

# Project Plan

Company 1 - TDDC88

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Version	Author	Updates	Reviewed by	Date
0.1	A. Nilsson & S. Gharedaghi	Initial version	D. Ma	2021-09-16
0.2	A. Nilsson & S. Gharedaghi	Updated from feedback and added SOP&Risks	D. Ma	2021-10-15
0.3	D. Ma	Minor fixes in section 4	E. Sköld	2021-11-02
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0.4	D. Ma	Developed section 5.1, 5.3, added subsection 5.5	E. Sköld	2021-11-08
0.5	D. Ma	Developed section 5.1-5.3	A. Nilsson	2021-11-17
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# 1 Introduction

## 1.1 Background

The regional health care in Östergötland uses many different systems and services to keep track and get information about patients. This causes some problems since it is a time consuming process and can, in the worst case, cause lack of safety for the patient if the information can not get delivered in time. Patient information is documented on a paper journal that is only available for the person that happens to have the journal at the time. This also causes problems with sharing and getting the correct information. We have been tasked to digitize their journals and present all relevant information on a user friendly application, which should be easy to use and understand. The system shall also be mobile and work with different units. The system shall also be customizable to fit the needs for people with different tasks. For more requirements please view the requirements document.

## 1.2 Purpose

The purpose of the project is to make patient information more accessible for the employees at the regional health care in Östergötland.

## 1.3 Goal

The project goal is to develop a system that provides the regional health care in Östergötland with relevant and accessible information in a user friendly and mobile way.

# 2 Scope

The following Work-Breakdown-Structure (WBS) shows an overview of what the project aims to fulfill and how we will achieve it.

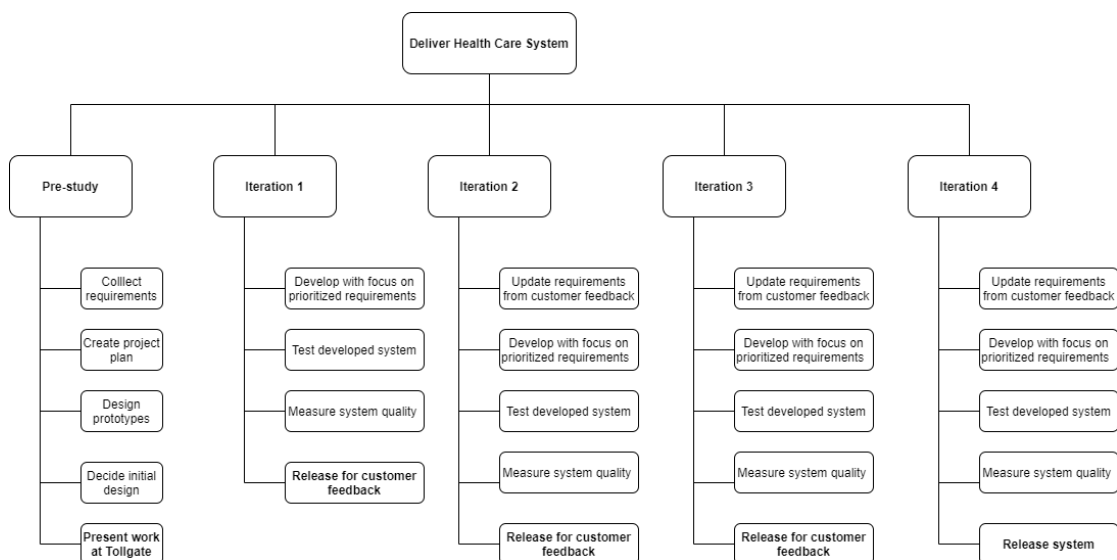


Figure 1: Work Breakdown Structure

# 3 Delivery to customer

The system is going to be developed in four iterations that all end with a delivery to the customer. After each delivery we seek feedback and thoughts from the customer to get an idea in what

direction we should continue with the project. The feedback will help us develop new or update our existing requirements. After the fourth iteration we will present the system at VSSE'21 - Valla Software and System Expo the 16th of December 2021.

