



REYKJAVÍK UNIVERSITY

T-404-LOKA

## **Progress summary**

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# Contents

- 1 Introduction** **3**
- 2 Work plan** **3**
- 3 Risk Analysis** **4**
- 4 Sprints** **6**
  - 4.1 Sprint 0 6
    - 4.1.1 Sprint 0 goals 6
    - 4.1.2 Sprint 0 retrospective 7
    - 4.1.3 Sprint 0 burndown 10
  - 4.2 Sprint 1 11
    - 4.2.1 Sprint 1 goals 11
    - 4.2.2 Sprint 1 retrospective 12
    - 4.2.3 Sprint 1 burndown 15
  - 4.3 Sprint 2 16
    - 4.3.1 Sprint 2 goals 16
    - 4.3.2 Sprint 2 retrospective 17
    - 4.3.3 Sprint 2 burndown 19
  - 4.4 Sprint 3 19
    - 4.4.1 Sprint 3 goals 20
    - 4.4.2 Sprint 3 retrospective 20
    - 4.4.3 Sprint 3 burndown 23
  - 4.5 Sprint 4 24
    - 4.5.1 Sprint 4 goals 24
    - 4.5.2 Sprint 4 retrospective 24
    - 4.5.3 Sprint 4 burndown 24
  - 4.6 Sprint 5 24
    - 4.6.1 Sprint 5 goals 25
    - 4.6.2 Sprint 5 retrospective 25
    - 4.6.3 Sprint 5 burndown 27
  - 4.7 Sprint 6 28
    - 4.7.1 Sprint 6 goals 28
    - 4.7.2 Sprint 6 retrospective 29
    - 4.7.3 Sprint 6 burndown 29
- 5 Conclusion** **30**

# 1 Introduction

This report provides a summary of the progress made in the development of two user interfaces aimed at reducing unnecessary doctor visits and speeding up doctor visits. The project was executed through a series of six sprints, with the team working collaboratively to achieve the goals set for each sprint.

The report briefly outlines the objectives and outcomes of each sprint, emphasizing the methodologies, tools, and techniques employed by the team. Additionally, it highlights the importance of user-centered design in the development process, as well as the challenges and lessons learned throughout the project.

The purpose of this progress summary report is to provide an overview of the work completed thus far and to showcase the team's commitment to improving the efficiency of the Icelandic healthcare system.

## 2 Work plan

For any design team, aiming to maintain a productive work environment and looking to maximize consistent creative output, a solid work plan can be of great assistance since it will help each team member optimize their limited time and maximize their contributions to each task they are assigned. Luckily, the design team involved in this project did not require a rigid schedule, since all group members share a rough itinerary throughout each week. The team decided that all their free time in between classes on work days would be contributed to completing the project. Only two-time slots each week were completely fixed with mandatory attendance. Those meetings take place at 9 am on both Monday and Wednesday mornings. On each Monday there is a status meeting, where the team discusses the progress of the week, deciding on future tasks and what could be improved. The Wednesday meetings take place at Reykjavik University and are also attended by the project instructor and product owner. During those meetings, the team is given feedback on the current state of the project as well as advice on how to proceed.

Even though a rigid work plan was deemed suboptimal, the team was able to communicate and work together seamlessly. All meetings and project work took place at Reykjavik University and in cases where the team worked late hours or a member was unable to attend, Discord was used. Discord helped maintain proper and efficient communication within the team giving each group member an opportunity to discuss thoughts on the project and/or obstacles with their current task.

### 3 Risk Analysis

Risk assessment Matrix				
Severity	Catastrophic	Critical	Marginal	Negligible
Probability	(4)	(3)	(2)	(1)
<b>Frequent (A)</b>	HIGH	HIGH	SERIOUS	MEDIUM
<b>Probable (B)</b>	HIGH	HIGH	SERIOUS	MEDIUM
<b>Occasional (C)</b>	HIGH	SERIOUS	MEDIUM	LOW
<b>Remote (D)</b>	SERIOUS	MEDIUM	MEDIUM	LOW
<b>Improbable (E)</b>	MEDIUM	MEDIUM	MEDIUM	LOW
<b>Eliminated (F)</b>	Eliminated			

Figure 1: Risk analysis matrix

The team developed a risk analysis table to identify any potential threats that might impede the progress of the project. A risk assessment matrix was used to identify the probability/severity ratio of each potential risk. Each risk has an index from low-high, which indicates how severe its effect would be. Each risk also established a mitigation plan to ensure minimal loss.

ID	Risk	Prob.	Sev.	Resp.	RA	Mitigation
1	Group loses sight of topic and starts discussing topics irrelevant to the current project	B	1	Baldur	Medium	Baldur stops these topic, and we take a timeout (coffee break or something) and then return into the room re-energized.
2	A group member is lazy or showing lack of productivity.	D	2	All	Medium	Each group member will be responsible for one other group member's productivity. Baldur -> Kári Kári -> Maggi Maggi -> Baldur
3	A group member is unable to present at a status meeting.	D	3	All	Medium	Each group member should be prepared enough to present on his own
4	Product owner/Advisor are unreachable to provide assistance on a given task	D	3	All	Medium	The specific task and its dependencies will be postponed until they are reachable
5	Code base is lost on local machine before presentation	C	2	All	Medium	All code will be uploaded to a remote repository, which can be pulled if the code on the local machine is lost.
6	A group member has been stuck on a single preliminary task for an unreasonable amount of time	B	2	All	Serious	The other two members will postpone their task and contribute to finishing the task.
7	A group members computer fails	E	3	Maggi	Medium	All local files should be pushed regularly to the remote repository to reduce losses in the event of computer failure. Maggi will remind group members to push and pull regularly.
8	Team members are in disagreement about some procedure.	C	3	Maggi	Serious	Maggi will call a meeting with the product owner and each member can plead their case. He will make a final decision which all group members must accept.
9	Libraries/packages are not compatible on all machines	B	3	Baldur	High	The Libraries/packages must be removed from all files and a similar requirement needs to be found which works on all machines
10	Group members are unable to meet at reykjavík university	C	2	Baldur	Medium	Baldur creates a discord server where group members can chat electronically
11	A page is not mobile friendly	D	3	Kári	Medium	Kári will need to recreate the page as all pages of the application must be mobile friendly

Figure 2: Risk analysis table

12	A member can not show up for a scheduled interview with a user	D	3	All	Medium	All members will be able to do the interviews independently in worst case
13	Documents, figures or text on a local machine are lost due to hardware/software malfunction	C	2	Maggi	Medium	Maggi will establish a google drive network in which all files and figures must be stored
14	There is an internet problem while conducting the interview, making the showcase of the questionnaire interface not possible	D	3	Kári	Medium	Screenshots of the more important elements of the questionnaire interface will be uploaded to the cloud and can be used in the interview if need be

Figure 3: Risk analysis table additions

## 4 Sprints

Four sprints have been completed, with both successes and failures. Although the intended duration for each sprint was two weeks, the team decided on being flexible and align the sprints with status meetings and feasible completion dates. The first three sprints were devoted to the questionnaire interface, while the third sprint that ´s currently ongoing is devoted to the consultation interface. Sprint 0 was the initial sprint, devoted to the design phase for the questionnaire interface and did not involve any coding. Sprint 1 marked the beginning of the code face, as well as the beginning of some challenging hurdles. Sprint 2 served as the 'clean-up' phase for the questionnaire interface, during which any remaining work from Sprints 0 and 1 was completed and tied up. Sprint 3 is devoted to the design and development of the consultation interface.

