

Process report

Group 4

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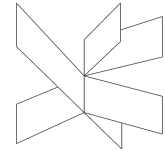
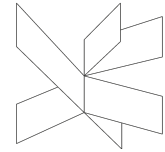


Table of content

Introduction	1
Group Description	2
Cultural background	2
Group roles E-stimate	4
Reflection upon defined risk assessment	7
Project Initiation	8
Project Description	8
Project Execution	9
Personal Reflections	10
Maria's Reflections	10
Software development	10
Group cooperation and group dynamics	12
Future improvements	13
Cezary's Reflections	15
Software development	15
Group cooperation and group dynamics	17
Thoughts on Semester Project	18
Claudiu's Reflections	20
Software development	20
Group cooperation and group dynamics	21
Reflections relevant to SEP1	23
Ionut's Reflections	24
Software development	24
Group cooperation and group dynamics	26
Report writing and end result	28
Supervision	30
Conclusion	30



1 Introduction

In the following report, our team will reflect upon the process of making our first semester project. We will focus on our group work, challenges, communication and time management.

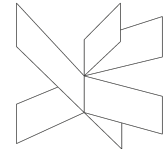
Our team started the project by forming a group and establishing basic rules for time management and working together as a team. This involved writing a contract and meeting each other's expectations.

We agreed upon meeting every Wednesday during SEP1 lectures, in our free time and also, if necessary, on Tuesdays after the SSE lectures for any group assignments. The last two weeks of May the team worked daily on SEP1 by holding online meetings.

Our team followed the agreed plan for time schedule but also managed to stay flexible along the way, adapting to changes. The meetings were held at VIA's campus and later online, on a communicator called Discord.

SEP1 is based on the knowledge from subjects such as SSE, RWD and SDJ1. Our group has explicitly agreed upon regularly attending lectures from these courses throughout the semester.

As a group we decided to rely on supervision throughout the process of making SEP1. Accordingly, we agreed that every member of the group must be present during supervision meetings with our teachers.



2 Group Description

2.1 Cultural background

Our team has representatives from Bulgaria, Romania and Poland. We used tools such as Hofstede method and E-stimate profiles to analyse our cultural differences. The group roles and personalities were examined with the help of E-stimate profiles and different cultures were analysed with the Hofstede method.

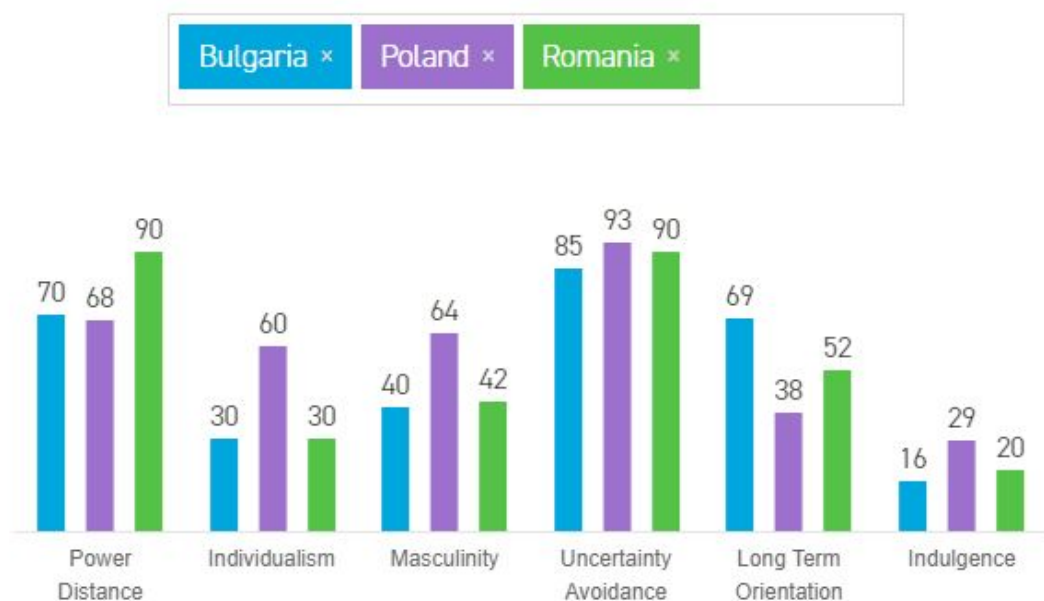
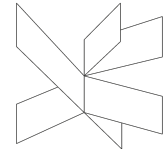


Figure 1. source: Hofstede Insights, 2020

The first dimension of national culture we looked at was power of distance.



According to figure 1, Romania is higher than Poland and Bulgaria by 20 points, but all three countries have relatively high distribution of power distance.

This cultural aspect is perceived in a group work as members do not have equality and the power of the group is distributed in a hierarchical way where some lead and others follow (Hofstede Insights, 2020).

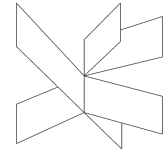
In contrast, it was concluded that all four of us have different expectations than what the graph represents. We all believe in equality between the members of a group. Additionally, the formality in our relations and communication with the supervisors is much lower than it is on the high level of power distance.

The next dimension of national culture our group analysed was individualism. This refers to whether a person focuses on individual goals or aims of the group (Hofstede Insights, 2020).

Although individualism in Poland seems to be highly contrary to the other two countries, we came to the conclusion we all share collectivistic culture, since the group success is much more important for us, than the success of the individual. We strive to achieve as a team and not as individuals. This has had a positive impact on the team environment and workflow.

