Design Pattern

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Design Pattern - Beskrivelse

Navn – fælles betegnelsen – fag ord

Problem – beskrivelse af problemet

Løsning – KUN! Design løsning (UML diagrammer)

Design Pattern – GRASP (General Responsibility Assignment Software Patterns)

- Information Expert
- Creator Pattern
- Controller
- Low Coupling
- High Cohesion

Design Pattern – GRASP (General Responsibility Assignment Software Patterns)

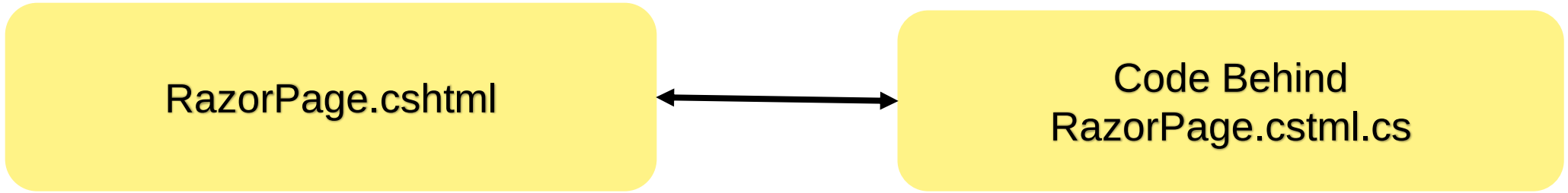
- **Information Expert**
  Hvem skal man spørge for at få information –> den klasse der har data

- **Creator Pattern**
  Hvem kan oprette et objekt ->
  a) Dem der har information til at initialisere objektet
  b) Ved Komposite den klasse der består af objekterne

Design Pattern – GRASP (General Responsibility Assignment Software Patterns)

- **Controller**

What first object beyond the UI layer receives and coordinates ("controls") a system operation?



Design Pattern – GRASP (General Responsibility Assignment Software Patterns)

- **Low Coupling**
  How to support low dependency, low change impact, and increased reuse? ->
  Assign a responsibility so that coupling remains low
  Indication of High Coupling– many relations in a DCD

- **High Cohesion**
  How to keep objects focused, understandable, and manageable, and as a side effect, support Low Coupling? ->
  Assign a responsibility so that cohesion remains high.
  Indication of Low Cohesion– few relations in a DCD

Design Pattern – Pattern fra 1.semester

- Singleton
  - kun ét objekt (kun set indirekte)

- Controller
  - bag en RazorPage (view) er en Controller (code behind)