### 4.1 Sprint 0

Sprint 0 lasted from January 16th to 31st and focused on carefully considering all design elements, with the aim of ensuring a seamless transition from the design phase to subsequent coding activities. During this sprint, the team established specific goals and plans to be followed and diligently tracked the time spent on each task. A burndown chart was also created to illustrate the team's progress throughout the entire sprint, as well as provide visibility into outstanding tasks.

#### 4.1.1 Sprint 0 goals

As previously mentioned, the primary objective of the sprint was to establish a solid foundation and develop robust requirements that could address the diverse user groups for which the software was intended. To achieve this, the team created a table consisting of various tasks, which were then assigned to individual members based on their respective capabilities. Each task was also assigned a point value that reflected its level of complexity. The following table provides an overview of the assigned tasks, along with their current status:

Tasks	Developer	Status	Task Points
Wireframe	Kári	Done	4
User group analysis	Baldur	Done	2
Use cases	Magnús	Done	2
User stories & prioritization	All	Done	2
Flowchart/state diagram	Baldur	Done	3
ER-Diagram	Magnús	Done	3
Requirements	All	Done	3
Set up Trello board for scrum	Kári	Done	1
Risk analysis	Kári	Ongoing	2
Requirement priorities	All	Done	1
Architecture diagram	Magnús	Done	4
Gantt chart	Kári	Abandoned	3
Burndown chart	Kári	Done	2
Set up Django	Baldur	Postponed	2
Set up React	Kári	Postponed	2
		<b>Total:</b>	<b>36</b>

Figure 4: Tasks for sprint 0

#### 4.1.2 Sprint 0 retrospective

It can be concluded that this sprint was largely successful. The team gained valuable insights into the requirements of the system's intended users, as well as the expectations of the product owner regarding the software. Most tasks were completed within their allotted timeframes and with good quality. However, there were some setbacks, and as a result, the team decided to defer setting up the interfaces for Django and React to the next sprint, in order to allow them to properly focus on more pressing tasks.

Below are charts that detail the number of hours each team member spent on their assigned tasks during this sprint.

<b>Baldur</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
1/16/2023	5	preparations		
1/17/2023	2	preparations	2	Meetings and documentation
1/18/2023	2	Meetings and documentation	1	Design & analysis
1/19/2023	1	Meetings and documentation	4	Design & analysis
1/20/2023				
1/21/2023				
1/22/2023				
1/23/2023	1	Meetings and documentation	2	Design & analysis
1/24/2023	1	Meetings and documentation	2	Design & analysis
1/25/2023	2	Meetings and documentation	3	Design & analysis
1/26/2023	1	Meetings and documentation		
1/27/2023	1	Meetings and documentation	4	Design & analysis
1/28/2023				
1/29/2023	3	Design & analysis		
1/30/2023	1	Meetings and documentation	4	Design & analysis
1/31/2023	1	Meetings and documentation	5	Design & analysis
<b>Total</b>	<b>48</b>			

Figure 5: Magnús hours spent in sprint 0



<b>Kári</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
1/16/2023	4	preparations		
1/17/2023	2	preparations	2	Meetings and documentation
1/18/2023	2	Meetings and documentation	1	Design & analysis
1/19/2023	1	Meetings and documentation	4	Design & analysis
1/20/2023	1	Meetings and documentation	1	Design & analysis
1/21/2023				
1/22/2023				
1/23/2023	1	Meetings and documentation	2	Design & analysis
1/24/2023	1	Meetings and documentation	2	Design & analysis
1/25/2023	2	Meetings and documentation	1	Design & analysis
1/26/2023	1	Meetings and documentation	3	Design & analysis
1/27/2023	1	Meetings and documentation	6	Design & analysis
1/28/2023	4	Design & analysis		
1/29/2023	6	Design & analysis		
1/30/2023	1	Meetings and documentation	5	Design & analysis
1/31/2023	1	Meetings and documentation	2	Design & analysis
<b>Total</b>	<b>51</b>			

Figure 6: Magnús hours spent in sprint 0

<b>Magnús</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
1/16/2023	5	preparations		
1/17/2023	2	preparations	2	Meetings and documentation
1/18/2023	2	Meetings and documentation	1	Design & analysis
1/19/2023	1	Meetings and documentation	4	Design & analysis
1/20/2023	1	Meetings and documentation	2	Design & analysis
1/21/2023				
1/22/2023				
1/23/2023	1	Meetings and documentation	2	Design & analysis
1/24/2023				
1/25/2023	2	Meetings and documentation	2	Design & analysis
1/26/2023	1	Meetings and documentation	4	Design & analysis
1/27/2023	1	Meetings and documentation	1	Design & analysis
1/28/2023				
1/29/2023	5	Design & analysis		
1/30/2023	1	Meetings and documentation	2	Design & analysis
1/31/2023	1	Meetings and documentation	3	Design & analysis
<b>Total</b>	<b>46</b>			

Figure 7: Magnús hours spent in sprint 0

#### 4.1.3 Sprint 0 burndown

The chart below illustrates the expected progress of tasks, as compared to the actual tasks that were completed during the sprint. The majority of tasks were successfully completed, although some were canceled or postponed.

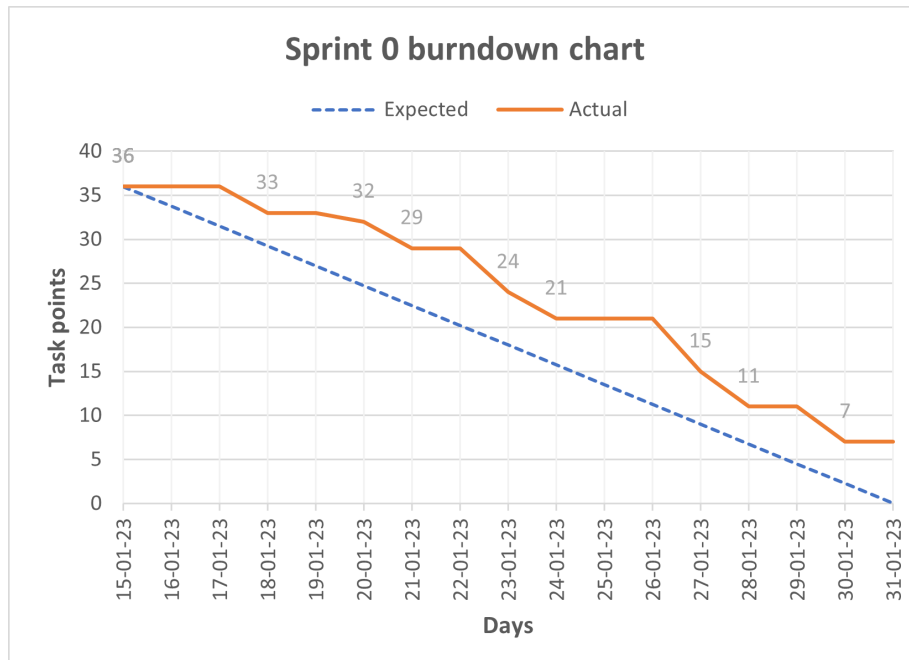


Figure 8: Burndown chart for sprint 0

## 4.2 Sprint 1

This particular sprint took place between February 1st and February 19th. Although the code for the questionnaire interface had already been largely completed by the product owner, Steindór, there were still a significant number of implementation and modification tasks that needed to be carried out in order to meet all the objectives set for this sprint. The primary focus of this sprint was on fully setting up the entire questionnaire, although it was recognized that this was an ambitious goal for the team to achieve.