## 4 Organization and employees

The company is divided into two departments, Product & Sales (P&S) and Research & Development (R&D). The focus of the P&S department is mainly customer contact, requirements and testing. The R&D department mainly focuses on topics regarding design and implementation. From these teams we have created cross functional teams with a specific task. These teams have developed during the project to focus on different tasks as the projects needs have changed, see more under 4.2

### 4.1 Roles

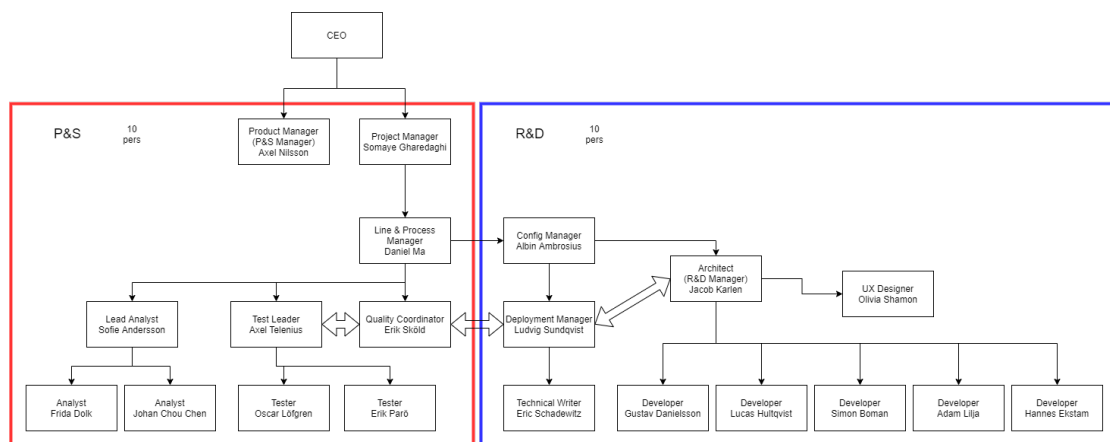


Figure 2: Company Flowchart (first half of the project)

#### Product Manager – Axel Nilsson

A strategic product owner is to be the link between the customer and the developers. This means handling the product backlog and trying to prioritize requirements in the best way possible to match customer needs. Also, creating a vision for the product so the whole team knows what we are working towards.

#### Project Manager – Somaye Gharedaghi

Breaking down the work by creating project plan, making sure that everyone has something to do in a timely manner, making sure that everyone has the view of the plan to know how they can contribute and collaborate, running the meetings, and keeping the project organized. These all are achievable through having either regular managers meetings or one by one, keeping in touch with managers, and listening to their concerns. Setting agenda for meetings according to following up the progress of the project and managers' concerns. As well as presenting the weekly report to the CEO at CEO Meeting and sending weekly status reports to the CEO, the consulting supervisors, the examiner, and to the employees of the company.

#### Line & Process Manager – Daniel Ma

Ensures good working environments and sees to it that everyone feels involved and content. Handles formal communication with the company leadership. Develops and handles the company's processes along with the Quality coordinator.

### **Lead Analyst - Sofie Andersson**

Main responsibility to have contact with our customer and understand what they want from our system and what they need. Also responsible for making progress in the analyst work and communicate to the manager group about it.

The analyst team is responsible to define requirements and user stories so that the development group knows what to do and have customer meetings.

### **Analysts - Frida Dolk & Johan Chou Chen**

Analysts are responsible together with the Lead analyst to structure the work with the customer and align the customer needs with the rest of the company. Shall understand customers desires and put down these into requirements, in a concrete, detailed and organized way and deliver to the developer team.

### **Test Leader - Axel Telenius**

Handling testing operations towards customer, following up work by test team, and coordinate with quality coordinator to ensure software meets specifications from testing point of view.

### **Testers - Oscar Löfgren & Erik Parö**

Testers assist the test leader with the test, assist the test leader with coming up with an explicit plan for the testing and reporting of the test results. They are responsible for creating relevant test documents and make sure to follow them.

### **Quality Coordinator - Erik Sköld**

Measures and monitors the product quality and initiates necessary changes of product and process. Responsible for explicated plan for quality assurance. Works together with the testing team on the software quality assurance plan. Reviews decisions on code conventions, test tools and reporting. Collects means of quality work, verifies traceability and makes sure the work fit together.

### **Configuration Manager – Albin Ambrosius**

To ensure that all tool, software or hardware, are being utilized and that the progress is being tracked. Will see to it that everyone is notified of changes in the tools or assets that we create. Handling the set-ups for new tools and communicates with both the development team and company leadership through R&D reports.

### **Architect – Jacob Karlén**

Specifies and decides on high-level architecture, target environment and components to be used. Ensures that functional and non-functional requirements are met and coordinates with other teams on technical matters. Responsible for the Architecture Notebook.