Design Pattern – Kategorier

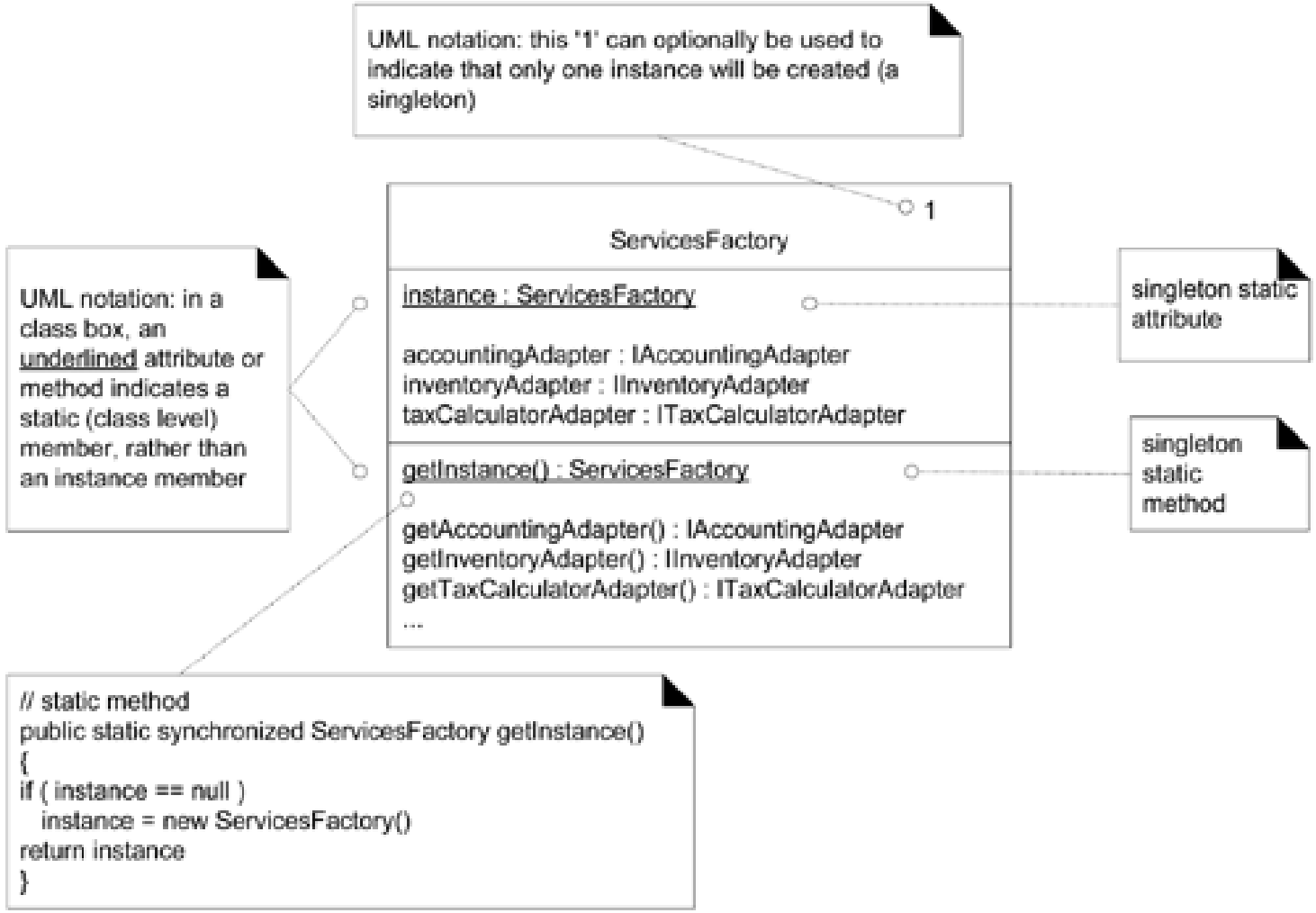
- **Creational Patterns**
  - Factory, Abstract Factory, Singleton …
- **Structural Patterns**
  - Adaptor, Proxy, Decorator …
- **Behavioral Patterns**
  - Observer, Template, Chain of Responsability, Strategi, State …

Design Pattern – Creational Patterns

Singleton

- Problem: Exactly one instance of a class is allowed.
- Løsning:

