**Process Report**

**AceMarket Business Enterprise Platform**

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# Preface

# Introduction

In the following chapters of this Process Report the reader will go through the stages of the project, it’s progress and also its limitations or incomplete tasks.

Group description will describe briefly the cultural background of each team member and the methods that the team have used to analyze the relations formed inside of the group and how it managed to solve the conflicts, improve their strengths and limit their weaknesses.

Project initiation will relate how the group was formed and why this particular topic has been selected and the reasons behind it. It will mention the planning and what kind of project planning tools have been used so that it could deliver the project up to the deadline.

Project description will put in picture the problem that the group has decided to analyze and find a solution for it, the goals and what it was wanted to be achieved.

Project Execution will debate on the methods and project results topics. The group will describe in detail the methods that they have decided to use, how these methods have been followed and what other options would be chosen in case the project will start again. Project results will discuss on the satisfaction of the results, what identified risks have put in danger the satisfaction and how they were solved. It will be an over description of what have succeeded and what was less successful.

Personal reflections will have each team member describing his own private experience from working inside of this group and for this project. It will be described each experience with their own advantages and disadvantages.

Prior to end, Supervision chapter will have the groups reflections on supervision.

Conclusions will end this Process Report with a list of recommendations on what to do and what to avoid doing in a group work.

To be noted that the team have had a total of 29 meetings. In the first 8 meeting the group had done:

* Group formation
* Group contract
* Project ideas
* Project description
* Project description refinement (after feedback from supervisor)
* Product backlog
* Review of team roles

The following 21 meetings have been part of SCRUM, having a total of 7 Sprints with 3 days each.

To be noted that there have been no meetings with the companies as there has been no companies involved in this Semester Project and students had to replicate a problem from a real-life situation and try to find a solution for it.

Inside of these 29 meetings, the team have had 5 meetings with their supervisor.

A full layout of the meetings can be found in the log and Sprint meetings minutes in APPENDIX A.

# Group Description

In this section the group will include the cultural background of each member, what team analysis tools of personal characteristics have been used and the personal reflections of each team member on group work.

Florin is from Romania, but for 9 years he has lived in other countries than his own. Most of the time has been spent in Denmark but also countries like Spain, France, Germany, Latvia, Lithuania, Estonia and Slovenia. Prior to this group project, he holds a vast experience in group work in academical and professional environment with stakeholders of different professional and cultural background.

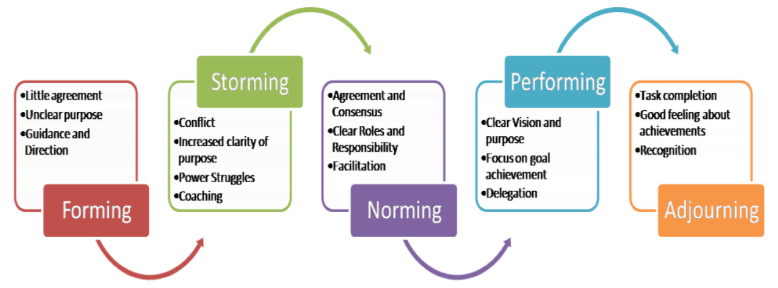
Jaume is from Spain and currently living in Denmark since he started his bachelor education in ICT at VIA University College. Prior to this, he had lived in United Kingdom for a period of three year and also pursued a Mechanical Engineer education at Universitat de Girona, Spain. His group project work experience consists of the two semesters spent at VIA University College, as in his previous educational and professional history he did not had the chance to work in group projects.

Dave is from Czech Republic, originally from Vietnam. He has been studying the whole time in Czech Republic, where education is mainly focused on theory. In rare cases he had the chance to make presentations and to work in group projects, therefore studying in Denmark is a different approach on education for him.

Kenneth is from Denmark and therefore has a lot of previous experience with working in groups. Since Gymnasium most, if not all the schoolwork has been in groups and many of the courses focused on project work. He has also spent 2 years studying physics at a university, where group work is required, and projects are a constant. This means, he is very used to group work, particularly with large groups.

In this Semester Project, the group has not felt that it has been useful Hofstede Model of National Culture. Even if some isolated cases felt like we could have used the Power Distance Index or Individualism versus Collectivim, the group considers that overall the model does not apply in our case.

Tuckman’s tool is to be considered a relevant method of analysis the phases of how the team inter relations and collaboration has evolved over time and how the team went through these phases.



*Source:* [*MSPGUIDE*](http://www.mspguide.org/tool/tuckman-forming-norming-storming-performing)

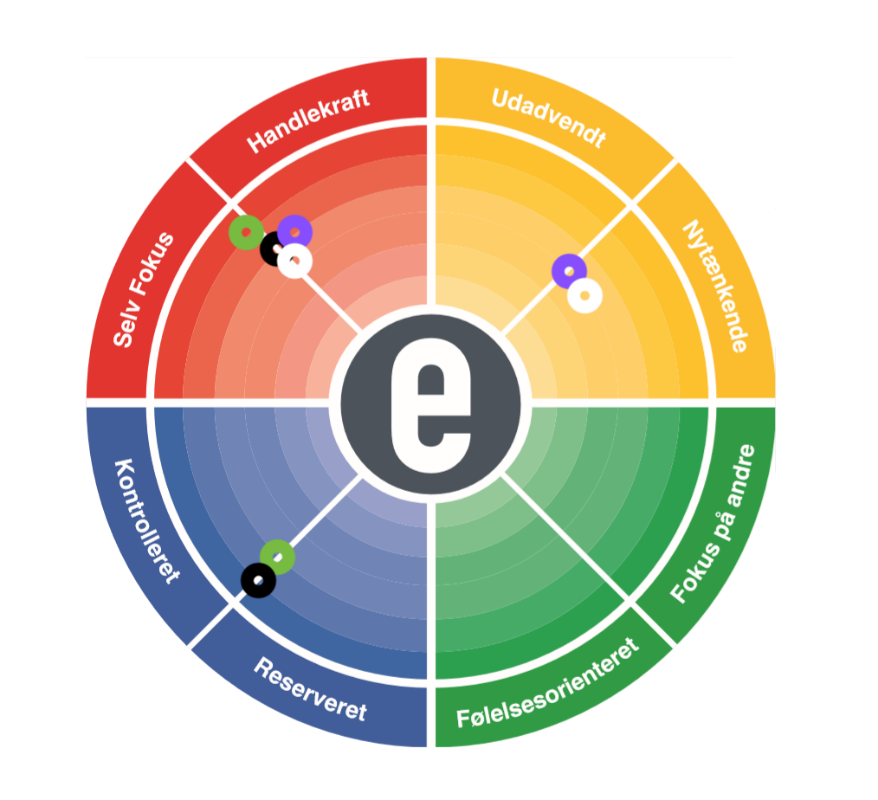
During the first Sprint, the group has experienced the Forming phase where it has been little agreement but overall the main issue has been the unclear purpose and the lack of guidance. This may have been caused as the group changed the methodology from the 1st Semester and new tools had to be understood and applied.

In our second Sprint the level of conflicts increased as the struggles for power has intensified and communication still has been inefficient or not productive. This has been the Storming phase of the group where it could have been avoided if the group would have asked for more guidance from the supervisors.

Storming phase has continued until the end of the third Sprint and group entered into the norming phase. This has been a result of mutual understanding of each other strengths and weaknesses, a better understanding of the learning objectives of the project and understanding the roles that each team member is playing.

