

PROCESS REPORT

Looking for Devs – Freelancing Platform Client/Server System

Students

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ICT Engineering 2nd Semester

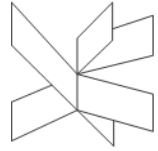
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I hereby declare that my project group and I prepared this project report and that all sources of information have been duly acknowledged.



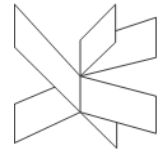
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Acknowledgements

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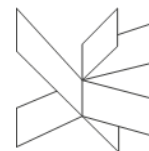


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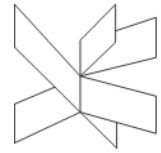
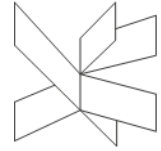


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I. Introduction

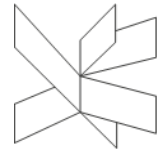
Our group has overall managed to take the project, brainstormed by ourselves, from its infant stages of diagrams and graphical sketches to a fully functional system built specifically to accommodate the owner's needs.

We were able to do this by engaging in meaningful group communication, numerous group meetings, scarce but crucial supervisor meetings and having a solid group contract to abide by.

Naturally as in any group project we overcame difficulties such as language barriers, misunderstandings between different group members and conflicting ideas, even losing certain team members along the way. This, however, did not hinder our progress and managed to fully complete the project.

This report will delve deep into the project and describe the process of our group work, hopefully giving the reader insight and a better understanding of how we managed to complete this project.

We can not begin to talk about the actual report without first introducing the group members and talking about the roles they fulfilled in the project.



II. Group Description

The group is made up of two international students from Romania and a domestic one, each with a different cultural background and approach to group work.

Group Members

Stefan Harabagiu is 20 years old and comes from Romania. He has past group work experience acquired through enrolling in a volunteering organization funded by the Rotary club. There he participated in organizing and hosting a number of charitable events by working together with his other colleagues in order to develop his skills in what concerns socializing with group members, organizing ideas and successfully hosting a public event.

For this project Stefan assumed the role of **Product Owner**. His job, apart from acting as a developer, is to maintain the product backlog, to request test cases from the team as well as providing soft-deadlines through the SCRUM master for each sprint the team goes through.

According to the Belbin team roles, he is a **monitor evaluator** and a **plant**.

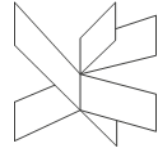
Andrei Cioanca is 20 years old and comes from Romania. He has extensive experience in group environments having led quite a few of them during his education in his home country. Most of these groups have been comprised of high school colleagues as well as close acquaintances working on everything ranging from business ideas, video-game development and even short films.

For this project, Andrei assumed the role of **SCRUM Master**. His job, apart from acting as a developer, is to make sure the team stays on track with the project, to ensure the team successfully makes use of SCRUM and UP as well as to enforce hard-deadlines. He also handles the daily SCRUM meetings as well as each sprint's review and retrospective and all documentation those entail such as burndown charts and reports.

According to the Belbin team roles, he is a **shaper** and a **plant**.

Christian Sørensen is 21 years old and he is a citizen here in Denmark. He had past experiences in group work during his studying years here in Denmark as well as extensive practical work in the field of technology. He closely worked together with his teachers and peers to bring the best out of every project he took part in.

According to the Belbin team roles, he is a **team worker** and a **complete finisher**.



Belbin roles

The description of each Belbin role appearing in our group. ([Source](#))

Shaper

Provides the necessary drive to ensure that the team keeps moving and does not lose focus or momentum.

Strengths: Challenging, dynamic, thrives on pressure. Has the drive and courage to overcome obstacles.

Allowable weaknesses: Can be prone to provocation, and may sometimes offend people's feelings.

Don't be surprised to find that: They could risk becoming aggressive and bad-humoured in their attempts to get things done.

Plant

Tends to be highly creative and good at solving problems in unconventional ways.

