

Software engineering project proposal 2022-2023: assessment workflow for teachers and students

Created by Anni Rytönen, last modified by Pasi Sarolahti 32 minutes ago

Project Proposal - Assessment workflow system for teachers and students

1. Introduction

The Department of Computer Science develops and maintains a collection of software to support teaching and learning in computer science courses. These systems include A+, a system for providing online materials and automatically graded assignments for computer science courses, and OSR ("Osasuoritusrekisteri"), a system for storing students' partial grades (such as exercise points or grade) until the course exam has been passed and the complete course grade can be counted and exported to the Student Information System (Sisu).

Now, we have the need to further streamline the process of handling all the assessment data from single course points received in course systems to a complete course grade registered in Sisu. In addition to supporting teachers' and students' awareness on the course progress and still missing required parts, there are needs for over-course follow-up on student progress, to act early and according to recognized support needs. Some of our important needs are:

- A software for storing and reviewing course progress, using the grading data from A+ and other course systems. Students use the service for reviewing their personal progress on different courses, and teachers use the software for managing their courses more efficiently, as many of the courses have hundreds of participants on each iteration. When possible, the course grading should be transferred automatically from course systems, but in some cases, teachers may need to input results also manually (e.g., for project or exam grading)
- visualize the collected data to the teachers, students and department administration for better situation awareness, and to support timely decisions on course development.
- compute the course grades that are a result of different kind of activities on a course (e.g., automatically graded assignments, projects, exams), and export them to other Aalto information systems, such as Sisu.

The software engineering project group is welcome to suggest ideas and solutions for the features of the software. The project group can focus on user experience, service design, system integrations or something else according to the interest and focus areas of the participants. The software and its features are designed in collaboration with the client.

This project will have significant impact in improving the everyday teaching processes at the department, both by providing students an improved view of their study progress, and by allowing teachers to more efficiently manage their courses. Therefore, your ideas and effort on the outcomes are very welcome!

2. Project goals

The goal of the project is to find a usable and functional solution for managing the course grading and study progress processes. The expected outcome is a functional prototype that can be further developed into complete product to be taken to use in Autumn 2023. Because the further development and maintenance is conducted by the staff at the department of Computer Science, it is important that the software is well designed and documented.

3.-4. Technologies and requirements for the students

This project can be implemented quite independently of the other course systems, and the project group therefore has quite much freedom in deciding what development frameworks or programming languages to use. However, because the maintenance is expected to continue at the department also after the project, the chosen technologies should be agreed on with the client to ensure that follow-up development is feasible. The project involves web development, for both for the front-end and the back-end, as well as database design. There will also be interfaces to other systems for user authentication (Haka) and importing and exporting the course information and results (Sisu). For reference, A+ is developed using the Django framework based on Python, but the group may decide to use other technologies as appropriate for this project. The client will support in the technicalities related to integrating with A+ and other related systems.

5. Legal Issues

Intellectual Property Rights (IPR):

- The results are published under open source license GPLv3 or MIT (depending on whether the project is built on top of existing systems that require GPLv3).

Confidentiality:

- The client will not share any confidential information with the students.

6. Client

The end-users for the product are all the teachers and students at the CS department, even the whole Aalto. The end-users are represented by the product owner. Additionally, the project group will work in close technical collaboration with the CS-IT (IT support for CS department) and EDIT (Educational IT support at CS department) teams who will continue product maintenance and support after the project.

The product owner coordinates the discussion with the group and the department. The documentation language is English, and discussion language with the team representatives is Finnish or English, depending on group and client representatives. Our team offices are A234 (CS-IT) and A145 (EDIT) in the CS building, although the teams may work remotely for part of the week. We will provide (loan) the group with laptops with the required programming environment, and give orientation & support when needed. If needed, we may provide part-time desks at the department. We use Teams, Zoom and Zulip for online communication and will agree on the tools to use with the group together.

Client representative(s)

- Client representative/main contact: Pasi Sarolahti, email: pasi.sarolahti@aalto.fi (group CVs can be sent to this address)
- Product Owner: Anni Rytkönen

No labels