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# Process Report - SEP

Group 2

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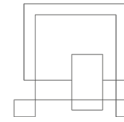
**Characters 30204**

**Software Engineering**

**3<sup>rd</sup> Semester**

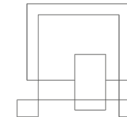
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**VIA University College**



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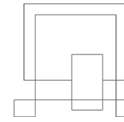


## 1. Introduction

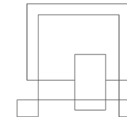
When we found out the classes will be separated this semester, we knew we're going to stay together as a group. Although last semester we had some roadblocks while developing our app, we still found similar goals we strived to achieve. Our team at the time could be improved, even though we had an amazing setup where everybody had their own role and brought their own contribution to our project, we still thought we could use a breath of fresh air. While scouting for people that we could add to our roster we were carefully analysing our new colleagues. One stood out from the start, which helped us make a choice quite fast. Tomas was a perfect addition to our group. His knowledge, determination, will for success and sense of humour made us understand that he is quite a catch. So, after carefully discussing it with the prior group members we embarked on our journey to success together.

We would obviously lie to you if we said that the project requirements were easy to grasp at the start. Terminologies like heterogeneous distributed system, security threat models or 3 tier architecture were foreign to us, and quite frightening. Despite our morale being down, we had a lot to learn during the semester while attending our courses and doing our homework regularly as a group, so we make sure everybody understands every detail, so we don't lose anyone on the road. Sometimes we had to take a deep dive into the subjects ourselves and find a way to make everyone understand the concepts better by teaching them to each other which boosted our teamwork. We did ask for a lot of help from the supervisors as well, which led to us spending our time on important things rather than cluelessly debugging our code with no use. The methodologies that we used this semester played a major part as well. Scrum was a hit with amazing results, which probably meant we must use it again with a new tool this time. We decided to use Jira to assist us in keeping track of the roadmaps, burndown charts and sprints. Also, we tried a new technique called Scrum poker, which made us understand more about time management and how we can make our work more efficient. Unified Process helped us with our system and the teamwork we were exerting, and how can we forget about Agile. Last semester one of our teachers made us fall in love with the Manifesto for Agile Software Development, so we made sure to use it again! We really think that without the procedures enumerated above we wouldn't be able to get a final project we are proud to present.

The countless meetings, the sleepless night while brainstorming together and all the mentor meetings we had at the start made us take the correct path to our goal which was ultimately finishing the semester with amazing results. We infused our code, proposals, and assumptions with the theory we've learned to get a promising result.



Despite our different characters and overwhelming personalities, we still managed to find each other's strengths quickly. Everybody contributed with something new, and we went through with our grandiose ideas. In the next chapters we'll be talking more about how our differences made us the unit that we are in Group Description, we'll talk about how we started the project and how ChadList became our child in Project Initiation. Of course, Project Description will contain the process of making the project description, and surely mentioning Unified Process, Scrum meetings, Agile development, and artifacts in Project Execution. You will get everyone's individual opinion about the project in Personal Reflections and we'll highlight our supervisor cooperation in the Supervision Section. Conclusion will be considered as the icing on the cake where we will give a general overview of our opinions about the whole process of this semester project.



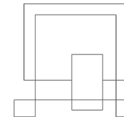
## 2. Group Description

So, after the last semester we decided to stay in the same group. Sometimes it's hard to find individuals who have the same goals in mind as you, but in this case everybody agreed on one thing, everyone wanted to have a great project, get a desirable grade and have fun while doing it. We consider our group very diverse, mostly because we come from different backgrounds, countries, and everybody has a different personal profiles, which makes everybody responsible of some of the characteristics in the group. We are proud to announce that even though we were so different last semester, at the start we felt that we were lacking a creative mind that would bring new ideas and implement them masterfully. That's where Tomas came into the picture. He is very different from us. He may look like he isn't very fun to be around, but if you get to know him, he is an ingenious mind that loves teamwork and excels in the tasks he dedicates himself to. So now with 5 members we chose to jump headfirst into our tasks.