Strengths: Creative, imaginative, free-thinking, generates ideas and solves difficult problems.

Allowable weaknesses: Might ignore incidentals, and may be too preoccupied to communicate effectively.

Don't be surprised to find that: They could be absent-minded or forgetful.

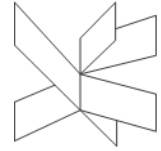
Monitor Evaluator

Provides a logical eye, making impartial judgements where required and weighs up the team's options in a dispassionate way.

Strengths: Sober, strategic and discerning. Sees all options and judges accurately.

Allowable weaknesses: Sometimes lacks the drive and ability to inspire others and can be overly critical.

Don't be surprised to find that: They could be slow to come to decisions.



Complete Finisher

Most effectively used at the end of tasks to polish and scrutinize the work for errors, subjecting it to the highest standards of quality control.

Strengths: Painsstaking, conscientious, anxious. Searches out errors. Polishes and perfects.

Allowable weaknesses: Can be inclined to worry unduly, and reluctant to delegate.

Don't be surprised to find that: They could be accused of taking their perfectionism to extremes.

Team-worker

Helps the team to gel, using their versatility to identify the work required and complete it on behalf of the team.

Strengths: Co-operative, perceptive and diplomatic. Listens and averts friction.

Allowable weaknesses: Can be indecisive in crunch situations and tends to avoid confrontation.

Don't be surprised to find that: They might be hesitant to make unpopular decisions.

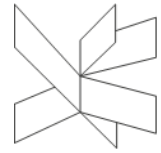
Cultural Differences

Denmark

Denmark has a low power distance, that means that the hierarchy is set to a minimum. Danes values highly independency and equality in the workspace. Everybody in Denmark are on a first name basis and the communication is often direct. A leader in a workspace is often expected to coach the employees, instead of leading them.

Denmark is an individualist society. The expectation is that you only take care of you self and your closest family. Doing business with a Dane is often easily obtained, because there are no expectations of any kind relationship beforehand.

Denmark has a low score of masculinity and for that reason considered a Feminine Society. That means it is important for a Dane to keep a good balance between work and life. Danes appreciate solidarity, equality and quality in their work life. When a conflict occurs, it is often solved through



decisions and negotiations, until an agreement has been met. Danes do normally prefer flexible workhours.

Romania

Romania has a high-power distance. That means that the equality is low and a hierarchy is accepted. Everyone has a place in hierarchy and there is a large distance between the boss and the employee. The boss is expected to give order and the employee are expected to do what they are told.

Romania is a collectivistic society and therefore has a low individualism. It is normal to have a long-term commitment to a group of people in extension to the family. Loyalty to the group is highly valued and expected to overrule all other rules and regulations. Everyone takes responsibility for the other members of the group. Hiring and promotions, of people, are often based on ingroup relations.

Romania is a relatively feminine country. You work in order to live and people value equality, solidarity and quality of their work life. Conflicts are often solved through decisions and negotiations. ([Source](#))

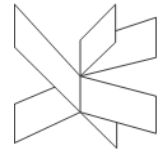
III. Project Initiation

This time around, we were given the opportunity to create a system of our own choosing. After much debate we settled on resolving an important issue in IT, freelancing. IT Freelancing is relevant for software engineers and could easily become a career opportunity for us in the future. Seeing the constant problems that freelancing IT students face when looking for work we decided to create a system specifically tailored to their needs, a system that can let companies hire interested freelancers as well as letting the same freelancers look for an interesting job.

We also had a few guidelines to respect and a few specifications to implement in our system. It had to be a client/server system as well as implement a database with it.

For the actual process we were required to use AGILE methods such as SCRUM and UP. We also had two mandatory group roles, SCRUM Master and Product Owner.

The initial group we formed contained four members, with two different nationalities, Romanian and Danish. During the middle of the project development period one group member resigned from the ICT Program.



IV. Project Description

The following are what happened during the *Inception* phase of our project.

