Mälardalen University
School of Innovation, Design and Engineering
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Software Engineering 2 : Project Teamwork - 7.5 hp - DVA313

BLACK RIVER RUN TIME KEEPING

Project Plan

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1 Introduction

Every year in Västerås there is a running competition called Black River Run. The runners are running with a SI-Unit (time tracking unit) that sends its data to a server which is later fetched by a webpage and made available for all that visits the webpage.

The current website is outdated and is in need of an update. Both in terms of internal and external qualities. The group will develop this new updated website. A new database that stores the runner information will also be developed. The SI-Unit and the third-party webserver will not be changed in this project.

This report aims to introduce the different people involved in the project. This paper also describes the organization between members of the project group and the processes of communication and work into the team. It enumerates the risks and challenges concerning successful project delivery and provides solutions. It lists and describes the requirements for the project. The paper outlines the time plan which includes the deliverables deadlines, the differents activities and planned hours by activities and by members. Finally, it introduces the first view on the development of the project.

2 People Involved

2.1 Project Group

Name	Role
Bastien Delbouys	Project manager
Zacharias Claesson	Client contact responsible
Sebastian Oveland	Configuration manager
Cécile Cayèré	Document responsible
Mohammed Abuayyash	
Rikard Gestlöf	
Johannes Sörman	

2.2 Steering Group

Name	Role
Jan Carlson	Responsible teacher Examiner
Robbert Jongeling	Course assistant

2.3 Client

- **Name :** Christoffer Holmstedt
- **Organization :** Västerås Running Club
- **Email :** christoffer.holmstedt@gmail.com
- **Phone number :** +46 (0)73 7816126

3 Organization

The group will meet at least once a week on Mondays before the weekly meeting with the steering group. During this meeting the group will discuss the work done, the advancement on the project as well as the plan for the upcoming week. The main tool that the group uses for communicating with each other is Microsoft Teams. Microsoft Teams runs on multiple platforms and has many tools other than communication that the group utilizes.
In detail, Teams allows :

- Messages exchanges.
- File storage and collaborative editing.
- Establishment of a Working Plan.
- Files inspection (many file format are compatible with it).
- Send reminders, notification, mails.

To keep track of people's work, the members has to report their individual work hours. The project manager adds common group hours (hours where the group works together as a unit).
Some files are dedicated to keep track of people's communication. Whenever there has been a group meeting, one member documents the discussed topics.

The choice for storing the implementation components is GitHub. The motivation for this choice is that it allows for an optimistic locking strategy. It is also a tool that the group members felt

the most comfortable using.

For document creation we will use LaTeX because this language allows to write important documents in a professional manner.
As a first step, group members will be assigned part of the document to write. Once the different parts have been written, the document responsible will aim at integrating the different parts into the final LaTeX paper.

The presentations will be created using Microsoft PowerPoint on Teams.

4 Quality Assurance

There are several risks that exists that can affect the project quality.

One risk is that the group communicates poorly with each other, which could impact the work. The group consists of several nationalities which could contribute to misunderstandings. Also, the majority of the members have never worked with each other which could have the same effect.
To avoid this the group members needs to be very clear on what they mean when they are trying get their points across. The group should also arrange face to face meetings on a weekly basis to discuss anything that is unclear.

A second risk is that the group communicates poorly with the client. This could lead to a product that does not meet the requirements.
To avoid this the group has come to an agreement with the client that he should be informed about the work done on a weekly basis.

A major risk to the product is that the requirements are poorly defined and hence the final product won't live up to the expectations of the client.
To avoid this problem the group should discuss the requirements with the client and the steering group to validate them.

The group members have different skills and varying experience levels which could impact the time-schedule.
This needs to be taken in to account when planning the allocation of group members to work on different tasks.

5 Requirements

5.1 Functional Requirements

This subsection provides the requirements for all the interfaces in the system.

- **User interface requirements :**

Identifier	Title	Description
FR1	List of races types.	The website shall show the race types, and the user should be able to filter data based on race type.
FR2	List of participant runners.	The website shall show list of participant runners, and users should be able view participant general informations.
FR3	Results for each runner.	The website shall show results for each runner.
FR4	Search for specific runner.	The users shall be able to search for specific runner.
FR5	Ascending / Descending runner order.	The users shall be able to order runners list ascending or descending.
FR6	View runner's details.	The users shall be able to order view runner's details.

- **Administrator interface requirements :**
  Precondition : The administrator must log into the system before he/she could use or see any functions or data on administrator page.

