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| **Fontys - University of Applied Sciences - ICT** |
| Individual track project: Online inventory system |
| Individual track project plan |

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| Martin Georgiev  Student number: 3782484  Eindhoven, Friday, September 18, 2020 |

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# Introduction

## Document Purpose

The purpose of this document is to provide a short and concise overview of the project I am planning to develop as part of the individual track. The aim is to give more information on the project topic, project scope and requirements that have been considered as first steps that will eventually lead to the final product’s completion.

## Document Overview

This document will go through all sections, considered important to all partaking stakeholders (in this case – teacher/mentor and student). Namely, these sections are:

* **Project Description:** Description of the initial concept of the project with details on planned features, the scope, goal and possible limitations.
* **Project Strategy:** A short description of the software development strategy that this project will follow.
* **Project Organization:** Information about this project’s stakeholders and the available methods of communication.
* **Project Requirements:** An in-depth look at the project’s requirements.
* **Product backlog/User stories:** An in-depth look at the project’s user stories that form the initial product backlog.
* **First domain model sketch:** A general model sketch of the planned relationships and communication between core structures of the project.

# Project Description

## Project Overview

The planned product is an online inventory system for businesses that are in a need of a monitoring system to track incoming and outgoing warehouse items. The end product of this project is a web-based application that intends to combine a JavaScript-based front-end and a Java-based backend (including, but not limited to database operations) using an API to perform the communication between the two. The intended user group is separated into two roles: warehouse managers and warehouse workers.

## Project Goal

The goal of this project is to implement a web application which provides an online inventory service to its users. They should be able to interact with all relevant information through a user-friendly interface that seamlessly communicates with its corresponding database through a REST API using the HTTP protocol (RESTful API).

## Project Scope

The intention is to meet all base requirements for this project:

* User authentication (login and registration functionality).
* User authorization (the ability of logged-in users to add, edit/update and delete items into/from the system).
* Retrieval of detailed/aggregated data from the database (a statistics page where users will have the ability to monitor the activity of the target warehouse).
* Search functionality using filters (the ability of logged-in users to find items using a set number of criteria).

One of the main goals is to implement a user-friendly, yet robust and secure application. To accomplish a simplistic, minimalistic and modern user interface, I plan to use a JavaScript framework. While the choice of the framework is not final, the initial plan is to use React.js as I believe it will be the most suitable one for my needs.

## Project Limitations

Two main limitations restrict the scope of the project – time and knowledge. The latter is dependent on the former. All base requirements will be prioritized during the development period. Depending on the initial progress, the scope of this project can either be extended or decreased. This will be done under the teacher/mentor’s feedback and suggestions.

# Project Organization

## Stakeholders

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Abbreviation | Role and functions | Availability |
| Martin Georgiev | M.G. – Martin Georgiev | Developer | - Available via e-mail.  - Available during lecture slots. |
| Hans van Heumen | H.H - Hans van Heumen | Technical teacher | - Available via e-mail.  - Meetings can be additionally organized  - Available during lecture slots. |
| Mark Madsen | M.M – Mark Madsen |

## Communication

Communication between stakeholders can be done via the provided availability details in the table above. The stakeholders’ emails are:

* **Martin Georgiev**: [mr.georgiev@student.fontys.nl](mailto:mr.georgiev@student.fontys.nl)
* **Hans van Heumen**: h.vanheumen@fontys.nl
* **Mark Madsen**: mark.madsen@fontys.nl

# Project Strategy

The project will be developed using the **Agile software development cycle approach** that divides all workload into sprints. The project will consist of a total of six sprints (each lasting three weeks). This approach is preferred as the quick development cycles provide a room for change after the initial planning process is done. By incorporating the ability to change, it is easier to incorporate feedback from demos, usability testing, and customers into the end product. Another benefit of Agile software development is that it provides a unique opportunity for the participating stakeholders to be involved throughout the development period of the project.

Product code quality can be ensured using Agile’s Continuous Integration/Delivery (CI/CD). These are automated systems that build and analyze the project’s code. Their aim is to reduce/eliminate manual reviews of the code base.

# Project Requirements

Using the given information on the individual track assignment, the following project requirements have been processed and grouped when appropriate. They are divided into two main groups: functional and non-functional.

## Functional Requirements

* **User Authentication:** Users should be able to log in and out (or register) of the front-end section of the application. Access to the backend should be access restricted to only be accessible by the system.
* **User Authorization:** Onlylogged-in users should be able to perform the main CRUD functionalities (add, edit and delete items from the warehouse inventory) through the front-end part of the application. In addition to that, said users should only be able to view and manipulate the inventory of the warehouse they are assigned to.
* **Specific data retrieval from the database:** Logged-in users should be able to retrieve specific datasets from the database through the abovementioned interface.
* **Retrieval of aggregated data from the database:** Logged-in users should be able to view aggregated data in the form of a statistics page/tab.
* **Search functionality with filters:** Logged-in users should be able to view specific items through a search system with toggleable filters.

## Non-functional Requirements

* **Scalability:** The solution should work seamlessly no matter the size of the warehouse.
* **Security:** Users should not be able to access backend systems that are intended only for the system.
* **Privacy:** Users should only be able to access information, corresponding to their role.
* **Manageability:** The solution should have a user-friendly interface and a well-structured codebase for easier further work on the project.

# Product backlog & User stories

The following user stories form the initial product backlog of this project:

* As a user, I would like to be able to log in to the web application.
* As a user, I would like to be able to log out of the web application.
* As a user, I would like to be able to see all inventory items from the warehouses that are relevant to me (the warehouses I am part of).
* As a user, I would like to be able to add new items to the warehouses I am part of.
* As a user, I would like to be able to edit all items but not be able to delete items that were not created by me.
* As a user, I would like to be able to delete the items I have added to the warehouse.
* As a user, I would like to be able to have a statistic page where aggregated data of my warehouse is shown.
* As a user, I would like to be able to search through a large selection of items.
* As a user, I would like to be able to filter my item searches (sort alphabetically, sort by quantity, etc.).
* As a user, I would like to be able to see and track the incoming/outgoing traffic of items.
* As a user, I would like to be able to see the full incoming/outgoing traffic history of an item by selecting it to view it in detail.
* As a warehouse manager, I would like to be able to edit items.
* As a warehouse manager, I would like to be able to delete items.
* As a warehouse manager/admin, I would like to be able to register a new warehouse.
* As a warehouse manager, I would like to be able to add people to the warehouses I have created/own.
* As a warehouse manager, I would like to be able to remove people from the warehouses I have created/own.

# First domain model sketch

The following sketch aims to provide a very basic understanding of how I foresee that the relationship and communication between the user and the system (front-end and backend) will go. Retrieval of data from the backend will go through a RESTful API that will collect the data and format it appropriately for the front-end to use through the HTTP protocol.

A screenshot of a cell phone

Description automatically generated