The final dimension discussed was masculinity. The core beliefs of our team are knowledge sharing, equality and mutual support. The learning process and the well being of the group are far more important to us than great individual achievements (Hofstede Insights, 2020).

Hofstede Insights, 2020. Country comparison [online] Available at:
<<https://www.hofstede-insights.com/country-comparison/bulgaria.poland.romania>
/> [Accessed 20 August 2020].



2.2 Group roles E-estimate

Shortly after we analyzed our cultural differences using the Hofstede theory, we looked at our individual E-estimate profiles. Analysing our cultural differences helped us understand each other's expectations and build the base of our communication as a team.

To further understand our capabilities and characteristics as individuals, we compared our E-estimate profiles. This was done by looking at the different color tendencies and discussing the similarities and differences.

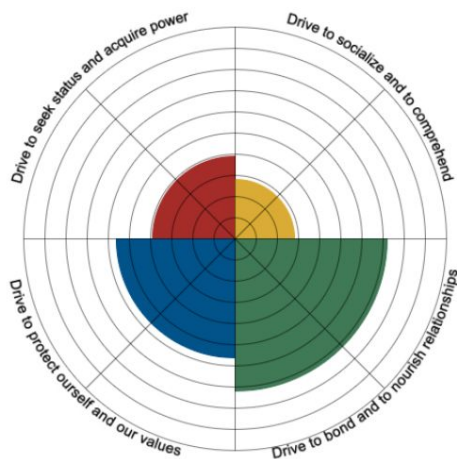


Figure 2. Cezary

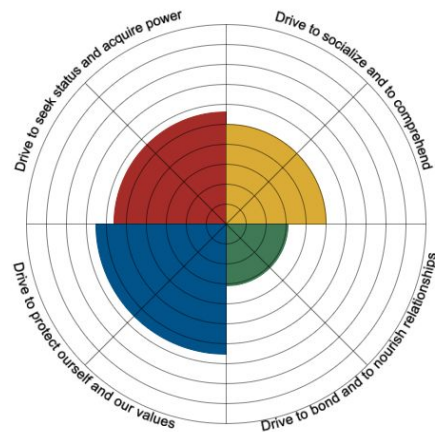


Figure 3. Claudiu

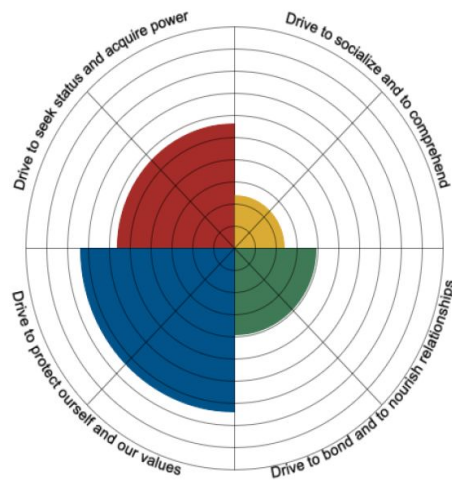
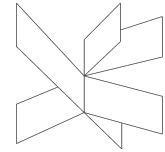


Figure 4. Maria

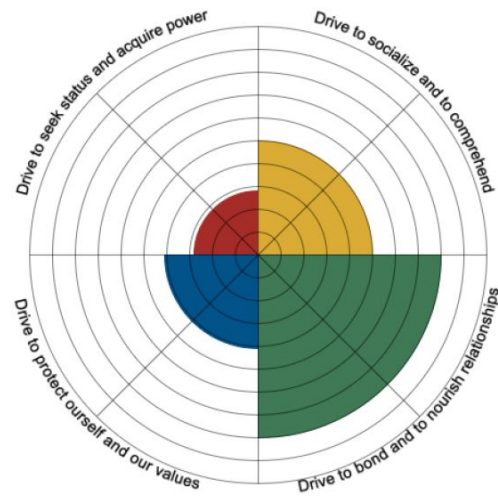
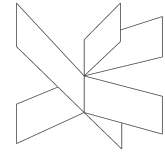


Figure 5. Ionut

Our team covers mainly the blue and green tendencies, as well as red to a small degree. We do not cover the yellow area, as for each one of us it is at low level. Due to the lack of yellow area as a dominant tendency in our team, we have all put effort into being creative and innovative (Mona Wendel, 2020).

The red tendency, as every other color, has its positive and negative characteristics. Luckily, our team has not experienced the impatient and arrogant side of the red tendency. Having a red tendency in the team has brought a result-oriented approach to our team work. This has made the team to be more focused on achievements (Mona Wendel, 2020).

Fortunately, we also had a green tendency to balance the harmony in the group and remind us to always pursue consensus. The blue dominance in our team helped us stay on track with all requirements and deadlines (Mona Wendel, 2020).



We believe having representatives from the different color tendencies is an advantage to teamwork. The balance between the tendencies is the key to overcoming obstacles.

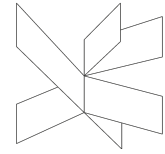
During the group work each of us had the opportunity to express an opinion and contribute to the group work in a different way. Due to the differences in our dominant colors tendencies, each team member brought unique ideas and perspectives.

As a representative of the green tendency, as expected, Cezary has brought positivism and harmony in the team. By taking every member's opinion into account, he has ensured a safe and comfortable environment where everyone feels part of the team.

