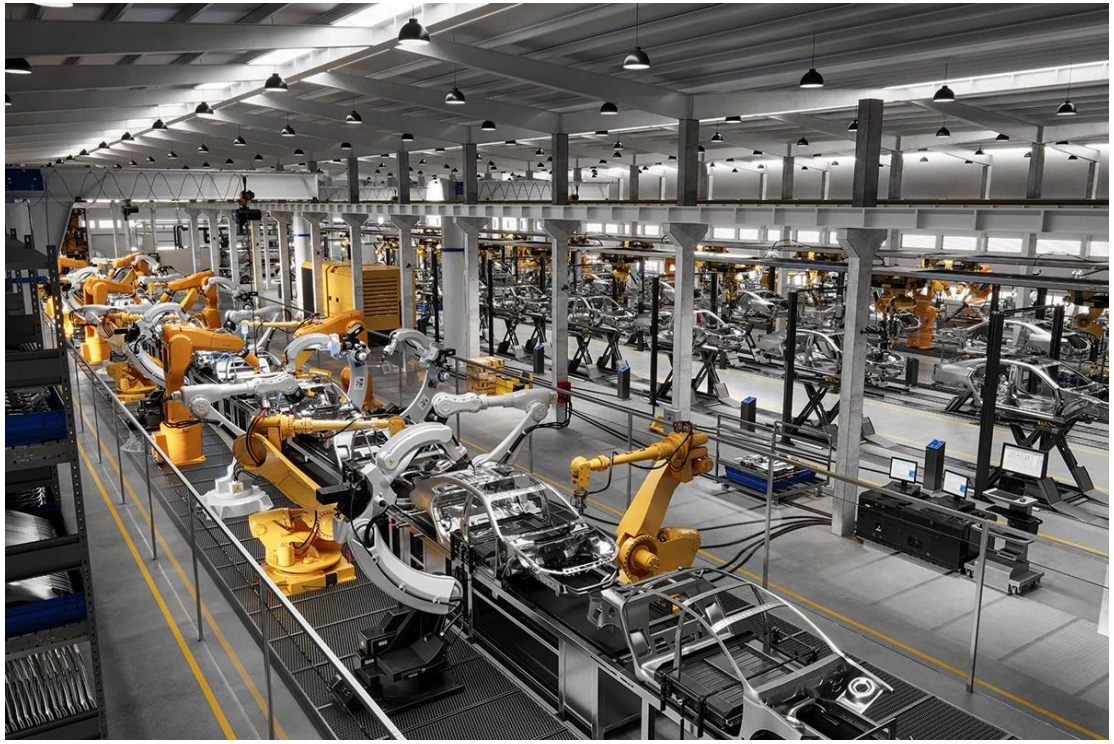
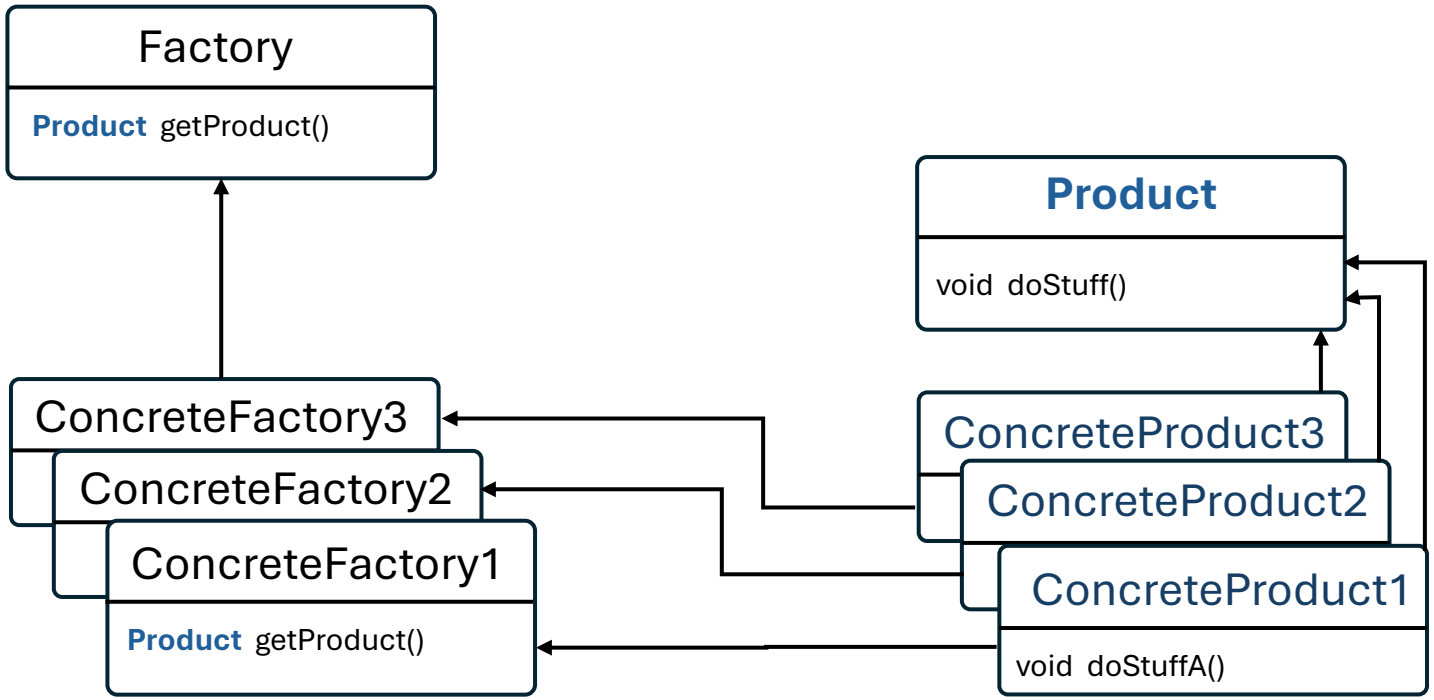
Abstract Factory

Abstract Factory is a creational design pattern that provides an interface for creating families of related or dependent objects without specifying their concrete classes.

