Project Description
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Map Management System for Orientation Sport

Group Number:
BO18-G34

Group Members:
Michael Mebrhatu Simon
Adis Jasaravic
Jonas Vestgaden

Høgskolen i Østfold
Østfold University College, Faculty of Computer Science

Østfold Orienteringskrets

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Author(s): Michael Mebrhatu Simon Jonas Vestgarden Adis Jasarevic	**Approved By:** Michael M. Simon. Project Leader
Department: HIØF, Faculty of computer science **Program:** Information Systems **Course**: Bachelor thesis	
Mentor: Børre Stenset	

Extract:
This document contains the project description of the FinnFram i Østfold project.
The document is prepared with the purpose of introducing the project goal, plan and implementation methods. The contents of the document may alter in the future depending on the project process and development.

Project proposed by: Østfold orienteringskrets	

Table of contents

Introduction

Background

This document is coordinated based on the project proposed by Østfold orienteringskrets.
Østfold orienteringskrets wishes to have a system that can be used to share orientation maps among teachers and students.

The applications requirements are to implement functionality that enables teachers to import/upload a premade map using third party applications, mark the spots were posts are located, save the map in the system, and share the maps with others.

Teachers and students will also download or print the map to use it while participating on orientation activities.

Orientation Sport

Orienteering is the sport of navigation with map and compass. It's easy to learn, but always challenging. The object is to run, walk, ski, or mountain bike to a series of points shown on the map, choosing routes, both on and off trail, that will help you find all the required points and get back to the finish in the shortest amount of time.

The points on a course are marked with orange and white flags and pouches or electronic devices, so you can prove you've been there. Each "control" marker is located on a distinct feature, such as a stream junction or the top of a knoll (Orienteering, 2018).

The sport demands the students ability to read maps and compass, teamwork and a coordination of physical and mental activity when performing.

In schools the sport is used an instrument for learning use of compass and map reading.The activity helps increasing social activities and enhance interaction between students.

Team

Name: Jonas Vestgarden **|** Birth: 1993 **|** Course: Informasjonssystemer **|** Location: Halden

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Is a third year information systems student. Interests are programming, modelling and consultation. After a completed bachelor's degree, he will pursue being a consultant or a game developer, if not at the very least try both fields

Name: Adis Jasarevic **|** Birth: 1995 **|** Course: Informasjonssystemer **|** Location: Sarpsborg

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Third year information system student at Halden University College. His interests are programming languages, database design, 3d modeling programs (maya and inventor) and as well as some marketing and music production. After a finished bachelor, he wants to specialize himself in machine learning and therefore in the future after the master's degree collaborate with his brother.

Name: Michael M. Simon **|** Birth: 1994 **|** Course: Informasjonssystemer **|** Location: Halden

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Michael is an Information systems student. He's interested in user experience, Human computer interaction (HCI), Front-End developing.
He's currently managing his own private business which mainly deliver service in graphic design for print and digital. He wishes to further develop his business with a variety of services in web technology and continue to study on a master's degree at the University of Oslo and specialize in Interaction design.

Project Owner

ØO(Østfolds orienteringskrets) is an active association hosting multiple official runs and training runs each year. They are a branch of the Norwegian orientation association and were founded in 1940 (Jens Erik Mjølnerød, 2016, s.7). They have an active and engaging community, though they wish for more young people to join them, hence this project was created (Norsk Orientering, 2018).

Project Scope

Deliverables

The finished product will be a website for teachers on all schools in Østfold. This website will allow the teachers to have a common place to view and share orientation maps for areas in Østfold. The maps will be saved on the same database as the system should be available for every teacher.

They can upload, share, draw (set annotations), print and retrieve saved maps.
They can automatically generate annotations on the maps.
They can edit individual annotations on maps already saved in the system by other teachers.
Additionally the following functionality will be present in the webapp:

- Register user
- Login and Logout
- Save the result
- Share the result in the application
- Import maps that are made using other map drawing application, for example OCAD.

There will also be a light-weight mobile app version to show saved orientation maps so teachers can check their map while outside in the environment.

Goal

The main goal of the project is to make a system that can be used to upload, draw and share Orienteering sport maps among teachers and schools.

Subgoal 1

Create a website application that can be used to store maps, download and print them. The application shall also store the maps in groups
based on locations.

Subgoal 2

Add additional functionality allowing for editing of existing maps, placing markers on a fresh map, and share the maps with other Teachers.

Subgoal 3

Implement a light-weight version of the webapp for mobile,The application can Will be used by teacher during orientation with the students. .

Method

During this project we are fortunate to have proper guidance by people with great knowledge in their respective fields. As this project has a lot to do with orientation, we brought in an orienteering expert to consult us on what this really entails. For the technical parts we will be using our assigned mentor, lecturer with the required knowledge and integrate it with the research the group perform. We plan to hold regular meetings with our project owner to ascertain that our idea of the project contributes to them realising their vision.

The project given by ØO(Østfold Orienteringskrets) is open for creative solutions. Besides the underlined requirements, which is a platform for sharing orienteering maps, ØO is open for additional functionalities that makes it interesting for the teaching process.