Another team member ensuring a favorable environment for the team was Ionut. He is the person who helped the team stay highly motivated and devoted to the team work, as he is a very loyal team member himself. Although Ionut always brings harmony and joy to the team, he is as well goal-oriented and creative.

Discipline and structure are one of the most important group qualities a team needs to ensure high quality products. This was brought to our team by Claudiu who represents the blue tendency. He has helped the team to stay focused on what is important and relevant. This has also contributed to our time management.

As seen on the figure 4, Maria's characteristics are represented by significant influence of blue and red tendencies. Since the beginning of the project, she stood out with her exceptional sense of organization and dedication to the work done. The precision which she brought to all parts of the project, made it clear and kept it on a professional level. Due to Maria's consistency the end result met the expectations of every group member.



All in all, we kept the productivity and motivation high and we complemented each other by bringing the best of our colours. Our team has ensured productivity by putting an emphasis on respect and politeness. We listen to each other and pursue mutual understanding. Being patient and respectful became ground rules for our communication.

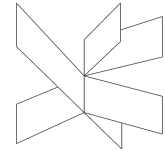
Mona Wendel, 2020. E-stimate Persona profile. [pdf] Available at:
<<https://via.itslearning.com/ContentArea/ContentArea.aspx?LocationID=12006&LocationType=1>> [Accessed 29 May 2020].

2.3 Reflection upon defined risk assessment

In the beginning of the project, the group defined four main risks with the purpose of being aware of activities which might affect the group work in a negative way.

We managed to avoid the risk of missing deadlines by carefully scheduling tasks taking extra time into account for unexpected situations. The risk of members dropping out was avoided by open and honest communication as well as helping each other in difficult times. Communication was also the key for keeping each other motivated when the team started working online instead of visiting the campus. At last, the group successfully managed to stay focused on the project by having social interactions during breaks or after completing the work for the day.

Unfortunately, we encountered issues with using Git. We decided to use the tool for version control and to share code easier between us. The group started using Git from the very beginning of the implementation process. At that point we were just introduced to the concept of 'push' and 'pull'. Since we did not have enough experience



with Git, we misunderstood the concept of merging and this resulted in data loss. This was encountered when by mistake, the local data has been overwritten without being saved first. Due to this issue, the team needed to write the lost part of the code once again. Later we tried to avoid the issue by communication, making manual backups and updating the project as often as possible.

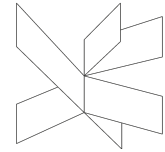
3 Project Initiation

SEP1 started by forming a team. As the members did not know each, the formation of the group was based on our observations during the first weeks of our education. The key criteria were motivation, devotion for learning and consistency.

After the formation of the group, we got introduced to the semester case and the client. We received an interview describing the problem we needed to solve. The interview was analysed by reading it and extracting the tasks that needed to be done. As a group we made several meetings discussing the interview, making notes and understanding what is expected from us. The interview was later used for the creation of requirements in the analysis phase.

4 Project Description

Making a project description provided our team with a lot of insides, thorough understanding of the client and the problem. It really made us think about the scope of the project. Furthermore, we used the project description as a base for the project report.



The final version of the project description was evaluated by our supervisors. Getting feedback from them helped us to see the project description from a different perspective. This was very helpful for our team to reflect on mistakes, ensure quality and take care of documentation details.

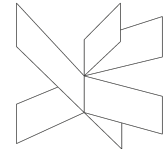
5 Project Execution

After the project description was approved, our team was ready to continue with the execution phase. The execution of the project started out by making analysis. This was achieved by extracting the functional requirements from the interview. Later the requirements served as a base for the creation of the case diagram, used case descriptions, the activity diagram and the domain model.

During the first phase of development, our team felt confused since its purpose was unclear. However, as the team made the analysis under supervision we managed to understand the concept of analysis. As we proceeded to the next phases we were able to use the outcomes from this stage.

The design part of the execution phase started out by making a class diagram based on the previously made analysis. After completing the class diagram the team needed to create a sequence diagram. At that time we decided to continue with the development process, leaving the design of it for later. This is the point where the team stopped following the waterfall approach by leaving the sequence diagram for after the implementation process.

The sequence diagram turned out to be one of the most challenging tasks the team needed to complete. It was necessary for us to reach out for supervision since the team did not know how to proceed with it. Due to help from the supervisors our team managed to deliver the last part of the design phase. Getting help contributed to



the team's understanding of how a sequence diagram should be designed. As it comes to future practices, we consider it necessary to practice more in order to design sequences diagrams without supervision.

The implementation process was initialized by setting up Git on our project and writing the code for the basic classes. This was followed by writing the classes for IO to binary and text files. At the final stage of the process the adapter and GUI files were implemented and tested.

6 Personal Reflections

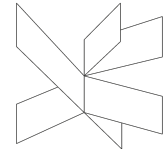
6.1 Maria's Reflections

6.1.1 Software development

As going through the different stages of development, our team started out by following the waterfall methodology which later on resulted in more of an iterative approach. I will elaborate upon why and how the team ended up using the iterative approach and how the waterfall method could have improved our workload.

During the analysis, our group gathered and categorized requirements for the system by analysing the interview and extracting keywords. Firstly prioritizing saving and exporting data. Secondly, editing data, and lastly removing data.

As the classification of requirements serves as a priority list for the implementation and test phases, our team could have discussed the importance of functionality with the client to ensure agreement before proceeding. In the end this was not an issue since we fulfilled all of the requirements.



