**Process Report**

**Fly High – Airline Management System**

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# Preface

This report has been developed during an 18-weeks project. We thank our supervisors and librarians at VIA University College for the assistance and guidance provided in a spirit of cooperation and goodwill.

# Introduction

*“If you figured it all out today, what would be the point of tomorrow?” – anon.*

This anonymous quote can describe best our initial approach to planning the execution of the project. There is always room for improvement. Creating an airline management system is a complex task which requires attentive study of the current market demand, analysis of its issues and enhanced vigilance towards details. Therefore, the whole planning of the work and expected progress during the available time range has proved itself to be a demanding procedure.

SCRUM and The Unified Software Development Process were introduced to us early in the semester and can be accounted as extremely helpful in the work management. The two frameworks provided a beneficial way of organizing the work and keeping track of the progress. The burndown chart can be found in Appendices and it is a visual representation of the expected work flow and the actual flow. A small check of the chart offered us the possibility to examine current work situation anytime by seeing how far behind or before the schedule we were.

*Figure 1 – Burndown chart*

The work has been divided into five sprints and, as it can be observed in the chart, the ideal remaining effort, representing the ideal amount of work in a time range, it is not similar to the remaining effort, representing the actual amount of work. The work has been delayed during the first two sprints and we have been behind the schedule for a while. Sprint number three was the time when we managed to catch up with the work and even to go further in sprint number four. Even if in the end the planning and the actual implementation were nothing alike, we succeeded in accomplishing the main goal, creating a functional system, and gaining experience with group working.

Overall, it can be concluded that the performance is satisfactory, the meetings’ plan was respected and the general atmosphere during group work was pleasant. We tried to learn one from each other, share the knowledge, cooperate as much as possible to achieve the common objective and enjoy the work.

# Group Description

The group consists of four members: Cristina Ailoaei, Dragoș Sîrbu, Michał Jurewicz and Michał Podgórni, originally from Romania, Moldova, respectively Poland. Analyzing the outcome of this new type of partnership from a cultural approach, the team members gained a lot of experience from such a collaboration by working with different people.

Prior to project start, we wanted to explore the strengths and weaknesses of the team by completing a team roles test in order to make sure that every team member is assigned to tasks which suits his/her aptitudes and therefore make use of his/her full potential.

Cristina Ailoaei comes from Romania. The result of the Belbin Team Roles test showed that she is a Complete Finisher and Coordinator. She strived to polish and scrutinize the work for errors and to clarify the goals. Her will to perfect everything made our project look substantially better.

Dragoș Sîrbu comes from Moldova. Through the Belbin Team Roles, his strengths associate him with a Specialist and Implementor. He made sure to provide the team with reliable knowledge and is known for turning the ideas into actions. His will of improvement pushed the project work further.

Michał Jurewicz comes from Poland. He identifies himself as an Implementor and a Plant through the nine Belbin Team Roles. His high creativity and way of solving problems in unconventional ways gave the project a fresh and an original look. Moreover, he plays the role of SCRUM Master and was responsible for organizing work sessions, dividing tasks making sure the work is done.

Michał Podgórni comes from Poland. Undoubtedly, he can be described as a Resource Investigator and Monitor Evaluator, as he explored opportunities to generate new ideas. He also provided a logical eye, making impartial judgements in moments where needed. Apart from this, he was our Product Owner, role which made him responsible for deciding which tasks should be our priorities and on what the team should focus on.

The following image it’s a representation of the team roles distribution and has as purpose increasing the self-awareness of each member towards the segments where they should be mostly active.

We acknowledge that the Team Role Circle is not a personal creation but has been adapted from a sample on “Belbin Team Report”. The original version can be found at [www.belbin.com](http://www.belbin.com) . Also, the Belbin Team Roles test can be found in Appendices and contain the results for each member from where the data has been extracted.

A close up of a device

Description generated with high confidence

*Figure 2 – Team Role Circle*

The cultural differences are analyzed in the [country comparison chart](Appendices/country-comparison.png) and description enclosed to the document. As it can be observed, the only significant difference between the countries Poland and Romania is that Poland scores twice as much in individualism, thing that can be explained by the fact that there is a slight concern for people to see the work done as soon as possible. The team could only benefit from that, as we ensured that the process is not delayed. For the whole group, the execution of this project represents the second experience of this kind. We intended to use the experience gained in the first semester and the team work in our benefit by developing together our interpersonal and technical skills.