Identifier	Title	Description
FR7	List of races types.	The administrator dashboard shall show the race types, and the user should be able to filter data based on race type.
FR8	List of participant runners.	The administrator dashboard shall show list of participant runners, and users should be able view participant general informations.
FR9	Results for each runner.	The administrator dashboard shall show results for each runner.
FR10	Search for specific runner.	The users shall be able to search for specific runner.
FR11	Ascending / Descending runner order.	The users shall be able to order runners list ascending or descending.
FR12	Editing race data.	The administrator shall be able to editing race data.
FR13	Editing participant runner's data.	The administrator shall be able to editing participant runner's data.
FR14	Add new race.	The administrator shall be able to adding new race.
FR15	Add new runner.	The administrator shall be able to adding new runner.
FR16	Reporting data.	The administrator shall be able to generate race reports, participant reports, and generate race participant reports.

5.2 Non-Functional Requirements

One non-functional constraint on the system is that the database can only have up to 200 active connections simultaneously.
Another constraint is that our system is relying on the OLresults API for the runner information.

6 Time Plan

6.1 Deliverables

Title	First version	Final version
Project Plan		2018/11/22
Detailed Design Description	2018/12/06	2019/01/17
Product	2018/12/06	2019/01/17
Project Report		2019/01/17

6.2 Activities

Identifier	Title	Effort (person-hour)	Dependencies	Staffing	Duration (hours per person)
T1	Project plan agreement	5		All members	1
T2	Write project plan	30	T1	All members	4
T3	UML diagrams design	35	T2	5 members	7
T4	UI agreement	5	T2	2 members	2
T5	Sketch UI	8	T2, T4	2 members	4
T6	Write detailed design document (first version)	35	T2, T3, T5	All members	5
T7	Initial implementation	130	T3, T5	All members	18
T8	Testing	40	T3, T5, T7	All members	6
T9	Write detaied design document (final version)	40	T6, T7, T8	All members	5
T10	Further implementation	100	T7, T8	All members	14
T11	Testing	84	T3, T5, T10	All members	12
T12	Write final report	25	T9, T10, T11	All members	3

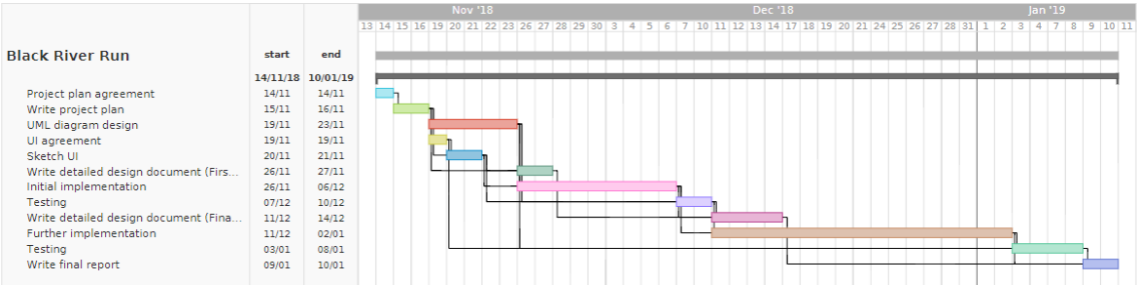


Figure 1: Gantt Chart

6.3 Planned Working Hours

Member	W46	W47	W48	W49	W50	W51	W52	W1	W2	W3	Total
Bastien	12	16	20	18	15	15	5	8	10	8	127
Zacharias	12	16	20	18	15	15	5	8	10	8	127
Sebastian	12	16	20	18	15	15	5	8	10	8	127
Cécile	12	16	20	18	15	15	5	8	10	8	127
Mohammed	12	16	20	18	15	15	5	8	10	8	127
Rikard	12	16	20	18	15	15	5	8	10	8	127
Johannes	5	16	20	18	15	15	5	8	10	8	120

7 Development

7.1 Overall Functionalities

The main functionality of the system is to keep track of runners in Black River Run organized by Västerås Löparklubb. Every runner carries a device for time keeping. The data from the device is collected by the system and is displayed on the webpage.
The system includes an administration page where the race organizers can update data about the runners and races. From the administration page, the physical time tracking units can be swapped and time-stamps can be modified. This provides a solution for fixing faulty units during a race.

