

INITIAL PROJECT REPORT

FOR BACHELOR ASSIGNMENT

TITLE:

E-Commerce in a distributed system of warehouses

CANDIDATE NUMBER(S): NOTE: ONLY STUDENT NUMBERS ARE AVAILABLE AT THIS TIME.

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CLIENT(S) /ADVISOR(S):

Client : Marius Lundbø

Advisor : Ricardo Da Silva Torres

ASSIGNMENT / SUMMARY:

This e-commerce project is given by Driw AS. It focuses on the interaction between multiple warehouse applications and a website storefront. The project consists of warehouses with e-commerce and a storefront that will allow users to shop for goods on the website independently of where they are located. The main goal of this task is to make the storefront able to receive data from all the warehouses and keep stock updated, while showing the available stock on a per warehouse basis.

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This report assignment is part of the exam and is written by students at NTNU Ålesund.

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1 INTRODUCTION

We chose this task since we wanted a project whose development would provide us the opportunity to use existing knowledge and skills, while also learn something new during the project. Everyone in the group is familiar with front-end web design and database programming, but we are still interested in learning and becoming aware of existing and new technologies the project requires, such as Postgres, Vue JS and Spring Boot.

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2 TERMS

- E-commerce: Buying/Selling products and/or services electronically.
- Warehouse: A location that stores goods to be distributed or sold later.
- Full-Stack developer: Is a person who can develop both client and server side of a software.
- Storefront: A storefront webpage is a webpage that displays products to potential customers.
- Database: Collection of easily accessed organized information.

3 PROJECT ORGANIZATION

3.1 Project group

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3.1.1 Project tasks - organization

We will work together as a group on bigger tasks and problem solving. Then we divide those task into smaller assignments and work more independently on them.

3.2 Control group (Advisor and client)

Advisor: Ricardo Da Silva Torres

Client: Marius Lundbø

4 AGREEMENTS

4.1 Workplace and resources

Most of the work will be done remotely because of covid-19 restrictions, but we plan to meet at campus if or when the restrictions are lifted.

Everyone on the group will have full access to all project files and other resources.

All work done for the project will be logged through tasks/stories in a scrum workflow (jira)

4.2 Group norms - Group rules - Group attitudes

As a group, we have decided that we will meet up at a scheduled time each day. We decided on the times 09.00 - 14.00, but we are able to discuss with the group to change these times if needed. If a member is unable to meet, it is expected that the member will work independently when available.

The progress will be logged in respect to issues using Jira and Git. Furthermore, in Jira we are able to create charts that will show progression each sprint (2 weeks). The amount of hours worked on the project should be a minimum of 25 hours a week as this is the amount the group has scheduled to meet.

We will respect each other's time and make sure that all group members are aware if you are unable to meet and notify them in due time. The group is focused on communication as this is key to a good workflow and work environment.

5 PROJECT DESCRIPTION

5.1 *Issues -objectives –purpose*

In this project, we are expected to design, implement, and validate an e-commerce system. This system consists of a backend database system and a commercial webstore front end.

Effect goals

Admin users should be able to log in to the main application. There, admin users will be able to control all the warehouses and make new ones in an effortless way. Each warehouse has its own database. Admin users can update and edit those databases. A typical user of this system will be able to see current stock of each product in each warehouse in real time.

A securely registered user of the system will be able to browse, and search products based on category. Such users will be able to see detailed information about products as well. Furthermore, those users will be able to add and remove available items to their shopping cart. In the shopping cart, they will be able to see their order in detail. Orders may be canceled within a given timeframe. As well when logged in, users will be able to see their order history.

Result goals / performance target

At the end of the semester, we will have a product consisting of storefront website and a backend warehouse application. Each warehouse application is a standalone backend system containing database with user interface. The warehouses are capable of communicate with each other through HTTP(S). The website works as a storefront for all the warehouses. On the website customers can browse products and get detailed information about them. Furthermore, registered and logged in users can add items to shopping cart to buy and view order history.

Process goals

As developers, we expect to experience opportunities about how to work on a larger and more complexing project. We also expect to develop our skills to work in an agile way. We expect to learn how to use frameworks like spring boot and Vue. Also, we will deeper our understanding of database systems.

5.2 *Requirement specification / project result*

The product will be a webstore and a warehouse application. The webstore will be independent of the location of the warehouses. Users of the webstore have the option of make an account to purchase goods and obtain product recommendations based on their order history. Each warehouse standalone application will have its own database with a user-friendly interface.

5.3 Planned procedure for development

For this project we are going to use agile work method. We will work in two-week sprints. We will meet with Driv every other week to discuss our progression. We work in these short sprints because the product could change on the way. We will meet every day for a scrum meeting. We will work individually as well together with some features. Jira will be our tool for organizing our work and meetings.

5.4 Information collection

E-commerce system is nothing that we are inventing. To this point in our project, we have researched many similar systems online. We have found out what we like in those kinds of systems and what we dislike, based on our own experience. Moreover, we will make a small poll where we will ask the opinion of others with regards to those systems.