### 4.2.1 Sprint 1 goals

As previously noted, the primary goal for this sprint was to fully integrate the questionnaire interface into Django and React, while also creating a new database and modifying the existing code for the interface in order to ensure its scalability and functionality for future implementations. The table below provides a summary of all the tasks that the team aimed to complete by the end of this sprint, including their assigned point values and current status.

Tasks	Developer	Status	Task Points
Set up Django	Baldur	Done	2
Set up React	Kári	Done	2
Decide on database tables	Magnús	Done	2
Create relations between tables	Magnús	Done	1
Set up tables in database	Magnús	Done	3
Make the logic for post/get request	Baldur	Done	3
Create user authentication process	Baldur	Ongoing	4
UI for introduction process	Kári	Done	2
UI for main complaints	Kári	Done	3
UI for question pipeline	Kári	Ongoing	5
Integrate questions.py function	All	Ongoing	5
Integrate the AI models	Baldur	Ongoing	2
Add more risks in the risk analysis	Baldur	Done	1
Make a progress bar for user	Kári	Postponed	3
Functionality for guardian to answer for kid	All	Postponed	5
Make burndown chart	Kári	Done	2
Make the slideshow for progress meeting	All	Done	3
Make the report	All	Done	5
Make the language buttons	Kári	Done	4
Save state when user leaves page	Kári/Baldur	Postponed	4
		<b>Total:</b>	<b>61</b>

Figure 9: Tasks for sprint 1

#### 4.2.2 Sprint 1 retrospective

Unfortunately, this sprint did not go according to plan. The code for the questionnaire interface that had been received by the team turned out to be quite complicated and lacked proper documentation and comments, which made it difficult to transition it to their own interface. The team also encountered a number of issues, including git errors, routing errors, and token errors, which took a considerable amount of time to resolve and had a serious impact on productivity.

Despite these challenges, the team was still able to implement many important features and made progress toward fully implementing the questionnaire interface. Despite the setbacks experienced in this sprint, the team remains optimistic about future sprints and is committed to continuing to work towards their goals.

Following are time charts for sprint 1:

<b>Baldur</b>						
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
2/1/2023	2	Meetings and documentation	5	preparations		
2/2/2023	3	preparations				
2/3/2023	1	Meetings and documentation	1	preparations	3	Coding
2/4/2023						
2/5/2023						
2/6/2023	1	Meetings and documentation				
2/7/2023	1	Meetings and documentation	1	Coding		
2/8/2023	2	Meetings and documentation	3	Coding		
2/9/2023	1	Meetings and documentation	1	Coding	2	Bug fixes
2/10/2023	1	Meetings and documentation	4	Coding		
2/11/2023	5	Coding				
2/12/2023	2	Coding	3	Bug fixes		
2/13/2023	1	Meetings and documentation	1	Coding		
2/14/2023						
2/15/2023	1	Meetings and documentation	3	Coding		
2/16/2023	2	Meetings and documentation	4	Coding	1	Bug fixes
2/17/2023	5	Meetings and documentation	3	Coding	3	Bug fixes
2/18/2023	6	Coding	2	Meetings and documentation		
2/19/2023	11	Meetings and documentation				
<b>Total</b>	<u>85</u>					

Figure 10: Baldur hours spent in sprint 1

<b>Kári</b>						
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
2/1/2023	2	Meetings and documentation	5	preparations		
2/2/2023	3	preparations				
2/3/2023	1	Meetings and documentation	1	preparations		
2/4/2023						
2/5/2023						
2/6/2023	1	Meetings and documentation	1	Coding		
2/7/2023	1	Meetings and documentation	3	Coding		
2/8/2023	2	Meetings and documentation	2	Coding		
2/9/2023	1	Meetings and documentation	1	Coding	3	Bug fixes
2/10/2023	1	Meetings and documentation	3	Coding		
2/11/2023	5	Coding				
2/12/2023	2	Coding	5	Bug fixes		
2/13/2023						
2/14/2023						
2/15/2023	1	Meetings and documentation	1	Coding		
2/16/2023	2	Meetings and documentation	2	Coding	2	Bug fixes
2/17/2023	5	Meetings and documentation	3	Coding	3	Bug fixes
2/18/2023	6	Coding	2	Meetings and documentation		
2/19/2023	11	Meetings and documentation				
<b>Total</b>	<b>81</b>					

Figure 11: Kári hours spent in sprint 1

Magnús						
	h	Category	h	Category	h	Category
2/1/2023	2	Meetings and documentation	3	preparations		
2/2/2023	3	preparations				
2/3/2023	1	Meetings and documentation	4	Coding		
2/4/2023						
2/5/2023						
2/6/2023	1	Meetings and documentation	2	Coding		
2/7/2023						
2/8/2023	2	Meetings and documentation	2	Coding		
2/9/2023	1	Meetings and documentation	3	Coding		
2/10/2023	1	Meetings and documentation	1	Coding		
2/11/2023	5	Coding				
2/12/2023						
2/13/2023	1	Meetings and documentation	1	Coding		
2/14/2023	1	Meetings and documentation	5	Coding		
2/15/2023	1	Meetings and documentation	5	Coding	1	Bug fixes
2/16/2023	2	Meetings and documentation	3	Coding	2	Bug fixes
2/17/2023	4	Meetings and documentation	5	Coding		
2/18/2023	8	Coding	2	Meetings and documentation		
2/19/2023	11	Meetings and documentation				
<b>Total</b>	<b>83</b>					

Figure 12: Magnús hours spent in sprint 1

#### 4.2.3 Sprint 1 burndown

The chart below illustrates the expected progress of tasks, as compared to the actual tasks that were completed during the sprint. Many tasks are still in progress with some being postponed til further notice.