Performing has been facilitated also by the change of the working space as the group moved from working in temporary spaces to a permanent space and the group could enjoy also lunches and coffee breaks together. This brought the group more united and it facilitated to have a clearer vision and focus on the goals.

As stated on [e-stimate](https://www.e-stimate.com/tools/personality-profiles/about-personality-profiles/) : “Using the tools creates an understanding of employees’ and managers’ personal drivers, strengths and approach to others. Important knowledge in an organization that must develop and perform well every day”. This statement is strongly supported by the team as it beliefs that the personality profiles that each of the members has it should have been discussed prior to project initiation. E-Interpersonal profiles characteristics played an important role over the first three Sprints until each member understood each other’s characteristics.



***Source:*** [***e-stimate***](https://www.e-stimate.com/)

***Kenneth – Green***

***Florin – Black***

***Dave - White***

***Jaume – Purple***

By looking at the model of characteristics, we can realize that the group had a lot of members in the red area where there have been struggles of power that caused most of the conflicts. The red area being characterized by Dynamic and Whip, or Executor, this created conflicts on the role of team leadership for which direction the project should follow and what methods and concepts should be implemented. Another reason for creating the conflicts has been also the direct manner of communication which was not very well accepted by other group members as they felt that they are not listened or taken in consideration for their contributions. This situation shifted around by having the group members in red changing their direction for creating results and being resourceful which facilitated collaboration.

Group members from the yellow area had contributed with their creativity and positive atmosphere but also being innovative and enthusiastic. Same members have given inspiration to the group to be more focus oriented but also to try new ideas for the functionalities that have to be implemented.

Group members from the blue area brought a more professional and controlled communication and helped with understanding better the guidelines that the group has to follow to complete the project. They also contributed with their attention to details and documentation.

The group would have been balanced if there would have been a member in the green area that has the team role of solving conflicts and pulling the team together.

Overall, the differences and the advantages of each area created a balance between the team members and conflicts have been reduced to minimum, group collaboration had increased, and the working atmosphere has turned into a positive one.

# Project Initiation

The first meeting of the group to discuss the SEP2 project has been in first week of February 2019 when we had the first SEP class. The group has formulated two different ideas for the project, one being primary and the second one being secondary alternative. Until the second class of SEP2, when we had the meeting with our supervisor, we had discussed the pros and cons of each proposal. Our primary idea, Warehouse Storage System, has been voted unanimously by the group as it is more practical for future development but also closer to the actual needs of the market. The meeting with Steffen has confirmed our opinions but also gave us an opportunity to incorporate the secondary idea in this project, but for a future development.

Group formation has been initiated by Kenneth J. and Florin B. as they previously worked together on SEP1 project during the first semester of their studies. The third member who joined the group has been Jaume L. and the last member to complete the group has been David Le. The group members have been selected based on their previous group work experience, class work experience, aspirations and personal goals. For additional information, we would like to mention that the group has been formed in the first two weeks of January 2019.

Our team planning had been similar to the SEP planning schedule posted on ItsLearning but it suffered delays or inconsistent progress due to various reasons presented by the team members: sick leaves, unmotivated absences, announced absences in the last minutes before the meeting had to take place or lack of communication between team members. The group had admitted this drawback and decided to take it as a future learning outcome for the next SEP projects. No personal blame had been expressed publicly but team members must understand that their work, presence and collaboration skills will influence theirs and groups progress and success.

As for planning tools, the group has used:

* Google Calendar – dates and times of meetings
* Facebook Messenger group chat – for written messages
* Discord – for group calls/ remote meetings
* Github – work files sharing platform
* Scrum – framework for developing and delivering

As stated in the [Scrum’s Guide](https://www.scrumguides.org/scrum-guide.html), “Scrum is a framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value”.

Briefly, Scrum has three pillars: transparency, inspection and adaptation. Transparency refers that the process must be visible for the all the members involved for the end result of the project, inspection on the Sprint Goal and progress to identify undesirable variances and adaptation having the process or the material adjusted if the resulting product will be unacceptable.

Group 3Z has applied Scrum framework for their Semester Project by creating a Product Backlog with the user stories that have been formulated. There have been a number of seven Sprints, each Sprint of 3 days. The members involved have played different roles, with different responsibilities: Development Team, Scrum Master and Product Owner.

At the end of each Sprint, the team have held a Retrospective meeting, Review meeting and Planning meeting. In each of these meetings the team, Product Owner and Scrum Master have discussed the progress, the risks, the improvements and other relevant issues critical for the product development. During these meetings the Sprint’s Backlogs, Product Backlog and Burndown Charts have been updated. In Sprint Planning the next Sprint was planned by selecting the next user stories to be worked on according to priority and user story points. The following days of the Sprints had a short Daily Sprint Meeting where it was discussed the progress from the previous day, the plan of the current day and if any issues are detected and how they can be resolved.

Attached to Appendix, the reader is able to see the development of each Sprint: selected user stories and their progress, minutes of the meetings, Burndown Chart and Product Backlog.

As a general overview of the progress, the team has completed 27 user stories but there have been left almost half of the user stories for furthere development and implementation. As visual representation we will use the burndown chart that describes the progress and the velocity.

# Project Description

AceMarket is a local retailer based in Horsens and they run a family type business and AceMarket’s aim is to provide local grown products to their customers. They have succeeded meeting the market demands and at the moment expansion is expected to happen. Despite AceMarket’s commercial success, they are facing internal challenges and a re-organization of the company’s working methods is needed in order to increase efficiency and profitability of their business.

AceMarket consists of three structures (to be known as entities or actors): the warehouse, the retailer and the headquarters. The warehouse provides inventory and delivery of products where the retailer is providing inventory and sales operations. The headquarters is in control of these two structures, as it manages their operations.

A key factor of AceMarket’s lack of efficiency is their inability to store and process data accurately. As it has been reported, the company’s stock inventories are being done over multiple Excel spreadsheets which lead to inaccurate stock inventory. Also, as for sales operations, they are using an outdated system that does not provide any insights of purchases or consumer behavior. Therefore, AceMarket headquarters cannot do any predictions or business planning on long term.

For these reasons, AceMarket have requested an interconnected system that would allow them to have a general overview of their current affairs but also to be able to have data processing tools in relation to their inventory stocks and sales operations.

The system will be able to perform analyses on the data, keeping track of minimum and maximum stock, the acquisition rate of individual items for every retailer and the expected stock needed for all retailers over a period.

# 4.1 Definition of purpose

The purpose is to create a system that will provide data stocking and processing tools on the company’s inventory stocks, sales operations and current affairs to help manage stock between warehouse and retailer.

# 4.2 Definition of purpose

The project focus is to create a platform that can input, stock and process data so that each business unit can function efficiently with a reduced margin of errors. The system must be able to manage all the data related to stock inventory, logistics and sales, and perform analyses on the data.

# 4.2.1 Main question

* What kind of integrated system AceMarket needs and to which dimensions this system could expand?

# 4.2.1 Sub-questions

* What is needed in order for the data to be stored, and what methods would organize and manage the data?
* What kind of data analyses the system needs to perform?
* What does the system need to do to manage the stock?

# 4.3 Delimitations

* Invoicing system will not be implemented.
* The system will not be accessed by external entities.
* The system will only be accessed by Java application on computer.

Aim of the group has been to achieve a robust system that would apply and solve to AceMarket needs and problems. The goal has been to create a platform that would help the user to manager their stock inventory and employee database, create orders of products between the involved entities and facilitate sales and sales analysis. The complexity of the task grew during the duration of the seven Sprints and it reached a 47 user stories from which 24 have been completed.