One of our first task in the project will be to decide which technologies we will use. We will use our prerequisite knowledge of databases systems, web technologies, and backend systems. In addition, we need to investigate recent technologies to implement our project in easier way. For example, are we already looking into frameworks like Vue and Spring Boot.

5.5 Evaluation – risk analysis

In order to ensure the project is finished on time, it is important that everyone in the group adheres to the group norms. In the case that we do not finish everything on time, we have a detailed requirement specification where required tasks are prioritized. This means that if needed, we can drop some of the lowest priority features, the “nice-to-haves”.

5.6 Tentative project timeline

NR	Task	Responsibility	Time/Size
A1	Research of platform and setup of dev area	SS, SH, SHJ	200
A2	Design database system	SS, SH, SHJ	170
A3	Create Website	SS, SH	300
A4	Create interaction between systems	SS, SH	100
A5	Create warehouse system	SHJ	200
A6	Create GUI to the warehouse app	SHJ	100
A7	Administrative work (logs and weekly rappers)	SS	80
A8	Beta testing	SS, SH, SHJ	50
A9	Bachelor Rapport writing	SS, SH, SHJ	200

5.7 Progress Plan

5.7.1 Main Plan

See attachment 1 for more details (Requirement specification)

- Research before starting the project
- Create a plan for the bachelor assignment
- Design a database
- Create website
- Connect the website to database
- Create application for warehouse (Database)
- Add functionalities (Example: Product search, shopping cart, log in and more)
- Make a GUI
- Make changes to the non-functional requirements (Example: Usability, performance, security and more)
- Optimize systems
- Alpha and beta testing

5.7.2 Management tools

We are using Jira as way to guide the project and workflow. This is done by delegating issues or tasks that needs to be done. We are also able to create multiple charts that will be used to improve our awareness about our progresses and workflow, possibly contributing to the decision-making along the project development.

5.7.3 Development tools

- We use Jira for a SCRUM workflow.
- We use GITHUB to host our git repositories.
- IntelliJ IDE for making backend system.
- WebStorm for making the website storefront.
- DataGrip to manage the databases.

5.7.4 Internal Control / Evaluation

Internal evaluation happens on a sprint basis. Every 2 weeks we will assess through our progress done in the previous sprint and evaluate the time estimates and decide on which tasks we should focus. By doing this, we can constantly change our estimates to be more accurate and make better decisions for the next sprint and overall progress of the project.

5.8 Decisions and the decision-making process

The group will always discuss decisions together and agree on which action should be taken for the given situation. If the group is split on which action to take, we will settle it with the action that get majority in the group 2/3.

6 DOCUMENTATION

6.1 Reports and technical documents

- Worklog every 14 days
- Jira backlog
- Legal documents/agreements
- Final Report should include a full documentation of the project and the process.
- The initial report and final report should be made in conjunction with all members of the group.
- All documents are available in Microsoft Teams.

7 PLANNED MEETINGS AND REPORTS

7.1 Meetings

7.1.1 Meetings with advisor

After every 2-week sprint, we meet with both our advisor and our contact in Driw AS. The exact date and time may vary and will be scheduled some days prior to the meeting. We chose to have meetings like this because we can then give a report on the previous sprint and receive guidance for the next sprint.

7.1.2 Group meetings

Every weekday morning at 09:00 we have a SCRUM meeting planning out the day. After the meeting we will work together in discord or physical meetings until 14.00.

7.2 Work log

We will create a sprint chart and rapport using Jira, this will gather all the information about the issues in each sprint. This will show the number of issues that are finished and the number of issues that are still under progress and needs to be continued in the next sprint.

7.2.1 Progress reports

After every sprint we can create progress reports using Jira. By using this platform, we are able to create Burnup charts, velocity charts, and normal sprint reports that will visualize the progress and remaining work for the project. This will be utilized to help decision making in the group.

8 CONTINGENCY PLAN

If we encounter delays or any unforeseen obstacles to the project, such as sickness, our contingency plan is our requirement specification. The requirement specification (*See attachment 1*) includes prioritization of tasks, so if needed, we can cut the low-priority features. Because of this, it is almost certain that the product will be delivered. And because of the frequent SCRUM meetings we hold, we can change the wanted result dynamically. We have equal responsibility in actualizing the end goal.

9 ASSETS

Hardware:

- Personal computers

Software: (Links in bibliography)

- Jira
- IntelliJ or other favorite IDE
- Vue Javascript
- DataGrip
- SpringBoot
- Discord
- Microsoft Teams
- Microsoft Word
- Visual Paradigm
- Web Storm

10 BIBLIOGRAPHY

- <https://www.atlassian.com/software/jira>
- <https://www.jetbrains.com/products/>
- <https://www.microsoft.com/en-us/microsoft-teams/group-chat-software>
- <https://discord.com/>
- <https://vuejs.org/>
- <https://spring.io/projects/spring-boot>
- <https://www.visual-paradigm.com/>

ATTACHMENTS

- Requirement Specification for E-commerce Store.pdf