# Project Initiation

Project initiation phase is one of the five officially recognized project management phases and is part of the project management life cycle together with description, execution, controlling and closing phases.

The early thing after group formation and right before starting to set the objectives of the new project was creating a SWOT analysis, which helped us to spot strengths, weaknesses and identify the opportunities and threats we might face.

|  |  |
| --- | --- |
| Strengths | Weaknesses |
| 1. Good Communication within the group - messenger, email 2. Safe way of sharing the work – github 3. Committed to the work – the overall motivation is high 4. Success in setting the meeting time 5. Good planning with agreed tasks on meetings 6. Diversity in the skills of team members – different belbin team roles | 1. Lack of experience with SCRUM and UP 2. Very comfortable atmosphere 3. Loss of focus 4. Working speed 5. Bad planning |
| Opportunities | Threats |
| 1. Possibility of using the library for extra help 2. Unlimited access to a place of study and meetings – university 3. Free access to different programs (Eclipse, Astah Proffesional, Microsoft Office) 4. Possibility of using the teachers to our own benefit | 1. All the team members have a part-time job and lots of commitments, therefore they have free time to work on project at different times 2. Unpredictable changes in the product backlog, new requirements arising |

The initiation phase encloses everything we have done before the detailed planning began, starting with clarifying the objectives and scope of the project. The group decided to undertake this project because its execution involves more than building and designing a system, as it is connected to people and created for them. This way, the project will not only mean a technical experience, but it will provide the team with better understanding of the human factor and its changing needs. Thinking from a different position, that of a user, will help the team to spot weaknesses and mistakes and will prepare it for future projects.

In order to give our project a sense of purpose from the early beginning, we have created a project charter which can be found in Appendices, setting the objectives and defining the authority of the SCRUM Master.

The next things we did was designing a RASCI Chart for the allocation of responsibilities to the team members, Product Owner, SCRUM Master and supervisors.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Activity | Team  member | Product Owner | SCRUM Master | Supervisors |
| Project planning | R |  | R, A | C |
| Design | R | I | S |  |
| Coding | A |  |  | C, S |
| Unit Testing | R, A | I | S |  |
| Quality Assurance |  |  | S | C |
| Documentation | A | I |  | S |

**R** = **Responsible**

**A** = must **Approve** work before it is effective

**S** = **Supportive** – can provide resources or can play a supporting role in implementation

**C** = to be **Consulted** – has information and/or capability necessary to complete the work

**I** = to be **Informed**

# Project Description

As mentioned in the Introduction, creating an airline management system is a complex task which requires beforehand documentation on how the current problem of the company can be solved and what are the practices nowadays in this sector of activity. Therefore, the members’ attention had to be increased towards small details that could make a difference between a good system and a system which strives to increase users’ comfort. One example of a decision our group decided to include in the functionality of the system was making an option to search for cheap flights from your location if you are a club member, opportunity not existing in many of today’s companies.

The product backlog contains a list of everything that may be done during the project.

|  |  |  |  |
| --- | --- | --- | --- |
| ID | Priority | Estimate | Item |
| 1 | Critical | 40 | A project report has to be presented in order to get a detailed system documentation. |
| 2 | Critical | 32 | A process report has to be presented in order to have a written documentation of the system development process. |
| 3 | Critical | 28 | As an administrator, I can add airports, airplanes, crew members and flights to the system. |
| 4 | Critical | 16 | As an administrator, I can find airports, airplanes, crew members and flights in the system. |
| 5 | Critical | 24 | As a head administrator, I can cancel flights. |
| 6 | Critical | 28 | As a head administrator, I can delete airports, airplanes, crew members and passengers from the system. |
| 7 | Critical | 16 | As an administrator, I can edit data for airports, airplanes, crew members, passengers and flights in the system. |
| 8 | Critical | 16 | As a customer, I can select departure and destination airport and the departure and return date (or departure only) for flights in order to get the available flights. |
| 9 | Critical | 16 | As a customer, I can enter personal information and choose a seat, size of luggage, method of payment in order to book a ticket. |
| 10 | Critical | 16 | As an administrator, I can select date/time range for flights in order to get flights in a specified range. |
| 11 | Critical | 16 | As an administrator, I can select cities for flights in order to get flights from/to the specified cities. |
| 12 | Critical | 12 | As an administrator, I can get a list of all flights and club members. |
| 13 | High | 12 | As an administrator, I can set the annual fee for club members. |
| 14 | High | 8 | As a customer, I want to receive the ticket via email. |
| 15 | Medium | 8 | As a customer, I can become a club member in order to get discounts. |
| 16 | Medium | 10 | As a customer and club member I can search only for cheap flights from my city. |
| 17 | Medium | 6 | As an administrator, I can maintain a FAQ section. |
| 18 | Medium | 5 | As a user, I can read FAQs so that I can find answers to different questions regarding flights. |
| 19 | Medium | 5 | As a user, I can subscribe to the newsletter in order to receive new information regarding flights and offers via email. |
| 20 | Low | 10 | As an administrator, I can log in the system in order to manage data. |
| 21 | Low | 7 | As a head administrator, I can see the profiles of all administrators. |
| 22 | Low | 15 | As a head administrator, I can create or delete an administrator account in order to ease the management of accounts. |
| 23 | Low | 5 | As a customer and club member, I can log in the system in order to take advantage of the benefits provided. |