We have managed to complete the core functionalities that we have considered essential so we can conclude that the group is satisfied with the delivered product.

To be noted that the group does not considers the system completed and further developments can be improved in the future for this particular system. Future developments will be discussed inside of Project Report.

# Project Execution

Method applied prior to implementation has been Object Oriented Analysis and Design. Larman (2004) related that in “object-oriented analysis there is an emphasis on finding and describing the objects or the concepts” when in “during object-oriented design there is an emphasis on defining software objects and how they collaborate to fulfill the requirements”.

Therefore, the group have utilized in the analysis phase: Use Case Diagrams, Use Case Descriptions, System Sequence Diagrams and Domain Models; when for design phase the group have utilized: ER Diagrams, UML Class Diagrams and Sequence Diagrams.

When possible, the group has utilized the S.O.L.I.D. principles as they tried to ensure that a single class has but a single responsibility, so that a change in the specification of the system will affect as few classes as possible.

It also has been tried, where possible, not to modify existing code, preferring to add new methods to classes when needed. This is not completely in line with the open closed principle, but it has been a consideration during the process of implementation.

As for dependency and substitution it has been relied on a interface of our data model, meaning it’s possible to replace our version of the data model with a completely different version without altering the correctness of the program. As there is only one large interface, it has not been possible to make use of the interface segregation principle.

Other than S.O.L.I.D., it has been used a slightly modified producer/ consumer pattern without the server/ client infrastructure. This has been done by implementing a static queue in our sender classes, allowing our data model to add objects to the queue, which will then be sent. In this relationship our model would be the producer, while the sender is the consumer. On the server side the pattern looks the same, just instead of the data model we have the database model.

Also, the Observer design pattern has been used, mostly in our data model, as we have many listeners for when data changes, so we can send the new data to our database. We also employ it at the database model, as to alert the other clients of the change in the data, so they will be able to obtain the updated information.

In our system there are three clients: Retailer, Warehouse and Headquarters. All three clients are requiring the same actions to be taken but with slight changes in the behavior. In the database model, it could have been separated the logic for each of these clients into a state, and simply have a state machine get an identification from the client, allowing it to pass off the request to the appropriate state.

The visitor pattern could have been used to allow to add functionalities to some parts of our system without altering the code, allowing us to more closely follow the open closed principle.

Singleton design pattern it could have been used for the data model, allowing us to ensure that we only have one data model, which means that the data stored will be used by all the parts of our system.

Sockets have been used instead of RMI even though it’s a bit more complex, as RMI is a local solution, local network, when Sockets are able to connect with people through internet connections. Sockets have been the choice as the three entities are not placed in the same location.

The team is satisfied with the results as it had completed so far the main core requirements that are essential for the structure and functionality of the system. Also, it managed to bridge communication and transfer of information between the three entities involved: Warehouse, Headquarter and Retailer.

The main risk that we have identified has been the potential size of the system and the complexity of it, in the sense that the team could have lost focus of building an integrated system and focusing more only on one part of the system. This risk has been monitored by the Product Owner and Scrum Master by constantly reminding the team of the goals and expected results of the project.

The team regrets adding in employee functionality too early as it had required a lot of development time just for it to never be fully utilized in the system.

# Personal Reflections

* Personal reflections Florin Bordei

The group contract content covered the following topics: participation, communication, meetings, conflicts and other issues. Each section of the group contract contained guidelines on what is expected individually from each member but also what is the group general expectations. In this sense I must admit that the group covered all topics related, unless communication where there have been some issues and misunderstandings. What has missed, and it would have made a difference, is the methods to apply in case one of the group members does not follows the guidelines. Overall, I am satisfied with the group contract and how it has been followed. It must be also taking in consideration that it’s a new group and the issues that we have met are ordinary.

Issues met like communication have been resolved and the expected results have been delivered.

As all members involved, I had been involved in most of the areas of the project but with a small deficiency in the implementation that followed analysis and design phases. We delegated the tasks according to each individual strength and weaknesses starting with Sprint #3 so we can be more efficient in our work methodology and this has proven to be successful as results started to be delivered. In my case, I would say that I was a key person to remember the group about the learning outcomes and the importance of documentation but overall, I can’t really point myself with a unique contribution as the group contributed equally in terms of work and quality of the results. I much more satisfied in such a situation, if I have to compare with the project from the 1st Semester.

Group’s motivation has been at risk multiple times when we have faced endless conflicts on small issues and also lack of communication has brought the group’s welfare in danger. But, as I said previously, I have expected such situations thinking of the experience from 1st Semester. Despite what happened in the past, the group moved into the norming and performing phases much faster than last year and the stress or conflicts reduced immediately, and the quality of relationships improved greatly. Also, by knowing each other a bit better, we realized that we share common interests or beliefs, and this strengthened our bond. If there would be possibility to work in the same group for next projects, I would not think twice about it and join it.

Multicultural group is a very relative term for me as living abroad for so many years I have borrowed so many traits and habits from different nationalities that I have interacted with and it’s really difficult for me to make a difference in this case. I would say that I felt comfortable and happy with Kenneth’s direct way of approaching things, Jaume’s outgoing attitude and Dave’s relaxed approach. Therefore, I learned new habits on how I could work in the next group projects refined from my own perspective.

For the next time I when I will work in a group, I would insist to have a meeting where to discuss into details the e-stimate personal profile traits as they applied successfully in this group, despite having some conflicts created by those differences. This must be understood from the very beginning, like who would have a strong leadership role that may cause conflicts and try to find a balance before the group work starts.

The advantages of problem-based learning are that you utilize multiple sets of knowledge that are applied in a single body. The positive outcome of it that the learning process of this knowledge is deeper and also you visualize it more applicable in reality.

The disadvantage in our situation has been the lack of clarity. As in 1st Semester we have been presented with a clear case that needs to be solved, this year we have to imagine a case, and this created some issues in relation to vision: where does it starts and where does it end. We have tried to replicate as much as possible to reality, but I feel that in some cases we’ve focused on issues that are not that relevant in a real situation.

Problem formulation and project description are critical for the quality of the end results of the project as they give vision and they build the path that needs to be followed and the disadvantages would be the opposite results of what I have previously mentioned.

Collaboration with the supervisor was as expected, we had meetings where Steffen had guided us or advise us on what needs to be improved. There is nothing that I can mention as being less successfully. We have talked with our supervisor for different issues: project description, problem formulation, Sprint structure, issues with implementation and documentation. Communication has been made verbally and in written over e-mails.

* Personal reflections Kenneth Jensen

The group contract contained mainly how our cooperation and communication should be handled; Give notice if you’ll be late, respect other people and their way to work and remember to check your GitHub, to make sure you’re working with the newest files – basically it just codified the general respect you’re expected to show to your colleagues. As of what was missing, I believe we should have put more concrete consequences to not honouring the agreement. This would for example have left a recourse for the group when I got sick for a few days without letting the group know about my sickness. This is of course a regret of mine and for future semesters I would try to improve in this area. Other than that, I feel like the group contract was good and would use it as a base to create next semester’s group contract.

As all other members, I have been involved in all aspects of the project. I have however had a bit of a deficiency in the analysis parts of the project, working more on the design and implementation. After sprint #3, we delegated to each member a task, that fit with their experience, allowing them to work in the parts they were good at, massively increasing our productivity. In this phase, I was responsible for reminding the group members to share their files regularly on GitHub and helping them with any issues leading from that as the GitHub administrator. Other than this responsibility, I can’t point to a contribution to the system itself that I alone worked on, as all group members contributed equally in all aspects of the system.

