Software Requirements Specification

for

Inventory Management System

version 1.0

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Revision History

Name	Date	Reason for Changes	Version

1. Introduction

1.1 PURPOSE

The project's purpose revolves around creating an inventory management system for the college administration. Information on inventory, ordering, managing, repairing and analyzing the inventory for the company operating on the LNMIIT campus are all included in the project's specifics. Under the current system, in order to keep track of their inventory levels, they must create a list of the things used over time, calculate and analyze their future needs, and, if necessary, place their next order with the vendors. Therefore, we strive to keep the new system very user-friendly, and it is anticipated that administrators, academics, hostel or mess in-charges would find it simple to access the system's capabilities. Hence, the new inventory management system has been created to address all of its shortcomings.

1.2 DOCUMENT CONVENTIONS

This document uses the following conventions:

- The following abbreviations stands for -
    - IM - Inventory Management
    - DB - Database

1.3 Intended Audience and Reading Suggestions

This project is a prototype for the inventory management system and it is restricted within the college premises. This project is made for the management team to work feasibly with the administrators, academics, hostel or mess in-charges.

1.4 Product Scope

The project aims at providing an efficient interface to the college administration for managing their inventory based on the requirements of different users. The user groups are spread across 2 types ranging from the administrator and the user staff. Their functionalities are based on the user group. The system is based on a relational database with its inventory management and ordering, managing, repairing or analyzing functions.

1.5 References

Software Engineering, Ian Sommerville, Pearson, 2017, 8th edition.

2. Overall Description

2.1 PRODUCT PERSPECTIVE

The product Inventory Management system, is an independent product and does not depend on any other product or system. The product will automate various tasks associated with handling product details and better organizing the stored information about the inventory, thus helping the administration/user staff to ensure smooth working of these processes.

2.2 PRODUCT FUNCTIONS

- Check Product Description

  This includes viewing,

  - Product Type
  - Product Name/Code

- Managing inventory orders:

  This includes:

  - Placing a new order
  - Reviewing previous orders

- Managing Inventory Repairs:

  This includes:

  - Placing repair request
  - Tracking repair request

- Create new Inventory:

This includes:

- Creating new Inventory

2.3 USER CLASS and CHARACTERISTICS

1. Inventory Head :
    a. Attributes :
        i. Username
        ii. Email ID
        iii. Corresponding department
    b. Access rights:
        i. Create new inventory
        ii. Place orders
        iii. Update database
        iv. Approve request
    c. Importance:
        i. High
2. Inventory staff :
    a. Attributes:
        i. Username
        ii. Email ID
        iii. Corresponding department
        iv. Designation
    b. Access rights:
        i. View Database
        ii. Request repairs
        iii. Request orders
    c. Importance:
        i. Medium

2.4 OPERATING ENVIRONMENT

Operating environment for the inventory management system is as listed below.

- The server-side components of the software system must operate within a Windows operating system environment.
- The client-side components of the software system must operate within common web browser environments..
- Database : Azure SQL database

2.5 DESIGN AND IMPLEMENTATION CONSTRAINTS

- The user needs login information and passwords to access the system, and the administrator should register user information as a prerequisite for entrance.
- The system must be well-structured and simple to comprehend. Feedback regarding any mistakes that occur should also go to the users.
- If a mistake happens or the entire system fails, data integrity should still be preserved.
- Every time inventory enters the godown, an inward entry should be made in the database. In other words, the quantity of things needs to be updated automatically.
- Every time inventory goes out of the godown, an outward entry should be made in the database. In other words, the quantity of things needs to be updated automatically.

2.6 USER DOCUMENTATION

<TBD>

2.7 ASSUMPTION AND DEPENDENCIES

- The IT department of LNMIIT has all the available hardware required to support the intended user load.
- Our inventory management system depends on the Pricing system, Inventory ERP and product database and hence these systems should be up and available for normal functioning of our system.
- The specific operating system will be available on the hardware designated for the software product.
- We presume that all data entry is done by office staff using accurate values taken from forms and registers.
- Users with administrator access should exercise caution when purposely or accidentally removing or altering any data because this could cause the database to become inconsistent.
- We assume that the protocol for an item in not working condition is that we first try to repair it , if unable to do so then we discard the item.