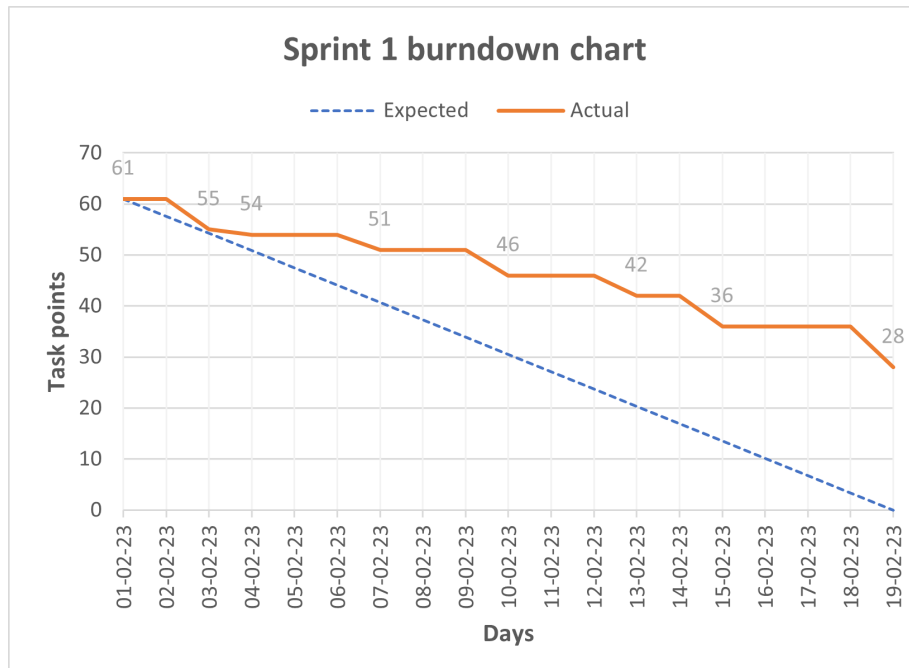


Figure 13: Burndown chart for sprint 1

### 4.3 Sprint 2

This sprint took place between the 22. February and 7. March. In this sprint, a lot of loose ends from the previous sprints were tied up and finished. The coding output got ramped up from the previous sprint following the breakthrough of integrating the 'questions.py' code into ours. The logic and UI for rendering different types of questions, saving user answers and getting a risk score was all achieved in this sprint which must be considered the most productive one yet.

#### 4.3.1 Sprint 2 goals

The goals of this sprint was primarily to conclude the work on the questionnaire interface and arrive at an acceptable solution for this part of the project. This goal was set cautiously, with the knowledge that the progress towards it was entirely dependent on how fast the team could crack the 'questions.py' functionality and write similar code for the questionnaire interface. At the time of setting this goal, the team figured the time it would take to unravel 'questions.py' could be anywhere from one to three weeks, making the projection of finishing the questionnaire interface in two weeks quite ambitiously optimistic.

The following table provides an overview of the assigned tasks for this sprint (many of which carried over from sprint 1), along with the current status:



Tasks	Developer	Status	Task Points
Fix check buttons	Kári	Done	1
Map out questions.py	Maggi	Done	5
Integrate questions.py	Maggi/Baldur	Done	4
Integrate the AI models	Baldur	Done	2
Get questions from complaints logic	Baldur/Maggi	Done	3
Dynamic question logic	Baldur/Maggi	Done	4
Contingent question logic	Baldur/Maggi	Done	2
Dynamic question UI	Kári	Done	2
Contingent question UI	Kári	Done	4
Multiple choice question UI	Kári	Done	3
Input question UI	Kári	Done	2
Text search complaints logic	Maggi	Ongoing	3
Text search complaints UI	Kári	Ongoing	3
Save and submit answers UI	Kári	Done	2
Get risk score from answers logic	Baldur	Done	3
Make transition animations	Baldur/Kári	Done	2
<b>Total:</b>			<b>45</b>

Figure 14: Tasks for sprint 2

#### 4.3.2 Sprint 2 retrospective

It can be concluded that this sprint was mostly successful. The ambitious task of mapping out the 'questions.py' code and writing a simplified version was completed during the end of the first week of the sprint. That led to a snowballing effect where the rest of the code got implemented one after the other at an accelerated pace. First the question pipeline was rendered in accordance to the main complaints from the user. Then the team created the backbone and outlook to rendering the three pillars of the question types; yes or no, multiple choice and input questions. The next task was to render the contingent and dynamic questions depending on user input, and finally the team puzzled how the integrated AI models could be utilized to take in an array of user generated answers and return the calculated risk scores.

It can be seen from the tasks above that the team was successful in finishing almost every one of them, excluding a select few that will be passively worked on alongside the second part of the project, starting in sprint 3, which will mark a new direction in the project as the concentrated bulk of the work will be re-directed towards the consultation interface. There are other additions the team is eager to implement incrementally to the questionnaire interface, but as with the carry-over tasks from this sprint, those additional features will not be a top priority from here on out.

Following are the time charts for sprint 2:

<b>Baldur</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
2/22/2023	2	Meetings and documentation	2	Design & analysis
2/23/2023	1	Meetings and documentation	3	Design & analysis
2/24/2023	1	Meetings and documentation	3	Coding
2/25/2023				
2/26/2023			2	Design & analysis
2/27/2023	1	Meetings and documentation	3	Coding
2/28/2023	1	Meetings and documentation	3	Coding
3/1/2023	2	Meetings and documentation	3	Coding
3/2/2023	1	Meetings and documentation	3	Bug fixes
3/3/2023	1	Meetings and documentation	1	Coding
3/4/2023				
3/5/2023			2	Coding
3/6/2023	3	Meetings and documentation	5	Coding
3/7/2023	1	Meetings and documentation	4	Coding
<b>Total</b>	<b>48</b>			

Figure 15: Baldur hours spent in sprint 2

<b>Kári</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
2/22/2023	2	Meetings and documentation	2	Coding
2/23/2023	1	Meetings and documentation	1	Design & analysis
2/24/2023	1	Meetings and documentation	3	Coding
2/25/2023				
2/26/2023			2	Design & analysis
2/27/2023	1	Meetings and documentation	2	Coding
2/28/2023	1	Meetings and documentation	2	Coding
3/1/2023	2	Meetings and documentation	1	Coding
3/2/2023	1	Meetings and documentation	5	Bug fixes
3/3/2023	1	Meetings and documentation	1	Bug fixes
3/4/2023				
3/5/2023			3	Coding
3/6/2023	3	Meetings and documentation	2	Coding
3/7/2023	1	Meetings and documentation	5	Coding
<b>Total</b>	<b>43</b>			

Figure 16: Kári hours spent in sprint 2

Magnús				
	h	Category	h	Category
2/22/2023	2	Meetings and documentation	3	Design & analysis
2/23/2023	1	Meetings and documentation	3	Design & analysis
2/24/2023	1	Meetings and documentation	1	Design & analysis
2/25/2023				
2/26/2023			6	Design & analysis
2/27/2023	1	Meetings and documentation	4	Coding
2/28/2023	1	Meetings and documentation	3	Coding
3/1/2023	2	Meetings and documentation	1	Coding
3/2/2023	1	Meetings and documentation	2	Bug fixes
3/3/2023	1	Meetings and documentation	3	Coding
3/4/2023				
3/5/2023			2	Coding
3/6/2023	3	Meetings and documentation	4	Coding
3/7/2023	1	Meetings and documentation	4	Coding
<b>Total</b>	<b>50</b>			

Figure 17: Magnús hours spent in sprint 2

### 4.3.3 Sprint 2 burndown

The burndown chart below illustrates the expected progress of task completion, compared to the actual tasks that were completed during this sprint. Most tasks were finished, while the focused on the ones postponed got pushed back a bit and will be worked on in later sprints.