The motivation of the group has been quite fluctuating. In the first sprints we didn’t finish much, as we had to change some user stories and as such we kept feeling behind. The stress of this feeling, as well as some key differences in our working methods, especially our communication has led to a lot of arguments, most of which end up being neither productive nor helpful. This storming phase lasted quite a while, until we sat down and discussed what our issues were in a calm and rational manner. What we found was that we agreed on all the factual points, it was just a clash between direct and indirect members of the group. As this got cleared up, we moved into the norming phase and quickly thereafter the performing phase. Compared to 1st semester, this group has worked much better together.

Being in a multicultural group was a bit of a challenge for me, as I have hardly ever worked with anyone not from Denmark. As such I had to learn to accept the differences in culture. This combined with the conflicts already predicted through e-stimate with the number of red members led to a lot of discussion that could have been avoided had we only taken it into consideration earlier.

Next time I’m going to work in a group, I think I will insist on a meeting where we discuss the cultural norms we come from. For example, in this group, having talked about the fact, that my direct way of versus the indirect of others is not me challenging them, just the way I’ve been taught to work in a group. Getting these differences out and keeping them in mind as we work in the group will help us avoid pointless discussions, because we will realize that it is merely how the other person is used to acting.

The advantages of problem-based learning are great and multiple. You get to work on a larger project involving most, if not all the things you’ve learned over the course of the semester, putting it into practice in the way you feel it should be. This leads to the subjects learned being ingrained into our way of thought, and we will naturally become more aware of how we work and what to do in new circumstances.

The disadvantages of this semester have been a lack of clarity. In 1st semester we had a clear and obvious way to go, one phase after another in which we could dig down and explore the nuances of that phase. With the sprints, I feel like we only learned our approximate velocity around the 4th sprint and we were generally confused about what to do when and never truly had a chance to dig down into a sprint, as it quite ephemeral and is built up of other things. I feel this could be helped by having the first sprint specifically be a more guided experience kind of like 1st semester, allowing us to focus on the sprint, as we don’t also need to plan and execute it, we just need to follow the laid-out plan.

The advantages of a problem formulation are, that it gives you a clearly defined goal to work towards and informs your later decisions. The problems with it is, that is done very early, so if you have any misconceptions or you find out later that some of the ideas are not ideal for the situation, it can become a hindrance. The same goes for the description, but just more defined, as the description is more detailed and as such it is harder to work around bad ideas.

The collaboration with the supervisors were as expected, we had meetings with Steffen where he guided our progress and he was present at a scrum meeting, giving us feedback, allowing us to adjust future meetings to be more productive. I can’t say anything has been unsuccessful in this area, as we had the guidance we needed, and he was always available for further questions when it was necessary.

* Personal reflections Jaume Lopez

I consider that I have underestimated the importance and the critical role of formulating a group contract that would cover all the layers of working in a group project. I think that if we’ve had formulated conduct guidelines it would have help with eliminating some conflicts that have not brought any contribution.

Also, a penalty system for being late or missing out of meetings without any reason would have made the attendance more mandatory and team members would have felt more responsible.

In this project I’ve tried to be involved and responsible in all parts related to the system. But I focused most of the time on the database related parts, as I thought It would be a great opportunity to learn and improve my knowledge in this field. On a group role, I can consider myself as the person who reminded the group of the deadlines that we have and that we need to deliver results at the end of each Sprint.

Inside of team work I have met difficulties in cooperating with some of the group members as there’s been a clash of ideas that pursued and continued over some of the first Sprints and this affected our productivity. For the next group projects, I will try to accommodate more needs or my team members and try to find a balance between our perspectives and approaches.

Sprint #3 has been the moment when the group started to be fully functional and results started to be delivered.

I consider group work and problem-based learning a great opportunity where you can practice all the knowledge that you have studied during the current Semester and also there is a precious amount of shared knowledge from other team members that is highly valuable. Therefore, I consider that there are no disadvantages in this way of working.

The only thing that needs to be taken in consideration and to be looked into it is the amount of stress that is generated and how it can damage personal or group welfare. But also, we have to keep in mind that under pressure and stress great results can be achieved.

* Personal reflections David

Looking back at the group contract, most of the rules which are set there were followed without much problems. In a few meetings, one of the group members could not attend due to health problems, therefore group’s motivation and progress was not going as smoothly as planned. As a group, we attempted several times to work online, but as it was not very efficient, we moved to eye-to-eye communication, which got proved to be the right decision and work progress got much more forward. In the future projects, conflict management should be handled in better ways – by prioritizing the areas of conflict and avoiding arguing, which would not lead anywhere. Many times, there were arguments, as members’ attitudes allowed them to be honest and to say without any problem, what they do not like or what would make them more comfortable.

On the other hand, I feel, like at the end those conflicts set off discussions on improvements, taught us to listen others and helped us to know each another’s limits. At the end, we got over it to the performing stage. Overall experience about the group following the contract was good and covered my expectations.

Main ideas about implementing the features for the system came from other members, as they had already got experiences from working in the industry. From the beginning of the scrum we tried to equally share tasks and finish the user stories, but not everything went smoothly, we rushed to the code implementation without proper analyzing the structure of the system. We decided to use another philosophy of working, that means knowing each’s strengths and weaknesses, which we found out was a better way of cooperation.

All members were interested in delivering the best quality product. That also brought the conflicts, as each of us wanted to present his own idea/point of view along with misunderstandings. As close friends, all of us tried to keep atmosphere nice, we motivated us by planning non-project meetings to strengthen our friendship bonds.

The multicultural group was one of the things I was interested mostly, as I had no large experience with the group, let alone with multicultural one. The very good point of this is the possibility to have a look on different approaches to work and cooperate together. Even though all of us are from EU, I like a big tolerance and respect for cultural differences. Another advantage is a diversity of knowledge, we can have a larger pool from which we can take an inspiration and skills, therefore we can deliver much more multifarious product, which you cannot in normal conditions make in your home country. All of us do not just grow educationally, but also culturally by knowing each other’s culture.

I believe, that the biggest challenge was in some cases less faith and increased competition, which at the same time was good, as it driven higher productivity.

From problem-based learning methodology, I realized, that it can be very effective, as you are more involved in it, if the is enough motivation to solve the problem. You need to also learn, how to even solve something and there are no clear rules to do it. The learning process for me seems to visualize a theory into the reality, and it is also very good in the future, as you can meet similar issues. By making descriptions, all of us can understand much more clearly all the structure of the project and put all ideas from our brains to the documentation like jigsaw puzzle. Among the disadvantages, I feel like sometimes it can be time consuming to make part of documentation, which I know, will not be useful in the future.

Supervisor meetings were going as I expected, and they covered all the questions, we had and ensured uncertain things we met in the project. It is very important for not going out of the path.

# Supervision

The group considers that the supervision with Steffen had been helpful and it led to greater understanding of the project and its scope. We also had the chance to talk with Ole, not our designated supervisors, but he has been helpful as well whenever we had issues that required further clarification.

Inside of team discussions and reflections it has been mentioned that mandatory meetings with the supervisor would have been appreciated as the team often found itself in time consuming difficulties that could have been resolved within a meeting, but the team never considered the possibility of assistance.

# Conclusions

The experiences gained in this Semester Project have taught the team what it means to work within SCRUM framework and its benefits. Increments have been added periodically and the team has experienced a similar working experience to a real-life work situation.

New personality traits have been understood better, as in e-stimate, as in this Semester Project there have different role plays of different roles with different attitudes and responsibilities. We could include also here the importance of the group contract that should never be ignored and try to improve and impose the contract rules more in the next group works.