On the other hand, I consider it important for future projects. In case we do not fulfill all requirements, we need to make sure the most essential functionality defined by the team is in accordance with the client before the implementation starts.

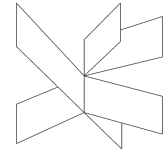
The design phase consisted of creating a class and sequence diagram. Throughout the creation of the class diagram our group did not spend a lot of time discussing the different methods needed to fulfill the requirements. Instead, we felt comfortable with the idea of starting to code and making changes on the diagram later if needed.

As expected, during the implementation phase, we needed to go back and forth to make sure the methods implemented in the code were also present in the class diagram. As the code was being written, our team needed to think about additional methods to meet the requirements.

As a future improvement, we can spend more time discussing the methods needed to fulfill the requirements. In this way we can better define the scope of the implementation process and manage our time coding.

As part of the design phase, the team needed to design a sequence diagram. As we did not feel confident and well familiar with the concept of sequence diagrams, the decision of making it after the implementation process was taken.

Later, when making the sequence diagram, I realized the team would have saved time and made the implementation process faster and more efficient if a sequence diagrams for methods such as editSchedule and saveEditedSchedule were made before writing the code. Most of the methods managing the scheduled classes functionality share a common block of code, determining the selected scheduled class from the list view.



This resulted in having code repetition throughout the methods which could have been avoided by making sequences diagrams for the methods. In this way the team would have seen the common pattern of retrieving the object of the selected scheduled class earlier in the process. This could have resulted in making the code more efficient by extracting the currently repeated code as a separate method.

A future approach to this would be for the team to prepare before meetings by each of us making a sequence diagram as a practice and then making diagrams for the most complicated methods before development. This would have helped the team to think ahead and prepare for the implementation.

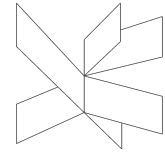
As we went through the stages of development, I have improved my understanding of how each phase contributes to the development of a system. In the future I will contact the client more often and spend more time on the design phase before going to implementation.

6.1.2 Group cooperation and group dynamics

According to Tuckman's model, teams go through five different stages of development in order to operate as a high-functioning team (Smith, M. K., 2005).

During the forming stage our team spent time getting to know each other, as we have not worked together before. The team was formed based on motivational level which helped us easily establish ground rules and project goals formulated as a group contract.

For me, the most important aspect of this stage was how easily the group agreed upon the rules of workload which made me feel excited to start working on the project. On the other hand, the group needed to start meeting online which made me



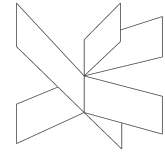
worried since at that time I did not know how a project could be managed from distance.

Adjusting to the new circumstances, we started working on the project online. As we started handling tasks and delivering results, I realized our team went from storming to norming very fast. I believe this happened due to our motivation and devotion to the project. Our group was also good at listening to each other even when we did not agree which helped us in the long run.

The storming stage was as an extension of the forming, this time instead we got to know how we work. As individuals with different perspectives, we had different ideas of how tasks should be done or how theory should be implemented. On the other hand, as a team we were good at being patient and respectful towards each other. As we managed to stay open-minded and support our ideas with argumentations, we could always come to an agreement. Therefore, during the storming our team did not push the boundaries established in the forming stage.

In the norming stage each of us had an opportunity to share our opinion and express an idea. At this stage we spend quality time listening to each other's suggestions and discussing each possibility before making decisions. At that time we also started to appreciate honesty and accept criticism. If a team member had an idea which was not approved, the rest of the team rejecting the suggestion, needed to give proper argumentation and reasoning for not proceeding with the idea. In this way the situation was always a win-win.

Considering Glasl's model of nine stages of conflict, our team never went further than the first stage of tension. Different opinions were expressed but an agreement was always achieved (domendos).



Through discussions and negotiations, we matured as a team and successfully entered the performing stage. At this point we were confident and motivated to work on the project with full speed. Decisions were taken through consensus and the team enjoyed working together.

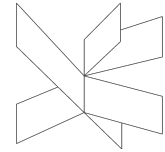
6.1.3 Future improvements

This project provided me with the opportunity to apply the knowledge and theory taught during the first semester. For me the most important aspects of group work are the learning curve and progress of the team and the self-awareness of the members.

Time management and efficiency is the key to project success. During this project our team spent a lot of hours going through lecture materials recapping theories learned through the semester. We spend a lot of time figuring out what to do next and how theory should be included in the project. Since it took a long time to get everyone on board with the material, some of the hours spent on group work were not as efficiently spent as they could have been.

As a future improvement the group members can individually prepare before meetings by going through theories from previous lectures. In that way everyone in the team will be familiar with the theory and ready to contribute to the group work as the meeting starts. The team will be more productive and spend less hours on tasks such as writing reports.

During the implementation phase the team decided to build the interface for the system using Scene Builder. As I did not have a lot of experience with Scene Builder before the project started, I have significantly improved my skills in using Scene Builder.



On one hand, Scene Builder helped the team build an user friendly interface matching the previously agreed layout.

On the other hand, as this being our first project building an entire GUI, I believe the group would have benefited more by building the interface from scratch. We would have had a longer learning curve and better understanding of the different GUI components and the library javafx if the project was built from scratch instead of using Scene builder.

The key to good group cooperation is communication. Having effective communication skills is the base for building a favorable environment where everyone is able to express an opinion and influence the decisions taken within the team.