The group initially went through a brainstorming session in attempt to come up with an idea and a theme for the project. The brainstorm was a bit limited due to the requirements of this semester's project. The purpose was basically to create a server/client system with access to a database. The outcome of the brainstorm was six relevant ideas for the project. Each idea was researched to determine if it could be a potent fix to the initial problem we were trying to solve.

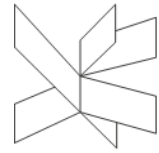
An initial idea was to create a similar application to Tinder only instead of it being a dating website we would make it work for freelancers searching for jobs in the IT industry. We quickly reached the conclusion that such a system would be a bit too complicated for what we were required to do.

Another idea would have been to create a chatting system such as Discord in order for users to browse IT freelancing ads but as before we simply knew it would be too much work for a handful of students that just learnt a few months ago how a database actually works.

After these initial ideas, we thought about having a system where companies and users can sign up and add/sign-up for an announcement. The sheer simplicity of this was recognized by all members of the group and we decided on moving forward with this one. We would later find out that even a system as simple as this is much more complicated than anything we have ever done here at VIA.

We've tried to make a realistic goal for the final product, since we've done this before and we knew from the start we had to cut quite a few things out of the system in order to meet the deadline. For this project we were assigned twice as many workhours per member than during the first one so the functionality of the system would be an expected result at the end by the supervisors. The fact that we've had one member resign from the team half-way through didn't help at all, the extra workload would become a strain by the end to all three remaining group members and as a result we've had to cut quite a bit from our project due to time constraints.

For example, the initial plan was to include a chat system to allow both companies and users to communicate with each other after they've been hired. We've also had plans to create a



thoughtful GUI to accompany the system but as it turned out we simply ran out of time with the amount of work we had to put in all areas of the system for it to work properly.

We estimated that by the end we would have a fully functioning program, coupled with a properly working database. We were right about this estimation but due to the plans we made while we still had an extra hand in the group we unfortunately ended up sacrificing quite a lot in order to be ready on deadline.

Working with SCRUM and UP was a requirement in this project, which meant that all project work had to be made in sprints. The planning of the sprints caused a lot of trouble, because there was a lot of confusion about the length of each sprint. We tried to solve the problem by getting supervisor help but that only lead to even more confusion since each supervisor had a different idea of how a sprint would look like and how long it should take. We settled on having 10 big sprints, each taking up 5 work days. These 10 sprints were laid out from the beginning of April until the beginning of June.

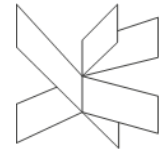
The following figure shows our planned schedule of development using SCRUM.

Week day	Monday	Tuesday	Wednesday	Thursday	Friday
Sprint planning					
Sprint work					
Sprint review					
Sprint retrospective					

Figure 1: Sprint Plan Table

The sprint plan meeting always starts on Monday followed by the daily sprint meeting and work. From there the whole week is filled with daily meetings and work until Friday where both the sprint review and the sprint retrospective are being held.

Each day of the sprint equates to roughly 6 hours of work per student. Every week that translates to approximately 30 hours per week of project work per student in order to clock in the required 280 hours estimate for each member of the group.



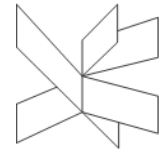
In total our team was required to take part in 840 hours of work in total (without the third member of our team). From the get go if you would consider the main objective of the SeP project to be a set amount of hours you have to complete then we have utterly failed.

Since it is our first time we've actually worked with SCRUM or UP, we knew from the start that we're going to mess this up, but we've tried our best. Things didn't get better once our fourth member left since it essentially meant we had to work even harder.

Our final numbers on how many hours we've spent on the project is nowhere near the objective target we had to reach but we're proud of what we have achieved and learned even with all the problems that got in our way.

Before we delve deep into the project execution, the figure below shows our initial Product Backlog created with all members present at the start of development. Spoiler alert! Most of it ended up being scrapped along the way.