### Personal Profiles

As we mentioned last semester we are very different when it comes to character types, SCRUM roles were quite easy to choose. First, we saw the amazing job our Green Matas did last semester as a SCRUM master because of drive to nourish relationships with people, his capability to make harsh decisions when needed, and friendliness. It was a clear pick and we're happy of our decision. He was protecting the team from the Product Owner while fostering communication, maintaining the atmosphere as friendly as possible, and meeting facilitations. When talking about the Product Owner we had a harsher time. We were happy with what our Blue Dan did, but we challenged ourselves to find a new type of Product Owner that would spark some new ideas or points of view. That's why we chose our Yellow Dragos. He is enthusiastic which would put much higher goals for us, something that made us work harder, he is persuasive which meant that our SCRUM master had to work a lot more on protecting us from his wraith of new assignments we wanted to give us, but mostly he is sociable, which made us think of a real life situation where your Product Owner is very sociable and knows what he wants to do with his idea, but he needs people to achieve his goals, someone who would be very happy to start working, and very fast with his unpredictable decisions.

As always, we will back up our claims by showing our personal profiles a little lower. We learned a lot from last semester. After having some problems with issuing authority, lack of motivation, influence, and fear of appearing weak, but we are proud to finally say that we worked on our weaknesses, and we consider our team to be perfect. When it came to the issuing authority, last semester we learned that if we showed some boldness and some group members tried to seek status which solved our problems we would succeed. When it came to our fear of

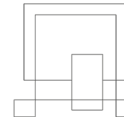


appearing weak, lack of motivation, and lack of influence we usually solved it by talking things out and trying to find a solution all together, because that's why we were assigned as a team, to go through hard times together, not to fight on alone. This meant enhancing our productivity and teamwork every time we went through these things, and that led us to describe ourselves as a total unit.

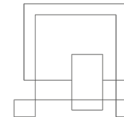
We consider that we can describe our team with one word, which is harmony, because we complement each other. We have Dragos who is a very Yellow person, always enthusiastic and sociable, happy to help and dynamic, we also have Matas, who is encouraging with everything, he cares about everyone because he values our sanity, always patient and relaxed with every little thing he does. We have Dan and Tomas that are precise, formal all the way through, always questioning and interested in the process, and lastly we have Chiril, who even though represents a lot of the Blue characteristics, he has enough Red to be flexible into that role. Always competitive, strong-willed, purposeful, and demanding from his peers, which leads to the authority we needed so much.

We learned from last semester and put some strict boundaries when it comes to laziness and time frames, which made our group prosper. The personal profiles were a very big turning point in our relationships in the group, because they showed us who should do what and who we can rely on for tasks like leading, creativity, uniting people, and enthusiasm filling.

In a nutshell, we really think we did a great job with SCRUM roles, assigning group tasks and matching everyone based on their personality type by looking at our results from last semester. We consider that our hard work finally paid off, and we can openly say we are all living in harmony.



Matas Armonaitis	Dan-Sebastian Ceapa
Dragos Daniel Bonaparte	Chiril Luncasu
Tomas Gres	



## Cultural Background

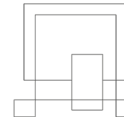
We talked a lot about this one last semester, and we think our opinions didn't change this semester. A big part of our group is the fact that we have the same cultural background, all sharing a common history, the same community back home that shaped us into what we are today, and of course, the fact that 3 of us have the same nationality, which lead to a better understanding of our needs.

First, because our cultural background is extremely similar, and we've spent more than a semester together, we managed to understand everyone pretty well. No new challenges have been met, which we pride ourselves with. Another thing that is worth noting is that we didn't have any conflicts whatsoever. That boosted our confidence a lot, hence we know what everybody looks forward to when starting the project. Despite needing someone last semester to act as a human translator sometimes, we went over all the harsh topics last semester and we caught our new member up to speed, which saved us a lot of time and effort when it came to people being mad and not understanding themselves and their feelings related to the task put in front of us.

