

Team 4, Retrospective 1

Reflect on the following questions and submit a pdf with brief reflections. Individual and team reflections follow the same format. Team reflections are created together and are handed in one report per team. This assignment will only be open for a week, it defeats the purpose of reflection to have this handed in much later.

Architecture, Distributed Systems, and Process

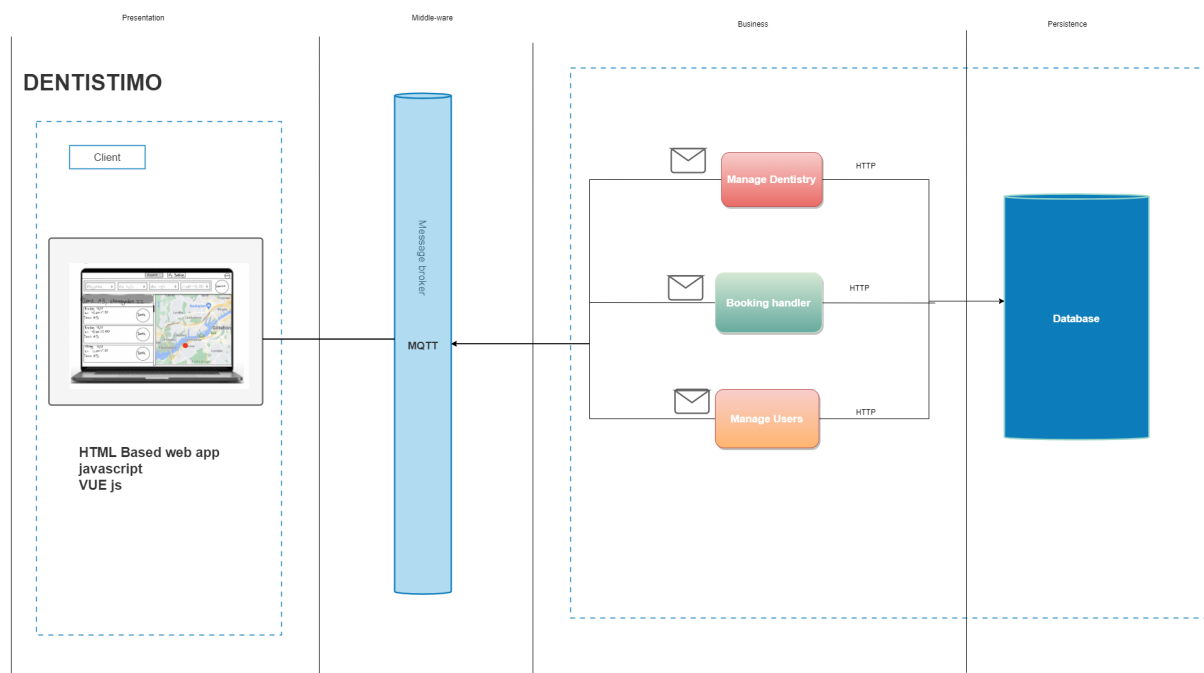
1. What are the Architectural Significant Requirements that we recognized? And what are the main Architecture design decisions that we made?

From the assignment briefing we can draw several significant architectural requirements that we think are very important to our system:

- The system shall be **scalable** as many users will use the system at the same time. We believe that the system shall give our users the ability to be used through a desktop computer, lpad or a mobile phone for example.
- The system shall respond within one second to users' search for clinics, time booking, etc. Therefore **performance** will be of high priority
- The system needs to be **available** so the users can search for clinics at any time to be able to book an appointment.
- The system shall be divided into small components to be able to divide the responsibilities between them.

Based on these significant requirements the high-level design decisions we've made is to use an architectural design that supports scalability, performance and availability.

2. What decisions did we make about software architecture styles?



In order to fulfil the requirements listed in the assignment briefing, we agreed to use the following architecture styles:

- Client-server
- Publish-subscribe
- Layered

Since one of our main architectural decisions is to build a web-based application, the client-server style will be inherent to that architectural decision. A web-based application is a client-server architecture. The client will be a reactive-based web framework containing a **UI** component, which runs in a web browser and communicates via publish-subscribe communication with the server through an MQTT broker. The broker will also handle all communication between components in the server back end. The server consists of the three components **Dentistry Manager**, **User Manager**, and **Appointment Handler** which all interact via the broker, as well as use an HTTP protocol to perform the CRUD operations on a centralized MongoDB database.

3. What design decisions did we make about our distributed system?

For the purpose of this assignment we will adhere to the following design decisions, using a:

- Reactive-based web framework
- Third party service provider (API) for geographical visualization

4. What decisions did we make about technologies e.g. for distributed system or user interfaces?

We have made several design decisions with regards to specific technologies. With the competencies of the Scrum team in mind which we will use as a methodology, the client side or the front end will utilize the MEVN web stack, (MongoDB, Express, Vue.js, Node.js) and the server-side or back end will utilize a MQTT library. The geographical visualization will be implemented using MapBox, because the team's software engineering consultant (T.A.) has experience with and recommended us using this technology.

5. Based on our knowledge of software development processes, what relevant concepts or methods did we plan to apply?

Based on our knowledge we will implement this assignment following the Scrum methodology, including daily standups to maintain team communication and agility. We will divide our work into 3 sprints of 2 weeks through which we will deliver our system in increments, improving and adding functionalities as we collect feedback and knowledge. To be able to respond to change effectively we will perform sprint retrospectives and include product owner (TA) feedback on the system requirements.

Our requirements will be collected as user stories and use cases mainly, which we derive from the functional decomposition diagram and the assignment briefing document supplied for the course.

Our work will be managed with the help of a Kanban board where we keep track of the project. We will assess user stories and evaluate their complexity using Planning Poker and team members can pull from the board as we progress. For the purpose of the assignment we also have clear roles and responsibilities for the Scrum Master, Architect/Product Owner and Development Team, with room for flexibility and adapting to teamwork dynamics as we remain a cross-functional team.

Personal/Team

1. What have we learned about each other that might be relevant for the project?

We enjoy discussions and we are open to new ideas and perspectives. We can benefit from this from a learning perspective but at the same time we need to be mindful of the time we spend on this. We all want to contribute in the best possible way in order to not only complete the project but to understand all areas of the project. We are functional in a hybrid way of working where some of us spend time on campus while others are participating via Zoom. As a team we want all team members to be free of whatever working environment fits the team member best.

2. What type of cross-functional skills have we identified in our team, and how are we going to use this in defining our members' roles?

Overall we have similar experience and having attended the same courses in the program, also similar knowledge of technologies. However we have a nice spread of interests in different areas of software engineering throughout the team, with some members more into programming, some more into databases, some more into architecture, and some more into project management. Most of us already have experience working together from at least one previous project and we are at a slightly more intermediate stage in our team climate because of this. We have gotten well acquainted with a way of working that fits us well and that lets us work effectively across our team of seven.