“Rush to code” concept have been understood and it had an impact on the productivity of the team, but it’s been a learning outcome also as it made the team to fully understand and appreciate the phases prior to implementation and delivery.

Each Semester Project it is an opportunity of gaining new knowledge and skills, so the team recommends that for each Semester Project to fully embrace the experience and the learning outcomes that comes with it.

**Appendices**

1. **Group contract**

**Group Contract**

|  |  |  |  |
| --- | --- | --- | --- |
| Group number 3Z |  | Date: | **14-02-2019** |

These are the terms of group conduct and cooperation that we agree on as a team.

**Participation**: We agree to equally share the workload, and respect the delivery

Deadlines set by the team.

The group will create a study group that will meet once a week, if necessary.

**Communication**: Primary communication will be done via Facebook group chat.

Group meetings online will be done via Discord.

Cancellations from any participation should be announced prior to the meeting

**Meetings**: We expect each group member to show up for planned meetings, unless

Emergencies or unforeseen circumstances arise.

We expect everyone to show up at VIA for the project crunch.

**Conduct**: We expect each member to respect every other member’s preferences, and

during the meeting we expect also mental attendance

**Conflict**: Conflict between two group members should be taken between the two.

The group will meet once a month for either a group building activity or to discuss any

Previous conflicts

**Deadlines**: We expect the set deadlines to be respected and upheld, unless for

unforeseen circumstance

**Other Issues:** Any limitation of a participant should be addressed to the group as they

arise.

|  |  |  |
| --- | --- | --- |
| **Group member’s name** | **Student number** | **Signature** |
| Kenneth Jensen | 280269 |  |
| David Le | 280071 |  |
| Jaume Lopez | 282231 |  |
| Florin Leonard Bordei | 280593 |  |

# 2. Project description

# Background Description

AceMarket is a local retailer based in Horsens and they run a family type business and AceMarket’s aim is to provide local grown products to their customers. They have succeeded meeting the market demands and at the moment expansion is expected to happen. Despite AceMarket’s commercial success, they are facing internal challenges and a re-organization of the company’s working methods is needed in order to increase efficiency and profitability of their business.

AceMarket consists of three structures (to be known as entities or actors): the warehouse, the retailer and the headquarters. The warehouse provides inventory and delivery of products where the retailer is providing inventory and sales operations. The headquarters is in control of these two structures, as it manages their operations.

A key factor of AceMarket’s lack of efficiency is their inability to store and process data accurately. As it has been reported, the company’s stock inventories are being done over multiple Excel spreadsheets which lead to inaccurate stock inventory. Also, as for sales operations, they are using an outdated system that does not provide any insights of purchases or consumer behavior. Therefore, AceMarket headquarters cannot do any predictions or business planning on long term.

For these reasons, AceMarket have requested an interconnected system that would allow them to have a general overview of their current affairs but also to be able to have data processing tools in relation to their inventory stocks and sales operations.

The system will be able to perform analyses on the data, keeping track of minimum and maximum stock, the acquisition rate of individual items for every retailer and the expected stock needed for all retailers over a period.

# Definition of purpose

The purpose is to create a system that will provide data stocking and processing tools on the company’s inventory stocks, sales operations and current affairs to help manage stock between warehouse and retailer.

# Problem Statement

The project focus is to create a platform that can input, stock and process data so that each business unit can function efficiently with a reduced margin of errors. The system must be able to manage all the data related to stock inventory, logistics and sales, and perform analyses on the data.

## Main question

* What kind of integrated system AceMarket needs and to which dimensions this system could expand?

## Sub-questions

* What is needed in order for the data to be stored, and what methods would organize and manage the data?
* What kind of data analyses the system needs to perform?
* What does the system need to do to manage the stock?

# Delimitation

* Invoicing system will not be implemented.
* The system will not be accessed by external entities.
* The system will only be accessed by Java application on computer.

# 

# Choice of model and methods

|  |  |  |
| --- | --- | --- |
| What  Partial problem | Why  Why study this problem? | Which  Which models/theories are expected to be used to solve this problem |
| What is needed to be created in order for the data to be stored? | To successfully manage the company’s data and processes. | Relational database and a Java model |
| What methods would organize and manage the data? | Important factor to make the system work. | Combining java methods with SQL queries |
| What kind of data analyses the system needs to perform? | It is essential to discover useful information and evaluate important data | Mathematical models |
| What kind of relations the databases will have? | To keep data integrity | Follow normalization steps until at least 3rd normal form . |
| What kind of data modelling the system will use? | To separate development of the business logic, GUI and view model. | Following the MVVM pattern architecture |

# Risk assessment

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Risks | Description | Likelihood  Scale: 1-5 | Severity Scale: 1-5 | Product of Likelihood and Severity | Risk mitigation | Identifiers | Responsible |
| Risk 1 | Lack of time before hand-in | 4 | 4 | 16 | Respect the time schedule and deadlines | Stressed to meet the deadlines | Jaume |
| Risk 2 | Steering off course | 5 | 3 | 15 | Regular meetups to discuss our previous and future work | Misunderstanding short-term and long-term objectives of our project | Dave |
| Risk 3 | Increasing the complexity of the project | 4 | 4 | 16 | Follow the group decision on the objectives of the project | Workload increasing from normal standards to advanced standards | Florin |
| Risk 4 | Lack of knowledge | 5 | 3 | 15 | Research, study group and meetings with the supervisor | One or more members having problems implementing the solutions | Kenneth |
| Risk 5 | Lack of motivation and focus | 4 | 4 | 16 | Teambuilding activities (breakfast/lunch/ beer meetings) | One or more members not being mentally present during the work sessions | All members |
| Risk 6 | Isolating the group from external help (supervisor, librarians or other groups) | 5 | 3 | 15 | Asking for help or advice | Getting stuck in a problem and creating a time debate out of it | All members |
| Risk 7 | Conflicts between group members | 5 | 3 | 15 | Teambuilding activities (breakfast/lunch/ beer meetings) | Time consuming debates about non-project related issues | Florin |
| Risk 8 | Group members missing team meetings | 5 | 3 | 15 | Respect the Thursday Project Day meetings and meetings set by the group | One or more group members missing to communicate and justify their absence | Jaume |

# References

VIA UC, 2019. *Project Guidance: Studynet.* [Online]   
Available at: https://studienet.via.dk/projects/Engineering\_\_project\_methodology/General/Guidelines/2018%20Project%20Description%20(Appendix%201)%20VIA%20Engineering%20Guidelines.pdf