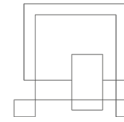
We tried to make sure our similar cultural background doesn't get in the way of our understanding the other cultures, or the supervisors that might not have the same values as all of us. Tomas really helped us with this, he comes from a slightly less harsh/strict country, and he was the fresh look we were looking for last semester. On one hand he was coming up with ideas of how to do things differently and we were psyched to implement them and try them out hoping for a different result. On the other hand, a lot of the ideologies we have already proven to work in the group were met with a warm welcome by him, because he as well thought those are great skill expressions and implementations.

As we mentioned last semester our groups most important dimensions were Disagreement, Communication, and Leading. We can't stress enough how much we love being direct while communicating. When we disagree, we are very confrontational, which leads to fast results and accurate expectations. When disagreeing in our group we base everything on facts which are represented in an open manner. When communicating to everyone we mostly use a low-content approach, which enhances productivity because we don't waste time on small details we can figure out later. Being direct and having a low-content way of speaking is very desirable way of explaining yourself in our group, so we cherish it. Lastly, but not least, leading is the centre piece of our communication. We love the egalitarian approach where everyone has a say, where everyone accepts new ideas and where everyone can speak up when needed.





To sum up, we are a team that comes from similar cultural backgrounds, and we all cherish some similar rules when talking to each other. We define ourselves as egalitarians that can easily do a task when met with a low-content direct type of speaking.



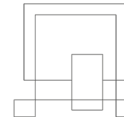
### 3. Project Initiation

Our group was formed out of the friendship and comradery towards each other. Dragos, Matas, Dan, and Chiril already knew each other and were very happy with how they worked together last semester they decided to work together again. Chiril saw Tomas's potential and tried to add him into the group even before the semester started. Because Tomas had a bad experience with his group from the last semesters, he decided to join Chiril and his group on their journey, becoming a part of NBNP.

The name of our humble group is NBNP. It stands for “No Brain No Pain” – which is an inside joke that we designated as the final name of the group. The friendly, fun, happy atmosphere always allowed for jokes between our group members. We had a lot of meetings outside of working hours as well, making sure we are bonding as friends as well, not only as colleagues. As we said last year we used a lot of our brain power for this project, so the name should be taken as a joke!

Our customer requested a system where users can buy and sell things they do not use anymore. Users that want to buy items can go onto our website and pick something that they like, talk directly to the seller and maybe bargaining the price, making it a lot cheaper than buying a new one. Also, we should mention that we tried to follow one of the UN goals called Responsible Consumption and Production which is evidently implemented by us trying to reduce waste because most of the time “one man’s trash another man's treasure”.

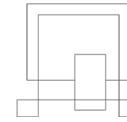
If we talk about our research we can say that we learned from last semester and tried to do a lot of it. All of us went on their favourite platforms that resemble our project and then documented everything while looking for common features. We started using UP at its fullest by doing Inception early on with all the data that we accumulated. We tried to make sure it fulfilled the requirements and our expectations. We didn't forget about the SCRUM methodology that was given to us. We really liked it last semester, it made things so much easier and accessible so we decided to keep as close to it this semester as well. First, our Product Owner and SCRUM master were always talking to each other and over. When they would find compromises the SCRUM master would tell us what exactly we have to do which made the tasks that much easier. Our burndown charts show that we progressed confidently through our tasks. We tried our best to maintain a good communication with everyone, find common expectations and finish Inception without any conflicts.



## 4. Project Description

This time again, we are proud to say that our Project Description was a smooth sail. We are already experienced with working with a big project and a lot of tasks. Report Writing is already a stable for the 3<sup>rd</sup> semester already so we are happy that at least something remained the same during all the semesters, where we didn't find anything new. Learning from the mistakes from last semester was easier due to the harsh mistakes we made that blocked our way to success, we really took those lessons to heart and tried reimagining the report based on hard evidence from last semesters where our documentation was actually right.