### **R&D Manager – Ludvig Sundqvist**

Responsible for scheduling, sending out agendas and moderating R&D meetings and coordinating the work within the department.

### **UX Designer – Olivia Shamon**

Specializes in setting targets and realizing the user experience of the system. Creates prototypes of the system for the developers.

### **Deployment Manager – Ludvig Sundqvist**

Makes sure the product is made available to the customer and plan and prepare for continuous deployment. Works as a middleman between the testers and developers, works closely with the architect and test leader. Is the responsible manager for Docker, Git and containers.

### **Technical Writer – Eric Schadewitz**

Ensures that the output of the project is accessible to our customer. Produces instructions on how to use the system the way it was developed to be used. Also documents suggestions for further development.

### **Developers – Gustav Danielsson, Lucas Hultqvist, Simon Boman, Adam Lilja & Hannes Ekstam Ljusegren**

Have the main responsibility of realizing requirements into functions of the software solution.

## **4.2 Cross-functional teams**

The company is further divided into three cross functional teams (hereinafter CFT), with members from both departments and with different roles. The idea with the CFTs is to speed up development and still ensure that the right competence is present in each team. One key area of the project is the requirement specification. Expertise of this area is carried by the company's analysts, and thus a decision was made to have one analyst in each CFT so that this knowledge is dispersed throughout the whole company. During the pre-study phase, the CFTs have each developed a prototype which is an example of what the responsibilities of the CFTs are. The members and structures of the CFTs may change during the development phase (between iterations) depending on customer needs, course requirements, or any other reasonable reason.

The second iteration of CFTs consisted of members from all over the company and had three focus areas: back-end development, patient overview development, and patient dashboard development. As the project went on we discovered that this iteration of CFTs was not the most optimal option for our company and decided to change the teams up for the next iteration. The next iteration of CFTs got a more clear goal, the first one would be developer-heavy and focus on completing the issues with the highest rank. The second team would focus on UX-design and provide the development team with prototypes when needed and also test the implemented component to verify that they work in the intended way UX-wise. The last team would focus on testing and quality, with tasks such as implementing a pipeline in GitLab with automated tests and accepting merge-requests.

## **5 Processes**

In this section, the different processes of the company are described. This section acts as a guideline for company members on how to conduct certain tasks and allows for the course responsible (examiner, CEO, supervisors) to get an overview of the company's processes.

### **5.1 Communication and meeting processes**

Meeting protocols will be created before-hand and anyone is free to add to the topics to discuss at the meeting. Regarding the CEO meetings, a deadline to add main topics is set on Wednesdays at 12.00 in order to allow time for the project manager to create a PowerPoint presentation and send the agenda to the CEO. Smaller topics can still be added after the deadline, but will be brought up on the meeting only if time allows.

Meetings shall be scheduled in Teams using the calendar function and both required and optional attendees shall be added to the meeting (exception for company-wide meetings). This way, individuals will have a better overview of meetings that are in place and which meetings they

have to attend to. Company-wide or large meetings (e.g., CFT meetings) shall be announced 24 hours beforehand. Exceptions can be made, e.g., for crisis meetings.

Managers have a weekly meeting each Monday to discuss different topics added to the agenda. These meetings also serve as a way to delegate tasks and make decisions.

Each Friday the team leaders for each CFT will meet with the person responsible for the status reports to update on progress. This achieves three things: first, the progress of each CFT can be documented in the status reports; secondly, the progress can be analyzed and compared with the set milestones to see if the teams are on track or if something needs to change in order to reach the milestones in time; and thirdly, it creates a tighter integration between the teams as the team leaders can sync up and discuss needs. These meetings are complemented by a shorter stand-up meeting each Tuesday (applicable in iteration 3 and 4).

Each CFT shall have at least two stand-up meetings per week, and it is up to each CFT to decide when these meetings shall take place. To start each iteration, a sprint planning meeting shall be held within each CFT. To end an iteration, each CFT leader shall plan and hold a retrospective to gain insights of how the teams have performed and what can be done better for the next iteration.

## 5.2 Development processes

To track development and other tasks, boards and issues on GitLab are used. E.g., every requirement is reflected as an individual issue on GitLab, which developers shall assign themselves to when working on implementing a requirement. These issues/features shall be developed in individual branches, *feature branches*, which are then merged to the development branch. The issues shall then be closed and the requirement shall next be reviewed. If the implementation passes the review and the testing phase, then the issue shall be remained closed, otherwise reopened. See appendix A for an example of a Gitlab board used in the company. Furthermore, the issues shall be connected to a milestone, e.g., priority 1 requirements, in order to create a burndown chart.