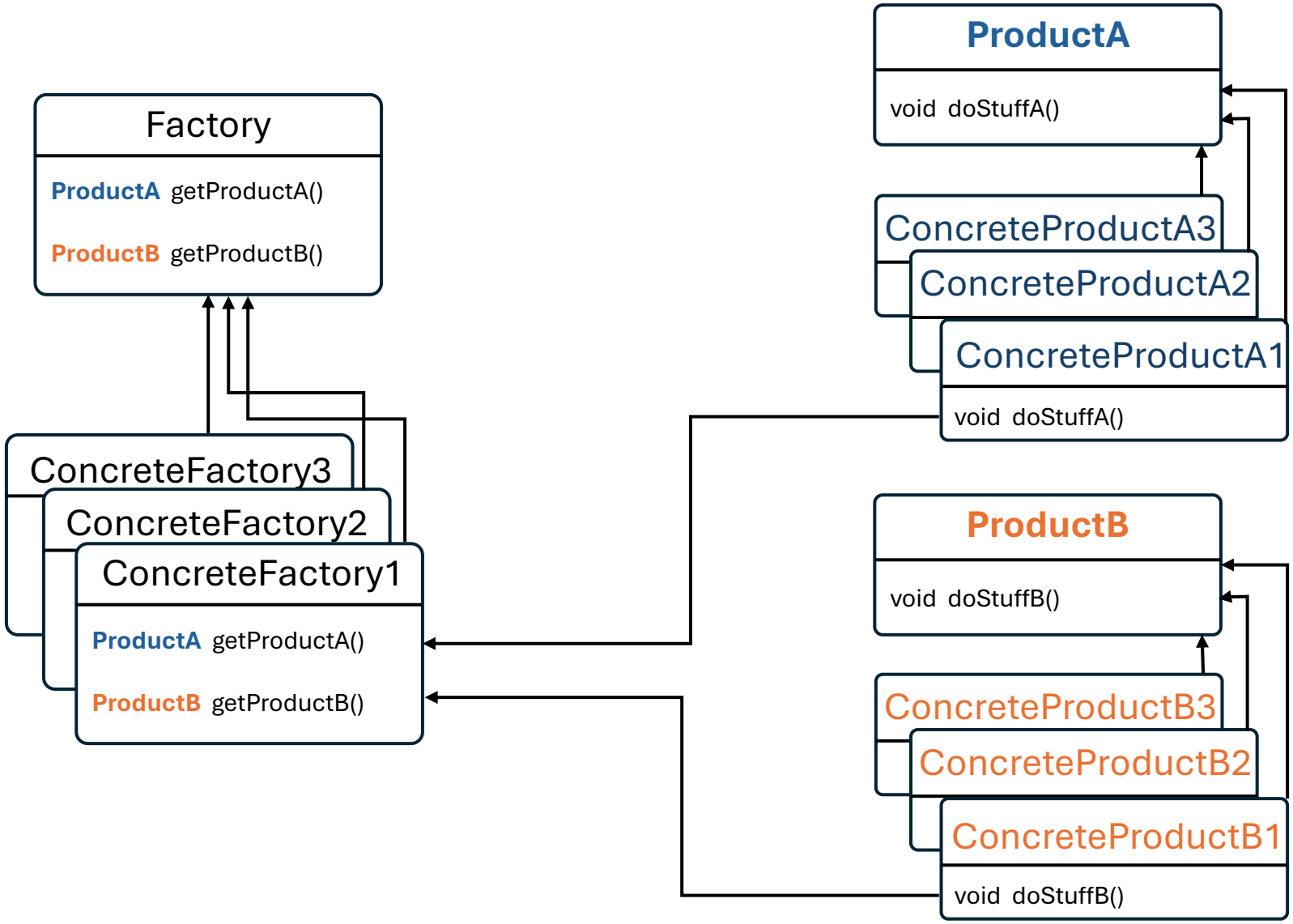
In some sense, **Abstract Factory** is set of **Factory Methods**, which is used in one class.