Id	Priority	Estimate (Days)	Item
1	Critical	3	As a user I want my data to be safe
2	Critical	3	As a company I want my data to be safe.
3	Critical	2	As a user I want to be able to see multiple job announcements at once.
4	Critical	2	As a company I want to be able to publish multiple announcements.
5	High	1/2	As a user I want to have a customizable profile
6	High	1/2	As a company I want to have a customizable profile
7	Critical	1	As a user I want to be able to show my interest in an announcement
8	High	1	As a company I want to be able to see a list of all users interested in my announcement
9	Critical	3	As a company I want to be able to establish a connection with one or multiple users interested in my announcement.
10	Medium	1	As a company I want to view a list of all established connections
11	Medium	1	As a user I want to view a list of all established connections
12	High	4	As a company I want to be able to send messages to my connections
13	High	4	As a user I want to send messages to the companies I am connected with.



14	High	1	As a company I want to be able to “hire” one or more of my connections.
15	High	2	As a user I want to be able to accept “employment” from one of my connections.
16	Low	1	As a user I want to have a history of my connections and contracts
17	Low	1	As a company I want to have a history of my connections and contracts
18	Low	1/2	As a user I want to establish connections with other users.
19	Low	1/2	As a user I want to rate my employment
20	Low	1/2	As a company I want to issue tasks to hired users.
21	Medium	2	As a user I want to send my work to the company that hired me.
22	Medium	1	As an administrator I want access to a list of all users and companies
23	Medium	1	As an administrator I want to be able to modify all user/company data.
24	Medium	1	As an administrator I want to be able to modify connections and contracts between users and companies
25	Critical	3	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	As a supervisor I want to have a process report in order to have a written documentation of the system development process.

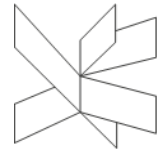
Figure 2: Product Backlog

All of the items in the product backlog above would have taken an estimated 43 days to complete. An estimate that has been proven wrong so many times.

V. Project Execution

From here on out the project execution will be split up into sprints to better understand what our team went through with each sprint. They will also be categorized using the UP framework.

Note: While we did provide an overall burndown chart, due to its sheer size we won't be showing it in the separate sprints but add it as an appendix at the end of the document as well as after talking about every sprint.



Elaboration

During the elaboration phase of our project we've focused almost solely on the business logic of the system. Seeing as it was the first time we tried SCRUM and UP, we had to put a lot of effort into making sure we started right and we kept on track. The elaboration phase lasted for the first four sprints.

1st Sprint

Sprint Backlog

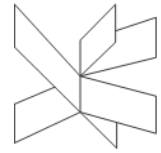
Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	1	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	2	Andrei	As a user I want to be able to see multiple job announcements at once.
4	Critical	2	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	3	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.

Figure 3: Sprint 1 Backlog

Review

During the first sprint we worked on the basic model. This included the business logic of our program. The estimated time for each user story was not at all true seeing as every time we tried to finish a user story we only managed to send it to the next sprint for modifications and calibration. There were so many things that we added with each iteration of our system that every time we did it we had to send the stuff we already did back to the working bench in order for them to work with the newly implemented classes.

We had a tough time keeping up with the strict schedule.



2nd Sprint

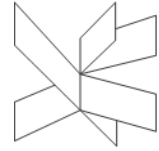
Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	2	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	1	Andrei	As a user I want to be able to see multiple job announcements at once.
4	Critical	3	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	2	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	1	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.

Figure 4: Sprint 2 Backlog

Review

During the second sprint we mainly revised the work from the first sprint, revisiting diagrams and code to make sure everything was working properly on that small scale. Issues started to arise about the fact that we had no idea how this model would fit in the larger system, we had no idea if we had to change anything or not so every sprint we decided to include the same user stories in the sprint backlogs in order to make sure the system was always up to date.



3rd Sprint

Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	2	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	1	Stefan	As a user I want to be able to see multiple job announcements at once.
4	Critical	3	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	1	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	1	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.