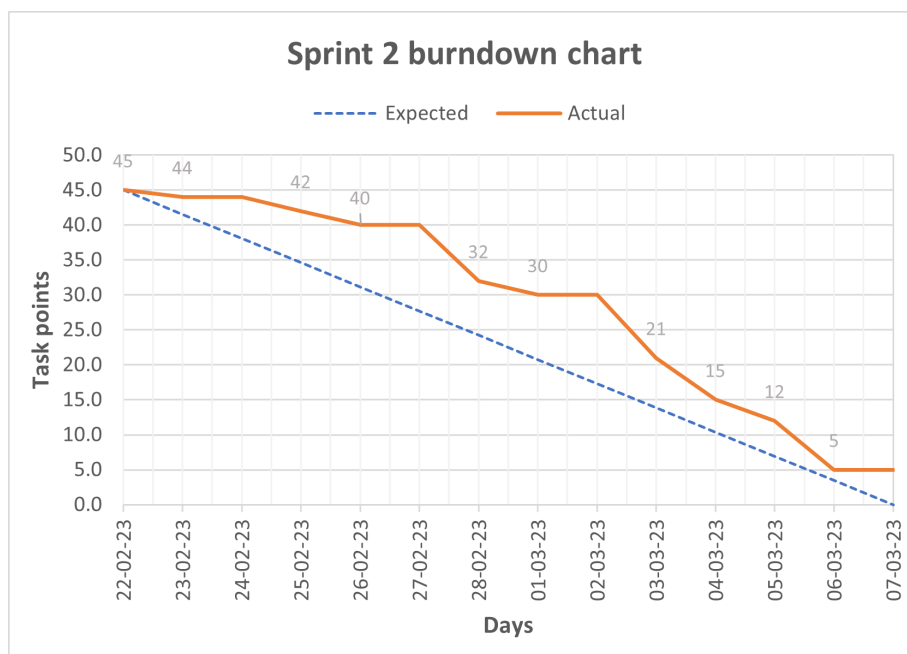


Figure 18: Burndown chart for sprint 2

### 4.4 Sprint 3

Sprint 3 initially took place between the 8th and 26th of March, but was prolonged for a week to cover up to 2nd of April. This sprint marked a new direction in the project where the prioritization switched from the questionnaire interface to the consultation interface. It's perhaps equally well defined by the change of tools used to achieve the given goals, where the utilization of the scrum method from

the previous sprints got replaced with the User Centered Design method (UCD). This method was crucial for the team to design and develop the product from the perspective of the very specific users (doctors) that will come to use it.

#### 4.4.1 Sprint 3 goals

The goals this sprint were to iterate over the catalog of UCD steps and arrive at a clickable prototype, which we could then go on to use as a blueprint to start the code phase in the next sprint. The team had no prior experience in using the UCD method, but it was determined nonetheless to try and achieve this goal in a concentrated, yet realistic amount of time.

Below are the tasks for this sprint, which constitute all the steps in the three phases of the UCD approach: Discovery, Design, and Reality Check. The status for those tasks relate to the state on the 26th of March, and they would come to be finished in the prolonged sprint period.

Tasks	Developer	Status	Task Points
Initial mapping	All	Done	3
User group analysis	All	Done	1
Interviews	All	Ongoing	4
UX Goals	All	Done	1
Iterating the map and selecting a target	All	Done	2
Documenting the design brief	All	Done	2
Exploring webs suggested by users	All	Abandoned	2
Defining tasks and other material for the user tasks	All	Done	2
Brainstorming design ideas	All	Done	2
Making and selecting good designs	All	Done	2
Making happy paths	All	Done	2
Making low-fidelity prototypes	All	Done	3
Evaluating low fidelity prototypes	All	Postponed	2
Checking with experts	All	Postponed	4
Realistic clickable prototype	All	Ongoing	3
Evaluating clickable prototype	All	Postponed	2
Analyze testing results	All	Postponed	2
Decide on next steps	All	Postponed	3
<b>Total:</b>			<b>42</b>

Figure 19: Tasks for sprint 3

#### 4.4.2 Sprint 3 retrospective

All though it might not seem like it from the completed tasks, this sprint proved quite productive and enlightening. The design methods of the UCD approach proved very straightforward and easy to implement and produced some great discussions, ideas, and fresh perspectives on the product design. The fundamental features of the consultation interface became clearer and clearer with each iteration of the design phase, particularly following the interviews which proved very insightful. The only real setbacks in this sprint were related to the interviews, which proved to be challenging to coordinate in the short span of time we had in this sprint. Reaching out and scheduling sessions with the doctors (and doctorate students) proved to be more time-consuming than anticipated, which pushed back the timeline of the rest of the UCD design phase. Another challenge was constructing the interviews in such a way that the doctors could comprehend the established software (questionnaire interface) in as little time span as we could manage. This was important to leverage more time in the interview focused solely on the elicitation of ideas backed by an understanding of the system. It also worked as a practice for the team because trying to coherently encapsulate the software in a concise way really deepened the understanding of it and trained the team to pitch the project to people with no prior knowledge of the system.

The team took the liberty to prolong this sprint for a week (as was stated before), seeing as the state of the UCD was close to finished and it made sense to have the UCD encapsulate one sprint. The progress in the following week was good, and the team managed to finish the rest of the tasks in the UCD sprints that were applicable to the project. The mid-fidelity prototype was updated in increments until the team decided it was of good enough quality to be used as a blueprint for the actual coding phase of the consultation interface. Since the team has gathered enough information from the

mid-fidelity prototype evaluation, it was gathered unnecessarily to pursue a fully clickable prototype, and the idea is to keep on using the UCD methods for conducting interviews with doctors in the future to continue gathering feedback and data alongside the coding phase of the consultation interface.