We were happy with what we've written down as a first sketch of our Project Description, and we finished it quite early, at least we expected a project like this to take much more time than we took, but there is a saying that states "your eyes are afraid, but your hands do" with which we can entitle our first journey into the Project Description sphere. Next, we had a mentor meeting where we were told our Project Description had some small flaws but overall it was a success. This boosted our morale, because ultimately, we thought that we'll have the same headache with it as we did last semester. Last semester taught us that having vague expectations yet somewhat defined goals will get you far. Of course as we mentioned many times before SCRUM roles played a huge part here as well, while the Product Owner was very excited about the project, our SCRUM master tried to keep him in touch with reality and the actual things we can implement in such a limited time. Our supervisors made sure we're going down the right path which enhanced the developing experience. Before we knew it the Project Description was a success, we developed a UN related, Product Owner appreciated, SCRUM master approved, and supervisor liked piece of information that set our goals clearer and our expectations that were quite vague to something more prosperous.

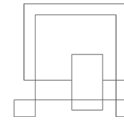


## 5. Project Execution

Project Execution this semester was more stressful than we expected. Even though we knew what we were doing and have done this multiple times before we still had problems understanding where to start and how to go through with our plans. Despite last years loss of morale, this year we didn't lose it throughout the whole project which is a win in our books. We were surely going into Elaboration phase, and nothing could stop us.

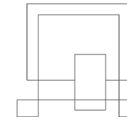
Elaboration wasn't a problem for us. We figured out fast what we want to do by finishing the Project Description, so modelling didn't take as long as we figured it will. Analysis and Design were thrown at us with a high velocity, but we managed it. Implementing something directly after designing it wasn't a foreign concept to us, so it was manageable. Another amazing SCRUM use is the fact that you can revisit your past progress and re-do some things that don't feel right. We had enough time for Testing some things in Implementation, but not a lot of them, because our project was built in a way where without a core component, item viewing, which was a critical requirement, we couldn't continue with our journey. It was quite a bummer that we couldn't see heaps of progress further on in Construction but we all agree that we did a lot of important work and the base we built was enough.

After finally nailing Elaboration, we continued to an unexpected Construction. Even though we tried to closely monitor every task at our meetings, even though we did some mentor meetings, and even though we tried to surgically develop our application things just didn't go our way. Some of the tasks we were given were very broad and we couldn't understand a lot of things. After a moment of weakness we manned up and started looking for responses from different resources we could find online, which helped us a ton. Our app started gaining colour, we finally had items and a working website that we could use to show them on. Later the same thing that we finally achieved will break and we will struggle with understanding why doesn't it work, but that's just a usual day of a Software Engineer. While still modelling the database and changing our type of database last moment we made a lot of progress by finding finally finding a way to authorize users, which surprisingly worked very well, we almost didn't have any problems with it. After creating the users and the items, and the ability to view items we thought that we should start working on the messaging system inside our humble website. It was easier than we thought, which was unexpected as well. We first thought that it would be much harder to implement messages in the Data Access and Logic Tier, but we managed because we had bright minds in the team that thought of a full system that didn't have to be redone. It was easy to implement for the Presentation tier as well. We are proud of how much we've done in such a short span of time. Testing was a big part of every sprint as well. We used White box and Black box testing to make sure our expectations would be met but at the same time try to find bugs for the new problems that might've appeared. We used bunit, x unit and Nunit.autowire for testing the presentation tier



which was quite harsh, and we used x unit for the Logic tier, which wasn't that bad. We tried our best to make Tests every sprint and check every new implementation

We were nearing getting into Transition, where we felt proud. A major part of our program was working. The Presentation tier was beautiful and working. The Logic tier didn't have any major bugs that would stop us from advancing with our endeavours and Data Access Tier was implemented well as well, so we didn't have a lot to fear besides the Tests that had to be redone because of the change in functionality we always implemented. Even though we did it in the Construction we still felt like we were changing things fast so we couldn't keep up the tests with the new versions, so we just waited a little until we knew that this was the last version. It is very important to mention that we tried hard to follow the UP Iterative Development, SCRUM roles, and approach to requirements so we had the best result by following exactly what we were told to do.