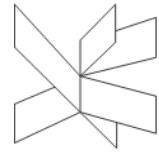
Figure 5: Sprint 3 Backlog

Review

During the third sprint we managed to finish the basic model including finishing touches on the diagrams as well as the code. We would later find out that we had to edit quite a bit of the model in order for it to fit with the other parts of the system.

Construction

During this phase we began modifying the system in order for it to fit a proper client/server based design. This included adding an MVC as well as the client/server themselves. This phase lasted until the 7th Sprint.



4th Sprint

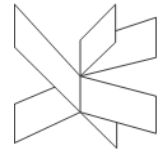
Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	1	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	2	Stefan	As a user I want to be able to see multiple job announcements at once.
4	Critical	3	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	2	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.

Figure 6: Sprint 4 Backlog

Review

During this sprint we managed to add the skeleton of an MVC onto our system. This wasn't the first time we had to use an MVC so we already knew quite a lot of things when we first started out with it.



5th Sprint

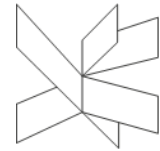
Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	1	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	3	Stefan	As a user I want to be able to see multiple job announcements at once.
4	Critical	4	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	2	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.

Figure 7: : Sprint 5 Backlog

Review

During this sprint we managed to modify the business logic in order for it to fit inside the MVC, we got most of it working apart from a few things that we would work on in the next sprint. This was also around the time when losing one of our team members made a ripple effect throughout the project as we had to work harder than before.



6th Sprint

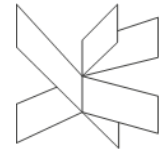
Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	1	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	3	Andrei	As a user I want to be able to see multiple job announcements at once.
4	Critical	4	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	2	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.
14	High	1	Stefan	As a company I want to be able to “hire” one or more of my connections.
8	High	1	Stefan	As a company I want to be able to see a list of all users interested in my announcement.

Figure 8: Sprint 6 Backlog

Review

During this sprint the real difficulties started showing up. We managed to implement a crude version of a client/server system but it wasn't nowhere near ready for deployment or for having a database connected to it. We spent quite a bit of time understanding how the server would communicate with the client and even so we still had to change quite a few things by the end.



7th Sprint

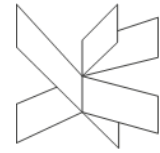
Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	1	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	3	Stefan	As a user I want to be able to see multiple job announcements at once.
4	Critical	4	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	2	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.
14	High	1	Stefan	As a company I want to be able to “hire” one or more of my connections.
8	High	1	Stefan	As a company I want to be able to see a list of all users interested in my announcement.

Figure 9: Sprint 7 Backlog

Review

During this sprint we got the server and client to work although at first the communication between them wasn't flawless. We weren't able to send some information through. This is where we came up with the idea to implement a Package class in the server and client. We spent the majority of the sprint figuring out every detail of it and we successfully added it by the end. We are very proud of this part of the system because it is probably one of the few times we felt we actually were working under the SCRUM umbrella seeing as we designed, implemented, tested and documented the Package class in one single sprint. By the end of this sprint the system was working locally with no database implemented.



Transition

During the transition phase of our project we focused on implementing the last part of our system, the database as well as having every miscellaneous part of the project ready such as extra documentation, user guides, diagrams as well as compiling the program into a jar file.

8th Sprint

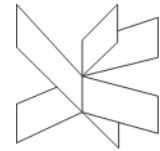
Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	1	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	3	Stefan	As a user I want to be able to see multiple job announcements at once.
4	Critical	4	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	2	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.
14	High	1	Stefan	As a company I want to be able to “hire” one or more of my connections.
8	High	1	Stefan	As a company I want to be able to see a list of all users interested in my announcement.
1	Critical	3	Andrei	As a user I want my data to be safe
2	Critical	3	Andrei	As a company I want my data to be safe.