<b>Baldur</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
3/8/2023	2	Meetings and documentation	2	preparations
3/9/2023	1	Meetings and documentation	3	Design & analysis
3/10/2023	1	Meetings and documentation	2	Design & analysis
3/11/2023				
3/12/2023			1	Design & analysis
3/13/2023	1	Meetings and documentation	3	Design & analysis
3/14/2023	1	Meetings and documentation	3	Design & analysis
3/15/2023	2	Meetings and documentation	2	Design & analysis
3/16/2023	1	Meetings and documentation	3	Design & analysis
3/17/2023	1	Meetings and documentation	1	Design & analysis
3/18/2023				
3/19/2023			3	Design & analysis
3/20/2023	3	Meetings and documentation	5	Design & analysis
3/21/2023	1	Meetings and documentation	4	Design & analysis
3/22/2023	2	Meetings and documentation		
3/23/2023	1	Meetings and documentation	2	Design & analysis
3/24/2023				Design & analysis
3/25/2023	3	Meetings and documentation	5	Design & analysis
3/26/2023	8	Meetings and documentation		
<b>Total</b>	<u>67</u>			

Figure 20: Baldur hours spent in sprint 3

<b>Kári</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
3/8/2023	2	Meetings and documentation	2	preparations
3/9/2023	1	Meetings and documentation	3	Design & analysis
3/10/2023	1	Meetings and documentation	2	Design & analysis
3/11/2023				
3/12/2023			1	Design & analysis
3/13/2023	1	Meetings and documentation	3	Design & analysis
3/14/2023	1	Meetings and documentation	3	Design & analysis
3/15/2023	2	Meetings and documentation	2	Design & analysis
3/16/2023	1	Meetings and documentation	3	Design & analysis
3/17/2023	1	Meetings and documentation	1	Design & analysis
3/18/2023				
3/19/2023			3	Design & analysis
3/20/2023	3	Meetings and documentation	5	Design & analysis
3/21/2023	1	Meetings and documentation	4	Design & analysis
3/22/2023	2	Meetings and documentation		
3/23/2023	1	Meetings and documentation	2	Design & analysis
3/24/2023				
3/25/2023	6	Meetings and documentation	2	Design & analysis
3/26/2023	7	Meetings and documentation		
<b>Total</b>	<b>66</b>			

Figure 21: Kári hours spent in sprint 3

<b>Magnús</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
3/8/2023	2	Meetings and documentation	2	preparations
3/9/2023	1	Meetings and documentation	3	Design & analysis
3/10/2023	1	Meetings and documentation	2	Design & analysis
3/11/2023				
3/12/2023			1	Design & analysis
3/13/2023	1	Meetings and documentation	3	Design & analysis
3/14/2023	1	Meetings and documentation	3	Design & analysis
3/15/2023	2	Meetings and documentation	2	Design & analysis
3/16/2023	1	Meetings and documentation	3	Design & analysis
3/17/2023	1	Meetings and documentation	1	Design & analysis
3/18/2023				
3/19/2023			3	Design & analysis
3/20/2023	3	Meetings and documentation	5	Design & analysis
3/21/2023	1	Meetings and documentation	4	Design & analysis
3/22/2023	2	Meetings and documentation		
3/23/2023	1	Meetings and documentation	2	Design & analysis
3/24/2023				Design & analysis
3/25/2023	6	Meetings and documentation	2	Design & analysis
3/26/2023	7	Meetings and documentation		
<b>Total</b>	<b>66</b>			

Figure 22: Magnús hours spent in sprint 3

#### 4.4.3 Sprint 3 burndown

The burndown chart below illustrates the expected progress of task completion, compared to the actual tasks that were completed during this sprint. In the following image, we have estimated the burndown against the teams initial due date for the sprint, the 26th of March. In this timeframe, around half of the tasks were completed. This does not tell the whole story though, as interviews were well underway and the construction of a clickable prototype was close to finished at this time. // In the following week, the team went on to finish the rest of the tasks in the sprint, concluding the UCD section of the project.

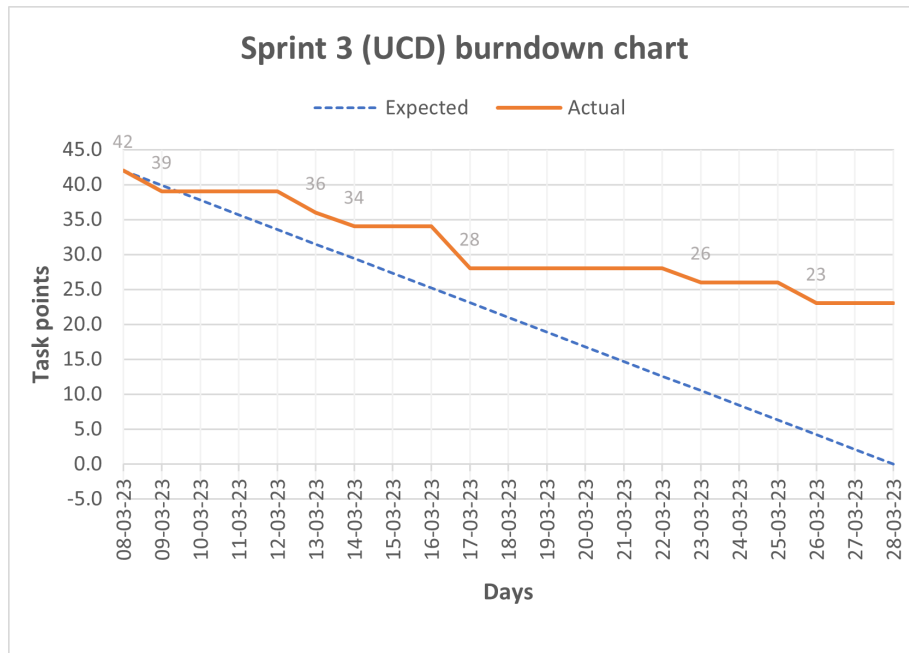


Figure 23: Burndown chart for sprint 3

## 4.5 Sprint 4

Sprint 4, the *recharge sprint*, took place between the 3rd and 17th of April. This sprint functioned as a rejuvenation period for the team, making it ready for the final two sprints of the project. The *calm before the storm*, if you will. Expectations for productivity were set quite a bit lower in this sprint because it overlapped the finals time period, which dominated a lot of the team members' time. A few days were set aside to conduct doctor interviews and fine-tune the questionnaire user interface, but otherwise, there is not much to say about this time period.

### 4.5.1 Sprint 4 goals

As stated before, the productivity for sprint 4 was expected to be low beforehand, and therefore the team didn't have any specific goals in mind, other than continuing to take interviews and fixing a select few low-priority errors in the questionnaire interface. For this reason, no specific tasks were set for this time period.

### 4.5.2 Sprint 4 retrospective

This sprint worked quite well, and the team managed to fine-tune the questionnaire, fixing some long-standing errors in the system, as well as addressing some styling issues. The team conducted three additional doctor interviews in this time period, further establishing the outlook of the consultation page.

### 4.5.3 Sprint 4 burndown

Since no specific tasks were set, consequently there was no burndown made.

## 4.6 Sprint 5

The penultimate sprint took place between the 17th of April and the 3rd of May. In this sprint, the team went back to using the scrum method. The purpose of this sprint was to write the code for the consultation interface, using the before-mentioned prototype as a blueprint.



#### 4.6.1 Sprint 5 goals

Since this sprint was primarily focused on making the consultation interface, the overall goal consequently was to finish it. The group went on to create a new React application and a new directory in the Django environment for the consultation UI. Because of the accumulated experience using those tools, the work went smoothly.

Below are the tasks set for this sprint, as well as the current status of their progress.

