

Design Patterns.

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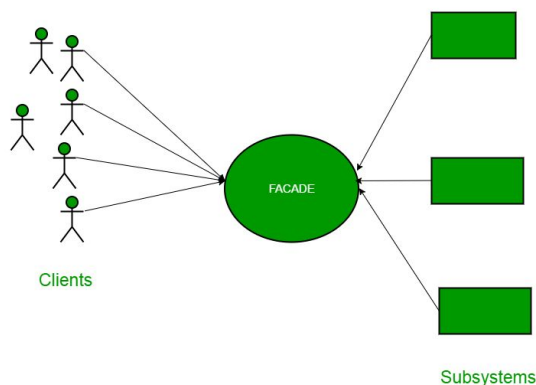
-Keywords: Design Patterns, Facade, Singleton, Abstract Factory, Builder, Observer.

-Content:

Design patterns are typical solutions to common problems in software design. Each pattern is like a blueprint that you can customize to solve a particular design problem in your code. Patterns are a toolkit of solutions to common problems in software design. They define a common language that helps your team communicate more efficiently

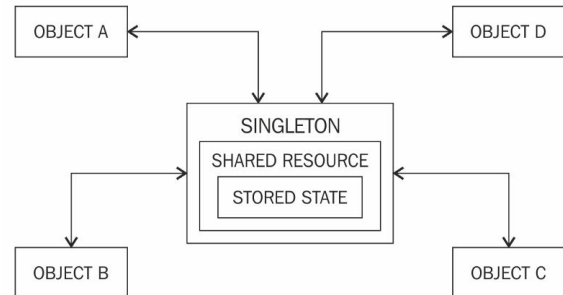
1. Facade:

Facade is a structural design pattern that provides a simplified interface to a library, a framework, or any other complex set of classes.



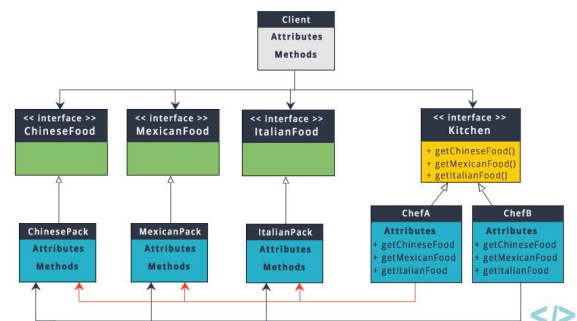
2. Singleton:

Singleton is a creational design pattern that lets you ensure that a class has only one instance, while providing a global access point to this instance.



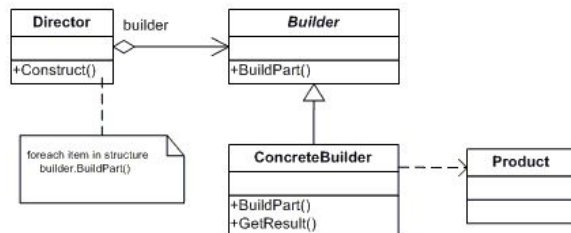
3. Abstract Factory:

Abstract Factory is a creational design pattern that lets you produce families of related objects without specifying their concrete classes.



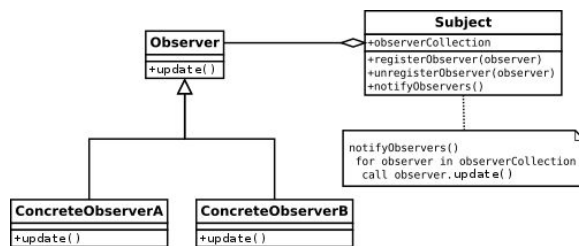
4. Builder:

Builder is a creational design pattern that lets you construct complex objects step by step. The pattern allows you to produce different types and representations of an object using the same construction code.



5. Observer:

Observer is a behavioral design pattern that lets you define a subscription mechanism to notify multiple objects about any events that happen to the object they're observing.



Benefits of Design Patterns

1. Inspiration:

- a. *Patterns don't provide solutions, they **inspire** solutions.*
- b. Patterns **explicitly** capture expert knowledge and design tradeoffs and make this expertise widely available.

- c. Ease the transition to object-oriented technology.

2. Patterns improve developer communication:

- a. Pattern names form a **vocabulary**.
- b. Help document the architecture of a system
- c. Enhance understanding.

3. Design patterns enable large-scale reuse of software architectures