The development process is further described in the Software Quality Assurance Plan, section 3 and in the README of the company GitLab.

## 5.3 Regulatory documents

The documents listed in table 1 shall be seen as living documents which are continuously updated throughout the project.

Table 1: The table shows the regulatory documents of the project. Listed are also the author(s) of the document and the project member(s) who are the main reviewer(s) the documents.

Document name	Author	Reviewed by
Architecture notebook	Jacob Karlén	Developers
Customer requirements specification	Sofie Andersson	Analysts
Education plan	Axel Nilsson & Daniel Ma	Project manager, Quality coordinator
Project plan (this document)	Axel Nilsson & Somaye Gharedaghi	Managers
Software quality assurance plan	Erik Sköld	Process manager
Test plan	Axel Telenius	Testers
User manual	Eric Schadewitz	Deployment manager, Product owner

Regulatory documents shall be written in LaTeX, preferably with the help of Overleaf. The documents are made available to everyone in the company through link sharing. These links can be found among the company's files in Teams. Each document shall be reviewed after it has been updated and documented in the version table on the first page of the document. This review shall be done by a member with relevant expertise, e.g., a tester can review updates to the Test plan and a developer can review the Architecture notebook. The grammar of each document

can be reviewed by any member of the company. To version-control, each document shall be uploaded to GitLab (including all Latex files). Each document (PDF) shall be uploaded to the Teams folder "Output" for the course responsible (examiner, CEO, supervisors). In the Output folder there is a secondary folder called "Old versions" where old versions shall be moved to whenever a new version of a document is uploaded in the Output folder.

To track when work is being done in the documents, there is a board on GitLab. When working on a document, an issue shall be created on GitLab and have a member assigned to it. When a document is ready to be reviewed, the issue shall be moved to the correct list of the board, under "Ready to be reviewed". These issues shall also be connected to a relevant milestone, e.g., "everything that shall be done until the end of the project". Additionally, issues not directly connected to requirements, such as issues connected to documents, shall be assigned to an epic on Gitlab. Process for regulatory documents:

1. Create issue on Gitlab, under list "Backlog" or "Doing", when planning to work on a document (author)
2. Change document by editing or adding information (author)
3. Move issue to the list, "Up for review", and assign reviewer to the issue (author)
4. Review and comment changes (reviewer)
5. Address comments and edit if necessary (author)
6. When a document has been reviewed, the new version shall be uploaded to Teams and Gitlab (author)

## 5.4 Requirements

The work with the requirements shall be conducted by the analyst team. A first draft of the requirements is to be created in the first iteration, before the tollgate meeting. The requirements shall be reviewed by the analyst team during every iteration to ensure that they are updated according to both external feedback from customers and internal feedback from the company's different departments. After feedback from the internal and external sources, the analyst team shall review the feedback and change all requirements according to what is considered valid feedback both from the customer perspective and the company perspective. The feedback from customers is collected at customer meetings, which are scheduled at least once per iteration. The feedback from the company shall be collected every week from each CFT at the weekly company meetings. This feedback can be related to re-prioritization due to time and difficulty as well as improving language for clarity. Every requirement shall be conducted from and be traceable to a use case, which originates from customer meeting data. Each use case shall have a version history and a note of who the author is of that version. Every requirement shall have an ID that gives the requirement a unique identifying name. The ID shall also be connected to the use case. All places where requirements are going to be used, the ID of the requirement shall be clearly noted.

When a requirement is changed after feedback, it shall first be discussed in the analyst team to decide if the change is of significant or little importance. If the team decides that a change is of little importance and a small change is needed, a note will be made in an internal change log and changed in relevant places as GitLab and SRS. Examples of small changes are spelling and grammar mistakes.

If the requirement is of more significant importance and a larger change is required, the procedure is similar to that of small changes: a note is made in an internal change log. Additionally, a change of requirement is made that explains why a change was made, what the current situation for that requirement is, and who is responsible for that change. This is later communicated out to relevant departments and changed in internal documents.