Figure 10: Sprint 8 Backlog

Review

During this sprint we had our first encounter with the database part of our system. We had to design the database first and after a few meetings we settled on an initial ER diagram, we also managed to implement some basic classes related to the database in the system that we would later modify to work with the system.



9th Sprint

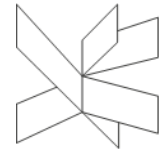
Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	1	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	3	Stefan	As a user I want to be able to see multiple job announcements at once.
4	Critical	4	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	2	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.
14	High	1	Stefan	As a company I want to be able to "hire" one or more of my connections.
8	High	1	Stefan	As a company I want to be able to see a list of all users interested in my announcement.
1	Critical	3	Andrei	As a user I want my data to be safe
2	Critical	3	Andrei	As a company I want my data to be safe.

Figure 11: Sprint 9 Backlog

Review

During this sprint we tailored the primitive database classes in the java system to our own requirements. We also modified the ER diagram to resolve a few logical issues such as the fact that we had to create an additional table in order not to violate a few design principles. Using pgadmin4 we had a working database connected to our java program but we were still a long way from having everything working perfectly as well as having the system in a deployable state.



10th Sprint

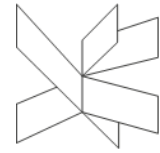
Sprint Backlog

Id	Priority	Estimate (Days)	Responsibility	Item
7	Critical	1	Stefan	As a user I want to be able to show my interest in an announcement
3	Critical	3	Stefan	As a user I want to be able to see multiple job announcements at once.
4	Critical	4	Christian	As a company I want to be able to publish multiple announcements.
25	Critical	2	Andrei	As a supervisor I want to have a project report in order to get detailed system documentation.
26	Critical	2	Andrei	As a supervisor I want to have a process report in order to have a written documentation of the system development process.
14	High	1	Stefan	As a company I want to be able to “hire” one or more of my connections.
8	High	1	Stefan	As a company I want to be able to see a list of all users interested in my announcement.
1	Critical	3	Andrei	As a user I want my data to be safe
2	Critical	3	Andrei	As a company I want my data to be safe.

Figure 12: Sprint 10 Backlog

Review

The last sprint consisted of resolving every last bug we still had in the system. We also managed to make connecting from different computers to the server possible. We compiled the program in a jar file as well as finished the javadoc. During the last few days we also managed to make our login/register system to work in order to keep the user’s data safe. We had a few problems with the actual data being saved to the database once the server was closed but we managed to resolve it by the end.