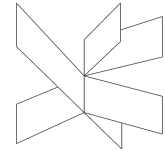
Throughout this project I have learned that I need to work on and improve my debating skills. As giving suggestions to the team I should be better at arguing why and how my ideas will contribute to the team. To be able to argue better in the future, I will spend more time on research preparing my arguments to back up my ideas.

6.2 Cezary's Reflections

6.2.1 Software development

During our SEP1 project we have been presented with the structure of the software development. Each part's description was handed to us in a time interval, so we were able to focus on them separately. The four main parts are analysis, design, implementation and testing.

At first, our task was to analyse the given assignment and plan the future design and functionality of our software. As a group, we decided to immediately begin working and start preparing all the necessary content for this part of our project. This



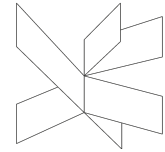
had a significant impact on our project and its execution, as I think it gave us a huge advantage. Not only were we able to have more time to reflect upon our work done, but also we were ready to start with the second part of the project, on the same day it was handed to us. Even though for me as for the rest of the group the concept of different diagrams was new, I think that our initial version of it was accurate and needed only a few corrections.

Later on, we began with creating the design part of our project. Here, the idea was to visualize software appearance and further plan necessary features. At the time, I encountered many issues, as I have not had any experience with projects structured like this before. The main problem was to plan software's appearance and functionality before starting implementation. For me, not knowing enough programming language capabilities and lack of experience, made it impossible to imagine the design before the actual coding started.

The implementation part is where the code has been created. Our group decided to write it together so as to be consistent and precise, as we have been doing it since the beginning . Only a few minor parts of the code were split. In my mind, this decision was important for the software development to be successful. I think that because of it, every member of the group was able to contribute at the same level and every part of the code has been thoroughly examined and perfected.

After that, the testing phase has begun. Here, all the features and requirements were evaluated and I saw the results as more than satisfactory. Even though we were implementing corrections during the whole process of project making, in the end we were able to develop a successful software.

The whole process was unfortunately not made in the exact order. By doing further part of the project, it made me realize that the previous ones needed to change



which resulted in constantly going back to past chapters. I think that even though we were ahead when it comes to deadlines, the work was slowed down significantly.

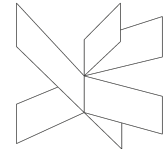
All in all, for me the whole process was a great success. As a group we managed to overcome every obstacle and deliver functional software. I think that each one of us gained a considerable amount of experience and it will only improve our future projects. Now, in my mind we will be able to plan the process in chronological order and do it in the most efficient way.

6.2.2 Group cooperation and group dynamics

During the semester, we were given a task to form a group that would cooperate in making the semester project. After a short time, I created a team with my three other classmates.

In the beginning, I worried about the communication and future cooperation between us, as we have not known each other that well. For me it was very important to fulfill my ambitions and achieve the highest possible grades. I was not comfortable with the uncertainty, as back then we did not know each other's expectations. However, soon as we got to know each other and had an opportunity to work together, I realised we are on a good path to create a successful and efficient team.

The first important thing that I've noticed was the way we handled different opinions. According to Friedrich Glasl's Conflict Escalation Theory, every group can either escalate or de-escalate conflict. Depending on the communication, the group can go through different stages (domendos). In my opinion, our group has only gone through simple tension and debate. Each time a member presented a different perspective and opinion, every time the remaining members carefully listened and expressed interest in that point of view. Even though someone might not agree with certain decisions, I think that our success was accomplished by mutual desire to compromise. During the project making, our team has never had a critical conflict, as I



think we approached our cooperation in the most respectful and mature way. Furthermore, it is my understanding that despite the fact that in the beginning we agreed upon a few rules when it comes to future work, every agreement and desire to help each other came naturally from all the members.

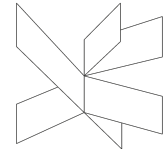
Another important aspect for me was how we understood each other's ambitions. As I mentioned before it was unclear in the beginning, what kind of accomplishments we want to achieve. However, it turned out that we all share the same ambitions and can work toward similar goals. I personally think that apart from ambitions, we also shared the same kind of motivation. According to the Self-Determination Theory, there are multiple types of motivation, depending on the specific person's reasons behind it (Christopher P. Niemiec and Richard M. Ryan, 2009.). In my opinion, each member represents internal, autonomous motivation, which comes from personal desires and interest. I think that that is the secret behind our hard work and devotion to the group.

To sum up, there are many things that we can still improve as a group in the future. In my opinion no group is perfect, and we all must keep learning by our mistakes. However, we already achieved success as we managed to create a group with clear and open communication that we are comfortable with. I will try to maintain this healthy relationship and improve it by further getting to know my groupmates.

6.2.3 Thoughts on Semester Project

Looking at the end result of our project and at my performance during the whole process, I managed to highlight a few aspects on which I need to reflect in order to become better in project making.

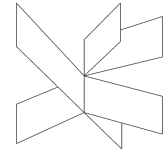
Firstly, one of the most difficult tasks was to write a project report based on our work done. The report itself required particular abilities that I think are crucial. For



instance, it is necessary to include appropriate vocabulary, in order for the report to be precise and accurate. SEP1 taught me that I still have to practice and improve my english language skills. Additionally, I encountered difficulties when it comes to sourcing different parts of the text. It seems that it takes me a long time to use adequate form of sourcing, thus there is a need to gain more experience and practice in that field. The report itself is a quite complex process for me, which requires focus and deep understanding of the topic. The relations between different chapters sometimes are not that clear and unless I address this issue, it will lower the efficiency of the process.