Tasks	Developer	Status	Task points
Mix up dynamic questions	Kári	Done	1
Last page feedback	Kári	Done	2
Input validation	Kári	Done	2
Double check phone compatibility	Kári	Done	3
Missing question bug	Kári	Done	3
Send email on consent	Baldur	Postponed	2
Launch the application	Magnús	Postponed	2
Make new Django backend URL routing	Baldur	Done	1
Make a new react app	Kári	Done	1
Get red flags function	Baldur/Magnús	Done	3
Get consultations function	Magnús	Done	3
Get user and session info	Baldur/Magnús	Done	4
Get penultimate answer	Magnús	Done	2
Get doctors note function	Magnús	Done	3
Update database for CUI	Magnús	Done	3
Login as a doctor	Baldur	Ongoing	3
Search for patient via SSN	Baldur	Done	2
Create doctors note UI	Kári	Done	3
Create consultations UI	Kári	Done	3
Make input functionality in consultations	Baldur	Postponed	4
		<b>Total:</b>	<b>50</b>

Figure 24: Tasks for sprint 5

#### 4.6.2 Sprint 5 retrospective

This sprint overall went really well, and most of the tasks assigned were finished. There is definitely some refinement to do, not all of the tasks were finished and the remaining 11 task points are either

well underway or something the team is confident in its ability to implement in the following sprint. One thing the teams sort of progressively realized the importance of the more the sprint went along is the need for more user testing, specifically for the questionnaire interface (which for the most part is now fully implemented). The precursor for a good user testing experience for the user testing the questionnaire interface was to host the application on a server, preferably Heroku. This proved a little more elusive, as no group member had experience doing this, and with other more pressing tasks and new project challenges arising, this got pushed back a bit. This means that one of the sole focuses of the last sprint will be to conduct thorough and detailed user testing for both user interfaces (although perhaps a little more emphasis on the questionnaire interface). The status of things in the project is quite good and the team at this point is motivated to ramp up the productivity and take on the last sprint head-on. Following are the timetables for sprint 5:

<b>Baldur</b>				
	<b>h</b>	<b>Category</b>	<b>h</b>	<b>Category</b>
4/17/2023	1	Meetings and documentation	2	Coding
4/18/2023	1	Meetings and documentation	2	Coding
4/19/2023	2	Meetings and documentation	1	Coding
4/20/2023	2	Meetings and documentation		
4/21/2023	2	Meetings and documentation	1	Coding
4/22/2023			3	Coding
4/23/2023			3	Coding
4/24/2023	3	Meetings and documentation	2	Coding
4/25/2023	5	Meetings and documentation	5	Coding
4/26/2023	2	Meetings and documentation	5	Coding
4/27/2023	6	Meetings and documentation		
4/28/2023			2	Coding
4/29/2023	4	Meetings and documentation	3	Coding
4/30/2023	5	Meetings and documentation		
5/1/2023	6	Meetings and documentation		
5/2/2023	6	Meetings and documentation		
5/3/2023	8	Meetings and documentation		
<b>Total</b>	<b>82</b>			

Figure 25: Baldur hours spent in sprint 5

Kári				
	h	Category	h	Category
4/17/2023	1	Meetings and documentation	1	Coding
4/18/2023	1	Meetings and documentation	5	Coding
4/19/2023	2	Meetings and documentation	4	Coding
4/20/2023	1	Meetings and documentation		
4/21/2023	2	Meetings and documentation	3	Coding
4/22/2023			2	Coding
4/23/2023			5	Coding
4/24/2023	2	Meetings and documentation		
4/25/2023	2	Meetings and documentation	3	Coding
4/26/2023	2	Meetings and documentation	5	Coding
4/27/2023				
4/28/2023			5	Coding
4/29/2023	3	Coding	5	Bug fixes
4/30/2023	3	Meetings and documentation		
5/1/2023	4	Meetings and documentation	3	Coding
5/2/2023	5	Meetings and documentation	3	Coding
5/3/2023	8	Meetings and documentation		
<b>Total</b>	<b>80</b>			

Figure 26: Kári hours spent in sprint 5

Magnús				
	h	Category	h	Category
4/17/2023	1	Meetings and documentation	2	Coding
4/18/2023	1	Meetings and documentation	2	Coding
4/19/2023	2	Meetings and documentation	1	Coding
4/20/2023				
4/21/2023			3	Coding
4/22/2023			3	Coding
4/23/2023			3	Coding
4/24/2023	1	Meetings and documentation	3	Coding
4/25/2023	1	Meetings and documentation	6	Coding
4/26/2023	2	Meetings and documentation	6	Coding
4/27/2023				
4/28/2023			4	Coding
4/29/2023	5	Meetings and documentation	8	Coding
4/30/2023	4	Meetings and documentation	10	Coding
5/1/2023	4	Meetings and documentation		
5/2/2023	4	Meetings and documentation	4	Coding
5/3/2023	9	Meetings and documentation		
<b>Total</b>	<b>89</b>			

Figure 27: Magnús hours spent in sprint 5

#### 4.6.3 Sprint 5 burndown

The task completion progress went rather smoothly in this sprint, and the team managed to complete all but 11 tasks of the 50 set up. The work for this time, for once, was done quite uniformly compared to other sprints. A lot of the layout and functionality was finished early on in the sprint and the second

week of the sprint was widely used to work on the two reports, prepping for status report 3 and making refinements to the already established code for both questionnaire and consultation interfaces.

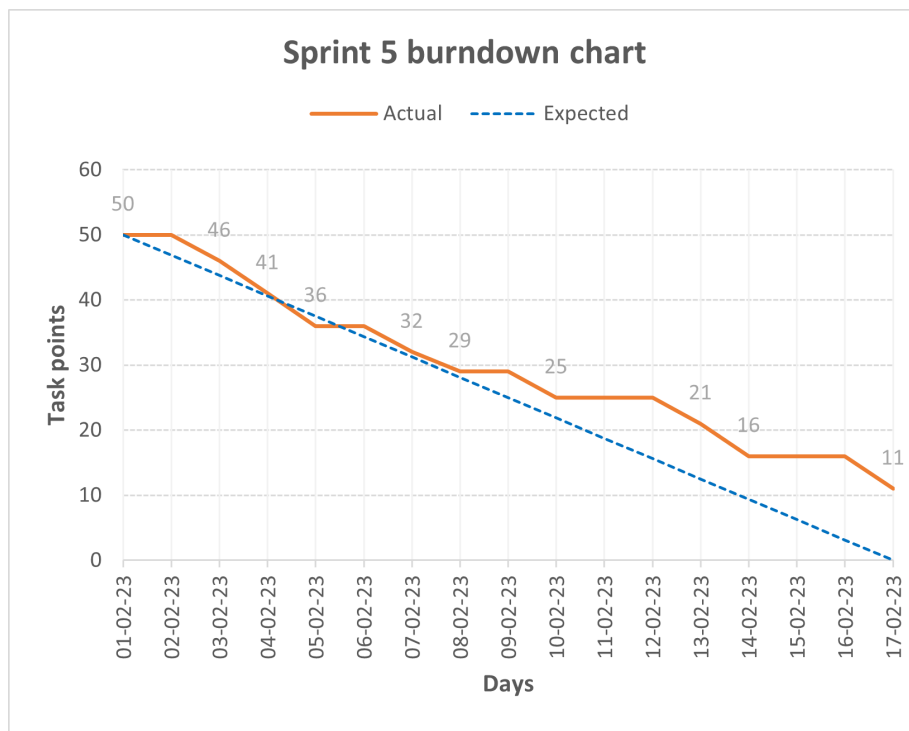


Figure 28: Burndown chart for sprint 5

## 4.7 Sprint 6

The final sprint of this project started on the 4th of May and ended on the 11th of May, making the length of this sprint one week. This sprint was geared towards refining the final report and taking user tests for the interfaces.