Burndown Chart

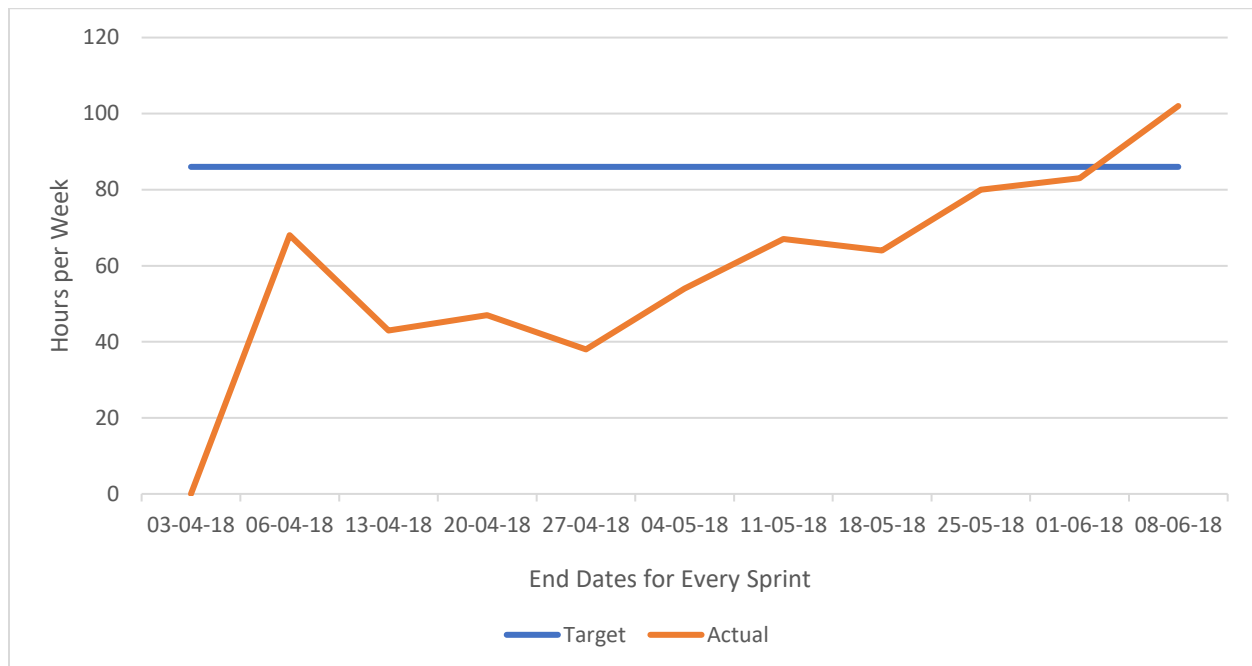


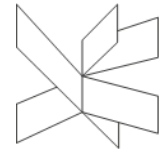
Figure 13: Burndown Chart for SeP 2

VI. Personal Reflections

Note: The personal reflections expressed below have been composed and belong entirely to the respective group member whose name is written above each first paragraph. No attempts have been made to change the word choice, grammar, language or opinion of the authors. This decision has been taken by the group as a whole in order to keep our own opinions genuine and undiluted.

Andrei Cioanca

If I could sum up this semester project in one word it would be this, confusing. As SCRUM master I had to take responsibility over how my teammates felt throughout the development process and we all agree that everything felt extremely confusing. Which overall is a shame, we all agree that SCRUM and UP are amazing when it comes to iterative development, even if the majority of the time we had no idea how to keep on track with everything regarding SCRUM work such as meetings, reviews, retrospectives and burndown charts. This isn't necessarily the fault of the supervisors although we all agree that even they sometimes didn't communicate enough between each other regarding a few requirements for our project. Despite this, I for one have



found their help tremendously helpful. Overall, I enjoyed this SEP project although sometimes it felt it had a considerable difficulty spike compared to the project from last semester.

Being the SCRUM master didn't help at all with this. I've reached the conclusion that to keep up with the amount of documentation and meetings and reviews and retrospectives in order to not get swamped during the last few weeks of the project period, the role of SCRUM master should be considered a separate entity that has absolutely no influence on the actual development. I found it really hard to keep up with all the extra work that the SCRUM master is presented with while also trying to develop a fully-fledged client-server system.

I also understand we are expected to be self-driven and go the extra mile when it comes to the actual semester project but if that's the case then I strongly advise the supervisors to adopt a more passive role when it comes to the SeP project. What I mean by this is remove most of the requirements apart from the ones that reduce the scope of the project to that of the semester. Also give the students all the tools they need such as SCRUM, UP and the guidelines for documentation etc. but in the end let them decide how they approach the SeP project overall.

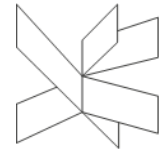
I am completely satisfied with how my team managed the workload after having one of the team members leave, even if it botched up most of our development schedule I still think it's an important scenario to learn from, one that can occur in real life as well.

Stefan Harabagiu

I consider that my overall experience with this semester's project has been satisfactory as I have learned and gained a great deal of experience in developing a client/server system by using SCRUM.

Even though at the beginning the group was confused about how to set up the Sprints, I found that using SCRUM to conduct a group project is enjoyable. By comparing to the waterfall approach used in SEP1, SCRUM has proven to be much more efficient and useful. We did experience, however, a major setback in the form of one group member leaving resulting in the need of taking over that member's responsibilities by the rest of the group. This led to more workload being distributed between the members, but in the end the group managed to overcome this difficulty and deliver a product I am satisfied with.

