

## Topics for the ASD final exam

### Remaining patterns

- Proxy and dynamic proxy pattern
- Adapter pattern
- Decorator pattern
- Singleton pattern
- Factory pattern
- Mediator pattern
- Builder pattern

For these patterns you should know (when applicable):

- What problem does this pattern solve?
- Advantages and disadvantages
- What are the issues when you apply this pattern?
- What are the different ways you can apply the pattern?

You should be able to apply the pattern to a certain design problem

- With an UML class diagram (like in the homework and labs)
- With a UML sequence diagram (like in the homework and labs)
- In code (like in the labs)

### Framework design

Because frameworks are often full of patterns, you will need to know all patterns we have studied this course:

- Command
- Chain of responsibility
- Composite
- Observer
- State
- Strategy
- Façade (Service)
- Template method
- Proxy and dynamic proxy pattern
- Adapter pattern
- Decorator pattern
- Singleton pattern
- Factory pattern
- Mediator pattern
- Builder pattern

You can expect questions similar like the lab assignments and practice questions from the practice final exam.

## Framework implementation

Techniques used: IoC, context, dependency injection, profiles, convention over configuration

You should understand the code from the slides and labs. You should be able to write this in pseudo code. **You don't need to memorize the Java code**

## Spring framework

- Dependency Injection
  - What problem does it solve
  - When do you use it, advantages, disadvantages
  - Understand the different types of injection
  - Understand profiles
  - Understand the different way to configure Spring
  - You should be able to implement DI in code with annotations
  - You should be able to understand DI in XML (**You don't need to memorize the XML code**)
- Spring boot
  - You should be able to implement a Spring boot application in code
- AOP
  - What problem does it solve
  - When do you use it, advantages, disadvantages
  - You should be able to understand AOP in code with the pointcut expression language. (**You don't need to memorize the pointcut expression language**)
- Events
  - What problem does it solve
  - When do you use it, advantages, disadvantages
  - You should be able to implement events in a Spring boot application (in code)