Secondly, I noticed the importance of the lectures I have been attending. Even though I missed only a few classes, it still made an impact on my understanding of the subject, thus on my performance during the project. In the project itself, I encountered several situations where I had to make crucial decisions. Now that I appreciated the influence that attendance gives me I know for a fact that it would be impossible for me to grasp all the knowledge and solve those all the dilemmas. Additionally, I realised how important the feedback from my supervisor really is. There is no doubt that without all those meetings and evaluations conducted by them, the whole project would look differently and definitely less consistent.

In the end, I am satisfied with the outcome of the project. We managed to fulfill all the goals that we set for ourselves when it comes to functionality and the design of the software. However, I think that during the process there were a lot of things that I could have been more prepared for. Some struggles and issues with the project report as well as with the implementation itself could be avoided, if I had more knowledge and practice. Even though I am more than satisfied with the final result, my goals regarding personal development and the way I performed are still not entirely reached. It is my understanding that for some meetings with the group I could have been more prepared and focused, which could influence the process of project making.



To sum up, SEP1 turned out to be a complex and tough process. It required a lot of hard work and devotion. For me, it was an experience that showed me exactly where I have to improve. In the future, it is necessary to keep all my good qualities, as well as keep developing my theoretical and practical skills. For the next project, it is crucial for me to be prepared every time as much as it is possible. I have to attend all the lectures, as I have been doing it so far and turn to my supervisors every time I am in doubt. Now I know that I need all the help I can get, so as to perform admirably and not to let my team down.

6.3 Claudiu's Reflections

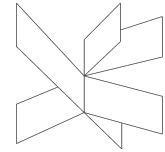
6.3.1 Software development

In this part I will talk about the software development process. From the beginning I was introduced to the steps of development and how it should work.

As the project started, I felt confused understanding the idea behind the waterfall method. I was trying to understand why you cannot go back to the steps and make changes if you need to. For me, the idea of making something and not being allowed to modify it, made me anxious.

However, this was the first project and it was allowed to go back and make changes. Later, I realized the steps are built in this way because each step is a base for the next one.

The first phase of the software development was the analysis. I knew that this one is going to be an important one because you have to analyze the task before starting to do it. For me, the whole part of doing requirements and use case descriptions with the purpose of having a better understanding of the task was interesting. Speaking about requirements, we managed to prioritize them from critical to low priority, with the purpose of having a guideline in case that we do not have time to implement all of them.



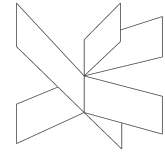
The part that I enjoyed the most at this step was making the activity diagram. In the beginning I did not realize how easily it can guide you in the following steps. I can say that I did not encounter any problems with the analysis part.

The next one was design. Here I started to feel confused a little. In my mind the design was just about how the software would look but the diagrams that we had to make were about the code. Furthermore, in this step of the project the part that I could not fully understand from the beginning was the sequence diagram. This might be because it was not clear in my mind how to make it before implementation. Since I did not have any experience with this kind of diagram, I agreed with the team to postpone it after we do the implementation.

During the implementation step I tried to contribute as much as I could because I felt confident in my abilities of coding. In the same way that we did the other parts of the project, we decided to make the code together. It was an interesting experience and I am glad that I had the chance to see how other people think to implement an idea. I have slightly developed my ability of being able to see an idea from multiple different perspectives and then choosing the best approach for implementing.

The last part of the development process was testing. I started to test the features of the software with my group. We used the prioritized list of requirements to see if everything is working and if something is not, to see how important that part is. Initially we did not observe any problem. Later, I noticed that some situations can create a bug in the software. I was expecting something like this and the problem was fixed by improving the code. For me, it was a success. I am happy to know that we fulfilled all the requirements that we planned.

Having experienced the process of software development, I feel more confident in my abilities of completing a task. Most importantly, I have improved some skills which can help me in the future projects. Furthermore, I have understood the purpose of each step of software development and the concept of the waterfall method. Also,



now I see the purpose of the sequence diagram in the design part, before implementation.

6.3.2 Group cooperation and group dynamics

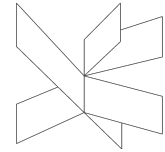
In the following part, I want to talk about group cooperation and group dynamics. Also, about how we managed to interact with one another.

I will take Tuckman's model as a guideline of the discussion about the group dynamics. According to the model, teams go through five different stages in order to function at its potential (Smith, M. K., 2005). In the beginning of the semester we had to decide with which classmates to make a team. In that situation I took as a guideline three main factors: motivation, communication, and respect.

After the group was made the forming stage started. Everyone tried to be nice and polite. I tried to get to know each person in the group by asking them about their country or their hobbies. Additionally, we had a lot of interesting discussions about the cultural differences and specific aspects of each country.

After that, the storming stage arrived. It felt more like an extended forming. We had some unproductive times but nothing too extreme. When I noticed that we start to argue about different topics and slowly a conflict starts to build I would immediately deal with the conflict by trying to see the other's perspective. I would say that, in the Friedrich Glasl escalation with the nine stages of conflicts, our team never passed further than the green zone (domendos). For me, every time when we had a situation like that, it was definitely a win-win. I was interested in seeing other perspectives with the purpose of developing my own thinking.