1. **Group log**

|  |  |  |
| --- | --- | --- |
| Date | Participants | Minutes |
| 14/02 | Kenneth, Florin, Jaume, Dave | * Breakfast team meeting * Meeting with Steffen to discuss about the project proposal * Group contract formulation * Communication methods established * Started working on Process Report: Project Initiation, Group Formation * Features of the product * Meeting with Steffen |
| 21/02 | Jaume, Dave, Florin  Kenneth(sick) | Project ideas/ features   * Product discussion (system, entities and data exchange) * Project description * Individual assignment for theoretical background for project description) * Discord meeting agreement for weekend/ backup: Monday 25/02 |
| 24/02 | Jaume, Dave, Florin, Kenneth(Discord meeting) | * Project Description: risks assessment, defition of purpose and background description |
| 25/02 | Florin(work from home-sick)  Dave, Jaume, Kenneth | * Florin: project description, log |
| 28/02 | Florin, Dave, Jaume, Kenneth | * Start project description(SEP class) for the 4th of March deadline |
| 07/03 | Kenneth, Dave | * Feedback from Steffen on project description |
| 14/03 | Kenneth, Florin, Dave, Jaume | * Started product backlog, review the roles of the team members * Meeting with Steffen |
| 21/03 | Kenneth, Florin, Dave, Jaume | * Product backlog done and upload |
| 28/03 | Kenneth, Florin, Dave, Jaume | * Day 1 of Sprint 1 |
| 04/04 | Kenneth, Florin, Dave, Jaume | * Day 2 of Sprint 1 |
| 11/04 | Kenneth, Florin, Dave, Jaume | * Day 3 of Sprint 1 * Meeting with Steffen |
| 02/05 | Kenneth, Florin, Dave, Jaume | * Day 1 of Sprint 2 |
| 09/05 | Kenneth, Florin, Dave, Jaume | * Day 2 of Sprint 2 |
| 16/05 | Kenneth, Florin, Dave, Jaume | * Day 3 of Sprint 2 |
| 20/05 | Kenneth, Florin, Dave, Jaume | * Day 1 of Sprint 3 |
| 21/05 | Kenneth, Florin, Dave, Jaume | * Day 2 of Sprint 3 |
| 22/05 | Florin, Dave, Jaume | * Day 3 of Sprint 3 * Meeting with Steffen |
| 23/05 | Kenneth, Florin, Dave, Jaume | * Day 1 of Sprint 4 |
| 24/05 | Florin, Jaume | * Day 2 of Sprint 4 |
| 27/05 | Kenneth, Florin, Dave, Jaume | * Day 3 of Sprint 4 |
| 28/05 | Kenneth, Florin, Dave, Jaume | * Day 1 of Sprint 5 |
| 29/05 | Florin, Dave, Jaume | * Day 2 of Sprint 5 |
| 30/05 | Kenneth, Florin, Dave, Jaume | * Day 3 of Sprint 5 |
| 31/05 | Kenneth, Florin, Dave, Jaume | * Day 1 of Sprint 6 |
| 01/06 | Kenneth, Florin, Dave, Jaume | * Day 2 of Sprint 6 |
| 03/06 | Kenneth, Florin, Dave, Jaume | * Day 3 of Sprint 6 |
| 04/06 | Kenneth, Florin, Dave, Jaume | * Day 1 of Sprint 7 |
| 05/06 | Kenneth, Florin, Dave, Jaume | * Day 2 of Sprint 7 |
| 06/06 | Kenneth, Florin, Dave, Jaume | * Day 3 of Sprint 7 |

1. **Sprints and Product Backlogs** – See “Documentation” folder
2. **Burndown Chart**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Date |  | Story points | | Remaining | | Done |  |
|  |  | Planed | Actual | Planned | Actual | Done today |  |
|  | 0 | 0 |  | 168 | 168 |  |  |
| 28/Mar | 1 | 8 | 0 | 160 | 168 | 0 |  |
| 04/Apr | 2 | 8 | 0 | 152 | 168 | 0 |  |
| 11/Apr | 3 | 8 | 0 | 144 | 168 | 0 |  |
| 02/May | 1 | 8 | 0 | 136 | 168 | 0 |  |
| 09/May | 2 | 8 | 0 | 128 | 168 | 0 |  |
| 16/May | 3 | 8 | 0 | 120 | 168 | 0 |  |
| 20/May |  | 8 | 4 | 112 | 164 | 4 |  |
| 21/May |  | 8 | 5 | 104 | 159 | 5 |  |
| 22/May |  | 8 | 6 | 96 | 153 | 6 |  |
| 23/May |  | 8 | 8 | 88 | 145 | 8 |  |
| 24/May |  | 8 | 8 | 80 | 137 | 8 |  |
| 27/May |  | 8 | 8 | 72 | 129 | 8 |  |
| 28/May |  | 8 | 8 | 64 | 121 | 8 |  |
| 29/May |  | 8 | 8 | 56 | 113 | 8 |  |
| 30/May |  | 8 | 8 | 48 | 105 | 8 |  |
| 31/May |  | 8 | 8 | 40 | 97 | 8 |  |
| 01/Jun |  | 8 | 8 | 32 | 89 | 8 |  |
| 03/Jun |  | 8 | 8 | 24 | 81 | 8 |  |
| 04/Jun |  | 8 | 8 | 16 | 73 | 8 |  |
| 05/Jun |  | 8 | 8 | 8 | 65 | 8 |  |
| 06/Jun |  | 8 | 8 | 0 | 57 | 8 |  |

1. **Sprint meetings minutes**

**SPRINT #1**

**Daily meeting 1 - 28/03**

The team has today to discuss what to do in Sprint #1. Product owner selected the backlog user stories that he would like to have them implemented in the system based on the priority and on discussion with development team.

**Daily meeting 2 - 04/04**

Started the day off with a summary of last meetings work, with everyone presenting what they did, where they had problems and what needed to be done/improved. Kenneth took care of the model, so far, he’s had no impediments and until the next Scrum meeting, he will be working on the data model.

Jaume and Florin worked as a pair on the client-server part of the program. They finished what they could, but they needed a model to continue, so until next meeting, they will finish that up.

David worked on the view, view-model and the draft of the fxml files. He ran into no problems and until next meeting he will finish the view model and take the feedback of the view into effect.

There are a few things to take into consideration for the work until next meeting. One of them is, that the group will have to work closely together, because all the needed parts are interconnected, for that reason they will need cooperation across the board.

For the next meeting, the group will have finished the program and have it ready for testing, which is what the group will be doing next meeting.

**Daily meeting 3 - 11/04**

Team is facing issues with the analysis as it took a wrong direction going directly into design.

Team needs to be redirected back to analysis to ensure the quality and success of design.

* **RETROSPECTIVE MEETING – 11/04**

Scrum master opens up the meeting with a presentation on what the team has worked on and what has been completed and what has not been completed. As it looks from the Sprint Backlog and the progress of the team, it looks like nothing has been completed so far from the 6 user stories selected.

Check – in question: “What can you relate from the experience that you have gained from Sprint #1?”

Dave: “I think we need to find a better way of working as we have not found yet a constant flow of doing things and we keep returning on old topics or we use too much time to debate on issues that are a bit too much in the future”.

Florin: “There has been several issues that I have noticed during this Sprint: we underestimate the amount of work and the necessary hours that needs to be invested. I suppose it’s hard at the beginning to find the right timing on doing things and I hope we will be able to find that in the next Sprint”.

Kenneth: “I think we have to continue working and we will understand better the process in time and everything that is involved in it”.

Jaume: “I feel that there are some issues with the communication and on the agreements that we establish but we fail to fully respect them.”

* Team and Scrum master evaluates the progress done on the incomplete tasks so far

From data gathered:

* It worked well: Unidentifiable
* What needs improvement: back to drawing on board for the second Sprint to re-evaluate the mistakes and making clear image of the software basic structure, we need to understand them and try to fix them: agreements, communication, working methodology

Solutions:

* Team has to do a group effort to improve communication
* Team must respect their agreements, lack of it -> affects group focus and motivation

Team agrees that communication will have the biggest impact at this stage, and they discuss on how to improve it:

* A team member should announce if he will be late
* A team member should have in consideration that his lack of focus affects the group motivation

Scrum master closes down the meeting by reviewing everything that has been discussed.

**SPRINT #2**

**Day 1 - 02/05**

**REVIEW MEETING**

Product Owner opens the meeting with a quick review over the user stories that have been selected in the previous Sprint but has not been completed it.