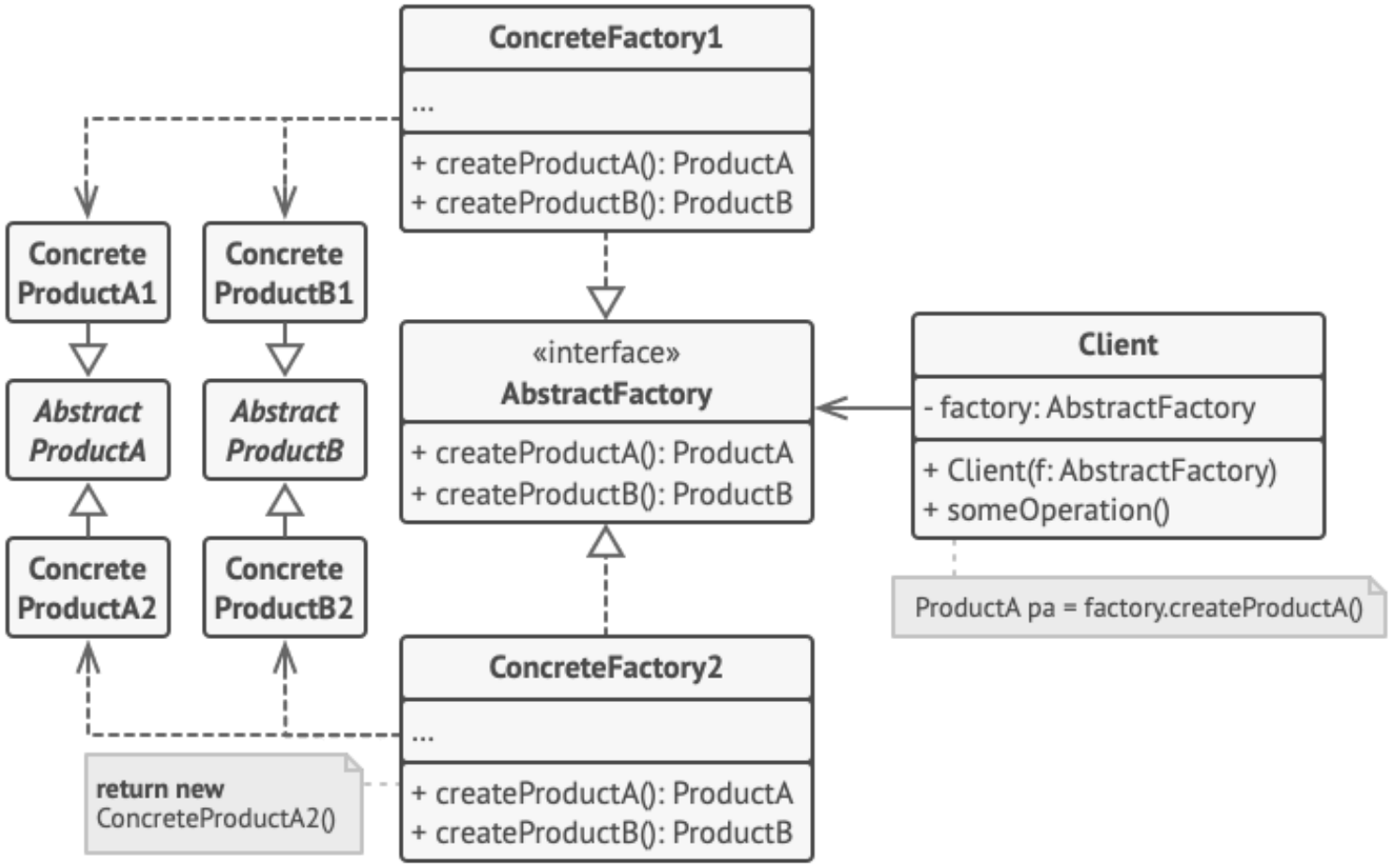
Factory Revised



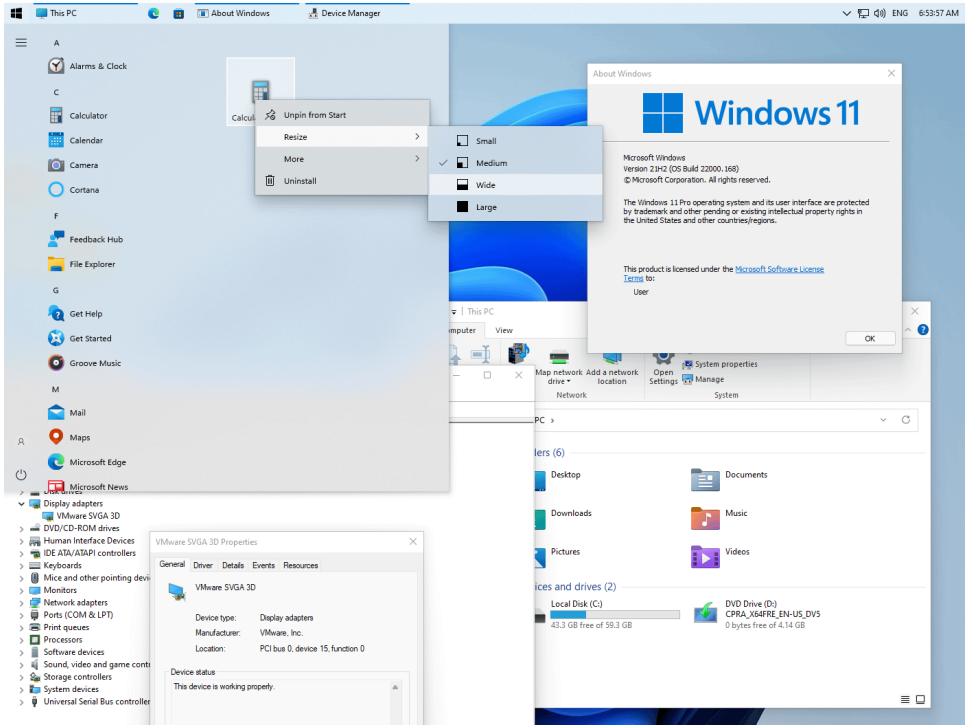
Factory Revised

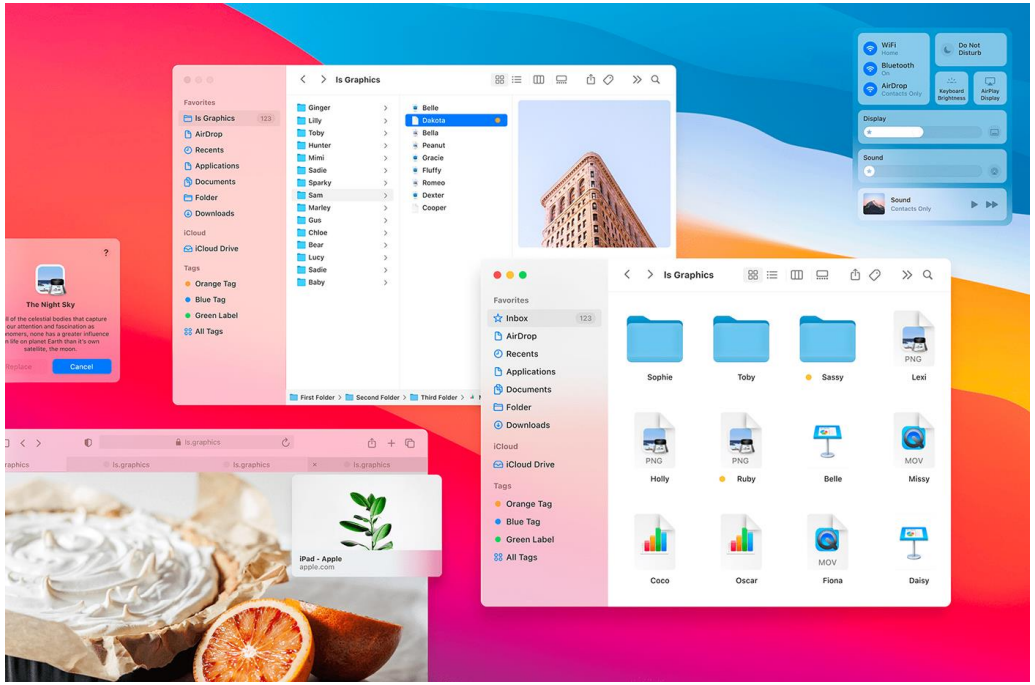


Abstract Factory



Abstract Factory Example





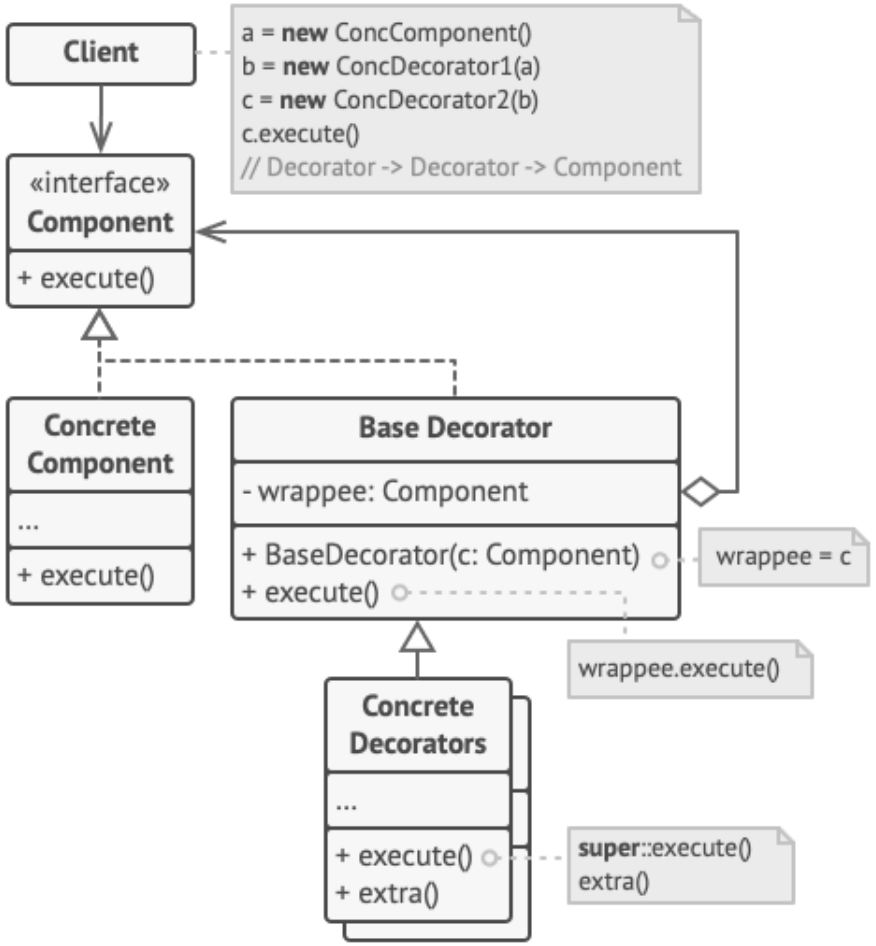
GUI Elements

Decorator

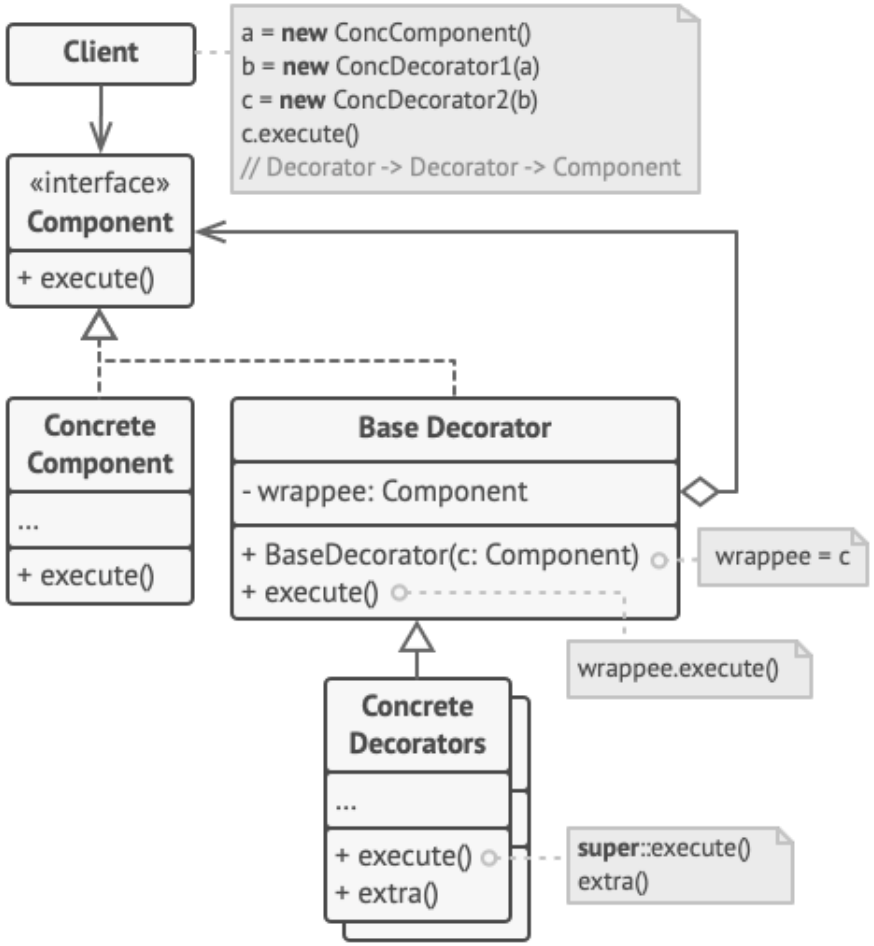