## 6. Personal Reflections

### 6.1. Tomas Gres

This semester has brought a lot of new information and knowledge which we implemented in the semester project. We learned a lot about separating a system into multiple tiers, where each has its own purpose. We have also learnt about security and authorizations of users, to secure our applications even better. This semester was the hardest for me in terms of subjects and all the new information, that we had to implement immediately into assignments or projects. The thing I enjoyed learning about the most was Computer Architecture. It was interesting to learn how a computer actually works and how much effort had to be put in for us to have today's computers and smartphones.

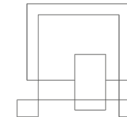
For the semester project group, as I was a new member in an already well-oiled machine, I had to adjust to the new group. But I felt welcomed by my team members which has made it a lot easier. The group consisted of people from 4 different countries, but because we are all from Eastern European countries, we had a lot in common and a lot to talk about, so we had a very good chemistry. We had quite a few team-building events in form of trips or just meeting together and having fun. I believe we worked pretty well together and we managed to do considerate job on the project and all of our assignments.

We decided to repeat last year's development methods Scrum and Unified Process, as we all agreed that it is something we are very familiar with already and it was much simpler and easier to follow than first semester's Waterfall. We split requirements into smaller tasks and worked on that specific requirement until it was marked as done and then we moved on to the next one. That way it was much easier to see what was implemented and what was not and it brought us a little bit of satisfaction seeing a feature working.

As for the implementation itself, it was very challenging in the beginning to get all three tiers running. We had to use .NET and Blazor Web Assembly which we did not previously use, but there were very detailed tutorials which showed us how it is done and it was not as hard.

However I myself had a hard time working on the front-end of the application, as I am more suited for back-end work, so anytime I had a task which included working on the presentation tier, I struggled, but I managed to finish my tasks every time. Another new technology we used was Spring Boot Framework. Although we were already familiar with Java, the framework itself was little harder to grasp, but we managed to do that as well.

We also decided to use a technologies which was just briefly explained in the class – JPA & Hibernate which was used for mapping java classes to database tables. For the middle ware technologies we used RESTful web API with HTTP protocol and Google's Remote Procedure Calls. Implementing REST API was not as challenging as we thought and we managed to make that work pretty easily. The hardest part of the project for me was implementing gRPC



communication. It took us multiple hours before we managed to make the service work how we intended.

## 6.2.Dan Sebastian Ceapa

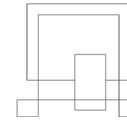
Because it's good to not know everything, I came to the realization during this project that even if we know some things and have some knowledge, we will always need to learn something new. How to connect the three tiers was, in my opinion, the most difficult aspect of this project (Presentation Tier, Business Logic Tier, and Data Access). I initially found the Adapter and DTO design patterns to be somewhat challenging, but as I gained knowledge and experience through the project and in class, it started to become less difficult.

We created a new group contract, checked to see that everyone was eager to work, and, of course, considered the fact that four of our group members had jobs. Initially, it was rather difficult to get into the work mindset, but after a few days, we grew accustomed to it. Every day, excluding weekends, we typically began at 10:00 AM.

It was best to follow UP and SCRUM in order to operate more productively. We were a little puzzled at first because we had the option to choose what we wanted to do this semester, but after some group discussion, we decided that we would go with the project, and the supervisors also assisted us in understanding exactly what we had to do. As we implemented SCRUM, our group was separated into several roles. I was given the role of Developer for this period, which presented a significant challenge for me. Throughout the assignment, I was able to better understand how SCRUM can benefit teams.

Even while I'm happy with the project's accomplishments, I realize there is still more work to be done to make it better.

