

Software Engineering Design & Construction

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Organization

Main Topics

- Understanding Software Design and Development
- Software Design Principles
- Software Design Patterns
- Advanced Programming Language Features

Your Profile

- You should be really interested in programming
- You should have a keen interest in software design
- You have very well developed programming skills in Java
- You are willing to learn a new advanced programming language (Scala)

Goals of the Lecture

- To be able to produce “good” designs; i.e. to produce code that is – among others – reusable, maintainable, comprehensible.
- To learn to judge the design of existing pieces of software.
- To get familiar with advanced programming language features and to learn when to apply them.
- To get a deeper and thorough understanding of design patterns.
- To understand the relation between software design and programming languages/
To understand why improvements of programming languages are important/
To understand programming language concepts w.r.t. supporting high-level design.

Organization

Exercises

- We will have (in most cases) one exercise per week; most exercises will have ~10points.
- You are required to submit your own, unique solution.
(Discuss the tasks with others, but solve the tasks on your own.)
- All exercises will be automatically graded.
(The grading will start after the deadline)
 - If you try to tamper with the system you're out.
 - We will compare submitted exercises *at some point in time* to filter to identify “shared” submissions.
 - In both previous cases, you won't get any bonus points at all.

Organization

Exercises

- The maximum bonus is equivalent to a full grade (1,0).
- You'll get the maximum bonus when you get 100% of all exercise points. You'll have to have at least 30% of all exercise points before being eligible for a bonus.
- The bonus for the exam is calculated by multiplying the percentage of gained exercise points with the number of points required to get a full grade better.

`[exercise bonus (in %) * points required to get a full grade better]`

Organization

Final Exam

- We will have a written exam on Tuesday, Feb. 13th 2018
- The exam will take 90 minutes.
The questions have to be answered in English.
- It will be an open-book exam.
- The bonus cannot be used to pass the exam.

Order of Topics

- Programming Languages and Programming Paradigms
(in particular *Reactive Programming*)
- Design Principles
- Inheritance
- (Advanced) Design Patterns