

# Object-oriented programming

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## Week 11 - Design Patterns

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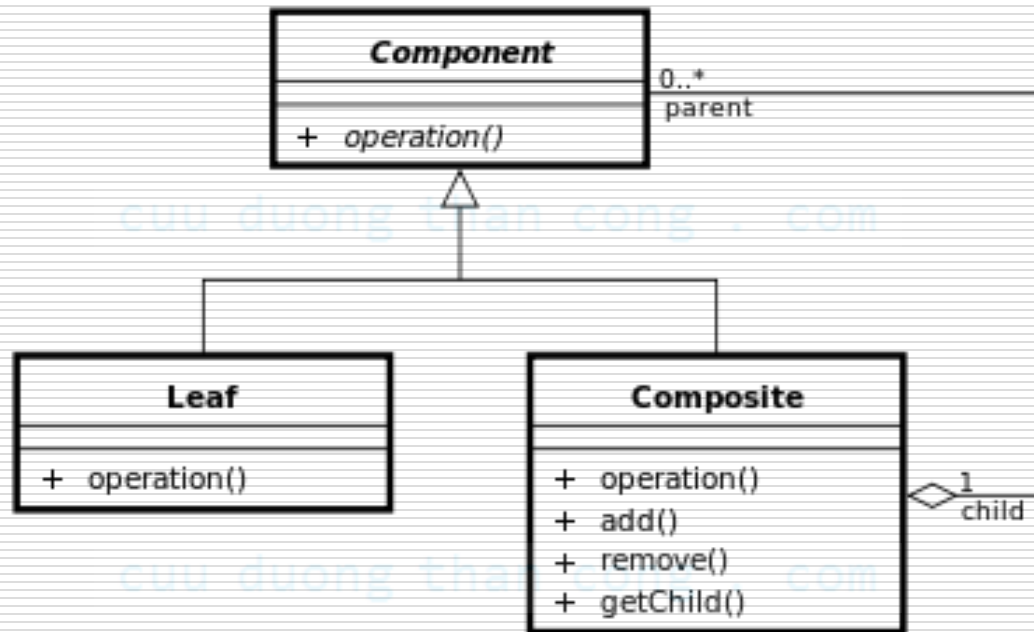
# Design Patterns

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- ❑ In software development, a design pattern is a general and reusable solution to a commonly occurring problem.
- ❑ A design pattern can solve many problems by providing a framework for building an application.
- ❑ With design patterns, the design process is cleaner and more efficient.

# Composite

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(extracted from Wiki)

# Exercise

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- ❑ Design and implement the File&Folder structure using the Composite Pattern

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# Design pattern: Singleton

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- ❑ The singleton pattern is a design pattern used to restrict the instantiation of a class to only one object.
- ❑ It is very useful when exactly one object is needed for the system.

# Singleton

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```
class Singleton {
public:
    static Singleton* Instance()    {
        if (!singleton) singleton = new Singleton;
        return singleton;
    }
private:
    static Singleton* singleton;
    Singleton() {};
    Singleton(const Singleton&); // prevent copy-construction
    Singleton& operator=(const Singleton&); // prevent =
};
Singleton* singleton = NULL;
```

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