1. PRIVATE constructor
2. static instance field
3. static read property

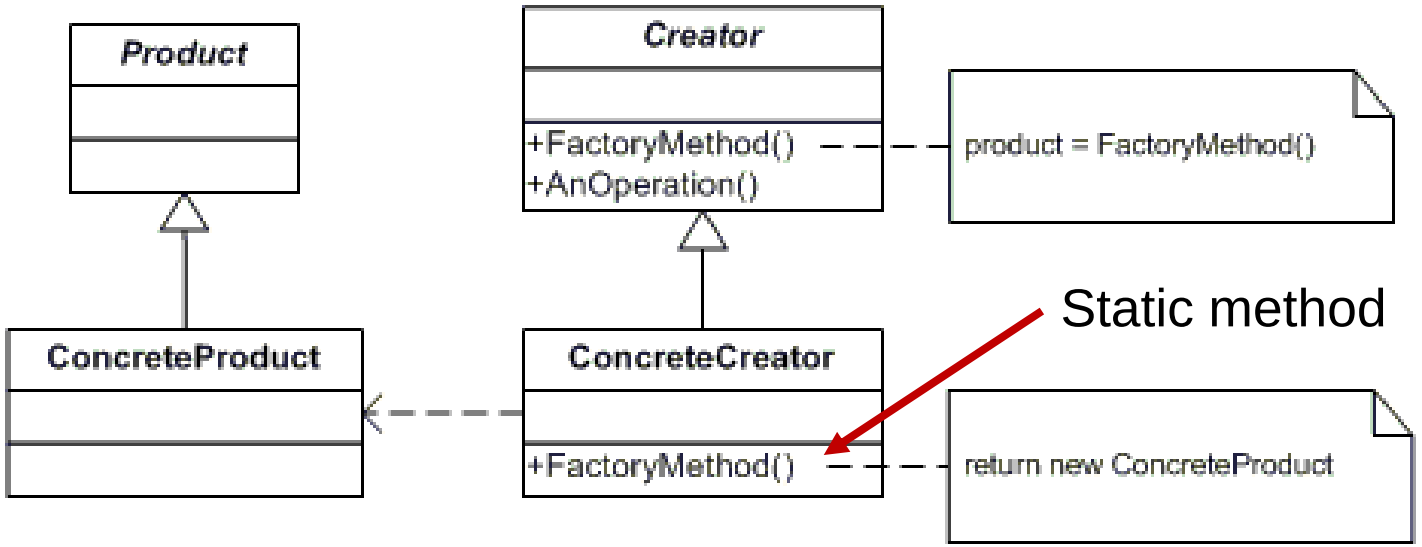


Design Pattern – Creational Patterns

Factory

- Problem: Who should be responsible for creating objects when there are special considerations, such as complex creation logic, a desire to separate the creation responsibilities for better cohesion, and so forth?

- Løsning:



Demo og opgaver

- Demo af Factory, Singleton og Abstract Factory

- Opgaverne OOP3.1 - Factory
- Ekstra opgave OOP3.2 – Abstract Factory

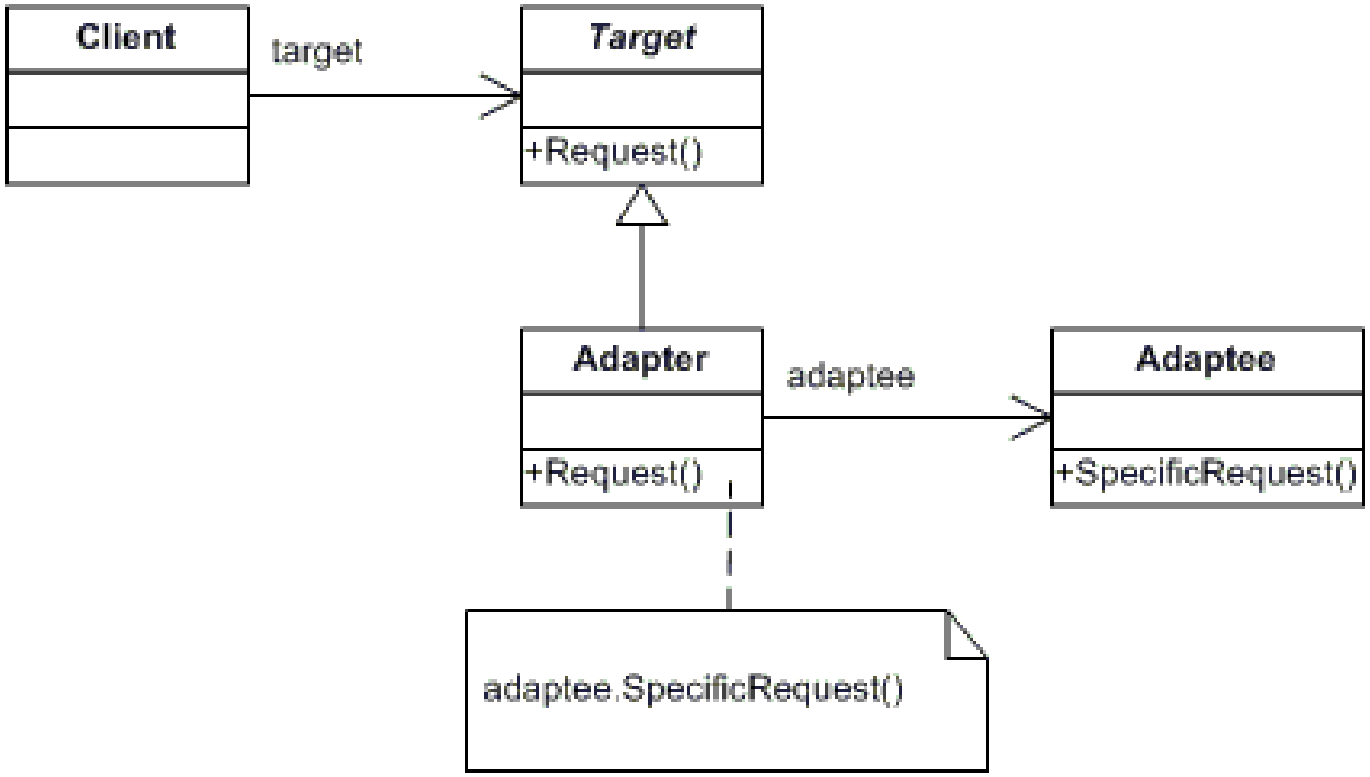
- Fortsætter med Structural Patterns kl 12:15

Design Pattern – Structural Patterns

Adaptor

- Problem: How to resolve incompatible interfaces, or provide a stable interface to similar components with different interfaces?