Decorator is a structural design pattern that lets you attach new behaviors to objects by placing these objects inside special wrapper objects that contain the behaviors.

“Wrapper” is the alternative nickname for the Decorator pattern.

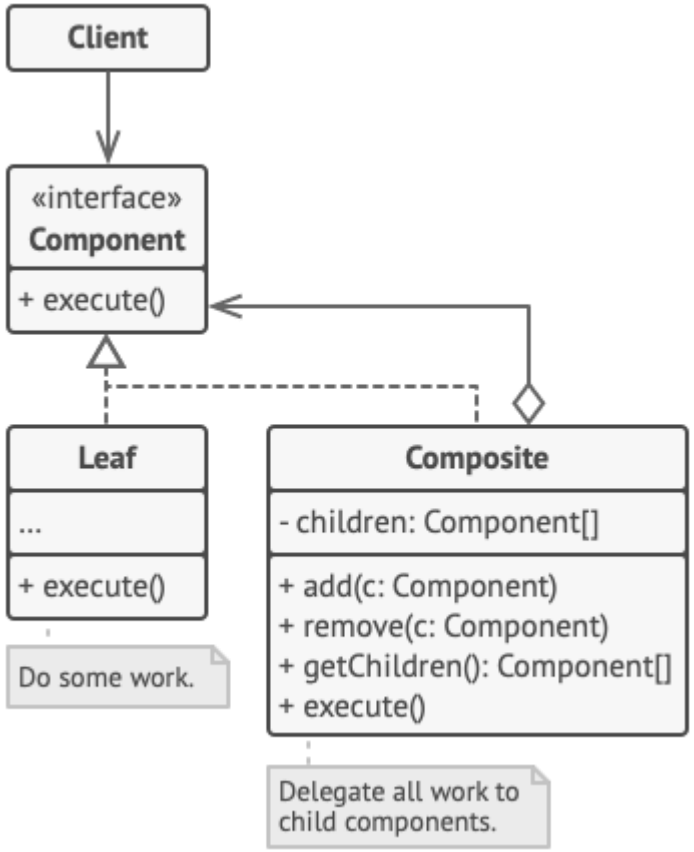
Decorator


Client
a = new ConcComponent()
b = new ConcDecorator1(a)
c = new ConcDecorator2(b)
c.execute()
// Decorator -> Decorator -> Component
«interface»
Component
+ execute()
Concrete
Component
...
+ execute()
Base Decorator
- wrappee: Component
+ BaseDecorator(c: Component)
+ execute()
wrappee = c
wrappee.execute()
Concrete
Decorators
...
+ execute()
+ extra()
super::execute()
extra()

