CSCE 361

Software Engineering

Software Requirements Specification Document

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2/8/2017	-aesthetics -wording -punctuation/grammar -consistency	1.1
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1. Introduction

1.1 Purpose

This document is intended to guide the development of Nventory, the stockroom management system. Additionally, it will provide the audience with all required functionality and specifications for the product. Furthermore, it will outline the needs of the stockroom employees to be implemented in following increments of the project.

1.2 Scope

Nventory is an inventory management tool specifically designed to streamline the day to day operations of the Biological Resources Stockroom at the University of Nebraska - Lincoln. The web application is responsible for providing a real time updating list and documentation of item checkout and restocking. Nventory does not handle the purchasing of items to restock the inventory, nor does it handle the budgeting for client users that purchase from the storeroom.

1.3 Definitions, Acronyms, and Abbreviations.

- Bootstrap - HTML, CSS, and JS framework for developing responsive, mobile first projects on the web
- MeteorJS - a free and open-source JavaScript web framework written using Node.js
- MongoDB - a free and open-source cross-platform document-oriented database program leveraged by MeteorJS. Classified as a NoSQL database program, MongoDB uses JSON-like documents with schemas
- UML Diagram – Unified Modeling Language Diagram
- Cost Number - Number associated with some sort of funding entity used to assign charges for labs
- Lab User - clients of the software that work in labs and purchase from the Biological Resources Stockroom
- Admin/Administrative User - Clients of the software that work as employees of the Biological Resources Stockroom

1.4 References

No external sources are referenced in the document.

1.5 Overview

The rest of this document contains necessary systems and technologies that Nventory is comprised of and operates with. It also details the routine operations that Nventory must perform along with their specific requirements. Clients may refer to section two of this document to determine their compatibility with Nventory. Developers should refer to section three for guidance on the required functionality and performance specifications.

2. The Overall Description

The inventory management system is formally known as Nventory. The system serves as an interface for clients view and checkout products from a stockroom and document the transaction. It allows users to restock and view useful information on products, checkouts, and more. Instead of keeping track of inventory manually or on paper, these things can be carried out by Nventory in a much more efficient manner.

2.1 Product Perspective

Nventory is an independent inventory management system meant to operate within the Google Chrome web browser. The system is unique from other storeroom management systems in that the university requires specific information needed from each transaction. This information is captured by the application at the time of each checkout. The system currently in use for stockroom transactions includes recording everything in paper. Maintaining an updated inventory is currently done by manually checking the amount of each item. With Nventory, these systems would be greatly improved.

2.1.1 System Interfaces

Nventory only interfaces with a database that serves to populate inventory within the web application.

2.1.2 Interfaces

Users interface with Nventory through a browser. The browser loads the Nventory web application allowing the user to view the login portal. All the users have to do is put in the credentials that they chose upon registration and they will be brought to the Nventory landing page. The system uses very few clicks to accomplish the primary goals to ensure that system memorability is high.

2.1.3 Hardware Interfaces

This system has no hardware interface requirements.

2.1.4 Software Interfaces

Nventory leverages MeteorJS, which is a development platform for building web and mobile apps in essentially pure JavaScript. Meteor interfaces with a database tool known as MongoDB to manage data.

2.1.5 Communications Interfaces

The communication interface is HTTP.

2.1.6 Memory Constraints

This system has no memory constraints.

2.1.7 Operations

- Register new users using email and password
- Login functionality
- View and update inventory
- View and delete checkouts
- View and update Labs
- Checkout items to labs

2.1.8 Site Adaptation Requirements

Nventory must be accessible from any of the lab or stockroom computers with internet access. Code shall reside on the stock room computer which meets all the necessary hardware and software requirements.

