Advanced Software Engineering

Course Introduction
Spring Semester 2017

Dr. Philipp Leitner

University of Zurich, Switzerland
**Time:** Monday, 10:15 - 12:00, BIN-2.A.10

**Language:** English

**ECTS:** 4.0 Points

**Target Audience:**
Students in MSc Informatics

**Requirements:**
MBM, SE, Programming skills
Lecturers
(with a fair bit of guest lecturers)
Weekly Schedule

• Weekly presentations in class

• Homework:
  • Mandatory reading
  • Semester-long group project
Software Architecture
Elastic Systems & Cloud Computing
Language Engineering
Quality Assurance
In Detail

(see webpage for changes)

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<td>20.02.2017</td>
<td>Kickoff and Introduction of Project (Leitner)</td>
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<td>27.02.2017</td>
<td>Software Architecture 1 - Architectural Patterns and Styles (Leitner)</td>
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<td>06.03.2017</td>
<td>Software Architecture 2 - Components and Service Architectures (Leitner)</td>
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<td>Software Architecture 3 - ATAM (Gall)</td>
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<td>20.03.2017</td>
<td>Engineering Cloud Applications 1 - Cloud Computing (Leitner)</td>
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<td>Engineering Cloud Applications 2 - Containerization and Cloud Deployment</td>
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<td>Engineering Cloud Applications 2 - Scalability and Resilience (Leitner)</td>
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<td>17.04.2017</td>
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<td>24.04.2017</td>
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<td>Quality Assurance and Releasing 2 - Release Engineering (Schermann)</td>
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Mandatory Reading

• In addition to lecture slides we will occasionally provide mandatory reading

• Mostly scientific articles

• Part of your homework is to read those

• —> Exam
Exam

*Oral exam*

Time to be decided (early June)

Individual, 20 - 30 minutes per student

At least one question per student is on the reading material
Project

Project in group work

• Implementation task based on real cloud computing technologies
• Groups of ~ 3 students
• 2 presentations
• **Midterm:** 10.04.2017
• **Final:** 29.05.2017
Midterm: 10.04.2017

Present your architecture and rationales, tech. decisions, planned features, and a proof-of-concept demo
Project

Final: 29.05.2017
Demo of final service, demonstrate elasticity, validate design from midterm
• Goal of the project:
  • Build a simple service for sentiment analysis of Twitter data
  • The service should run in an existing public cloud

You may use an existing Java or Javascript library to implement the actual analysis.
Features

The service should:

• Allow the registration of new terms (e.g., brand names)
• When a term is registered, you should start tracking tweets about the term and classify them using sentiment analysis
• Allow querying what the sentiment about a registered term is after registration
• Be elastic - react autonomously to changes in load
Outcomes

• Two **artifacts** should come out of the project:
  
  • Fully **implemented service** (source code) + clear instructions how to deploy, run, test
    
    • Submitted per mail
    
    • Hard deadline: friday before the final presentations
  
  • Two **presentations** here in class
    
    • *Demo plus PPT slides (20 minutes in total)*
    
    • *Every member of each team should do something in either of the presentations*
Presentations

Please think about (and report in your presentations):

• Your choice of architecture, including the rationale of all decisions
• How and why your system scales
• How you have tested the scaling of your system

How you relate to the lectures is part of the grading!
Grading

Exam: 60 pts
Project: 40 pts
Presentations: 15 pts
Solution: 25 pts
Total: 100 pts
Grading of presentations / project solutions will necessarily be somewhat subjective and include:

- Structure / clarity of presentation
- Sophistication of demos
- Technical sophistication of solution
- Relation to lectures
- ...

Barring exceptional circumstances, groups are graded as teams
Project Registration

Teams formed in class

—> AKA now

Every team needs a “speaker”. (S)he should send me a mail with all team members:

Names

Mail addresses

Topic