Decorator VS Composite

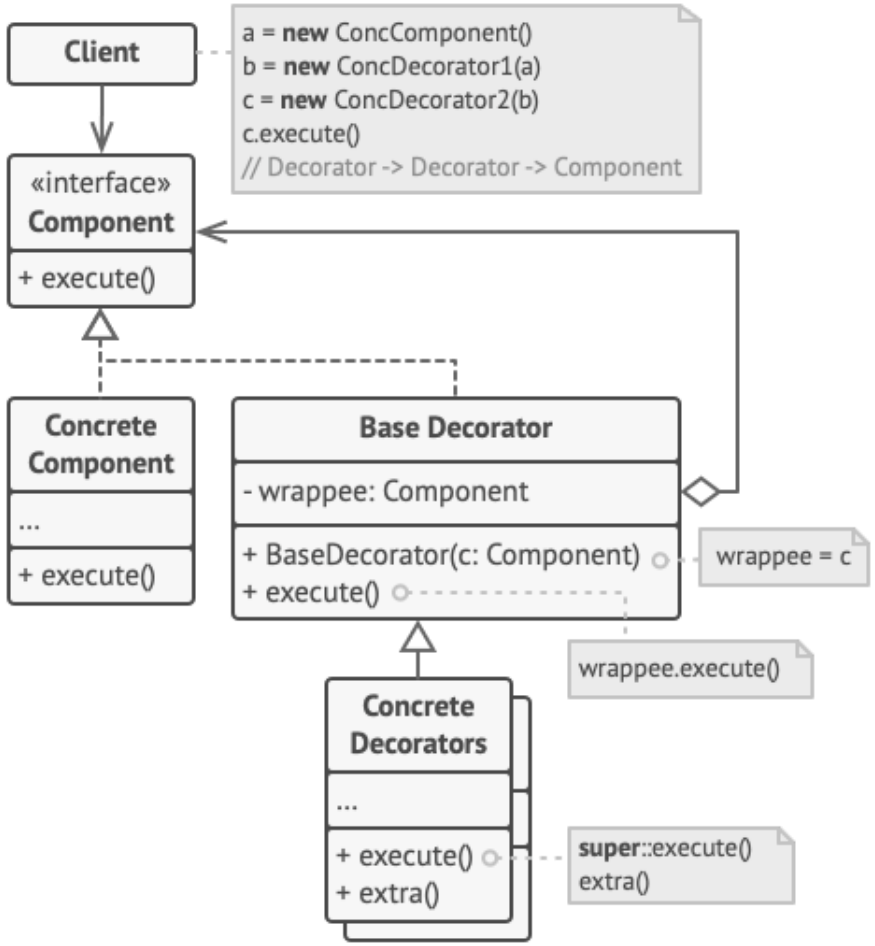


Decorator

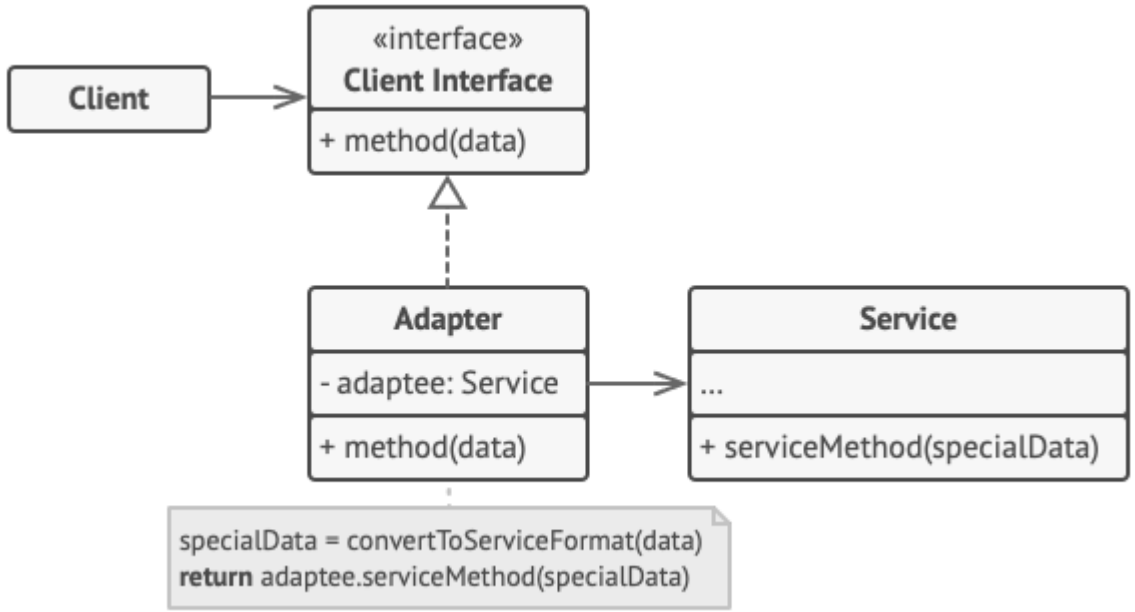


Composite

Decorator VS Adapter

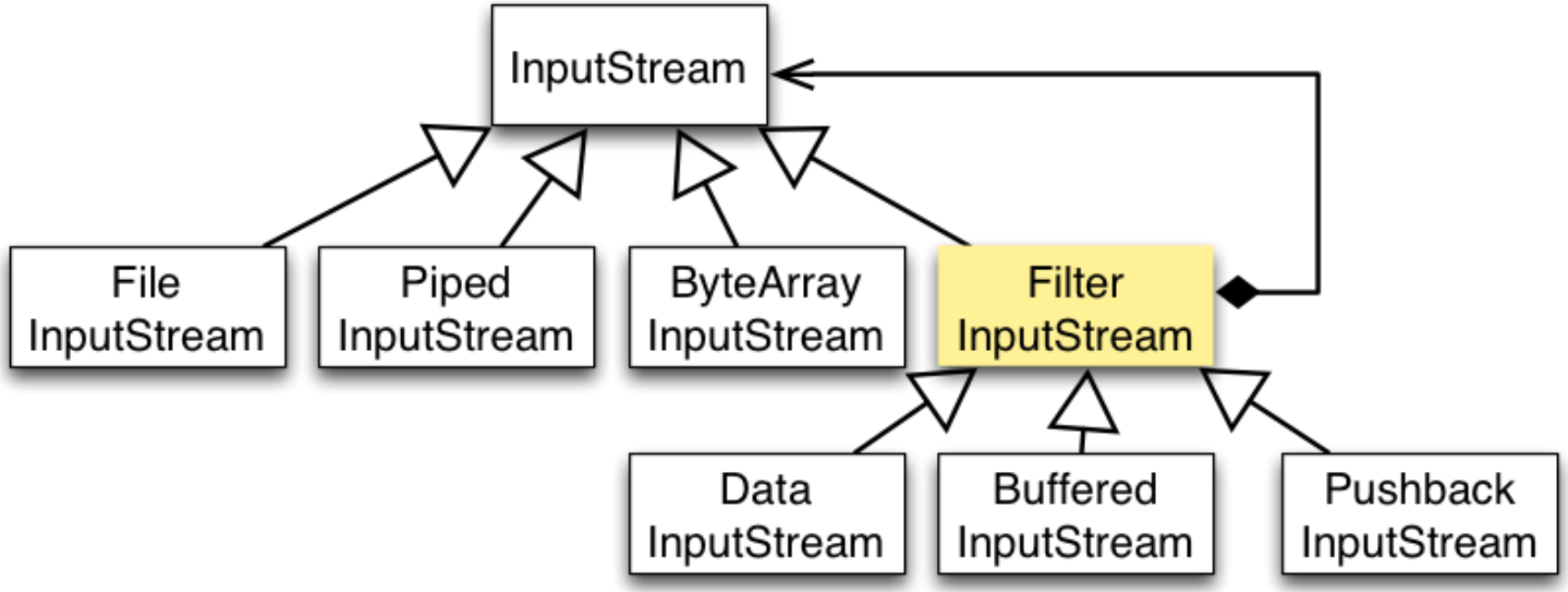


Decorator



Adapter

Decorator in Java