The openness of the solution makes the project special. Continuous confirmations of deliveries and involvement of the ØO is vital for the project to deliver effective results.
Based on the mentioned facts, the student group decided that a scrum methodology and design thinking process to be the core of the the general developing process.

Scrum
Scrum is a framework of a development process that can be used to deliver a software product. Sprints are results that the project team produces in scrum, they are small fraction of the overall deliveries that are shipped in a one to two weeks of an interval and iterative development process. Scrum developing suits a team of three to nine persons, and the team members are delegated certain task focusing on three categories. These categories are scrum master, product owner and development team. Scrum increases the effectivity of project processes and development activities, but it may cause overlapping of roles in a team with a few members as ours. The team decided to implement the suitable elements of scrum and incorporate with projects tasks and processes.

Design Thinking
Design thinking is a user oriented design and development methodology that can be applied when developing technology and solving problems. The design thinking process contains

five-stages; empathise, define, ideate, prototype and test, the team iterate through these stages when discovering and denoting the users pain points.

This project is open for creative ideas that are expected to contribute making the orientation activity interesting for teachers and students. Using the design thinking methodology the team will attempt to discover, analyse, ideate, prototype and test the suggested solutions and try to resolve the problem.

We have seen that a powerful methodology for innovation has emerged. It integrates human, business, and technological factors in problem forming, -solving, and -design: "Design Thinking." Its human-centric methodology integrates expertise design, social science, engineering, and business. It blends an end-user focus with multidisciplinary collaboration and iterative improvement to produce innovative products, systems, and services.
(Plattner, Meinel, & Leifer., 2010, s.14)

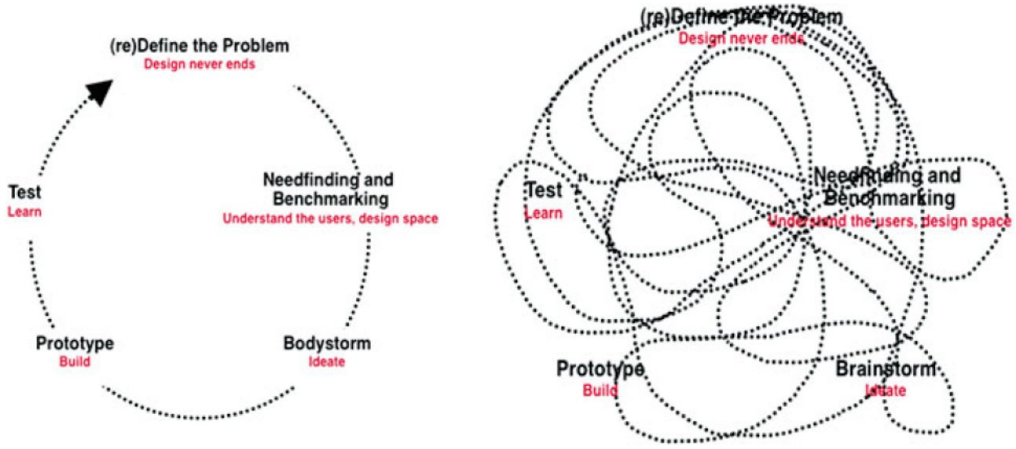

Figure 1. Illustration of standard and approximate look of the process of design thinking in real world. (*Design thinking: understand–improve–apply*., 2010)

By Integrating the design thinking process with agile methodology the team will be equipped with the tools that helps managing the project and deliver user-centric solutions. The figure above (figure 1.) illustrates the iterative process of the design thinking approach and the picture on the left illustrates the standard form of design thinking.