### 4.7.1 Sprint 6 goals

Being the final sprint, the goals were really clear: Finishing the user tests and the necessary reports. Following are the tasks set up for the sprint, which are considerably few and straightforward because of the short time span and the necessity to focus on the most important things.

Tasks	Developer	Status	Task Points
Consultation user tests	Baldur/Maggi	Done	3
Questionnaire user tests	All	Done	3
Deploy questionnaire interface	Maggi	Done	4
Deploy consultation interface	Maggi	Postponed	3
Fix note format for consultation UI	Kári	Done	1
Write the final report	All	Done	5
Write the progress report	All	Done	3
Write the operational manual	All	Done	3
<b>Total:</b>			<b>25</b>

Figure 29: Tasks for sprint 6

#### 4.7.2 Sprint 6 retrospective

As seen above, most of the tasks that were set out for the sprint were completed. There were more problems than anticipated with deploying the interfaces because of various difficulties relating to the deployment of the back-end and front-end together. Because of this, the decision was made to postpone the deployment of the consultation interface after the deployment of the questionnaire interface was achieved because the team wanted to prioritize finishing up the other tasks well. Additionally, because of the nature of the consultation interface user testing, being only in person, there wasn't as much of a need to immediately deploy it compared to the questionnaire interface which needed deployment to receive a large pool of test users simultaneously. The progress of writing the reports went smoothly, and the team is happy with the results of all three reports.

Because of problems getting consistent access to classrooms in HR during its busiest time of the semester, the scrum master Baldur stepped up and provided a workspace in his (large) bedroom, altering a good portion of it into a mini office. Furthermore, because of the simple nature of the final sprint, the team spent all hours working on the project together. Because of this, all group members spent equal hours working on the project, so the following timetable is in a changed and simplified format.

Baldur	Kári	Magnús
<u>40</u>	<u>40</u>	<u>40</u>

Figure 30: Hours spent for each group member in sprint 6

#### 4.7.3 Sprint 6 burndown

The progression of finishing this sprint's tasks went quite well, and all tasks except for one were finished. The questionnaire interface was deployed early on in the sprint and the user testing was spread over the next few days. More user testing will be done in the future, but for now, the feedback and data received already are sufficient. The reports were all worked on gradually, and the finishing touch was done the day before the due date to submit them, which explains the appearing spike in concluding tasks at the end of the sprint.

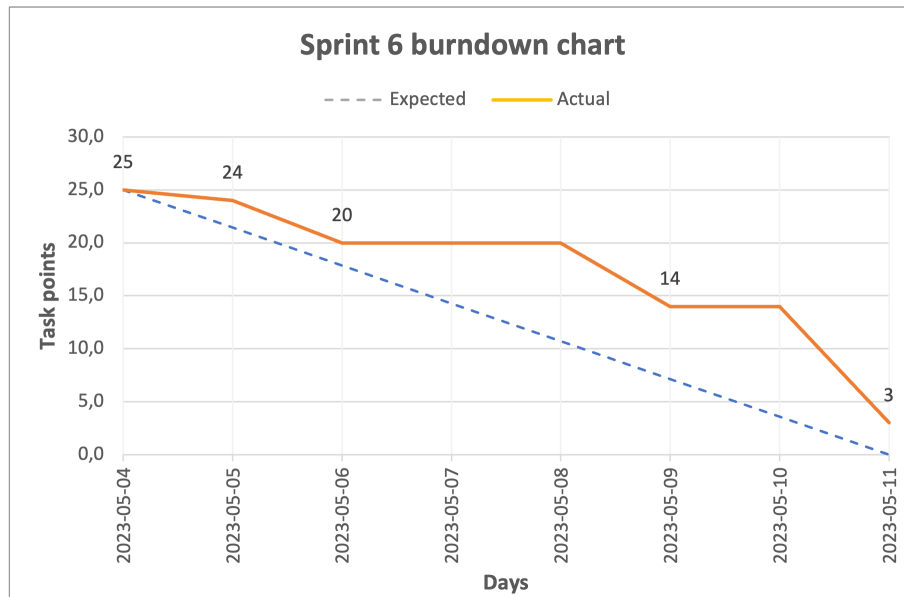


Figure 31: Burndown chart for sprint 6

## 5 Conclusion

At the start of the semester, the project scope was quickly defined, and the team knew early on that the project would revolve around the development of the two interfaces (questionnaire and consultation UI). The first sprint, sprint 0, revolved around the elicitation of requirements for the questionnaire interface. Following came sprint 1, where the team delved into the coding for the questionnaire interface. In that sprint, the team got familiar with the necessary tools which would come to be used for the rest of the semester. Sprint 1 went slowly, and many tasks were left unfinished. Sprint 2 got the unofficial name of the 'redemption' sprint, as the team concluded the vast majority of its tasks, including the ones carried over from sprint 1. After sprint 2 was finished, most of the questionnaire interface was ready.

In sprint 3, the development of the consultation interface began. This sprint made full use of a new development method, the UCD sprint. At the end of this sprint, the prototype for the consultation interface was mostly finished. Sprint 4 got dubbed the 'recharge sprint' because the duration of the sprint covered the finals time period. This meant not much was done in this time period, except for a few user interviews being conducted. Sprint 5, the penultimate sprint, was perhaps the most time-consuming one alongside sprint 1. The progress of the two sprints was a night and day difference though, as sprint 5 was immensely productive and a lot of good work got done. The consultation interface was finished, barring some minor features and changes the team plans on working on in the near future. The questionnaire interface was also fine-tuned a fair bit in this sprint. Much of the progress of sprint 5 can be tracked to a capable prototype obtained from the UCD, and good feedback from doctor interviews. The final sprint of the semester, sprint 6, was aimed at user testing for the two UIs, and writing the Final report, Progress report (the one you are reading), and the Operational manual.

The team worked mostly together in one of four private classrooms on level 3 in HR, so the times spent were really similar throughout the semester. Following is the complete timetable of hours spent during all sprints, except for sprint 4 (the recharge sprint) because of the lack of tracked hours.

	Baldur	Kári	Magnús	Total
Sprint 0	48	51	46	<u>145</u>
Sprint 1	85	81	83	<u>249</u>
Sprint 2	48	43	40	<u>131</u>
Sprint 3	67	66	66	<u>199</u>
Sprint 5	82	80	89	<u>251</u>
Sprint 6	40	40	40	<u>120</u>
<b>Total</b>	<b><u>370</u></b>	<b><u>361</u></b>	<b><u>364</u></b>	<b>1095</b>

Figure 32: Total hours spent during all sprints