3. External Interface Requirements

3.1 USER INTERFACES

- **Login page** :
    - TextBox:
        - User ID
        - Password
    - Button:
        - Login
        - SignUp
    - Error Messages:
        - Incorrect ID or Password
        - Empty Field
- **SignUp Page:**
    - TextBox:
        - Username
        - Name
        - Email ID
        - Password
        - Department
    - Buttons:
        - SignUp
- **Home Page:**
    - List of Inventories
        - Buttons to go to respective inventory pages
    - Button:
        - Create Inventory (for heads only)
- **Respective Inventory page:**
    - Buttons:

        - Manage orders
        - Manage repairs
    - Tables with attributes
        - Item code
        - Item type
        - Item condition (Working/Not Working)
        - Item location

- **New Inventory Page:**
    - TextBox:
        - Inventory Name
        - Inventory Department
    - Button:
        - Create Inventory
- **Orders Page:**
    - Buttons:
        - Place new orders
        - See previous orders
        - Deny Order request(for head only)
        - Approve Orders(for head only)
    - Table with attributes:
        - Order ID
        - Order Item
        - Number of items
        - Order date
        - Order status (Pending request/Placed/Completed)
- **Repairs Page:**
    - Buttons:
        - Request repair

        - Track repair requests
        - Discard Request(for head only)
        - Discard inventory item
    - Table with attribute:
        - Request Date
        - Repair item ID
        - Request Status(Request Pending/placed/completed/discard item)
- **GUI along with meaningful frames and buttons**
- **Reports are generated as per the current requirements**

3.2 SOFTWARE INTERFACES

Front End	**JavaScript (React.js)**
Back End	**Java (SpringBoot)**
Database	**Azure SQL database**

3.3 HARDWARE INTERFACES

Hardware Environment	**Intel core i7 7th generation**
System Configuration	**RAM 8GB SDD 1TB**
Operating System	**Any OS that supports browsers**

3.4 COMMUNICATION INTERFACES

This project supports all types of web browsers and can be accessed by anyone with an internet connection.

4. System Features

4.1 Secure login and signUp

4.1.1 Description and Priority

If the user does not have an existing account he has to signUp by filling in required information else he can login using its login credentials. The priority of this feature is high.

4.1.2 Stimulus/Response Sequences

- New User - SignUp (Enter details)
    - Invalid entry
        - show error message
    - Valid entry
        - create account
- Existing User - Login
    - Correct credentials
        - login successful show home page
    - Incorrect credentials
        - login fails show error message
        - Clear data fields

4.1.3 Functional Requirements

Internet connection required, if not available then the product will not load.

4.2 Create Inventory

4.2.1 Description and Priority

This is a feature which is only available to the head and is used to create new inventories for their respective departments.

4.2.2 Stimulus/Response Sequences

- Click create Inventory button on home page to reach this page
- Enter Inventory Details
- Click on create inventory button to create this particular inventory
    - If valid entry inventory created
    - Else show error message

4.2.3 Functional Requirements
Editing access rights for the database are required which are given by the developers to various department heads of LNMIIT.

4.3 Access Inventories

4.3.1 Description and Priority
This feature show the user details about the inventory and also of all of the items that are available in that particular Inventory and this feature also contains sub features of placing , repairing and discarding items of that particular inventory.

4.3.2 Stimulus/Response Sequences
- Click on the button corresponding to the desired inventory
    - This opens the respective inventory's page here you can view your inventory and manage orders and repairs.

4.3.3 Functional Requirements
<TBD>

4.4 Placing Order

4.4.1 Description and Priority
This features allow you to place an order for a particular inventory if a user places an order a new entry in the database with status pending is created.

4.4.2 Stimulus/Response Sequence
- Head access
    - Place order to a vendor who will give the delivery
    - Click on pending orders in table and approve them using the approve button to change their status from pending request to placed or deny them to
- User Access
    - Request required Items to the head

4.4.3 Functional Requirements
<TBD>

4.5 Review Orders

4.5.1 Description and Priority
This feature will allow all users and heads to view all orders including all that are old and are completed or they are still incomplete.

4.5.2 Stimulus/Response Sequences
- Click the review orders on Orders page and the orders corresponding to the inventory whose page was open when the button was clicked.
    - The user/head can now view all the orders for the respective inventory.