On the one hand, we could communicate clearly and work effectively together. In order to handle some challenges effectively, we loved debating the issues at hand. Everyone was smiling and sharing some memes to brighten someone's day in a very welcoming environment. I can tell that there was a sense of harmony among us, and this makes it much easier to perform to the best of your ability. We also faced difficulties this semester because we had to work in five-person groups. It took us a while to find out how to work together, but eventually we were able to divide the work and support one another when we were having trouble. In the end, we had a good experience together, and I hope we will work together again in the upcoming semesters.



On the other hand, some coworkers share the same working hours, making it challenging in some cases to split projects so that everyone may manage to do them on time.

We tried to demonstrate this in our app since we truly liked it and created it with passion, and every team member contributed their all to ensure they knew they could handle it.

### 6.3. Matas Armonaitis

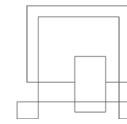
The project for this semester was both unique and similar to the one from the previous semester. The first semester was unsettling, thrilling, and fresh; by the second semester, I was more self-assured and somewhat aware of what was ahead. The only similarity is that I am still in the same group as I was during the previous semester, with the addition of a new member to our group as one of the differences. I thought it would be roughly the same as it was in the other project when I started this one, but it turned out to be much harder.

Starting with the similarities, this semester we continued to use SCRUM as our methodology, which made it simpler as I was already familiar with it. I functioned as the SCRUM master in this group once again, but I felt that I used this role considerably less than I did last semester because things like ensuring that the tasks are completed and that the team is effective in working on the project required much less interaction from me because everyone was motivated and completed their tasks without my help. This was also affected by the fact that we completed the majority of the project online while working from home, and it appeared to be quite successful for everyone as we could always contact one another if we needed assistance. This was also practical because it would be quite challenging to get everyone to meet at the same time because we all have jobs and work at various times.

Now about the things that were different. The fact that we are in the same group as last semester means that we already know each other and how we each work, which is a difference. It also helped that we were friends as well as co-workers because we would hang out after work and during breaks from university, which allowed us to work in a relaxed atmosphere without getting into arguments. Another difference was that the coursework was much harder than it was previous semester; instead of just applying fundamental concepts, we had to use complicated software.

The connecting the different tiers of our project was one of the most challenging aspects for me to comprehend. I myself found Java to be difficult to understand, so I delegated that task to my co-workers to ensure proper implementation. C# was the portion that was easiest for me to comprehend because I was eager to work with it.





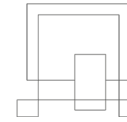
I primarily tested during the project and did some work in the presentation and business logic tiers. I initially believed that testing would be similar to last semester, but that was not the case. Since the system's implementation was much more complicated this semester, testing took significantly more study and time to complete. I used B Unit testing for presentation tier testing, which necessitated much research. I had to learn by doing when testing the business logic tier because I could not find any instructions on how to do it. This also required a lot of time, so I could not help my time much in other tasks unfortunately.

Even though we worked online the most of the semester, this year's teamwork was far better than it was. Each activity was assigned a rough time estimate, and we then completed the tasks ourselves. Even though we did not complete all of the user stories, most people were doing and finishing their tasks on schedule.

Morality of the team was like last semester awesome. Don't get me wrong, it was still quite difficult, especially at the beginning of the project, but we still managed to make fun of the challenging circumstances and maintain our motivation. Since we always talked English, including in our free time, there was no language barrier.