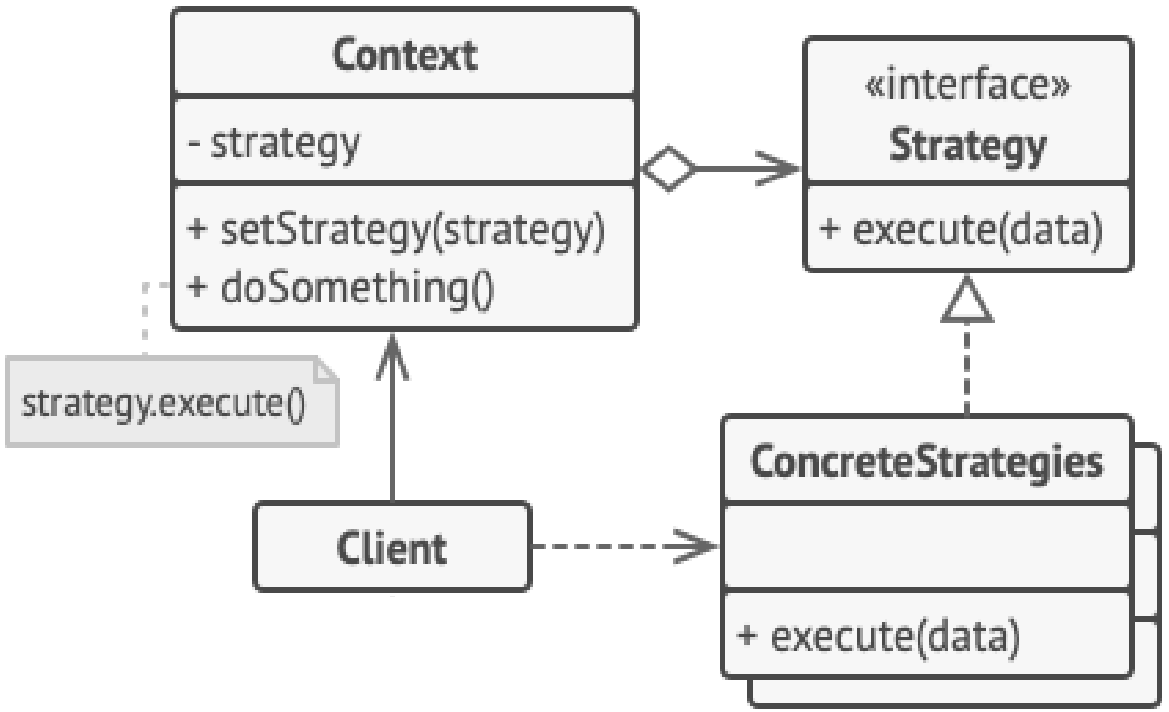


Strategy

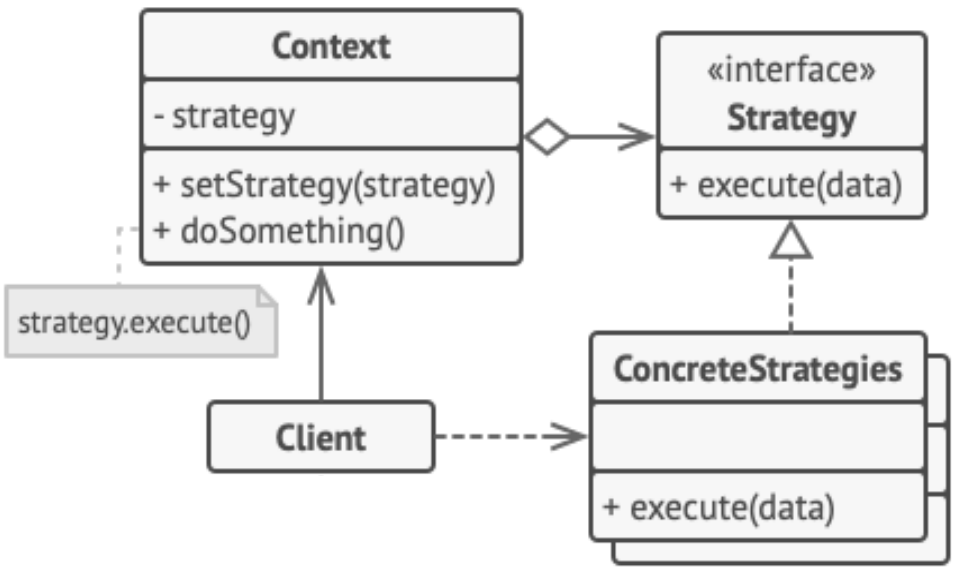
Strategy pattern defines a family of behaviors, puts each of them into separate class , and makes their objects interchangeable.