4.5.3 Functional Requirements
<TBD>

4.6 Request Repair

4.6.1 Description and Priority
This features allow you to place repair requests for a particular inventory if a user places a request a new entry in the database with status pending is created.

4.6.2 Stimulus/Response Sequence
- Head access
    - Request Repair to a vendor who will give the repaired item
    - Click on pending repairs in table and approve them using the approve button to change their status from pending request to placed
- User Access
    - Request repairs for a particular Items to the head

4.6.3 Functional Requirements
<TBD>

4.7 Review Repair requests

4.7.1 Description and Priority
This feature will allow all users and heads to view all repair requests including all that are old and are completed or they are still incomplete.

4.7.2 Stimulus/Response Sequences

- Click the review orders on the Review repair requests page and the orders corresponding to the inventory whose page was open when the button was clicked.
    - The user/head can now view all the repair requests for the respective inventory.

4.7.3 Functional Requirements

<TBD>

4.8 Discarding Inventory Items

4.8.1 Description and Priority

This features allow you to delete a particular item from a particular inventory if it is non repairable , Only the head has access to this feature and after using this feature that particular item will be deleted from the database

4.8.2 Stimulus/Response Sequence

- The item will be deleted from the whole database

4.8.3 Functional Requirements

<TBD>

5. Other Non-functional Requirements

5.1 PERFORMANCE REQUIREMENTS

- The system can't slow because the users don't have downtime to wait for it to finish an action.
- Every time a user asks a process like order, repair, or discard, the system must successfully complete updating the databases, updating the staff information, generating new databases, and processing requests like those for order, repair, or discard.
- Every time the system is turned on, the user must have access to all of the system's features.

5.2 SAFETY REQUIREMENTS

- Windows Azure SQL database maintains multiple copies of the databases in different physical nodes located across fully independent physical subsystems such as server racks and network routers.

5.3 SECURITY REQUIREMENTS

- Unauthorized access will not be possible to the new system.
- Microsoft Azure SQL Database, SQL Managed Instance, and Azure Synapse Analytics provide a relational database service for cloud and enterprise applications. To help protect customer data, firewalls prevent network access to the server until access is explicitly granted based on IP address or Azure Virtual network traffic origin.
- Managing databases and servers within Azure is controlled by your portal user account's role assignments.

5.4 SOFTWARE QUALITY ATTRIBUTES

- **AVAILABILITY:** The system should be available most of the time.

- **CORRECTNESS:** The information provided by both staff and admin and also the requests made must have correct information.
- **MAINTAINABILITY:** The staff and admin must both maintain the databases properly and the order, repair or discard requests must be correctly administered.
- **USABILITY:**
  - ➔ The system must be easy to use by both staff and admin such that they do not need to read an extensive amount of manuals.
  - ➔ The system must be intuitive and simple in the way it displays all relevant data and relationships.
- **RELIABILITY:**
  - ➔ The user must constantly receive accurate inventory status from the system. The regular comparison of the system's presented levels with the actual levels eliminates any inconsistencies.
  - ➔ To prevent any outside entity from altering the system's data, the system must offer the user a password-protected login.
  - ➔ When requested operations are finished, the system should notify the user, and if the requested procedures fail, it should inform the user of the reason why.
  - ➔ If any operations fail, the system shouldn't update the data in any databases.