- Løsning:

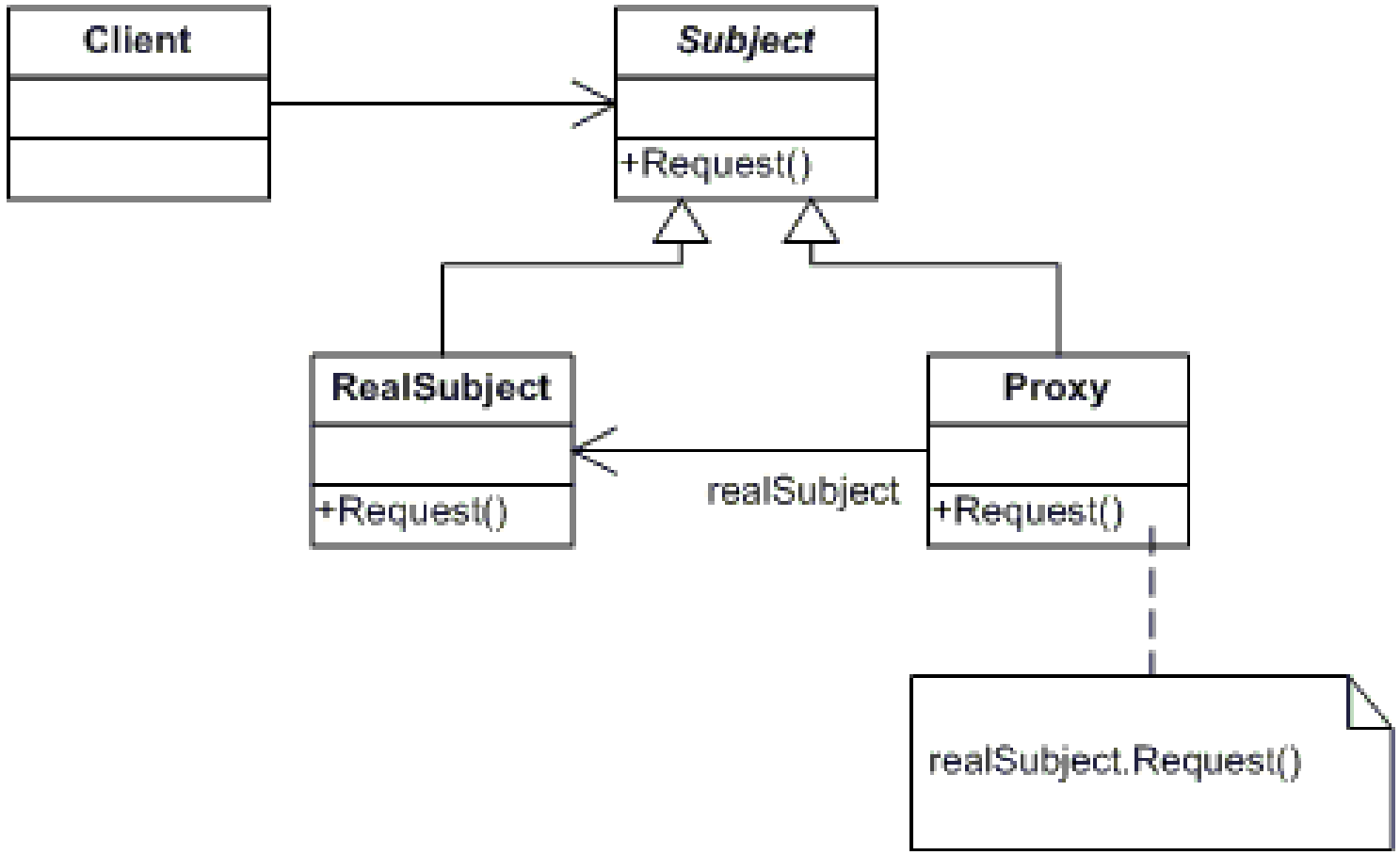


Design Pattern – Structural Patterns

Proxy

- Problem: How to provide a placeholder for another object to control access to it.