Group work has been overall enjoyable, I was satisfied with the division of tasks and with the more flexible schedule we employed. Some tasks we decided would be better done from home



as they did not require the attention of the whole group, which resulted in the fact that the group meetings have been productive and scheduled only when needed.

As opposed to SEP1, this semester we had to come up with our own idea of a system instead of having to use an interview with a customer and develop the system according to their needs. This proved to be difficult in the beginning but it allowed us to use our imagination and experience what our current knowledge can do to turn that idea into a working product. Besides approaching a new way of conducting a project (SCRUM) during this project I have also learned a great deal about applying design patterns when developing a Java system in order to create well-structured code.

Christian Sørensen

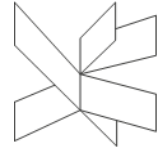
I am satisfied about how the project went even though we faced some challenges doing the project. First of all we became one member short. It happened after the preparation of what we wanted to accomplish in the project. That meant that we did not have enough time to complete everything we had planned for. We were luckily able to scrap a part of the system without damaging the other part of the system to be able to meet the project requirements. I am personally satisfied with that solution

The most fustigating part of the project has been the time planning and the supervision about the sprints. We have not been able to get a clear answer from the teacher about the length and how much work we should put into each day. One supervisor told us that we should estimate to use around 10 hours each regular week with regular scheduled classes. Another supervisor told us that they only expected us to work Tuesday on the scheduled SEP classes, so would not fall behind in the other classes.

Working in sprints have been a great way of working. I really like the concept of completing one task before moving on to the next one. It has not been going perfectly and it took time for me to understand how to do it. I have a pretty good feeling about sprints here in the end of the project.

One thing I want to change for the next project is how we estimated the time for the work. We had not foreseen that we several times had to go back and change model for the system to fix errors and design flaws. The result of that was that we had a lot to do in the end of the project. in the next project I will focus on estimate more time for these types of unforeseen problems.

The spirit of the group has been okay. We did not know each other that well in the beginning, so we early on experienced some problems about how and when to do the groupwork. Some group members requested flexible workhours. That let to a lot of discussions and arguments in the group. We solved the problem by working from home the days were meeting was not possible. Sometime only half of the group decided to meet instead. It turned out to be a really great way



of working, it was not always necessary for us to meet to process in an efficient way. With that said my preferred work form is still groupwork.

VII. Supervision

The cooperation between our team and our supervisors was enough throughout the project work period to bring a sense of satisfaction to us. Whenever we needed advice, they answered. Whenever we needed guidance, they provided. For someone unexperienced in actively seeking help from those that are there to provide it I imagine are very disappointed in the supervision. For us though, it was perfect

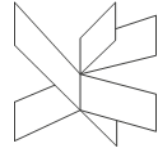
We used our supervisors on both implementation and documentation, seeing as this was the first time we've ever done anything like this. We've asked for advice on how to implement certain aspects of the system such as a UID generator but also on certain aspects of the documentation where we feel we might be lacking.

We had quite a few meetings with Ib Havn and they proved to be the most helpful out of all of them. Since this was our first time when we developed a system from scratch using SCRUM and UP, we found his lectures to be very detailed and helpful and when we still had questions regarding either documentation or implementation he happily obliged and gave us concise answers.

We would benefit greatly from having the same kind of supervision next time as well as any time we would have another group based project work.

VIII. Conclusions

In conclusion, we would like to thank VIA's staff for giving us this opportunity to grow and to understand every single part of a whole project, from the humble beginning of planning and analysis to the seemingly terrifying actual execution of the project.



IX. Sources of Information

- Belbin, R. M. (2012) *Belbin*. Available at: <http://www.belbin.com/media/1336/belbin-for-students.pdf> (Accessed: 18.05.2018)
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