

On expectations to the group work on development of the FireGuard software product

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The purpose of this document is to outline the rationale behind the group work on the FireGuard software product and clarify expectation to the content and results from the group work.

The ADA502 course is comprised of two main elements as covered in the lectures:

1. **Engineering methodology** for software products following Agile development principles.
2. **Software technologies** and architecture for developing software products in a cloud computing context.

By combining these two elements in the group work on the FireGuard software product, we want to simulate to the extent possible a real development process as you would find it in industry. This is also why we do not provide an exact set of requirements to the product, a software architecture, and start code and units tests as you may know from other courses. Providing these artefacts up-front would contradict an agile development process. What we provide is an initial implementation of the fire risk computation model which you then have to integrate into your software product in accordance with your chosen software architecture.

As a consequence of the above, we do not expect that every group will be developing the exact same FireGuard software product and you will most likely end up with different solutions. What we do expect is that you

1. **Apply an agile development** process based on Scrum. You do not need to strictly follow all aspects of Scrum with daily meetings and roles (product owner, master), but you need to work in a systematic manner, use backlogs, sprint planning and reviews. And you need to reflect on your development practices.
2. **Apply the software technologies** covered in the lectures for source code revision control, testing, CI/CD pipelines, REST, containerization, security, messaging, and persistent storage. Specifically, how you will apply these depends on your software architecture design and the user stories that you choose to support.

We do not expect that you develop a front-end/user interface for the solution, and in some cases it may not necessarily be relevant to apply all software technologies covered in the lectures. In that respect, the lectures provide a set of software technologies from which you have to select the ones that are relevant for you. The FireGuard software product is only required to be a cloud-service that can be used by third-parties to, e.g., implement end-user applications.

The nature of the group work makes it impossible to specify an exact minimal set of requirements to the functionality of the FireGuard software product, but we expect something along the lines of

1. A REST service where locations can be provided and fire risks obtained for some days into the future
2. Communication to/from the services should be encrypted, and there should be some level of authentication and authorization in relation to the services and end-points
3. The software product should harvest data from MET and use it as a basis for fire risk calculations
4. A messaging service where fire risks can be provided to subscribing clients
5. Persistent storage of weather data and computed fire risks for efficiency

The solution that you end up with should be cloud-deployable and you should argue why, but there is no requirement that you have deployed it (due to associated costs). In some cases, you may find free cloud services that can be used to deploy (part of) your software product.