Use the Strategy pattern when you want to use different variants of an algorithm within an object and be able to switch from one algorithm to another during runtime.

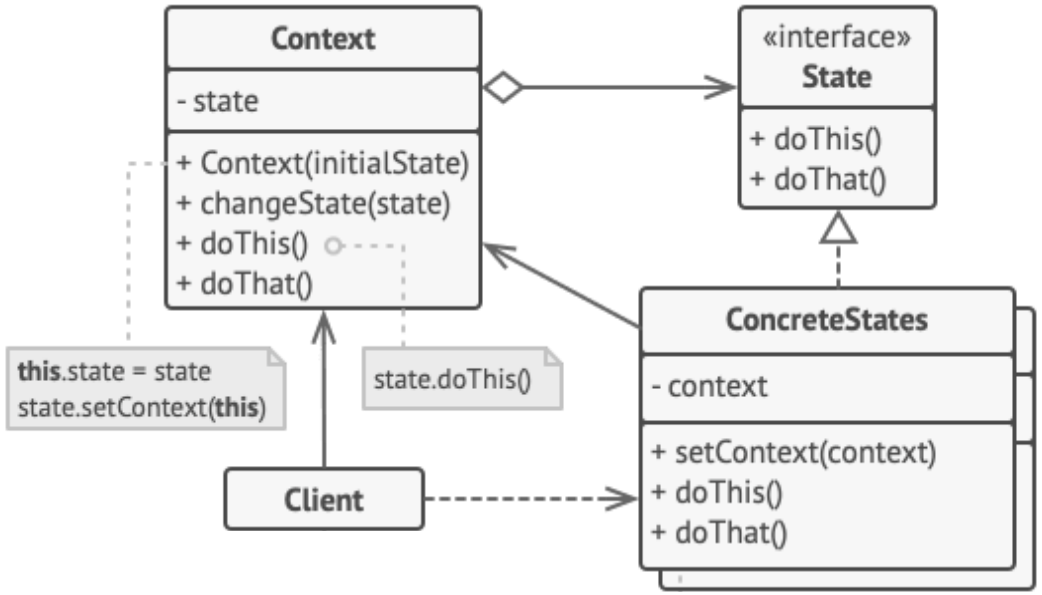
Strategy


Context
- strategy
+ setStrategy(strategy)
+ doSomething()
strategy.execute()
«interface»
Strategy
+ execute(data)
Client
ConcreteStrategies
+ execute(data)

Strategy VS State

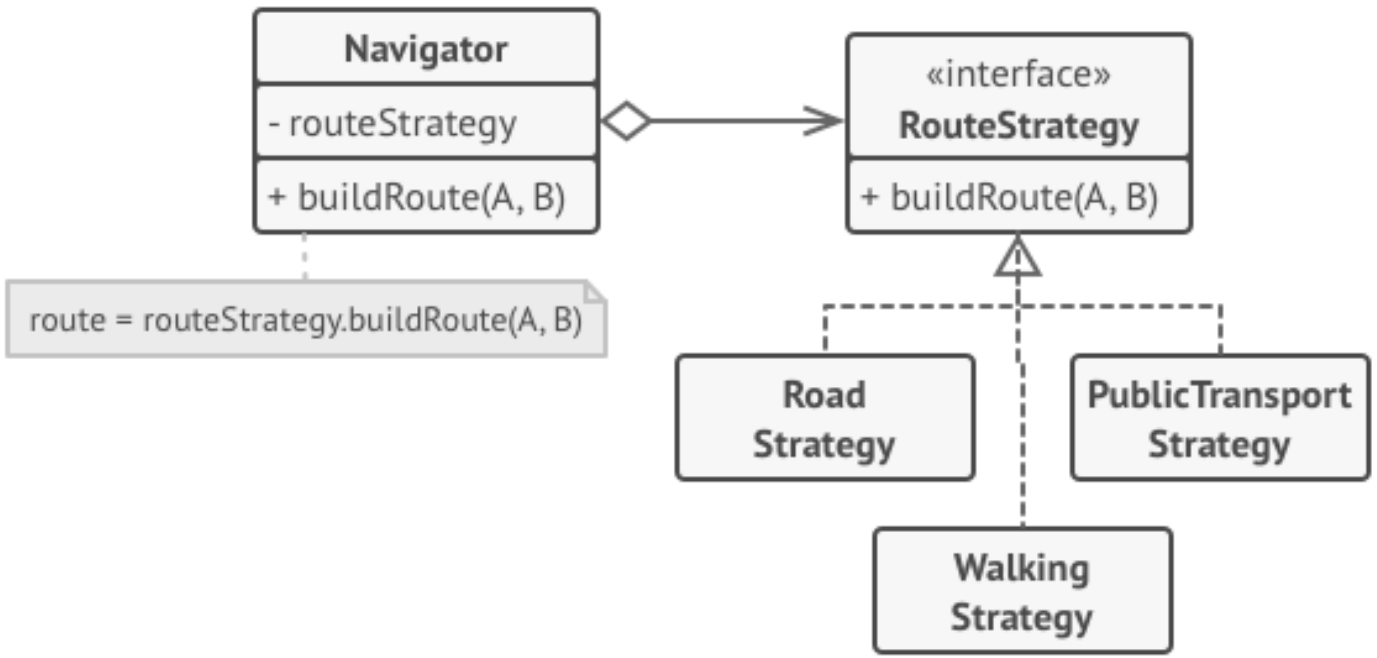


Strategy



State

Strategy


Navigator
- routeStrategy
+ buildRoute(A, B)
route = routeStrategy.buildRoute(A, B)
«interface»
RouteStrategy
+ buildRoute(A, B)
Road Strategy
PublicTransport Strategy
Walking Strategy