Project P-phase

Student workbook

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1. INTRODUCTION

As a second semester student you have the basic knowledge of programming, databases and other ICT related subjects. A question you might have asked yourself, is how these subjects are related to each other. Project P-Phase (ProP) will help you understand this. During the project, you will work on a system for a company that organizes events. An example of an event would be a music festival. However, your group should decide what kind of event your system will be used for. You should keep in mind that it needs to satisfy the requirements that are set further in this document.

The event takes place on a big terrain with a lot of space for visitors/stages/tents, whatever the event requires. Part of this terrain is reserved for the camping ground, where visitors can stay for the night. See Appendix A: Map of camping "Park Kuierpad".

Because the event is organized by a commercial company, they want to make profit. Money can originate from: visitors purchasing tickets to enter the event, buying food, drinks, or souvenirs, and loaning products (such as photo cameras, flashlights, etc.). To it easier for the visitors, visitors have to place money on their account to pay. Because the event will last more than one day, people can rent a camping spot. Last but not least, banks will place ATM machines on the terrain which allow visitors to deposit money on their account. These machines provide log files. See Appendix B: ATM Log for further details.

2. OBJECTIVE

After reading the introduction you can imagine that the organizer wants to ensure that the event will run smoothly.

Before you continue reading, take a moment with your team to discuss:
What software solution could your group create to make this event more manageable?

As mentioned in the introduction, the client is interested in a software solution for the event. At this point, you and your group should have thought about what you could contribute to the event. However, a minimal solution contains at least the following:

- A website that informs people about the event and allows reservation of tickets and camping spots
- Applications that check visitors in and out of the event and camping
- Applications that support the shops (food/drinks/souvenirs) and the loan stands
- Application that allows the organization to get a clear status overview of the event
- A database supporting all the applications
- An application that changes the balance of the visitors based on the ATM log files

Additionally, you need to deliver several documents, that contain information about the requirements, the design of the system and the process. At the end you will give a presentation about the project.

3. PARTICIPATION

Because ProP depends heavily on knowledge gained from the first semester, you cannot participate without meeting certain requirements. Participation is only allowed if the examboard has sent you an e-mail granting you permission.

4. ASSESSMENT

At the end of this semester, you have grown as a group and as individuals. This growth can be divided into three categories: Documentation, Implementation and Soft skills. Your tutor will have to assess you on these categories. In order to do this, he/she will use the assessment sheet found in Appendix C: Assessment sheet. The criteria for these three categories are defined there. The final mark will consider this sheet. Every student gets an individual mark. The final mark has 1 decimal precision (for example: a 7.0 or a 7.3).

Since this project leans very hard on group-work, you should be there on **every scheduled moment**. The first time you miss a meeting and do not have a good reason, you get a warning. The second time you miss a scheduled moment without a good reason, you are no longer welcome in the group: you must leave the group. In this case your final mark will be 1. If you or your group are constantly late in handing in deliverables and/or attending meetings, then you will also no longer be welcome to attend ProP. We expect a professional attitude.

5. WAY OF WORKING

During ProP you will work in groups of four students. In the introduction lesson (Week 1) you will make this group. But before you do that, there are certain rules you need to keep in mind:

- A group can only have students that are **allowed** to participate to ProP (see Participation)
- A group can only have students that are **present** in the introduction lesson
- One group can have at most one ICT & Business student
- One group can have at most one student that retakes ProP

Once the groups are made, tutors will be assigned. The tutor will send invitations for the first meeting (week 2). For the rest of the project, it is your responsibility to arrange the weekly meetings with your tutor. In these meetings you have the chance to communicate with your client (when invited), inform your tutor about your progress, and discuss challenges that you are currently facing.

5.1. EFFORT

If you look at the amount of credits you receive for ProP, than you see that this subject grants 8 ECs. Besides representing progress in your study, they also reflect the amount of time you are supposed to invest in a certain module. One EC represents 28 hours. So if we look at 8 ECs we arrive at 224 hours (8 EC × 28 hours per EC).

These hours are divided over two blocks, where each block consists of seven study weeks, two exam weeks and one administration week. Assuming you want to prepare well for exams, what remains are two times seven weeks to work on ProP. So this amounts to 16 hours (224 hours / 14 weeks) per week of work.

This means that (excluding the meeting time with the tutor) you are expected to work a total of 15 hours per week on ProP.

