Structural Pattern: Facade

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Coming Up

Describing the facade pattern

Implementation:

- Discount calculator service

Structure of the facade pattern

Coming Up

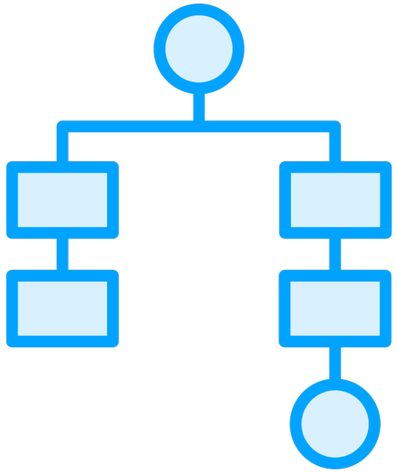
Use cases for this pattern

Pattern consequences

Related patterns

Describing the Facade Pattern

Creational



Structural

Behavioral

Facade

The intent of this pattern is to provide a unified interface to a set of interfaces in a subsystem. It defines a higher-level interface that makes the subsystem easier to use.

```
OrderService orderService = new ();
CustomerDiscountBaseService customerDiscountBaseService = new ();
DayOfTheWeekFactorService dayOfTheWeekFactorService = new ();

if (!orderService.HasEnoughOrders(customerId)) {
    disount = 0;
} else {
    discount = customerDiscountBaseService.CalculateDiscountBase(customerId) *
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Describing the Facade Pattern

A facade hides away the complexity of this calculation and encourages reuse

Describing the Facade Pattern

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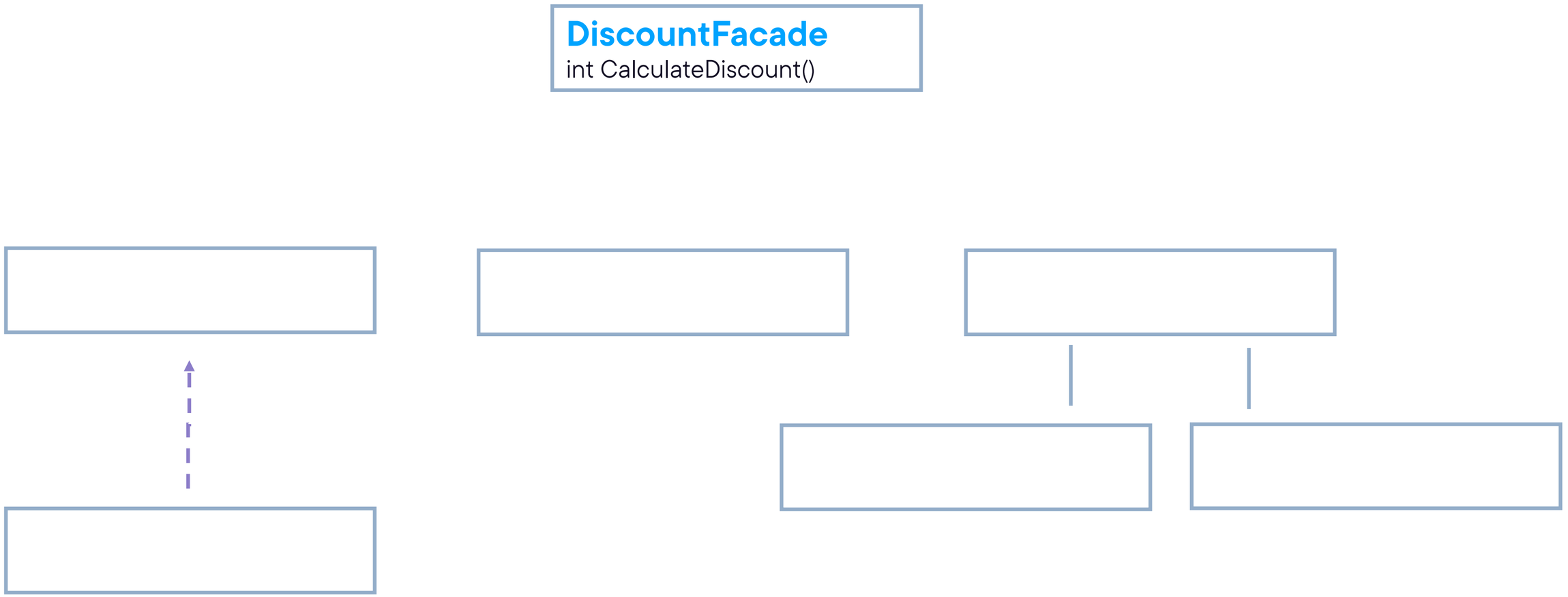

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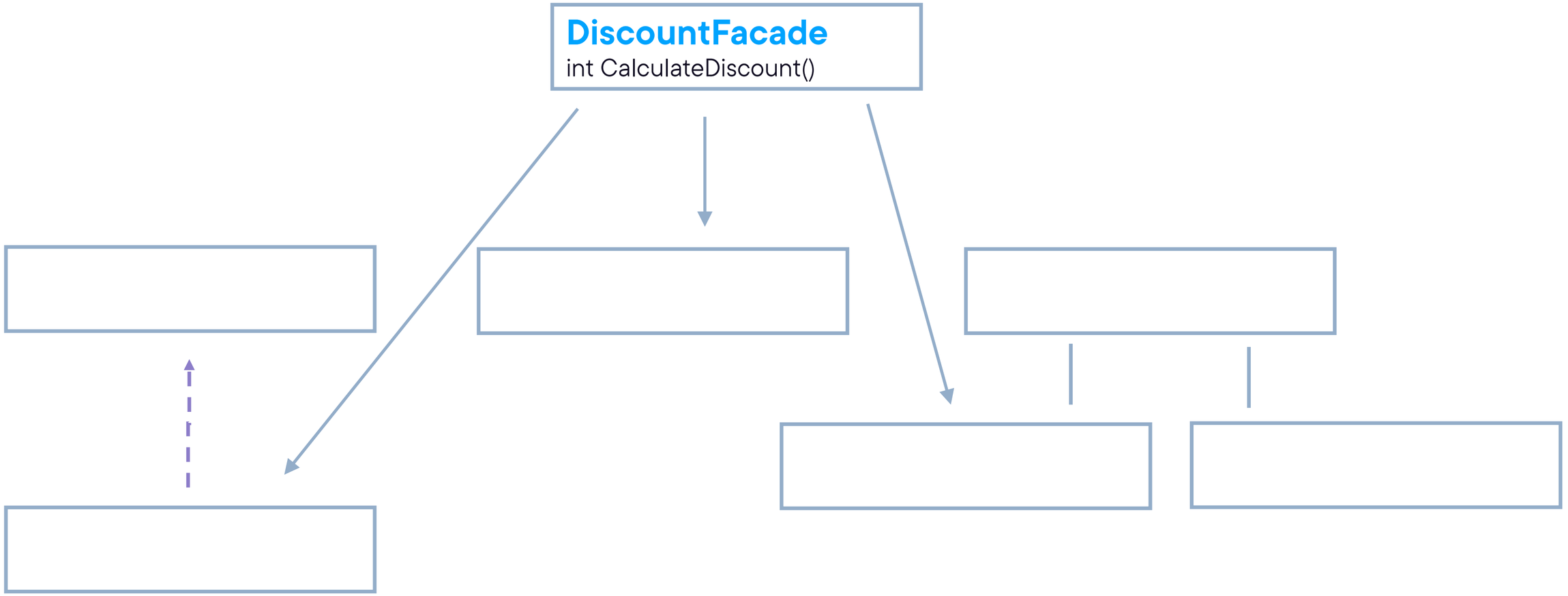
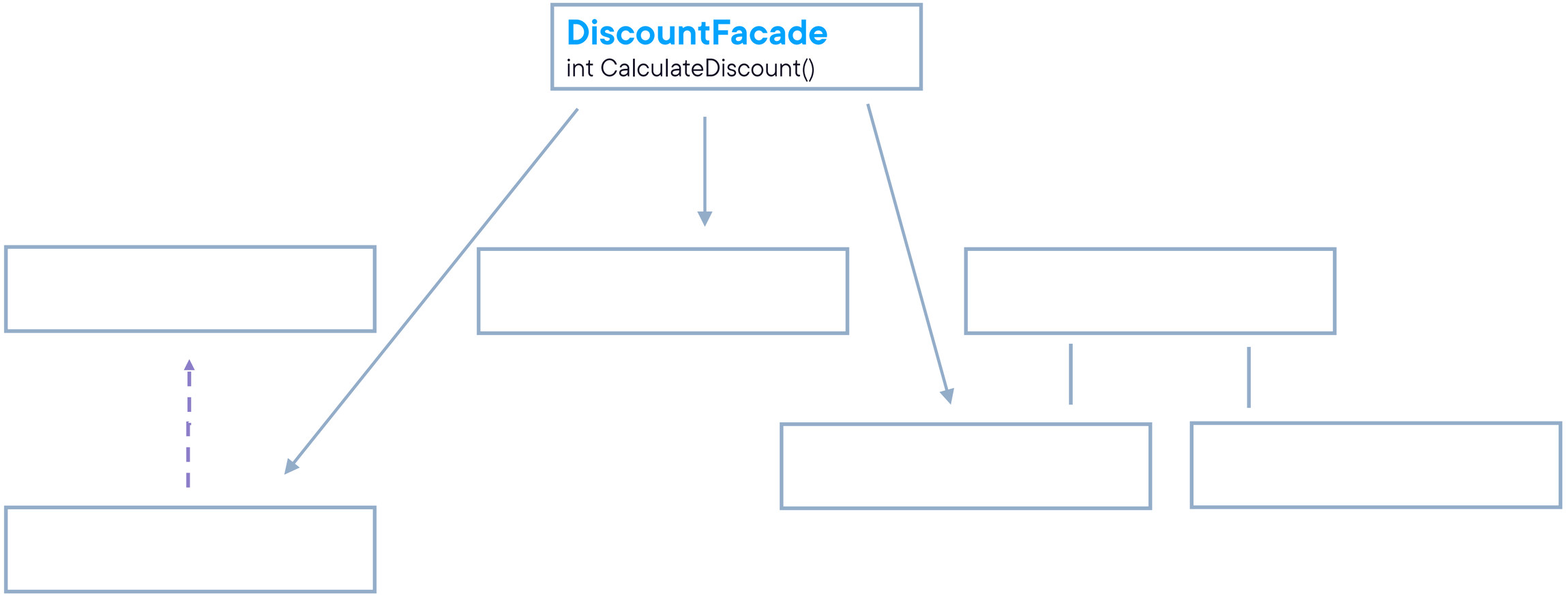


Structure of the Facade Pattern