\*It is assumed that a head administrator can perform all the actions of an administrator.

\*It is assumed that the estimated time refers to the work for the whole team (~ 350 hours).

# Project Execution

The execution phase of the project management life cycle has been asserted by us as the most complex phase, as it was going to reveal if the objectives have been correctly set and the plans could be easily put into practice.

A major difference in comparison with the first semester project were the working methods adopted. The waterfall method was abandoned for the Unified Process, which states all steps in creating the project have to be done in small iterations, guarantying us more chances of success.



*Figure 3 – SPRINT 1 Backlog*

*Figure 3* is an example of a sprint backlog, where the main concern is adding data to the system, data consisting of airports, airplanes, crew members and flights. Apart from other responsibilities as creating a list of requirements, the sprint focused on designing, implementing, testing and documenting the product backlog item.

At end of sprint one the product backlog was the same as in the initial version, meaning that the Product Owner approved the work without any changes in the plan.

Sprint two focused on finding data in the system, at the end of which the Product Owner decided to move the items with id 8 and 9 to in the product backlog to a higher priority, 5 and 6, showing this way that booking a flight was more urgent than cancelling or deleting data from the system.

!!!Maybe something about sprint review.

/\*Each of the five sprints lasted for three days. Although we did not follow exactly the SCRUM methods from the very beginning, in the third sprint we finally understood how to use this strategy as it was meant to. There has to be mentioned that this does not mean that for over 2 first sprints we used a different method of working, but it was case of not fully proper documenting what we were doing but then we filled this small gap.\*/

During every sprint, a new version of the product backlog was created, now having marked with a tick sign the already implemented parts and containing the changes required by our Product Owner.

The planning proved to be extremely helpful and, despite the fact that for both Michałs playing another role except the one of team member during meetings and not only was a bit unusual, we truly acknowledge that the SCRUM methods brought facilitation into work organization.

Finally, we ended up with a ready to use piece of software that is documented in an understandable way. Even though some of the planned tasks were delayed during the first two sprints, we succeeded to catch up, the result being satisfactory to a high extent.

Further, a small part of the meetings plan has been extracted in order to show the overall process.

Group Meeting during SEP class, 08/02/2018, 8:20 – 10:00

|  |  |
| --- | --- |
| **What we did** | **Plans for next time** |
| Formed the team;  Wrote the group contract;  Discussed about what topics could be suitable for the new project; | Come up with new ideas for the project; |

Group Meeting during SEP class, 15/02/2018, 8:20 – 11:00

|  |  |
| --- | --- |
| **What we did** | **Plans for next time** |
| Completed the group formation (a description of the new project, keywords, expectations for this new semester);  Created a list of features;  SWOT Analysis;  Belbin Team Roles; | Choose a name for our fictive company;  Learn to use GIT and UpSource;  Come up with more features for the system; |

…

Group Meeting during SEP class, 22/03/2018, 8:20 – 11:00

|  |  |
| --- | --- |
| **What we did** | **Plans for next time** |
| Got an overview of SCRUM; | SCRUM Roles, Sprints, Group meetings and work;  Start to work on Product backlog; |