6. ABOUT THE ASSIGNMENT

As mentioned in the Introduction, a commercial company specialized in organizing events approached your group. Because the events started to attract more visitors, it has become impossible to manage them without a proper software solution. As mentioned above in the Objective, the company has a few ideas:

“We want a website that informs people about their event. It should allow people to reserve entrance tickets and camping spots. Once the event starts, we would like to be able to check if someone has purchased a ticket or not. Once it is clear that the person is indeed a visitor, he/she should be assigned some form of identification for inside the event.

At certain points, visitors could become hungry and/or thirsty, so there are stands that provide food and drinks. In order to pay with the event currency, the identification can be used to charge the costs on the visitor’s account.

Once it gets late, some visitors will want to sleep for the night, which is only possible if he/she reserved a camping spot. So the camping will be required to have its own check-in/check-out application.

Last, it should be possible for visitors to deposit money to their account in two ways: before the event through the website, and on the event, by ATM machines which a bank has provided.

You should be able to add the funds from the logs to the related visitor’s account. The logs are clarified in Appendix B: ATM Log. “

For the identification of a visitor, you could use various techniques. The client was considering using one of the following three techniques: RFID-chips, barcodes, or QR-codes. However, if you want to use something different, you could communicate with the client about this.

6.1. BEFORE THE EVENT

The entrance price for the event is € 55,-. After buying a ticket on the website, a visitor receives a unique identity number and a so called "event-account". The visitor will get some kind of identification, for instance a bracelet with an RFID-chip, containing this unique identity number. This bracelet will then be used at the entrance to check if the participant is allowed to enter the event. During the event the participant can use the bracelet to pay for food or drinks, etc.

Alternatively, a participant gets a unique identity number represented as barcode by e-mail to use as identification. It is up to your group to give a good solution.

As mentioned before, once someone purchased tickets, he/she should be able to transfer money to his/her event-account. Furthermore, a group of participants can book a camping spot by choosing a free camping spot on the website. Every spot can be booked for at most 6 persons. To make such reservation, the visitor should specify all participants. You can only make a reservation for the whole weekend; not for a single day. The price for the reservation is € 10,- for the spot, and € 20,- per person.

6.2. DURING THE EVENT

At the entrance of the event it should be possible to quickly check if a visitor is allowed to enter. If the visitor does not have a ticket, he/she can buy one here with an additional fee of € 10,- (to encourage purchasing in advance).

If visitors reserved a camping spot, it should be possible to check if the group has paid. If they haven't paid, the same rules apply as with the tickets.

As mentioned above, during the event it is not possible to pay with cash: only by event-account. The organization made a deal with a bank to place ATM machines on the terrain. These machines allow visitors to transfer money from their bank account to their event account. At certain moments these machines will deliver a log-file (a text-file) to the organization of the event with information about the deposits during the last period of time.

It is your task to transfer the information from these text-files to the database. You can see an example of such a text-file in Appendix B: ATM Log.

On the terrain there are several stands where visitors can buy food or drinks. At these stands, an application is needed to check the unique identity number, generate a receipt and lower the balance of the event-account of the visitor by the amount of the purchase.

Visitors might forget to bring something (like a USB-cable, your camera, a charger for your laptop). There are stands, where you can loan materials. The visitors will have to pay the bill of the loaned materials with their event-account.

It would be nice if the visitors of the event have the possibility to communicate about their experiences, by posting messages on some review space on the website.

The organization should also have the possibility to see the status of the event:

- Visitor status & Visitor history
- Visitors present at the event
- Total visitors (to visit the event)
- Total balance of all visitors together & total spent money
- Camping statistics (booked and free spots)
- Total money sold per shop
- Total amount of a certain product sold

6.3. AT THE END OF THE EVENT

When a visitor leaves the event it must be possible to check the balance of his/her event-account. The employee can return the money to the visitor and mark this event-account as invalid. The visitor should not leave the event area with loaned materials.

7. DELIVERABLES

ProP lasts an entire semester, however the deliverables will be divided into two blocks. The first block will focus mainly on planning and design, while the second block will focus on implementation. Of course, dependent on your progress, your group might deviate.

