    CFolder System("System");
    CFolder Windows("Windows");
    CFile a_txt("a.txt", 123); // (2)
    CFile b_doc("b.doc", 456);

    System.add(&a_txt); // (3)
    Windows.add(&b_doc);
    C.add(&System); // (4)
    C.add(&Windows);

    cout << "Content of folder C ->" << endl;
    bool isPrintHiddenItems = false;
    C.print(isPrintHiddenItems); // print hidden items or not? 1/0 (5)

    CItem* p = C.removeByName("System"); // (6)
    cout << "Content of folder C afer removing folder System ->" << endl;
    C.print(false);

    p = C.findByName("b.doc"); // (7)
    if (p != NULL) {
        cout << "b.doc is found in folder C" << endl;
```

```cpp
    }
    else {
        cout << "b.doc is not found" << endl;
    }


    p = C.findByName("a.txt");
    if (p != NULL) {
        cout << "a.txt is found" << endl;
    }
    else {
        cout << "a.txt is not found" << endl;
    }


    p = C.findByName("Windows"); // (8)
    bool isHidden;
    bool isAlsoApplyToChildren;
    if (p != NULL) {
        cout << "Folder Windows is folder. Content of folder Windows ->" << endl;
        isHidden = true; isAlsoApplyToChildren = false;
        // set HIDDEN to folder p and do not change hidden attributes of its sub-items
        p->setHidden(isHidden, isAlsoApplyToChildren); // (9)
        p->print(false);

        // set HIDDEN to folder p and all its items
        isHidden = true; isAlsoApplyToChildren = true;
        p->setHidden(isHidden, isAlsoApplyToChildren); // (10)
        p->print(false);
    }
    else {
        cout << "Folder Windows is not found" << endl;
    }
    return 0;
}
```