All members of the company shall have knowledge about where the requirements can be found and what they mean for the customer. Therefore, the analyst team shall not be the only company representatives at customer meetings and on on-site visits. Instead, team members from each work group shall be present along with the analysts. The analyst team will also ensure this by clearly presenting the background and key take-aways from the customer meetings on the company meeting in the beginning of iteration 2.

## **5.5 Risk process**

To identify risks within the project, risk identification workshops have been held to get a list of all relevant risks discovered. The risks were then assessed and given a probability factor from 1 to 4 and an impact factor of 1 to 4. Multiplying these two factors results in the risk management indicator, from which the risks are then ranked. A short description of how to handle the risk if it occurs and how the company should work to lower the probability of the risk occurring was then added to each risk.

At a later part of the project a process to update the company employees on relevant risks and monitor risks was implemented. This process was to have a portion of each CEO meeting be reserved to go through the most relevant risks at the moment and go through the risks which have been updated with a new probability or impact factor. New risks discovered throughout the project were added using the process described above.

## **5.6 Change of processes**

Changing of processes can be made and decided upon verbally between manager-level members. The new processes need to be documented in this document. If these changes concern specific members, these members need to be notified and preferably included in the discussion. Changes concerning the whole company shall be announced in the Teams channel, General.

# **6 Milestones and timeplan**

The table below indicates the milestones per iteration.



Calendar	Action	Time	Responsible
Thursday, September 9, 2021			
Friday, September 10, 2021			
Saturday, September 11, 2021			
Sunday, September 12, 2021			
Monday, September 13, 2021			
Tuesday, September 14, 2021			
Wednesday, September 15, 2021			
Thursday, September 16, 2021			
Friday, September 17, 2021	CFT2 internal deadline for first draft for Minimalistic, well presented prototype for second meeting with the customer		
Saturday, September 18, 2021			
Sunday, September 19, 2021			
Monday, September 20, 2021	CFT1 internal deadline for first draft for Quantity in a compact format prototype for second meeting with the customer CFT3 internal deadline for first draft for Dashboard style layout prototype for second meeting with the customer		
Tuesday, September 21, 2021	Second meeting with the customer for feedback	16:00 to 17:00	
Wednesday, September 22, 2021	Analysts internal deadline for requirements list		
Thursday, September 23, 2021	Tollgate Meeting	13:15 to 17:00	
<b>Iteration 1</b>			
Friday, September 24, 2021	Workshop with analyst team	10:00 to 12:00	
Saturday, September 25, 2021			
Sunday, September 26, 2021			
Monday, September 27, 2021			
Tuesday, September 28, 2021	Developer Workshop	15:15 to 17:00	
Wednesday, September 29, 2021			
Thursday, September 30, 2021	Hospital visit in person (Motala) Final set up milestones for each CFT	15:30 to 17:00	
Friday, October 1, 2021	Hospital visit in person (Linköping)	afternoon	
Saturday, October 2, 2021			
Sunday, October 3, 2021			
Monday, October 4, 2021	Hospital visit in person (Norrköping)	09:00 to 11:00	
Tuesday, October 5, 2021			
Wednesday, October 6, 2021			
Thursday, October 7, 2021			
Friday, October 8, 2021			
Saturday, October 9, 2021	Internal Deadline for Iteration 1		
Sunday, October 10, 2021			
Monday, October 11, 2021	External Deadline for Iteration 1		
<b>Iteration 2 - Finish priority 1 requirements</b>			
Tuesday, October 12, 2021			
Wednesday, October 13, 2021			
Thursday, October 14, 2021			
Friday, October 15, 2021			
Saturday, October 16, 2021			
Sunday, October 17, 2021			
Monday, October 18, 2021			
Tuesday, October 19, 2021	Exam Period From 19th to 31st /Oct		
Wednesday, October 20, 2021			
Thursday, October 21, 2021			
Friday, October 22, 2021			
Saturday, October 23, 2021			
Sunday, October 24, 2021			
Monday, October 25, 2021			
Tuesday, October 26, 2021			
Wednesday, October 27, 2021			
Thursday, October 28, 2021			
Friday, October 29, 2021			
Saturday, October 30, 2021			
Sunday, October 31, 2021			
Monday, November 1, 2021			
Tuesday, November 2, 2021			
Wednesday, November 3, 2021			
Thursday, November 4, 2021	Update Output Document Internal Deadline for Iteration 2 (Finish priority 1 requirements) Schedule customer meeting		Document responsible (see overleaf document) CFTs Leaders Analyst Leader
Friday, November 5, 2021			
Saturday, November 6, 2021			
Sunday, November 7, 2021	External Deadline for Iteration 2 (Have a working product to show)		R&D manager (make sure everything is merged)
<b>Iteration 3 - priority 2</b>			
Monday, November 8, 2021			
Tuesday, November 9, 2021			
Wednesday, November 10, 2021			
Thursday, November 11, 2021			
Friday, November 12, 2021			
Saturday, November 13, 2021			
Sunday, November 14, 2021			
Monday, November 15, 2021			
Tuesday, November 16, 2021			
Wednesday, November 17, 2021			
Thursday, November 18, 2021	Update Output Document Internal Deadline for Iteration 3 (Finish priority 2 requirements) Schedule customer meeting		Document responsible (see overleaf document) CFTs Leaders Analyst Leader
Friday, November 19, 2021			
Saturday, November 20, 2021			
Sunday, November 21, 2021	External Deadline for Iteration 2 (Have a working product to show)		R&D manager (make sure everything is merged)
Monday, November 22, 2021			
Tuesday, November 23, 2021			
<b>Iteration 4 - priority 3/4</b>			
Wednesday, November 24, 2021			
Thursday, November 25, 2021			
Friday, November 26, 2021			
Saturday, November 27, 2021			
Sunday, November 28, 2021			
Monday, November 29, 2021	Internal Deadline for Iteration 4		
Tuesday, November 30, 2021	External Deadline for Iteration 4		
Wednesday, December 1, 2021	Update Output Document		
Thursday, December 2, 2021	Internal Deadline for Iteration 4 (Finish priority 3 requirements) Internal Deadline for Iteration 4 (Finish priority 4 requirements)		Optional
Friday, December 3, 2021			
Saturday, December 4, 2021			
Sunday, December 5, 2021	External Deadline for Iteration 4 (Have a working product to show)		
<b>Delivery and Conclusion</b>			
Monday, December 6, 2021			
Tuesday, December 7, 2021			
Wednesday, December 8, 2021			
Thursday, December 9, 2021	Delivery and conclusion internal deadline		