Team members Dave and Kenneth are showing some partial implementation of the user stories to the Product Owner so he can have some perspective on how they will work. No other testing is performed as tasks are not completed.

Team and the Product Owner are not discussing about any creation of other backlog items as the Product Owner thinks that we will like to continue with the ones from Sprint #1 in Sprint #2.

**PLANNING MEETING**

Product Owner and Scrum Master are opening the meeting by reminding the team the purpose and the end goal of the team’s project. The velocity chart is being discussed and presented the current status of the team. Incomplete backlog items from Sprint #1 have been moved back to the Product Backlog from the Sprint Backlog.

Product Owner selects the backlog items to be worked in Sprint #2, same ones as Sprint #1, and the team confirms its capacity and team makes the assumption that everything should be finished in this Sprint.

**Daily meeting 2 - 09/05**

Each team member presents what work they have done so far and what they will work on in the second day of Sprint #2.

No issues to report.

**Daily meeting 3 - 16/05**

Each team member presents what work they have done so far and what they will work on in the third day of Sprint #2.

No issues to report.

**RETROSPECTIVE MEETING**

Scrum master opens up the meeting with a presentation on what the team has worked on and what has been completed and what has not been completed. As it looks from the Sprint Backlog and the progress of the team, it looks like nothing has been completed so far from the 6 user stories selected.

Check – in question: “What can you relate from the experience that you have gained from Sprint #1?”

Florin: “I think the story points have to re-evaluated and we need to go through analysis and design first before coding as we will understand better the user stories”.

Dave: “Analysis and design should be done better, so that we can follow it to the coding part and we know which exact method to use”

Jaume: “I agree with my colleagues that the user stories are confusing, and I strongly believe that with a complete analysis and design on them it would be easier to work on coding and testing after”.

Kenneth: “Same issues as related by my colleagues”.

Scrum master does not go through the action items as they need to be re-evaluated.

Team and Scrum Master are deciding that we need improvement on the issues talked previously and we also need to have a second meeting for today to refine better the user stories to fully understand them. Product Owner is also part of this meeting and he will double check with the customer before doing the planning.

Scrum master reviews briefly what it has been discussed and another meeting of refining the user stories starts.

**SPRINT #3**

**Day 1 20/05**

**REVIEW MEETING**

Product Owner discusses about the old user stories, what have been worked on during Spring #2 and the difference between them and the new ones that have been refined. The mistake has been by not following correctly the formulation of the user story: Who? What? Why?

For the moment no new user stories will be created besides these ones.

**PLANNING MEETING**

Product Owner and Scrum Master are opening the meeting by reminding the team the purpose and the end goal of the team’s project. The velocity chart is being discussed and presented the current status of the team. Incomplete backlog items from Sprint #2 have been moved back to the Product Backlog from the Sprint Backlog.

Product Owner selects the backlog items to be worked in Sprint #3, and the team confirms its capacity and team makes the assumption that everything should be finished in this Sprint.

As the team can use some work from Sprint #1 and Sprint #2, Product Owner has selected a total of 11 user stories.

Team decides that the concept of a finished user stories must include:

* Analysis
* Design
* Coding
* Testing
* Documentation

**Daily meeting #1**

Dave is not present for the day, but he announced in time and he will do some independent work.

The aim of today is to do: use case diagram, activity diagram, use case descriptions, system sequence diagram.

Limited work power is the impediment of the group project.

No other issues to report.

**Daily meeting #2 - 21/05**

Yesterday we’ve done: use case diagram, activity diagram, use case descriptions, system sequence diagram.

For today we have to do: test cases, domain model, design class diagram and sequence diagram.

We will have a review on the work later on today to establish the progress and if corrections / further editing is needed and no other issues to report so far.

**Sprint 3 daily meeting #3 - 22/05**

Yesterday did: test cases, domain model, design class diagram, coding

For today we have to do: sequence diagram, last parts of coding, Junit testing and java doc

Issues to report: No

Kenneth Jensen is missing without providing any reasons for his absence

**-> Retrospective meeting**

Participants in today’s meeting are: Jaume Lopez (Product Owner/ Team member), Florin Bordei (Scrum Master/ Team member), Dave Joe Le (Team member). Missing out without reasons: Kenneth Jensen. Kenneth has announced that his role as a Scrum Master cannot be performed anymore as he is facing health issues.

Scrum master presents the new changes in the role’s assignment of the team.

Scrum master asks each team member on their experience from the previous Sprint. Each member takes stage and expresses their experiences.

Scrum master reviews action items from the current Sprint and Team evaluates:

* be strict on following the steps: analysis, design, coding, testing -> delivery: accomplished
* team members to be more involved in the project: partially accomplished
* Team members to announce in time their lack of availability: partially accomplished
* Scrum master to follow more strictly the morning meetings to set up the tone for the day: accomplished
* breaking down tasks and complete them one by one: accomplished

Team had a major boost in productivity following the necessary steps in order to deliver user stories. We need more improvement on following that, so we can deliver more and more user stories.

Evaluation of the hours / story points on the backlog items has been re-evaluated and now we are more realistic, which decreases the amount of stress and pressure.

Different format of the morning meetings should be more precise on the tasks that we have to accomplish for the day, break down even more tasks and deliver them one by one.

**SPRINT #4**

**Sprint 4 daily meeting #1 - 23/05**

**-> Review meeting:**

Participants in today’s meeting are: Jaume Lopez (Product Owner/ Team member), Florin Bordei (Scrum Master/ Team member), David Le (Team member). Missing out without reasons: Kenneth Jensen.

Product Owner:

Opens the presentation reminding the team the goals that we wanted to achieve in the 3rd Sprint

Our goals were to work more efficient and to be more organized with work.

One team member has been missing, but the team managed to pull off with limited resources, as the Scrum Master has informed him.

Team:

The team presents the accomplished user stories by a live demonstration on the functionality and also covering most important aspects of the testing. Product owner asks for testing on some functions that were not presented, and everything works as it should.

New backlog items have been created as the Product Owner has a different vision on the requesting products for the warehouse, items have been added to the backlog. Product owner asked that a new functionality should be implemented: ability to delete non-active employees.

* **Planning meeting**

Five user stories have been selected for this Sprint, one of them being a new user story.

Team has confirmed its capacity and no current issues have been reported.

2 incomplete user stories from the backlog of Sprint #3 have been moved back to the Product Backlog for not optimal choosing, as they require another functionality, which has not been implemented.

**Sprint 4 daily meeting #2 - 24/05**

Yesterday the team accomplished the request item user story. Completed. Productivity was limited due to lack of resources: two team members missing.

For today: remove item from warehouse & remove item from HQ

Issues to report: a second day with limited resources, two team members are missing

Note: one of the missing team members has proposed in catching up with the work during the weekend. Goal is to finalize the sprint as planned.

**Sprint 4 daily meeting #3 - 27/05**

All team members are present and ready to finalize the Sprint. The absence of 2 members was covered by working at the weekend.

No issues to report.

**RETROSPECTIVE Meeting**

Scrum Master is giving the context for the meeting: what we have accomplished in this Sprint and what has been our goal to accomplish.