Group Meeting during SEP class, 05/04/2018, 8:20 – 14:00

|  |  |
| --- | --- |
| **What we did** | **Plans for next time** |
| Finished the Product backlog; | Prepare for sprint#1 start; |

# Personal Reflections

**Michał Jurewicz**

*“Due to the fact that our group has not changed after the first semester, first I thought that there will not be much more to write about my personal reflexions on how we worked and what I think about my group. Therefore, I wanted to use my part, or at least most of it, from the previous process report. But after reviewing it I realized that I am not quite right and not everything is the same. To be more specific – most things changed.*

*To begin with, I did not change my opinion on the other group members and I consider us a good team in general. Except for minor disagreements, that we solve without any difficulties, we agree for the most important parts and can work together well. I feel satisfied with what we have achieved and think that the other group members can say the same.*

*If it comes to the international environment, some can say it can be a bit problematic to cooperate with people who have been grown up in different countries. Nevertheless, the fact that we all do not belong to the same nationality does not really play any role for us, especially that we all come from European countries, so that there are not so many culture differences.*

*Every of us tried to do their best in order to perform our duties and I am sure that we were all dedicated to this case. However, we are still beginners in our field and many things that come up suddenly are a bit surprising so that we did not always know what we should do then. That is why we have not achieved everything we wanted but what we have now covers the most of our expectations.*

*The part that tells the current project from the first one the most is, obviously, way of working. In the first semester we used the waterfall approach, while now the method was the unified process. In my opinion this time, even though we did not know how to use it one hundred percent properly at the beginning, in the end everything was a lot more under our control, compared to our first experience of making a group project. By this I mean that at every essential point of developing our system we could make most changes we wanted without sitting many hours and reediting hundreds of lines of code. That is a thing which can decide whether we achieve our goal or not.*

*Further, after over half a year, our knowledge was noticeable bigger than at the beginning and we also had something to base on. Thanks to learning many design patterns and seeing sample parts of different systems, we could apply them in our own project and reach what we needed in the simple way instead of doing everything all around. It also worked on the other way around, because when we could not really understand how something works, trying to implement it helped to get to know the idea and cleared up a lot for all of us.*

*Except for the new way of organizing work, the fact that we already knew each other well was also very helpful. This time everybody was prepared a way better and appreciated what we can expect from the future. Thanks to a lot of practice, patience and effort, we managed to achieve what we set for ourselves and the result is something that we are not ashamed of.”*

# Supervision

Any part of the project could not be done without proper knowledge. It is obvious that huge majority of information about everything in terms of developing both the system and the documentation came from the supervisors.

Not only owing to the classes we had during the semester but also group meetings, we learnt all what was necessary and received a lot of valuable feedback, which helped us to understand our mistakes and showed the way how to correct them.

Both sides: us and the supervisors have taken everything seriously and shown big commitment, which resulted in a very good cooperation. For every case we tried to solve our problems on our own but sometimes the solution we came to was too much unsure to use it officially. Fortunately, anytime we needed to get to know something about any part of the project, we could ask a question during the classes or send an email and set a meeting in order to receive the answers we needed. We, as a group, are fully satisfied with this relation and are aware of the opportunities we received.

Each member of our team can honestly say that the collaboration with the supervisor was essential and only thanks to it we ended with a satisfying result.

# Conclusions

As all the group member have known each other from the first semester, when we had created exactly the same project group, it was really easy to cooperate. Everybody knew what to expect from other persons and what are weaknesses and strengths of us together and alone. Although there were some minor conflicts about some details, we were solving them fast, mostly because of that everybody was aware of the fact we are working to achieve a common goal. All in all, we are content with the group work we managed to organize and can honestly say that we felt well in the group.

Anyways, the situation was different from the one in the first semester, because of both new approach of working and bigger challenge to fulfill our tasks. We learnt a lot of new things from the process and therefore can recommend some things to do as a team and advice against some others:

**Do:** stay positive in all situations, be open-minded, respect others, listen and pay attention to your group, ask for help when needed, don’t be afraid of showing your opinion

**Don’t:** blame other teammates, be aggressive toward the group, try to put group under pressure, ignore others, dominate

For sure each of us will remember this experience and in future projects it will become a really helpful and important factor we will consider in order to create a good cooperation.

**Appendices**

Appendix A – SWOT Analysis

Appendix B – Meetings Plan

Appendix C – Sprints

Appendix D – Product Backlog