2.2 Product Functions

- Login Functionality
    - Users can choose to register at login screen
    - Users login using the email and password they provided upon registration
- Inventory Management
    - Users can add/remove/edit stock to keep an updated inventory
    - Users can view a live list of inventory
- Checkout Capability
    - Users can checkout inventory products to labs
    - Transaction is documented and saved to be viewed at a later time
- Lab Information
    - Users can add/remove/edit information on labs that are frequent stockroom users

2.3 User Characteristics

Users will be employees of the Biological Resources Stockroom on the UNL campus. All users will have some sort of college education and knowledge of the context of the application. Users will most likely use the application several times throughout the day, so the goal is to make the interface as straight-forward and easy to use as possible.

2.4 Constraints

There are no known constraints for the system.

2.5 Assumptions and Dependencies

There is an assumption that all users can load the page on any browsers.

2.6 Apportioning of Requirements

Later release of the software would include making the site accessible to lab users so they can view a live list of the products in stock. This would mean assigning roles to users upon registration so only certain functionalities are available based on the type of user.

Also, the software could be further enhanced by automatically updating inventory after a checkout is made. For example, if a new checkout is issued of a certain product, then that product quantity-in-stock should be adjusted as such without having to go in and update it manually.

3. Specific Requirements

3.1 External Interfaces

- MongoDB is the external database software of Nventory application. The purpose of it is to store information about users, products, checkouts, and labs. Some input validation is necessary in order to maintain the integrity of the database. The database stores information in five main tables:
  - User
    - User ID
    - Type (admin/lab)
    - Name
    - PIN
  - Products
    - Item ID
    - Name
    - Price
    - Description
    - Quantity
    - Vendor
  - Checkouts
    - Checkout ID
    - Date
    - Lab
  - Cost Numbers
    - CostNumber ID
    - CostNumber
  - Labs
    - Lab ID
    - Name
    - CostNumbers

3.2 Functions

1. Login Functionality
    1.1. Users login with an email and password
    1.2. There should be one unique password for every user
    1.3. Login should be the first thing a user sees when visiting the site
2. Register Functionality
    2.1. At login screen, users must have the option to register as new user
    2.2. Users register with an email and password
    2.3. Users are automatically logged in after successful registration
3. Inventory Display
    3.1. Every user, once logged in, should be brought to a landing page with a current list of the items in stock
4. Checkout
    4.1. A new checkout option should be available on the landing page
        4.1.1. User assigns the checkout to a lab and adds a list of products in that checkout
5. Tools
    5.1. The landing page should include an option to launch administrative tools
        5.1.1. Labs
            5.1.1.1. User can view/add/edit lab information
        5.1.2. Checkouts
            5.1.2.1. User can view/add/remove checkouts
        5.1.3. Products
            5.1.3.1. User can view/add/update stock with this tool

3.3 Performance Requirements

System must keep constantly updated collections to display the correct and accurate data when necessary.

3.4 Logical Database Requirements

Multiple collections must be stored in a scheme that is always accessible and constantly updated.

3.5 Design Constraints

3.5.1 Standards Compliance

Every checkout from the UNL stockroom must be associated with a cost number. This cost number corresponds to some source of funding.

3.6 Software System Attributes

Login page should resemble something simple but still cutting edge. The Nventory logo shall be displayed creatively on landing page.

3.6.1 Reliability

- The system must always maintain a correct record of items in-stock.
- New checkout should be possible from landing page for easy access
- System should consistently log every checkout in the database along with the information pertaining to that transaction

3.6.2 Availability

Nventory must be available to alter its database at any time during the stockroom's operational hours. The system will run 24/7 to display current inventory levels to users wishing to check on items.

3.6.3 Security

Nventory will keep a specific log book of items checked in and out for verifiability.

3.6.4 Maintainability

3.6.5 Portability

4. Change Management Process

Changes can be made on a rolling basis as we receive feedback from clients on how the system can be optimized. New and updated versions of the application can be released when changes accumulate.

5. Document Approvals

After any member proposes revisions, all members in the group come to an agreement on making these edits to the requirements to ensure that the changes are necessary and relevant..