SEIP Exam Hints

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Software Engineering in Industrial Practice
Exam Recap

Exam:

- 75-minute, <u>in-person</u>, written exam
- Location: Garching, Date/Time: **10.12.2025 at 16:30 in "Interms I" in Garching**
  - Please show up early!
- Exam administered from sebis with input from Dr. Engelschall
- Exam can be written in English or German
- There will be <u>no</u> retake exam!

→ If you have not done so already, **please register for the exam** via TUMonline! (deadline: December 3)

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
- Scenario + Short answer (the majority are these)

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

Examples from previous exams

The Setup

Having recently graduated from the Excellence University of Munich (EUM), you decided to pursue your entrepreneurial spirit and found a startup focusing on Software Engineering. After all, you were an ace in your Software Engineering courses at EUM!
Knowing full well from your exciting lectures that "Software Engineering" must be more well defined, you wisely first decide to sit down and plan out your startup's business model and main focus.
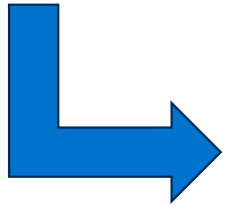
Your startup is off the ground and you have already gained a new client. Congratulations! For the new project, you wish to plan out your workflows so that you can manage activities and make any new hires, if necessary. To start, you focus on <u>business efforts</u>.

As part of your new hires, you bring one particularly promising candidate on board, who you believe will soon take over the role of Lead Architect. Before this person is ready, however, you wish to impart some of your valuable "king discipline" knowledge, thanks of course in part to your exciting times in the SEIP course at EUM.

. . .
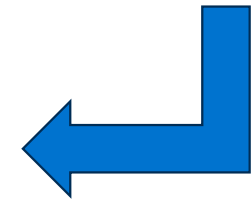
Multiple Choice Examples

TUM

True / False Selection

a) Which of the following is a false statement?

- ☐ IaaS only provides the bare hardware and the networking layer.
- ☐ PaaS generally guarantees continuous service.
- ☐ A prototypical example of SaaS would be a web-UI-based service.
- ☐ FaaS includes an application layer for users to interact with.

Outlier Selection

f) Which of the following can **not** be considered a *technological* Software Engineering discipline?

- ☐ Software Refactoring
- ☐ Software Deployment
- ☐ Software Testing
- ☐ Software Architecture

Clarification / Definition

i) What is meant by a "dominating environment" in the context of reactive systems?

- ☐ The system decides based on the environment when to shut down.
- ☐ The stream of data is continuous and generally does not stop.
- ☐ The format of incoming data is not known to the system.
- ☐ The environment always governs the behavior of the system.

Compare / Contrast

l) What is the main difference between a Managed Heap and a Managed Package?

- ☐ Managed Packages are easy to uninstall, while Managed Heaps are not.
- ☐ In Managed Heaps, each application possesses its own installer, while Managed Packages utilize a shared package manager.
- ☐ Managed Heaps deploy applications onto a single shared filesystem, while Managed Packages are deployed on distinct filesystems.
- ☐ Managed Heaps handle dependencies more gracefully, while in a Managed Package, dependencies must be manually resolved.

! This is not an exhaustive list, though!

Short Answer Question Example

Setup: *Your startup is off the ground and you have already gained a new client. Congratulations! For the new project, you wish to plan out your workflows so that you can manage activities and make any new hires, if necessary. To start, you focus on <u>business efforts</u>.*

a) In order to develop a fitting solution for the client, the business efforts workflow is quite important. Describe the overarching goal of this workflow, and name at least three roles who are involved.
   ➢ Basic Comprehension

b) Of the roles you named, select one. In which step(s) is this role in a leading position, if any? Where does it support, if any? Justify your answer by demonstrating your understanding of the role's activities and responsibilities.
   ➢ Contextual Understanding

c) A final aspect of planning in the business efforts workflow comes with effort estimation. Using your lifecycle model of Software Engineering Efforts, where do you expect your chosen role (from above) to focus their time the most? Are these efforts bottom-up or top-down? Justify your answer.
   ➢ Recall of concepts

d) What lifecycle stage do you expect to necessitate the greatest efforts among all roles involved?
   ➢ (Very) short answer!

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 Dr. Engelschall 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: Thin vs. Rich Client!

- Try to figure out the *context* of the problem/question
  - This is usually relatively finely scoped!

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

Please fill out the course evaluation!
December 1 – 10

Questions?

Moodle Forum?

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