Project Development Phases

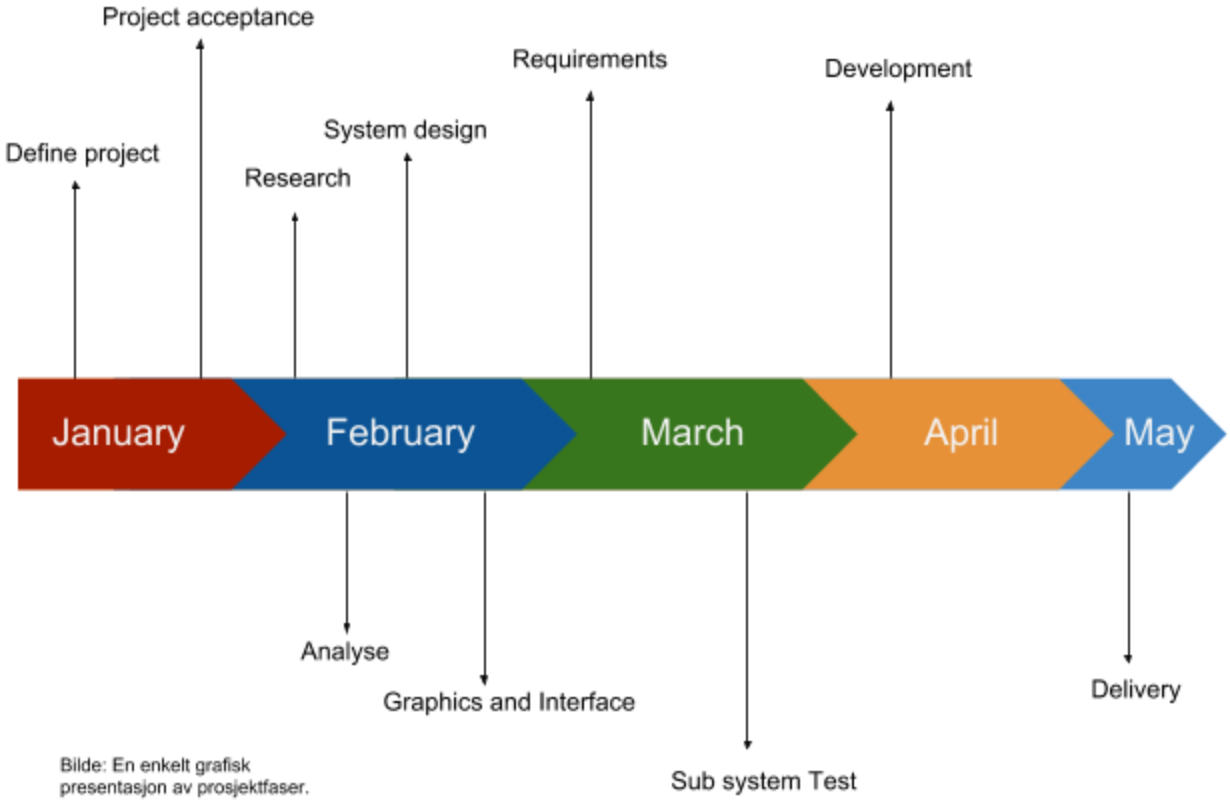

Figure 2. A framework of the overall project phases.

Activity 1: Gathering information (research)

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: Processable information.
- Description: In this activity there should be focus on obtaining information for the project. We will find important sources that will help us to initiate the idea and help us move further to the development phase.

Activity 2: Defining the project

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: The grounds upon which we build the project
- Description: It's important that we define exactly what we are going to be developing for the project owner. Once defined we know the core of what we are creating, with room for innovation and modification if agreed upon.

Activity 3: Planning

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: The different planning phases before the development
- Description: Plan the phases in the project and

Activity 4: Analysis of the research material

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: Processed data of the research.
- Description: We will be analysing the research data we retrieve to work out the pros and cons of different solutions, what they entail to implement and figure out the best course of action / solution for the project.

Activity 5: Drafting a requirements specification

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: The requirements specification
- Description: The requirements specification of the solution.

Activity 6: Graphical interface wireframes

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: Wireframes of the graphical interface of the solution
- Description: This will be a wireframe of how we plan the graphical interface of the webapp solution is going to look like.

Activity 7: Functionality wireframes

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: Wireframes of the webapp's functionality
- Description: We are creating a wireframe of how we intend the functionality of the
- webapp to behave when interacted with.

Activity 8: Evaluation of the wireframes.

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: The result of the evaluation
- Description: Evaluate the wireframes and see if it meets all requirements in the requirement specification.

Activity 9: Wireframe Adjustment

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: Updated wireframe
- Description: Change the wireframe to match the requirement specification.

Activity 10: Development

- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon

- Delivery: A prototype of the webapp solution
- Description: The web application itself. This will be the result of iteratively developing the solution throughout the project period.

Activity 11: Testing
- Staffing: Jonas Vestgarden, Adis Jasarevic, Michael Mebrathu Simon
- Delivery: Testing data of the webapp to process and analyse
- Description: The result of the testing will determine if any changes needs to be made.The solution might change multiple times depending on the analysis made here.

Project Implementation

The process behind the project shall include weekly meetings with the representative of “Østfold Orienteringskrets” and the members.

TEAM MEETINGS
The group will have 4 weekly meetings each week, where discussions will be held about the plans for the project and the solutions. All members should meet up at the meetings.

If one of the members does not meet up, then that person must report it to the project manager in the group. People who do not meet up and do not report the mediation may risk being thrown out. Sick leave should also be reported to the group.

In the meetings, the members can discuss and reflect on questions together with the supervisor. The meetings are here to improve and help the members get on the right path and as well get answers to relevant questions regarding the project.

GROUP
The group have a project manager and that position will be rolled every month. Right now, the project manager is Michael Mebrhatu Simon. The group consist of 3 members
where everyone shares the same education, Information Systems (IS).

METHOD
The project's development will have an iterative development process using repetition. Version control will be handled through github.

Sources

Plattner, H., Meinel, C., & Leifer, L. (Eds.). (2010). *Design thinking: understand–improve–apply*. Springer Science & Business Media.

Jens Erik Mjølnerød. (2016). *Østfold O-krets Årsberetning.* Hentet fra http://www.orientering.no/media/filer_public/6c/cd/6ccd8bdd-cbd2-4aa5-bcdf-7e78adb40f55/arsberetning_2016_oppdatert.pdf.

Orienteering. (2018). *About orienteering*. Hentet fra http://www.orienteering.ca/about/orienteering/.

Norsk Orientering. (2018). *Østfold*. Hentet fra http://www.orientering.no/kretser/ostfold/.