In my view, we got fast over the storming and went to the norming stage. Here I felt that we start to focus in the same direction. The new ideas are no more one against each other. Here we have done our best to find the most productive way of



working together with the purpose of checking as many boxes as we could from the to do list.

The performing stage was the best. I am glad to say that, when we got to this stage, we never missed a scheduled deadline. By scheduled deadline I want to say that we would take the official deadline and replace it in our schedule with an earlier one. We agreed on this approach to be sure that we have time for unpredicted situations. I can admit that this strategy is a really good one and I will keep it for the next projects.

We spent a lot of hours together working. In the last part we would work even the whole day. Even if I am not a fan of this kind of approach, I can say that it worked.

I have significantly improved my knowledge about cultural differences and about topics related to learning or courses by communicating with the group. I also feel like I slightly improved my social skills, which is essential for me.

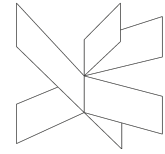
Additionally, I realized how important it is to have different types of people in your group. Our differences had an impact in the storming stage but even a bigger one in performing because we ended up completing each other.

6.3.3 Reflections relevant to SEP1

For me, this semester project was the first one of this type. I can say that I am proud of the result and I am grateful for the experience achieved.

Because I got through the process, I can highlight some aspects that I would like to change in the future.

The first one is about the meetings with supervisors. In the beginning I did not really think that those meetings can make such a big difference unless you really do not have any idea about how to start. Later, I realized that it is better to ask then to assume that you are doing something right.



Another aspect that I would change in the future is the scheduling. For me, having a starting hour and an ending one is quite important. Above, I mentioned that we worked a lot together, as a team, sometimes even the whole day. I know for sure that our result is a good one because of that work. The idea is that, in such situations, my productivity levels are going down. I feel way more productive when I have scheduled the working hours and the breaks between.

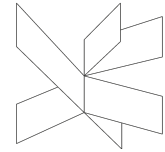
In the next project I will also try to write the report at the same time as we go through the software development phases. I feel like it would have been easier to make the description and to write about all the topics when we just did something rather than after we finished everything about software development.

I can also highlight some aspects that I will keep in the future projects.

One of them is making deadlines for smaller tasks. Having a deadline, motivates me. Another good practice would be the communication with the group. We had almost daily meetings and even in the days that we have not had one we will keep in touch through messages. I think communication is one of the most important parts of a project. Going through the process and analyzing the Tuckman's model I realized what difference can make a group once it passes the storming stage. And without communication I do not think you can pass the storming phase.

Regarding the software development process, I would have liked to have a little more time to work on details. I think we have done a really good job but because of my perfectionist side I feel like if I had just a little more time I would make some small touches to the project.

Regarding the choice about the graphic user interface we agreed to use the scene builder. I am grateful for choosing that because I did not fully understand how to use it from the beginning and now I got a better idea by practising during the project. However, it would have been interesting to try to do it from scratch using just code even if it could have been harder and more time consuming in the beginning.



To sum up, the experience that I got from doing the project with my group is a really valuable one. I am glad about the final result and about the knowledge that I achieved during the process. I knew that working in a team is not easy but now, I know how it feels like.

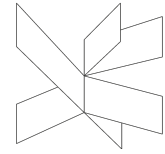
6.4 Ionut's Reflections

6.4.1 Software development

We started the software development part of our project with a firm belief that we would use the Waterfall Method. It became obvious that this was not the case when we got to the design phase and figured out that we had to change some requirements from the previous phase.

At that time, I did not think that this would happen again, but as soon as we got to the implementation phase more changes were needed in the design diagrams. This could be due to a lack of experience in designing software and so, will not affect us in the later semesters, but for now I think that in the future I will go from analysis straight to implementation and afterwards come back to design. This way, I will develop the software faster, without having the need of constantly going back and changing things.

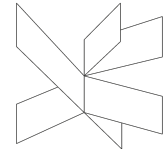
Our biggest problem while in the software development phase was not lack of programming knowledge, but rather lack of knowledge and experience with the tools used.



For version control and file sharing we have used Git and GitHub. Using these tools was not mandatory but we knew that they would make our work easier and after a quick crash course into how to use them we started a repository for our SEP implementation. Because I do not yet fully understand how git merging works I will now need to look for help and practice more because this skill will be essential to me as a practitioner.

Looking back, I think our biggest confusion while in the software development phase was if we should use Scene Builder or write the GUI on our own. For me, the ease of creating a good-looking graphical interface was superior to the better understanding of the interface implied by writing it ourselves. I am happy that we decided to give Scene Builder a chance and took our time learning how to use it because the result is stunning and functional at the same time. Having already learned how to use Scene Builder means that I will use it for sure in the future projects.

Sticking to the phase of creating the GUI, I see now that my priorities were not very clear as I spent too much time on fixing small details and making sure that it had no flaws while I could have moved forward and take care of these things when the project was done and the reports were written. This understanding will be important to me as a learner, as well as a practitioner, because prioritizing things in a logical way is a very important step in developing a system.



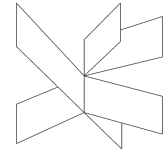
6.4.2 Group cooperation and group dynamics

My team and I have finished our first semester project. Even if some of our decisions made me fear that we will not finish in time, I now realise that those decisions were the right ones and I have several reasons why that is.

