

# Inventory Project

## Requirements Specification

Project for Advanced Programming Techniques

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### 1 Overview

Inventory systems allow a company to keep track of all its movable assets. They support the annual stocktaking process necessary for administrative and legislative reasons. Multiple users are interacting with the inventory: Employees belonging to a certain branch can enter items, specifying number, value, and category. External accountants can get an inventory overview. Administrators create and remove accounts for employees and external accountants. This project aims to develop a software package that can be used to keep an electronic (online) inventory.

### 2 Functional requirements

- R01** The inventory system is web based with inventory items and categorical summaries being presented as dynamic web pages connected by hyperlinks.
- R02** The inventory system distinguishes between four types of users: administrators, employees, external accountants, and anonymous users.
- R03** An anonymous user can become an employee, an administrator, or an external accountant by logging on to the web site.
- R04** Only administrators can create new accounts.
- R05** Only administrators can set and change the roles of a user.
- R06** Only administrators and employees can add new items and change their characteristics.
- R07** Employees are assigned to company branches (e.g., “R&D”, “Sales”, “Manufacturing”)
- R08** Only administrators can add or remove company branches.

- R09** Items in the inventory are associated with one or several company branches. They are represented with a photo and a short description. They have a price and a total count attached. They can be associated with an arbitrary number of tags.
- R10** Special web pages summarize the current status of the inventory, grouping items by branches and tags and showing summary statistics, such as the total value in a given branch.
- R11** Employees can only add and modify items related to their own branch.
- R12** When adding a new item, an employee is proposed a set of existing items and may choose to use one of those or (alternatively) create a new type of item.
- R13** External accountants can only view items and summary pages.

## **3 Non-functional requirements**

### **3.1 Usability**

- U01** All web pages use a modern, responsive layout based on HTML and CSS, making use of a CSS framework such as bootstrap <https://getbootstrap.com/>.
- U02** All web pages use layout that is easily readable on all modern browsers (at least: Firefox, Chrome, Edge, and Safari)
- U03** In the case JavaScript is used, it remains optional. All web pages remain operational with JavaScript switched off (though some added functionality may be missing).

### **3.2 Performance**

- P01** Each page loads in less than one second on an average desktop computer.
- P02** The system supports at least 10 000 items without noticeable performance impacts.
- P03** The system supports at least 1000 user accounts without noticeable performance impacts.

### **3.3 Security**

- S01** Users can only execute actions (such as creating or adding items) when properly authenticated and authorized.
- S02** Users authenticate with a username/password combination.
- S03** Users cannot easily change their role, e.g., by modifying the URL, without being asked for a password.
- S04** An anonymous user cannot access any web page apart from the starting page containing the login screen.

**S05** All user input is validated. No user can crash the web site or otherwise render it inoperable by entering large amounts of data or data with special characters.

## **4 Deployment requirements**

**D01** The inventory software is distributed as a Django package with clear installation instructions. If the software depends on further third party packages, these packages are either included or installed by an installation script.

**D02** The inventory software can be installed on current versions of Windows and Linux.

**D03** During installation, a single first account is registered as an administrator. The installation process prompts the user for an appropriate user name and password for this initial account.

## **5 Concluding remarks**

The requirements listed in this document are the base line below which any implementation will be considered dysfunctional. Implementors may chose to implement additional functionality and features.