7.1. BLOCK 1

- Agenda's and minutes of every meeting
- A name (and a logo) for your group
- A project plan
- A setup document (Appendix D: Setup document)
- A website - wireframe
- A website (static part)
- A database design
- A process report (Appendix E: Process report)

7.2. BLOCK 2

- Agenda's and minutes of every meeting
- An application to be used at the entrance of the event
- An application to be used at the entrance of the camping
- An application to be used at the shops
- An application to be used at the stand, where you can loan materials
- An application to be used when a visitor leaves the event
- An application for the organization to inspect the status of the event
- An application to convert the information in the transaction-log-file to the database
- A website (fully functional)
- A presentation about the project
- A process report (Appendix E: Process report)

8. LAST REMARKS

1. The website should run on the Iris server of FHICT. You should use the technologies learned in WEB1 and WEB2.
2. The database could be an Oracle database or a MySQL database.
3. The Windows applications should be programmed in an object oriented language with which all members are familiar, e.g.: C#. Your applications should obey the principles of the object oriented approach.
4. In ProP you work together as a group. It could happen that multiple members work on the same application simultaneously. Therefore, working with a version control system is required. At FHICT we use GitLab.
5. Every document should have a title page, which should contain: title of the document, group name, information about members (name and student numbers), version number, and date. Additionally it should contain a revision history (stating the changes made to the document).
6. Every week there is a meeting with the group and the tutor. There should be an agenda and you should make minutes of every meeting. The agenda should be distributed at least one working day before the meeting. Minutes should be distributed at most one working day after the meeting.

9. GUIDING TIME SCHEDULE

	Block 1									
	Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**	**Week 8**	**Week 9**	**Week 10**
Meeting	Introduction Lesson	Organized by Tutor	Organized by Group					**Exam Weeks**		
Deliverable		Project Plan v1		Project Plan v2, Setup Doc v1		Project Plan*, Setup Doc v2				Block One Deliverables

* If first project plan was not approved

	Block 2									
	Week 11	**Week 12**	**Week 13**	**Week 14**	**Week 15**	**Week 16**	**Week 17**	**Week 18**	**Week 19**	**Week 20**
Meeting	Organized by Group, Regular Updates to Tutor						Final Meeting		**Presentation**	
Deliverable								Final Deliverables*		

* At least five days before the presentation

Week 1:

- Create a name and logo for your group
- Prepare for the interview with the client

Week 2 to 4:

- Work on the project plan
- Investigate identification method, e.g.: barcode, QR-code or RFID-chip

Week 2 to 7:

- Work on the setup document (Appendix D: Setup document)
- Work on website (Static part)
- Design the database
- Choose database system
- Design GUI for the applications
- Work on the process report (Appendix E: Process report)

Week 8 and 9:

- Finalize deliverables of block 1

Week 10:

- Hand in deliverables of block 1

Week 11 to 16:

- Work on website (fully functional)
- Work on the applications
- Work on the database
- Work on the process report

Week 17:

- Final meeting
-

Week 18:

- Finalize and hand in all deliverables

Week 19 or 20:

- Final presentation

APPENDIX A: MAP OF CAMPING “PARK KUIERPAD”

APPENDIX B: ATM LOG

At certain moments, the bank will send a log file to the organization of the event with information about the most recent deposits. The structure of such a log file is as follows:

```
<<bank-account number of the organization>>
<<date and time of the start of this period>>
<<date and time of the end of this period>>
<<amount of deposits>>
<<user account number “space” money in euros>>
<<user account number “space” money in euros>>
. . .
. . .
. . .
<<user account number “space” money in euros>>
```

An example of such a log file is:

```
NL91 ABNA 0417 1643 00
2017/08/01/16:13:03
2017/08/01/16:14:25
8
41356 25.00
345 60.00
73567 77.00
244 12.50
345 20.00
3966 20.00
61167 45.25
644 50.00
```

