
LUT
University

Software Engineering Models and Modelling

Introducing the Course Project

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Two things to note right at the start

We are reviewing the course project at the start, because weekly assignments involve working on the project, step by step. If weekly assignments are accepted (pass/fail), your team may improve and use these parts in the final project report.

There will be an alternative, slightly less hardware-focused project provided at the start (AudioNow by MediaFun). The alternative assignment is more software focused and will concentrate on a podcasting + social media service.

Overview

Your team will act as the software engineering team for a fictional software development and outsourcing company. This fictional company has accepted a contract from the (fictional) South-Karelian Environmental Institute Ry. to develop software design for a new distributed air quality sensing network.

In this project, your team will take on the role of a software company that provides development services and has recently taken an assignment from SEIry. Your team will be required to provide a software design, process plan, and design risk analysis as the first step of your development contract with SEIry, based on which the company will decide if they will order the full software from you.

Case

South-Karelian Environmental Institute Ry. (SEIry) Is a regional non-profit that is mainly funded by grants and the government. Its task is to provide up to date environment quality in a manner that is sustainable in both workload and financially. They have a new mandate in 2020s to start producing air quality data. They need a plan for distributed sensing network software EnviroSense, data collection and analysis back-end software, and visualization dashboard.

In your team, you are required to design an architecture for the EnviroSense system, with integration to existing external sensing networks. Your team is also expected to draft a project plan for implementation. In addition of this, you are expected to plan a pitch, where you explain the project design to the client (SEIry CTO / CEO).

Deliverables

Your software design should include the following.

1. Use Case Diagram with use case descriptions
2. Domain model of the system as one class diagram.
3. Deployment diagram depicting the entire EnviroSense infrastructure and connected services.
4. MVC or BCE-model of the major components of the EnviroSense system
5. Activity and communications diagrams depicting the major use cases
6. Risk analysis and risk modelling
7. Alpha Project plan and schedule
8. Pitching slide deck

See detailed instructions for each section in Moodle.

Ground rules

Minimum of one person per team, maximum of three persons.

The main output is the software design, including architecture and project plan.

This project will be 100% of your final grade.

Final deadline is **Friday, 13th of December (15.12.) 23:55 (GMT+2) 2024.**

Start early. Over a full month and 50% of the course (3 ECTS; 3x27h) is reserved for working on this.

You may not share materials or any written outputs with other student teams. You may share tips or links, if this can be accomplished without showing your own work.

Intermediate checkup in 1st week of December

A fifteen minute discussion meeting with the lecturer => opportunity to discuss and to get feedback and tips for improving the work.

One person reserves and then shares with the entire team.

Prepare to discuss the following: a) What you have accomplished (show the draft and progress), b) how you plan to proceed, c) and if there is something that prevents you from proceeding (+ questions for lecturer). I recommend against slides, but max. allowed is two (one for a-b and second for questions).

If you can’t make it, there are instructions on how to record a presentation in FlipGrid – you will get video feedback through the same system.

See Moodle for detailed instructions.

Grading (tentative, subject to change)

You can expect the 100pts from the assignment to be divided as follows. Final description of grading in Moodle, on project assignment page.

- Introduction and overview, 6pts
- Use cases, 10pts
- Domain modelling, 8pts
- Deployment diagram, 10pts
- MVC/BCE modelling, 10pts
- Activity and communication diagrams, 14pts
- Alpha project plan, 8pts
- Risk modelling, 8pts
- Pitching deck, 8pts
- Execution of work (professionalism) and clarity of communication, 10pts

Also: Intermediate checkup in early December, 8pts

Weekly assignments and course project?

Weekly assignments support working on the project. If your assignment return is accepted, you may use it directly as a building block of the course project.

Course project grading is more demanding and expects a little more, so be prepared to improve and add on to the assignment content even if accepted.

Q&A