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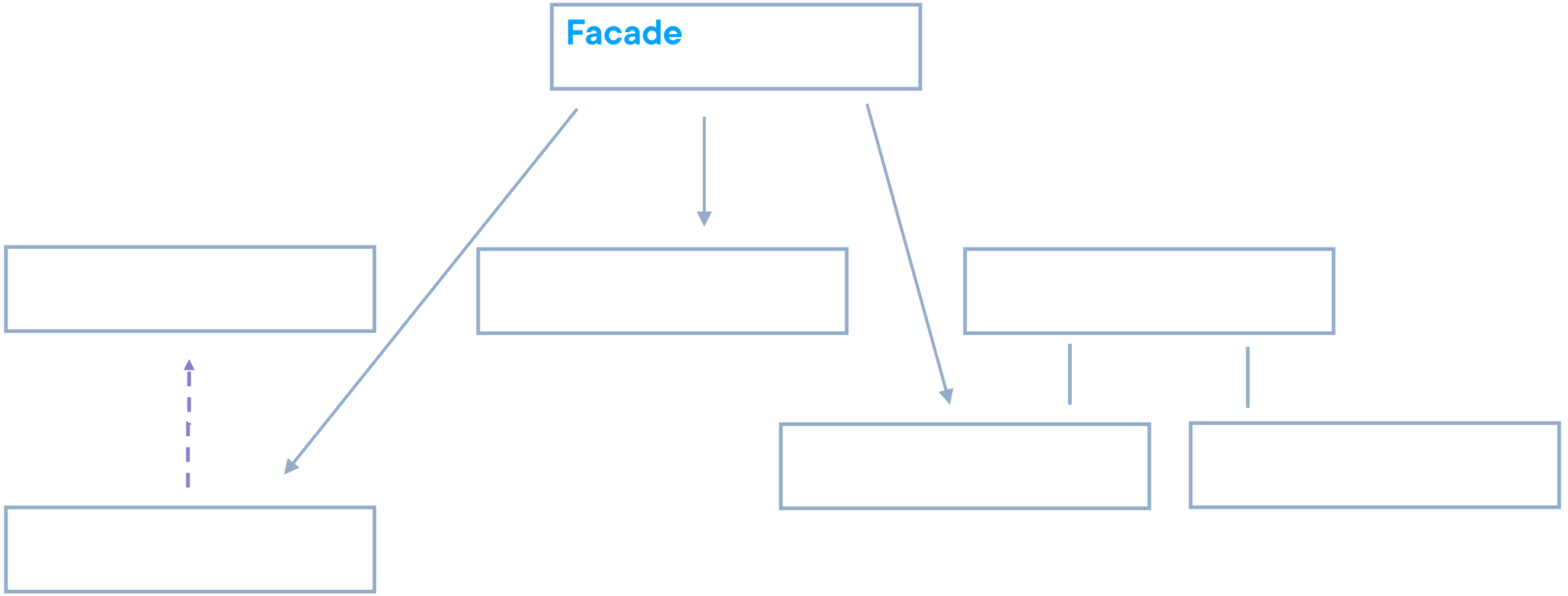
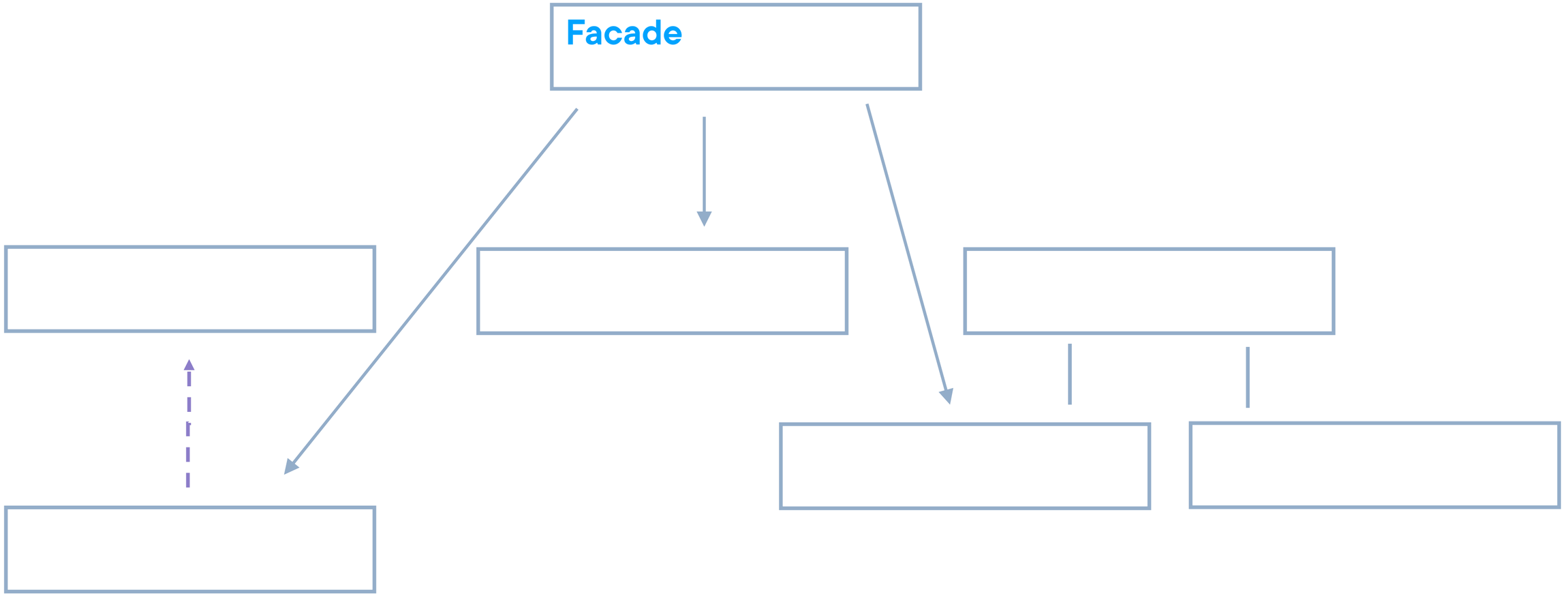


Facade **knows which subsystem classes are responsible for a request, and delegates client requests to appropriate subsystem objects**

Structure of the Facade Pattern



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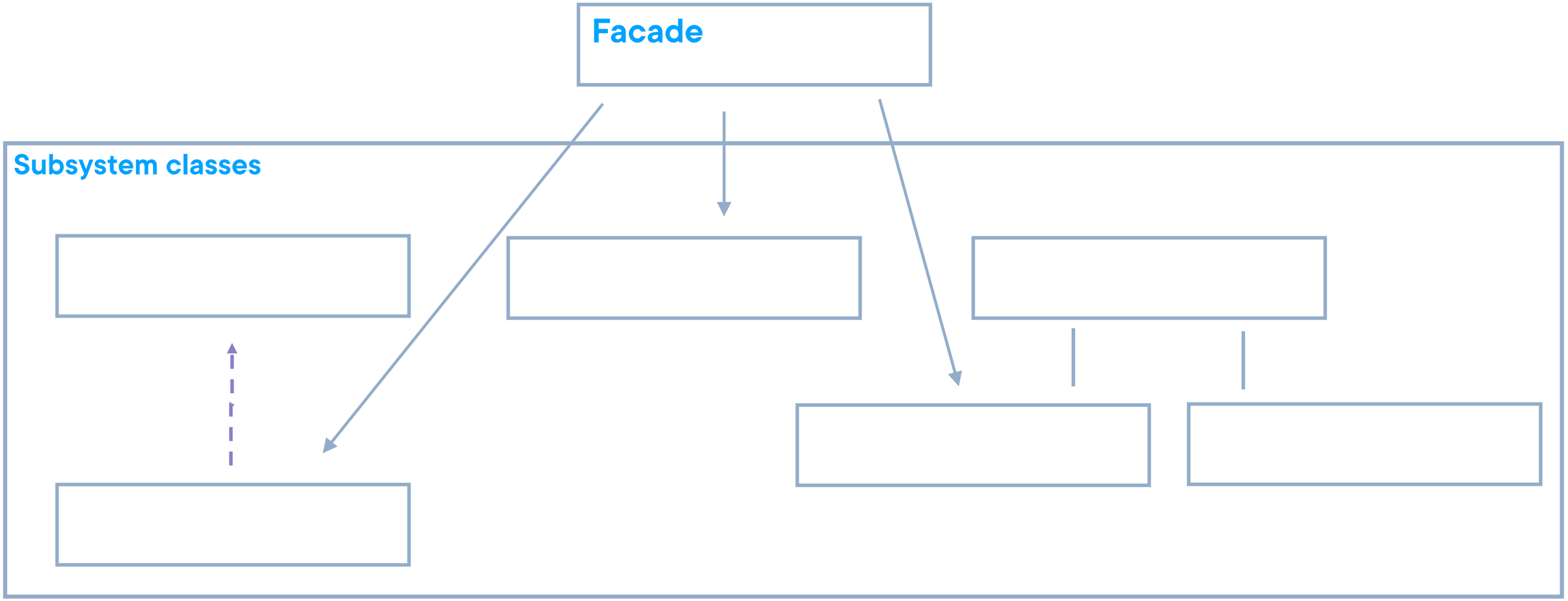


Each `subsystem` **class implements subsystem functionality. They don't know about the** `Facade`**, but they do handle work assigned by it.**

Demo

Implementing the facade pattern

Use Cases for the Facade Pattern

When you want to provide a simple interface into a complex subsystem