## 7 Risks

Table 2 below shows the risks we have identified for the project. They have been ranked on how big the impact of the risk occurring would be and how likely it is the the risk could happen.

Table 2: Identified Risks

Risk	Probability	Impact	Risk Management Indicator (Probability e times Impact)	Risk Handling
Loss of code due to git issues	4	4	16	Commit often so you can revert back if problems occur, ask if unsure when merging
Lack of knowledge about Angular within CFTs	3	4	12	Have a plan for educating ourselves in development, assess competence regularly
Staff sickness	3	4	12	Documentation for traceability
Not having buffer time	3	3	9	Manage time in each CFT. Giving update by staff regularly
Technical problems (computer stops working)	4	2	8	Use computer in computer lab if your computer stops working, save often
Wrong time estimation	2	4	8	Constant communication and checking progress against schedule
Customer's new request	1	4	4	Getting feedback from the customer regularly
Misunderstanding in requirements	1	4	4	Getting feedback from the customer regularly
Not meeting the external deadline	1	4	4	Transparent communication with the customer
Losing critical members	1	4	4	Documentation for traceability

# A Development process

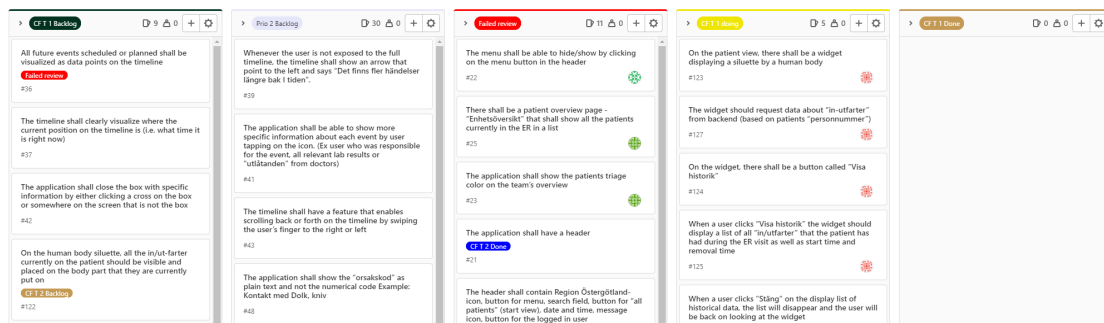


Figure 3: GitLab Board