APPENDIX C: ASSESSMENT SHEET

	Experimenting (<5,5)	Developing (5,5 - 7)	Leading (7>)
Documentation / presentation	The project plan does not follow the principles taught in PM. It is not clear what the project is about, or what will be delivered.	The project plan follows the principles taught in PM. It is clear what the project is about and what will be delivered, but there are a few inconsistencies/shortcomings.	The project plan follows the principles taught in PM. It is clear what the project is about and what will be delivered, there are no inconsistencies/shortcomings.
	The setup document does not display a clear understanding of the case. Processes are insufficiently defined, functional requirements are unclear or unrealistic.	The setup document displays a sufficient understanding of the case. Processes are defined but could be better, the expected functional requirements are there.	The setup documents displays a clear understanding of the case. Processes are well defined and covered effectively. Besides the expected functional requirements, the group has defined additional requirements for a higher mark.
	There is (almost) no process report. It is not following the guidelines from the student workbook.	The process report is partially updated during the project. However, it is incomplete to some extent.	The process report is updated every week. It is clearly following the guidelines according to the student workbook. (or an improvement upon it)
	The presentation is not clear: there is no structure/the group performs insufficiently/the slides are confusing. The demonstration contains severe bugs.	The presentation is structured, the group performs well and it is clear that this solution works. There is a demonstration. Lessons learned are present.	The presentation is very structured, it is clear why the solution is robust. A clear demonstration displays the capabilities of the solution. The group has looked critically at their process and reflects upon this.
	The ERD is messy, relationships are wrong, the group did not fulfill any requirements.	The ERD covers at least M and S from the MoSCoW list requirements.	The ERD is optimized, being a clean solution for the case; also covering some extra features.
Implementation	The database does not function according to requirements. It is impossible or overly complex to do certain queries. The database supports too few requirements.	The database covers at least M and S from the MoSCoW list requirements. The required queries are functional.	The database is optimized, and supports all MoSCoW list requirements.
	The applications have severe bugs that make them unusable. The M and S from the MoSCoW list requirements are not found in the final product.	The applications might have some minor bugs, but the overal user experience is good. The M and S from the MoSCoW list requirements are met.	The applications are optimized, and support all MoSCoW list requirements. The applications are robust and have a good branding (similar style).
	The website has severe bugs that make it unusable. The M and S from the MoSCoW list requirements are not found in the final product.	The website might have some minor bugs, but the overal user experience is good. The M and S from the MoSCoW list requirements are met.	The website is optimized, and supports all MoSCoW list requirements. The website is robust and have a good branding (similar style).
	The group uses version control insufficiently or not at all.	The group uses version control, but no branching, tags, or clear commit messages.	The group has a very organised process to manage their repository. They use branching, tags, and clear commit messages.
Soft skills	The client is barely acknowledged, the interview is meager or non-existent. Decisions are not communicated to the client.	The client is sufficiently interviewed. Decisions are communicated to the client. However, the scope and/or frequency of those decisions is inappropriate. The group might discuss technical details with the client.	The client is informed about all relevant decisions, meetings take place when required. The group obfuscates technical details to the client.
	The group has a passive attitude, communication with the tutor is kept short. The tutor is not made aware of progress, and/or challenges.	The group has an active attitude, and communicates with the tutor. The majority of the progress is communicated, and most of the challenges are discussed.	The group has a pro-active attitude, communication with the tutor in meetings is appropriate. The progress is communicated in a structured way, and all relevant problems are discussed.
	The group does not organize meetings in a timely fashion. Agendas or minutes are not sent to the tutor. Meetings are unstructured.	The group organizes meetings in a reasonable fashion. Agendas are sent before the meeting, and minutes are sent before the next meeting. Agendas contain the points of discussion and when applicable the client invitation. The meetings follow those points.	The group organizes meetings in a timely fashion. Agendas are sent at least 2 days before the meeting, and minutes are send within a day after the meeting. Both documents have a clear format. Agendas contain the points of discussion and when applicable the client invitation. The meetings follow those points.
	The group does not work well together, giving rise to: miscommunication, not showing up for meetings, not meeting deadlines, etc.	The group collaborates sufficiently. There might be certain moments when progress stagnates. The group manages to stay on track.	The group collaborates well. Challenges faced are tackled by the group such that their goals are achieved.
	Group members do not give and/or consider feedback from each other. The group does not reflect upon the feedback from the tutor.	Group members give feedback to each other, the majority of this feedback and that of the tutor/client is applied to the project to some degree.	Group members give clear constructive feedback to each other, this feedback and that of the tutor/client is clearly applied to the project.

APPENDIX D: SETUP DOCUMENT

A sufficient structure of the setup document might include the following:

- Title page
- Table of contents
- Agreements – made with the client
- Processes
  - Describe all meaningful interactions between the user and the system
  - Find a systematic approach to do so *(hint: use-cases)*
- Functional requirements
  - What should the system be able to do?
  - Group them by application/website
  - Prioritize them using MoSCoW
- GUI
  - Image and description
- Website wireframe
  - Provide a brief description regarding the design
- ERD
  - Provide a brief justification regarding the design

APPENDIX E: PROCESS REPORT

A sufficient structure of the process report might include the following:

- Title page
- Table of contents
- Global work division
- Week 1:
    - Minutes
    - Who did what
- Week 2:
    - Minutes
    - Who did what
- …
- Week 20:
    - Minutes
    - Who did what
- Mark justification
    - What mark do you feel you deserve
    - Justify by mentioning the strong and weak points of your system and process
- Individual reflections
    - Strong/Weak traits that affected the project
    - Learning moments from the project
    - Evaluation of spent effort
    - Improvements for next project (what could you do better next time?)
- Appendix A: Report of the interview with the client