We started working together on each task from the beginning and this kept going until the end. At first, I questioned this way of doing stuff in fear that we will fall behind on the deadlines and will not finish the project in time. Now I understand that this was a good call seeing that we will finish before the due date and our code and reports are consistent, which is an important aspect for me. This means that I will try to apply this workflow in the later semesters but with a small change, I would start working on the project as fast as possible at the beginning of the semester so I would not fear not finishing on time.

Not splitting tasks meant that we needed to plan things in advance and so we did. In the beginning of our project we were planning things on a weekly basis but towards the end, especially in the last two weeks dedicated only to SEP, we planned every task on a daily basis and checked if we accomplished what we wanted at the end of each day. This ensured that we were productive and not slacking off. Having applied this, I have now realised how important planning is and I will apply it even more in the future, even if it is for the semester projects or other tasks I will need to accomplish.

Working together on each task meant that we were always connected so all four of us attended the meetings with the supervisors. This was a good thing because more people means less chances of missing a detail of the conversation or forgetting to

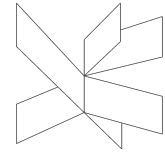


ask a question. Seeing that this was a good call I will keep doing this in the future and try not missing a meeting with the supervisors.

I now understand that, at first, I did not know if my teammates were trustworthy, so I was trying to assign myself as many tasks as I could, in fear that someone would either slack off or would not be able to finish the given task in time. Only later I have realised that they are trustworthy and as devoted to the end goal as I was. I have also seen that they will put in as much effort as it is necessary to finish something and afterwards make sure they did quality work. Similar to this is the fact that we all had the same expectations from the project and neither of us slacked off. This understanding will be essential in the future as I plan on working with them on even more tasks.

As this was my first time using the PBL format for learning as well as my first time working on a big project and working in a team it was quite a big step for me. It took me a while before learning how to use the advantages of working in a team. As stated in the previous paragraph, I had trust problems with my team, but I was also not used to having someone besides a teacher to ask questions and receive opinions and reviews from. However, I have now improved my ability to work in a team and I think that in the future semester projects and internship this skill will only get better.

Looking back now, I understand that even if it seemed hard at the beginning, working with a team on such a big project made the process easier and the result way better than it would have been if I would have been working by myself. It was a fun experience which I will not forget soon even if it had its ups and downs.



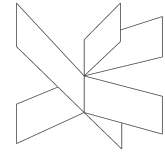
6.4.3 Report writing and end result

When we had just begun working on our semester project we had the task of writing the Background Description and, later, the Project Description. This made me see that this style of academic writing is something that I have not experienced before and needed my full concentration.

Afterwards, seeing that some of my teammates have had more experience with report writing at their previous universities I felt like I needed more practice. This and the fact that reports are an important part of the semester project made me realise that I will have to improve my skills in this regard. As a next step I will now have to go through the learning materials on report writing and exercise more so this skill will not give me a hard time in the future semesters.

Except from the things that I have already talked about, everything about this project was great. Our workflow was smooth, without any major setbacks and the team was great. If my teammates accept, I would be more than happy to keep the current group format for the next semester projects.

Looking back now, when the project is done, I realise that I have come a long way since the beginning of the semester. When I was told about this projects it seemed like something I would never be able to accomplish. Initially, I questioned my abilities to finish a task like this and maybe this is why I needed some time to adapt to the situation before starting to work at my full potential. Having a good team also helped getting this project to the end and without them I am sure this task could not be completed. Having experienced finishing this project and being so proud of the result



makes me wonder that else I am capable of. One thing is sure, this was just the beginning and in the future I would give my best.

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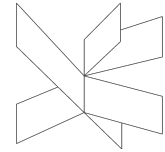
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<<https://via.itslearning.com/LearningToolElement/ViewLearningToolElement.aspx?LearningToolElementId=862454>>

[Accessed June 2, 2020].

7 Supervision

The supervision of our project was held via Discord and e-mails. Most of the meetings with the supervisors were not scheduled in advance. All of the group



members were present during every supervision session. This ensured the group was always on track and helped us make the right decisions.

There were times where the group was loaded with more work than expected after a supervision session. That happened when the feedback from the supervisors required changes on previously made chapters. In these cases the team took advantage of the time buffers that were made in advance.

8 Conclusion

As going through the project, the team experienced moments of frustrations, met difficulties and overcame obstacles.

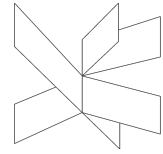
PBL taught us how to cooperate together and deliver as a team. Observing the different stages of group dynamics, as going through the project, helped us develop as a team and become stronger and more efficient as a whole. The implementation of the system was a key aspect, when it comes to solving problems together and improving our collectivistic approach.

After the project has been concluded, our team managed to reflect upon our performance and the end result. At the final stage of the project we were able to highlight the most important approaches that brought us to success. Additionally, we learned from our mistakes, which will be taken into account for future projects.

Based on that, we were able to conclude what to keep doing and improve in upcoming projects.

What to keep doing:

- holding meetings as often as possible
- communicating on regular basis



- writing reports together
- writing code together
- scheduling tasks and planning in advance (trello)
- more group work, less individual tasks

What to improve:

- writing report simultaneously while doing the project
- more supervision meetings
- get as much practice as possible with the technologies included with the project

All in all, as a group we are satisfied with the outcome of the project, both when it comes to the result and what we learned from it. Our team is looking forward to applying the knowledge and experience we gained to the next project.