- Løsning:

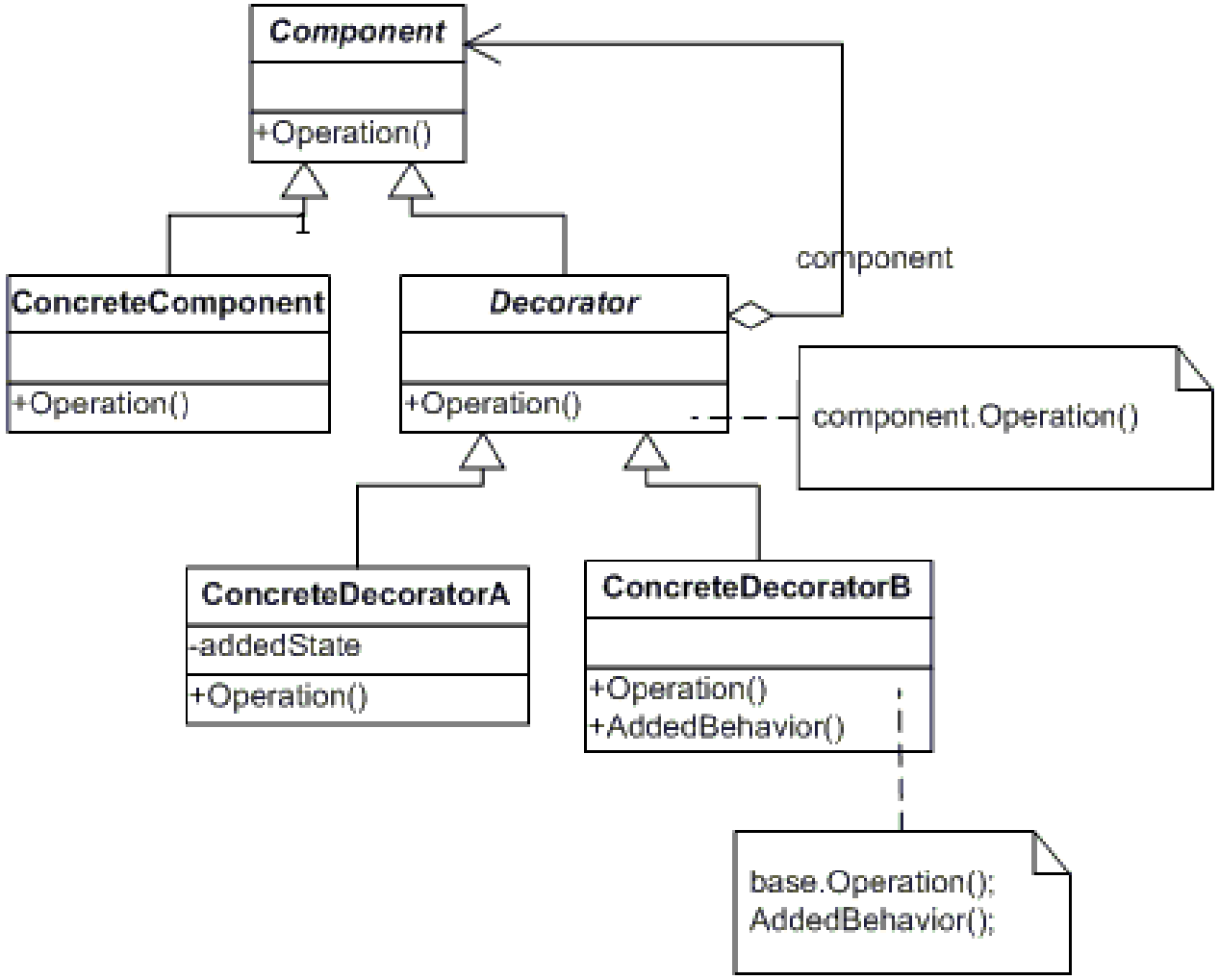


Design Pattern – Structural Patterns

Decorator

- Problem: How to Attach additional responsibilities to an object dynamically

- Løsning:



Demo og opgaver

- Demo af Adaptor, Facade, Proxy

- Opgaverne OOP3.3 - adaptor
- Ekstra Opgave OOP3.4 - proxy