#### 6.4.Chiril Luncasu

This semester was a bumpy ride. A lot of work had to be done and a lot of new things had to be learnt. We started off as usual with the sentence “We’ll do everything different from last semester”. When we started learning about the 3 tier architecture, I didn’t really understand it and everything looked really weird to me. There wasn’t anything I could base the new knowledge on, something I learned on my own before, which scared me a little. When we started project description I understood that I will have to work a lot this semester, just because of the overwhelming tasks, and everything that looked really foggy. I would lie if I said the SEP period was a slow and annoying ride. It went by quite fast, which amazed me. A lot of things were done quick, and a lot of models were pushed quick. I myself did a lot of the models and Core concepts of our product, which I am very proud of, besides of course I completed several other tasks like messaging, notifications, main presentation tier layout, logic tier for items, diagram creations and report writing. I think that everybody gave their best when working on this project and everybody had a say when it came to coming up with new ideas. Also, I would add that I bonded even more with my teammates. Before we were already close, but now we saw each other thrive in our habitats. I like the fact that everybody took the tasks they thought they could complete and they sent them out as soon as possible for an amazing result. If I could go back I would surely do some things different, for example I would try to work more on the project because I feel like I could have implemented more things have I not tried to fix errors that weren’t as critical as I thought. But otherwise, I think I did well. There were a lot of things we had problems with, for example the connection between the Data Access tier and the Logic tier, some design issues with



Presentation tier, and a lot more small issues we needed to solve. Happily, we didn't have any major crashes that could make our project experience feel bad. So overall I would consider this semester as one with a big learning curve but very rewarding in the end. I would gladly go onwards with everything that I learned and I will try to manage my tasks better next time to get an even better result.

### 6.5.Dragos Daniel Bonaparte

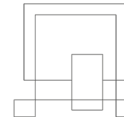
I was wondering what new and exciting technologies we will learn throughout the course of this semester, and I got to say that my expectations were met. It was a real adventure to surf around so many technologies, get to create code that could be deployed and used as an actual system. A very cool way of motivating students to try harder and harder to exceed their limits. Everything was so confusing at the beginning, but as I got to leap deep and deeper in the technologies and in the documentation, I started to realize more and more that the programmers that created those technologies were geniuses.

First, after trying to understand what that specific technology is supposed to do, I can say that it made me gain a deeper understanding and a logical view for the future when researching any other technology. Really helped me understand every step in our code execution and created a very logical and natural flow of execution throughout the whole system.

Our team followed UP and SCRUM again since it became so natural and also indispensable to us. Would like to mention that this semester our sprints were longer, which was a great advantage since all of us have a workplace and cannot always work at the same schedules. For example, for me it happened sometimes that when the sprints were starting in the middle of the week it was very difficult for me to finish my tasks since I had other required things to do on top of that such as an important meeting, work or so on, great improvement in our team's overall efficiency.

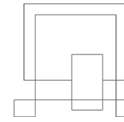
Also, a great improvement was that the team was focused more on dividing tasks, which made it possible for us to work a lot more independently and just compare parts of features together. It was a great semester overall; everything was going well and smoothly. Every time I finish a project period, I have such a better understanding of all the topics, and after hand in I can already think about a better way on how to code the system such that we are more efficient and more engaged in the process.

Again, after such a project period I can say that I gave my all, everybody gave their all and despite anything that is what matters, I had fun coding this system, but more importantly had the fun together with my group.



## 7. Supervision

An important role in our group work was supervision. We really love the way our supervisor responded to our questions and the way he communicated how we should go through with some tasks. For example, in their emails they would always use a low-content approach and would be very direct which directly correlates with our cultural background. When we did meetings we got a very direct response that we really like, and a lot the suggestions felt really easy to implement just by the way they explained them, even though sometimes we would struggle last semester to even understand the teacher. We are very thankful for the aid they gave us, and for the inspiring attitude towards how we should approach our project.



## 8. Conclusion

In a nutshell, we would like to say that we liked this semester. The project we chose was manageable and entertaining at the same time. We tried our best to fulfil all the requirements, and we tried to bring a perfect product forward. Despite leaving out some requirements and not implementing everything perfectly, we made sure that the other parts are perfect, and we are proud of the final result. Also, a good thing we did is asking for supervision, and following the SCRUM roles with UP and the Agile manifesto in mind. If we could describe our group with one word we would say harmony, and if we could describe this project with one word, we would say initiative.