SEIP Exam Prep

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21.11.2024

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Software Engineering in Industrial Practice

Exam Recap

Exam:

- 75-minute, in-person, written exam
- Location: Garching, Date/Time: **10.12.2024 at 17:00 in Galileo (8120.EG.001)**
  - Please show up early!
- Exam administered from sebis with input from Dr. Engelschall
- Exam can be written in English or German
- There will be no retake exam!

→ If you have no done so already, **please register for the exam** via TUMonline! (deadline: November 29)

Exam: What to Expect

The exam is meant to test your understanding of the concepts taught in the lecture, as well as the ability to apply these in “real-world” scenarios.

There are two overarching types of questions:

- Multiple choice
- Short answer (the majority are these)

Important: it is crucial that you provide an explanation / justification when asked!

Examples from previous exams

The Setup, two types

Aufgabe 1 **(12 Punkte)**

Sie befinden sich in einem Vorstellungsgespräch für die Rolle einer/eines Software Architekten/Architektin bei einem Software-Hersteller. Ihr Interviewpartner möchte Ihre Grundkenntnisse im Bereich Software Engineering prüfen und bittet Sie die folgenden Fragen (a-l) zu beantworten. Pro Frage ist *genau* eine Antwort richtig. Es werden *keine* Negativpunkte für falsche Antworten vergeben.

Translation: *You are interviewing for the role of a software architect/architect Your interviewer wants to test your basic knowledge in the field of software engineering and asks you to answer the following questions (a-l).Exactly one answer per question is correct. No negative points are awarded for incorrect answers.*

Aufgabe 2 **Nachdem Sie kürzlich Ihr Studium an der TOP Universität in München (TUM) abgeschlossen haben, haben Sie beschlossen, Ihren Unternehmergeist zu entdecken und ein Startup zu gründen, das sich auf Softwareentwicklung spezialisiert. Da Sie wissen, dass "Softwareentwicklung" immer noch ein sehr weit gefasster Begriff ist, müssen Sie zunächst den genauen geschäftlichen Schwerpunkt Ihres neuen Startups definieren. (13 Punkte)**

Translation: *Having recently graduated from TOP University of Munich (TUM), you have decided to explore your entrepreneurial spirit and found a startup specializing in software development. Knowing that "software development" is still a very broad term, you first need to define the exact business focus of your new startup.*

Multiple Choice Examples

Which of the following is an example of the "software prototyping" approach to software development?

- In-house SaaS
- A customer demo for sales (!)
- Operational information system
- Open-source framework

Which of the following statements is true?

- The scope and zoom of the architecture are outlined under maxims of architecture.
- Since four types of IT architects are defined, we can easily compare the roles of all four.
- Enterprise Architecture is primarily concerned with business processes.
- In practice, there are only a few maxims, but many specific solutions. (!)

For which of the following scenarios is the use case points method for estimating effort not suitable?

- New development of individual IT systems.
- Maintenance of existing IT systems with only minor adjustments.(!)
- Further development of IT systems with many new technical requirements.
- Adaptation of standard software to specialist business processes in the company.

Which of the following software classes does not have consumers and companies as its main target group?

- Machinery & Network
- Development and Tools (!)
- Business and Data
- Graphics and Media

Short Answer Question Example

Setup: *After you have acquired a new project, you have your first internal developer meeting.*

a) *At the beginning of the meeting, you receive a call from the customer. They want to know if you can provide the software via a virtual machine image. Explain the principle behind this and the advantages thatthat arise from this.*

b) *In the project context, however, you will find provision via a container image more suitable. List the disadvantages of deployment via a virtual machine image, explain the principle of the container image and its advantages.*

c) *Also explain why in industrial practice you should have at least basic knowledge of Bare Amalgamation if the application is provided on a container basis.*

d) *Before you can deploy the application, you must go through the different phases of release management. List all the phases that must be completed before the release phase in chronological order, starting with the earliest phase.*

Maybe some important topics to focus on

- Software Engineering basics and Software Development approaches
- Anything related to the “King Discipline”!
- Architecture principles, patterns, and types (!!!)
- Basics on tech stacks and server architectures
- Deployment
- Heuristics, problem-solving, and bigger picture topics
- (Large-scale) Project Management

But this is just a guiding direction – don’t bet on it!

Other Tips

- Study all the material!
  - But focus on what Ralf said was most important (i.e., what he focused on the most)

- Focus on and understand the principles, maxims, roles, taxonomies, etc. introduced in the lecture
  - Are you able to explain these?
  - Give an example of each?

- Many concepts and approaches are introduced in the lecture in juxtaposition
  - Make sure you know the pros and cons
  - Example: Master-Slave vs. Master-Master

- Don’t worry!
  - If you paid attention to the lecture and study well, you’ll be fine :)

Please fill out the course evaluation!
December 2 – 10

Questions?

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