Jamie: “Making data from Data model go through server to database. Everything went fine but small modifications have been done on the methods from the data model but besides that everything was pretty fine”

Kenneth: Java doc and testing is completed. There was a problem to realize that Kenneth used the Stops

Florin: Analysis on backlog items and further research + Process Report + testing

Dave: Working on the View, making sure data gets forth and back, all finished and no issues + he made some restrictions on input and error message

Worked well in Sprint:

* Jamie: on this Sprint we focused more on analysis and Design before implementation and worked well so we shouldn’t underestimate
* Kenneth: we had a rush to code, and we realized that we needed more of Analysis and Design, we learnt from that
* Florin: to complete the ones said before, also the concept of being done has been successfully applied: analysis, design, code, testing & delivery.
* Dave: group improved cooperation and increased productivity

What needs improvement: cooperation, analysis

Solutions: Focus on analysis

Analysis: focus more on solid principles

Cooperation: communicate more, better planning of working days and hours, show up on time, announce cancellations

+ make more notes/ comments in the code when we make modifications //TODO:

* check TODO tab at the beginning of each day and not forget to remove them, if solved

Biggest impact: SOLID will have the highest impact

Apply SOLID principles based on the available literature

New user story has been added to the product backlog.

**SPRINT #5**

* REVIEW Meeting – 28/05

Product owner opens the meeting and concludes the goal has been the same like in sprint 3, to deliver the final product on the agreed schedule.

All the team members are presenting the user stories that have been implemented in the Sprint and Product owner is doing further testing. Product Owner is happy with the results.

Product Owner decides that for the moment no new backlog items have to be added or no modifications to the current backlog list.

* PLANNING

For this Sprint 4 user stories have been selected and the team agreed and confirmed its capacity.

**Sprint 5 daily meeting #2 – 29/05**

Yesterday the team spent time discussing the new user stories as there were conflicts of ideas on how to implement some part of the system and how to perform them. Later that day the team moved on to analyzing and designing of one of the user stories.

Today the team will continue the coding and deployment of the user story from yesterday (Jaume), continue with the analysis and design for the rest of the user stories (Dave and Florin).

Issues: team member Kenneth absent, no reasons given

**Sprint 5 daily meeting #3 – 30/05**

Yesterday the team has finished the analysis and design and coded most of it.

Today the team will continue with the code, testing, process report.

No issues to report for today, all team members are present at the meeting and available for the rest of the day.

**RETROSPECTIVE Meeting**

Scrum master checks in question to all attendants, how the work was going

We had this item actions in the list to accomplish for the completion of the sprint.

Evaluation:

* There have been issues with testing, but they eventually got solved.
* Everything else went well without any important data to be gathered from it

What worked well:

* It worked well having the analysis and the design that facilitated the implementation of the user stories

-We need more improvement on the testing

Solution: get support from supervisors on testing, check all available resources – presentation

-No improvements are needed for the moment.

Scrum master closes the retrospective, reminding them what to do next etc.

**SPRINT #6**

Sprint 6 - **meeting #1 – 31/05**

**REVIEW Meeting**

Product Owner, Scrum Master, team - all present

Product owner opens the presentation by discussing what it was needed to achieve in this sprint and why it was important to do it. He takes user story one by one from the sprint backlog to review the purpose and scope of each user story.

Jaume and Florin make a tour of the implemented user stories by showing how they work and doing some tests, which they consider relevant.

Product owner is trying the new features also and asking more detailed questions or asking for more testing on them. There are no bugs identified.

There are no ideas that could generate new backlog items or to change other backlog items that are now in the list.

Note for this meeting: Team has moved to a permanent working space.

**PLANNING meeting**

For Sprint 6 we have selected 6 user stories and the team has confirmed its capacity and the availability.

**Daily meeting – Day 2 – 01/06**

Team has small things to finalize in the design part and it will move to implementation

No issues to report.

**Daily meeting – Day 3 – 03/06**

Team has to finish few tasks in the implementation and move forward with the testing.

No issues to report.

**Sprint retrospective meeting**

Scrum master gives a short presentation on the sprint that the team just finished, doing the agenda for the tasks at hand and for the way we’ve worked.

Scrum master does a series of check in questions:

What was the most interesting part of this Scrum?

Jaime: “What I liked about this Sprint is that we’ve started to work in the performing stage, understanding more how Github works and it made everything much easier and team work more effective. Besides that, normal Sprint like always and I am happy to see close to final product”.

Florin: “Agrees with the rest of the group that the new working space had made a big impact on our working methods and interpersonal relationships. We succeeded eliminating time consuming discussions and we formed a much more united team”.

Kenneth: “The new working space made thing easier to deal with and work more effective”.

Dave: “New working environment that increased the productivity and we reduced the time-consuming issues like finding a space to work. Also it is nice to have lunch together, because it brings the team together”.

Everything is completed, unless the Product Owner has some issues to discuss about it in the Review meeting.

What worked well:

* Working environment
* Cooperation
* General efficiency with Github
* A full understanding of the phases necessary prior to deployment

What needs improvement:

* Team has no suggestion on further improvements at this moment

-> No solutions identified for what needs improvements

Scrum master closes the retrospective by going through what has been discussed in the meeting.

**SPRINT #7**

**Sprint 7 -** **meeting #1 – 04/05**

**REVIEW Meeting**

Product Owner opens the presentation and remembers the team that this is the last Sprint and the deadline of hand in is on Friday 07/06 at 12:00, motivates the team to be more focused and shares positive spirit.

Team members Dave and Kenneth present to the Product Owner the finalized backlog items from Sprint 6: functionality and some small tests on the system.

Product Owner takes over from Dave and Kenneth and he tests again the functionality and asks questions that he has.

Product owner asks for the last Sprint to have a new user story implemented “Chat system” and he explains together with the customer why this feature is important.

New user story is:” As a manager in this company, I would like to be able to chat online with the managers from all entities so that we have an efficient and up to date way of communicating.”

6 more user stories are moved from Scrum Backlog.

Burndown chart updated and presented.

Note: Working was still kept in the same

**PLANNING Meeting**

In this last Sprint the team will focus on Chat system, implementing other 4 user stories are easier to be done, documentation (Process Report and Project Report) and reviewing code and documentation for final touches.

The team ensures the product owner, the it is capable of finishing everything before the deadline.

**Daily meeting – Day 1 – 04/06**

Team started by making chat system analysis, design and code. Working environment provided by Florin allows all the team members do their best. So far, no issues to report. All members are present.

**Daily meeting – Day 2 – 05/06**

Some members were making sure to finish all user stories, from analysis to documentation. The rest took care of process report and project report. All members were present at the meeting.

**Daily meeting – Day 3 – 06/06**

Today we doublechecked all necessary files for uploading, we overstayed on the workplace to ensure everything is done and ready to be sent.

**Sprint retrospective meeting**

Scrum master gives a short presentation on the sprint that the team just finished, all team members have an overview of all user stories of the scrum backlog one by one. The discussion between members about the feelings of.

The members are discussing about the experience in the last Sprint that it should have been given more time to the documentation, Process Report and Project Report, or at least to have it started earlier in the Sprints. Overall, they are satisfied with the work done in the last Sprint.

Improvements taken for this Sprint but also for the next group projects:

* Improve communication
* Find a stable and permanent working space that facilitates having lunch together or a quick coffee break that create bounds between team members
* No “rush to code” and follow all phases: analysis, design, implementation, testing and documentation

**Sprint review meeting**

Product Owner talks briefly about the items in the Sprint #7 backlog and congratulates the team for achieving the goal: delivering all the backlog items.

Team presents the backlog items implemented and there is further testing from the Product Owner.

For the moment no new further development necessary as the customer will have to try out this version of the product and return back to our team with other requirements to implement or if we just have to continue with what we have at the moment on the Product Backlog.

* Items have been removed from the Product Backlog.

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