7.2 Existing System

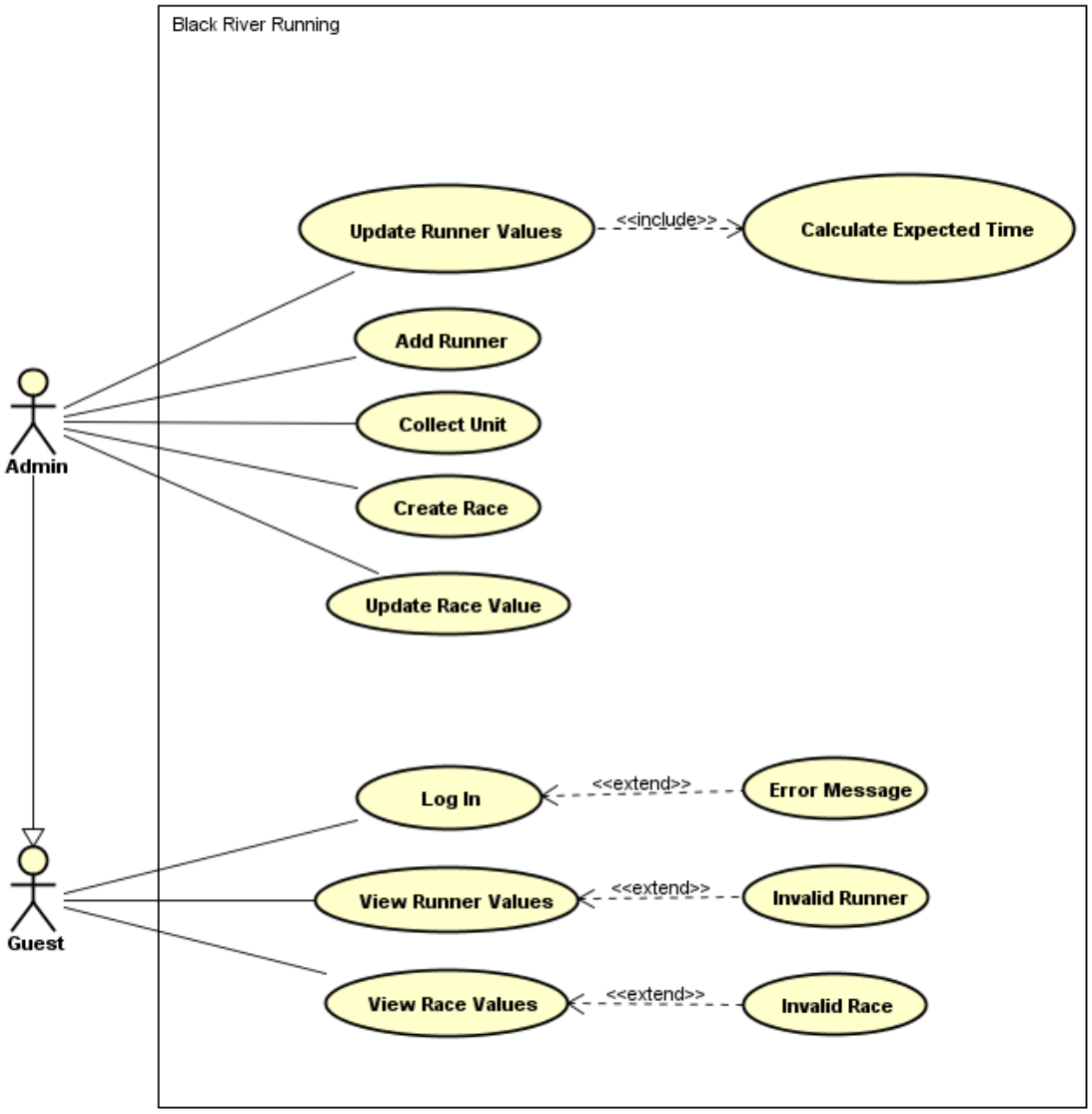
The runners carry with them a SI-Unit, that makes it possible to monitor their movements during the race. When the race starts, the first punch is sent to the third-party server. The information is later retrieved and stored in the database, which in turn is forwarded to the webpage. The current webpage is written in PHP and hosted by Loopia.

The current implementation uses identifiers of numbers for the checkpoints (start, checkpoints 1-4 and finish). For example :

- 100 for start.
- 35 for first station, and the back-end concatenates 10 if it is the first lap before the station number, 20 if it is the second lap and so on.
- 40 for the second station, and the back-end concatenates 10 if it is the first lap before the station number, 20 if it is the second lap and so on.
- 50 for the third station, and the back-end concatenates 10 if it is the first lap before the station number, 20 if it is the second lap and so on.

- 60 for the last station, and the back-end concatenates 10 if it is the first lap before the station number, 20 if it is the second lap and so on.
- 1000 for finishing the lap.

7.3 Users



The system has two types of users : Administrator and Guest. Guests can view statistics about the runners and the races. Administrators have the same functionalities as the Guests, as well as typical administrator functionalities, which includes : Login, Add Runners, Creat Race, Update Race Values, Update Runner Values...

7.4 Constraints

There is a requirement that the back-end needs to be written in either PHP, Python or Perl because the program is run on a shared webhosting service called Loopia, which only supports the mentioned programming languages. There are no other restraints on other parts of the system. However, the client suggested that Angular could be used for the front-end as that is a frame-work that he sees more and more on the job market.

7.5 Initial Backlog

- Get punches :
  - Get data from API.
  - Control correctness of data.
  - Save data to database.
- Database :
  - Create database schema
  - Implement database
- Public website :
  - Login :
    - Create Race.
    - Add Runner.
    - Update Race Values.
    - Update Runner Values.
  - View runner stats :
    - View individual runner.
  - View race stats :
    - View individual race.