5.5 BUSINESS RULES

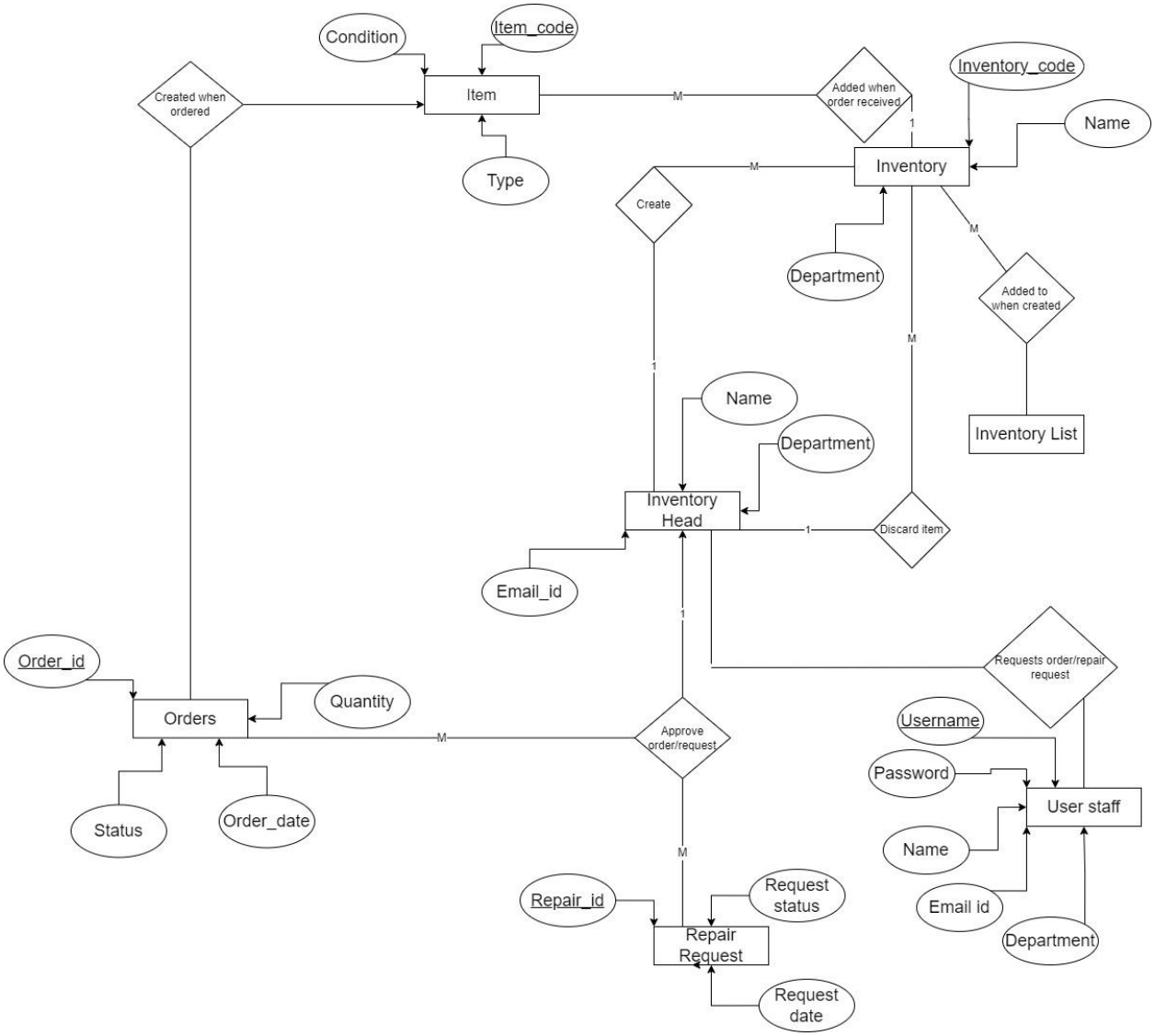
- To keep staff members informed of what is available, a business inventory should be updated often throughout the day.

- Problems should be brought to the attention of the manager or owner of the company in charge of the inventory.
- All requests submitted by personnel should only be able to be approved by the admin.
- It should not be permitted for workers to update the inventory data repositories.
- The employees should only be able to use the system to issue orders, requests for repairs, or discards to the admin within a specific range or limit.

Appendix A: Glossary

Inventory Head	A head is a person in this system who is in charge. He undertakes responsibility of maintaining ,updating and creating the inventory database and keeps the information of each and every user.
Order	Order is a function which is used to add new items to the inventory and these additions are done by Inventory Head
Repair	A generalized function used for requests for repair of broken or damaged products.
Inventory Staff	Group of people responsible for making all the requests from the admin and maintaining all the records for quantity of goods to be repaired or discarded or needed.
Inventory	A complete list of items like goods in stock or the required goods by a particular organization.
Requirement	It represents all the necessary conditions which satisfies the needs of a particular inventory.
Inventory	It represents the list of all the items present in a particular department

Appendix B: Analysis Models



ER Diagram

Appendix C: To Be Determined List

The things to be determined (TBD) in the SRS so they can be tracked to closure are:

1. Functional Requirements
2. User Documentation