When there are many dependencies between a client and the implementation classes of the abstraction

Use Cases for the Facade Pattern

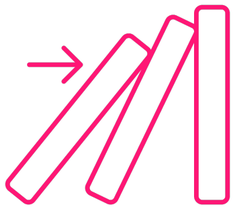
Integrating with legacy systems

Content management systems

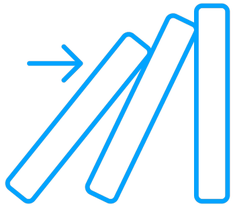
Multimedia playback

Payment processing

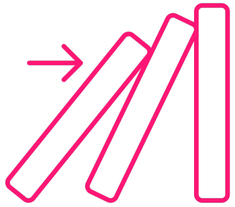
Pattern Consequences



The number of objects clients have to deal with are reduced

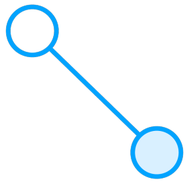


It promotes weak coupling between the subsystem and its clients, enabling subsystem components to vary without affecting the client: open/closed principle

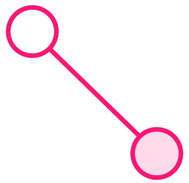


Clients are not forbidden to use subsystem classes

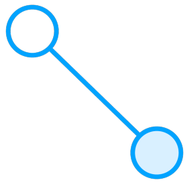
Related Patterns



Abstract factory
Can provide an interface for creating subsystem objects



Mediator
Also abstracts functionality of existing classes, but its purpose is abstracting communication between objects, while facade is about promoting easy of use.



Adapter
Adapter makes existing interfaces useable by wrapping one object, while with facade you're defining a new interface for an entire subsystem.

Summary

Intent of the facade pattern:

- Make it easier for a client to use subsystems by providing one or more interfaces into those subsystems

Higher-level layer to promote ease of use

Up Next:

Structural Pattern: Proxy