Karpagam Institute of Technology, Coimbatore

SOFTWARE REQUIREMENTS SPECIFICATION

For

Stock Inventory Website

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1. Introduction

1.1 Purpose

A Stock Inventory Management System (SIMS) has a purpose of accurately managing a company's inventory of goods and materials. It acts as the backbone of inventory control by providing real time visibility into the quantity, location and status of all inventory items. This ensures that businesses have knowledge, about their stock at any given moment. Additionally, it simplifies order management, tracking and fulfillment processes to ensure that products are readily accessible when customers need them. SIMS also plays a role in cost control by helping organizations optimize inventory levels reduce stock and avoid costly stockouts. By automating data entry and improving record accuracy it enhances efficiency well. In summary a Stock Inventory Management System not protects inventory. Also contributes to business growth, customer satisfaction and streamlined operations, in a dynamic and competitive marketplace.

1.2 Scope of Development Project

The scope of a Stock Inventory Management System (SIMS) project encompasses a comprehensive set of functionalities and objectives aimed at enhancing the efficiency and accuracy of inventory management within an organization. This project will involve the development and implementation of a system that can track and record all inventory items, including their quantities and locations in real-time. It will also manage the end-to-end order process, from order creation to fulfillment, providing features for order tracking and history. User management will be integral to the system, with robust authentication and authorization mechanisms ensuring that only authorized personnel can access and manipulate inventory data. Furthermore, the SIMS will generate various reports and analytics to support decision-making, offer supplier management capabilities, integrate seamlessly with other relevant systems, adhere to security standards, optimize inventory levels, and address scalability considerations. The project scope will also encompass support, compliance, documentation, testing, project timeline, budgetary considerations, and change management strategies. This project aims to deliver a powerful tool that enhances inventory control, reduces costs, and contributes to overall operational efficiency.

1.3 Definitions, Acronyms and Abbreviations

JAVA -> platform independence
SQL-> Structured query Language
ER-> Entity Relationship
UML -> Unified Modeling Language
IDE-> Integrated Development Environment
SRS-> Software Requirement Specification

1.4 References

- Books
  - Software Requirements and Specifications: A Lexicon of Practice, Principles and Prejudices (ACM Press) by Michael Jackson
  - Software Requirements (Microsoft) Second Edition by Karl E. Wiegers
  - Software Engineering: A Practitioner's Approach Fifth Edition by Roger S. Pressman
    Inventory Management: Principles, Concepts and Techniques by Dr. B. Mahadevan
    Inventory Management and Production Planning and Scheduling by Edward A. Silver, David F. Pyke, and Rein Peterson

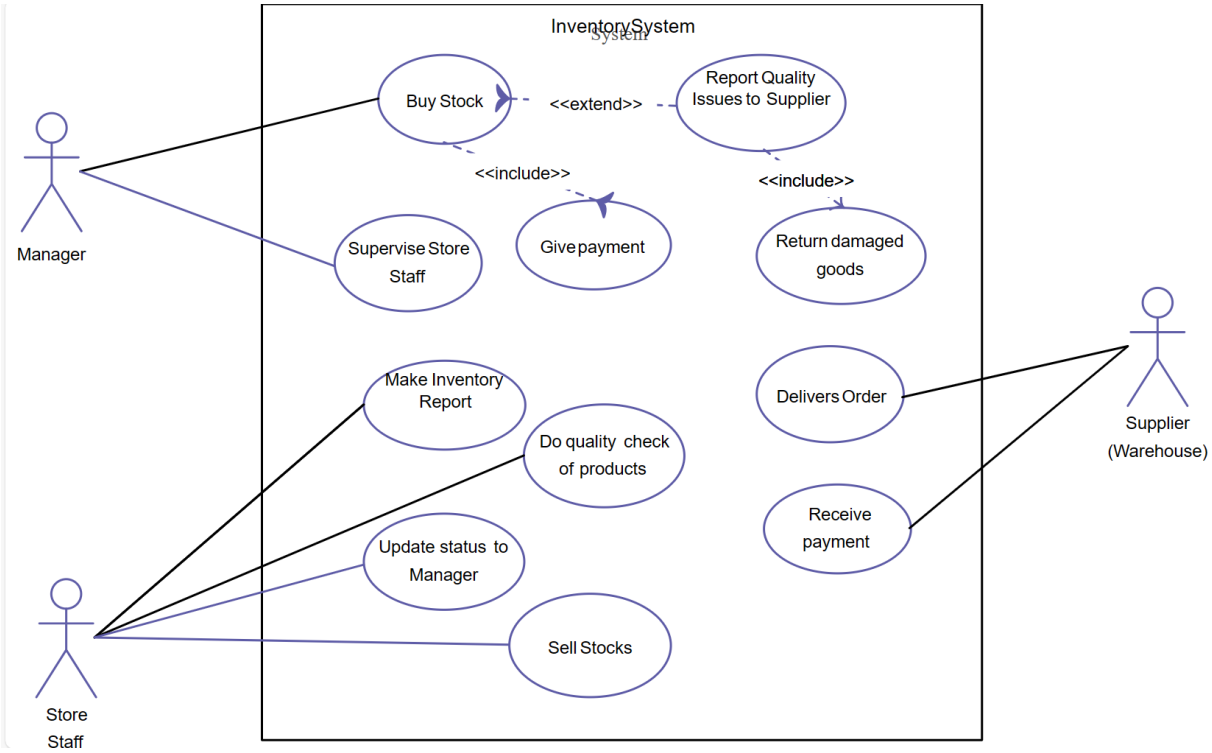
- Websites
  - **http://www.slideshare.net/**
  - **http://ebookily.net/doc/srs-library-management-system**

    - **https://www.emerald.com/insight/content/doi/10.1108/978-1-80262-403-820221010/full/pdf?title=references**
    - **https://tinyurl.com/4mty5xmw**

2. Overall Descriptions

2.1 Product Perspective

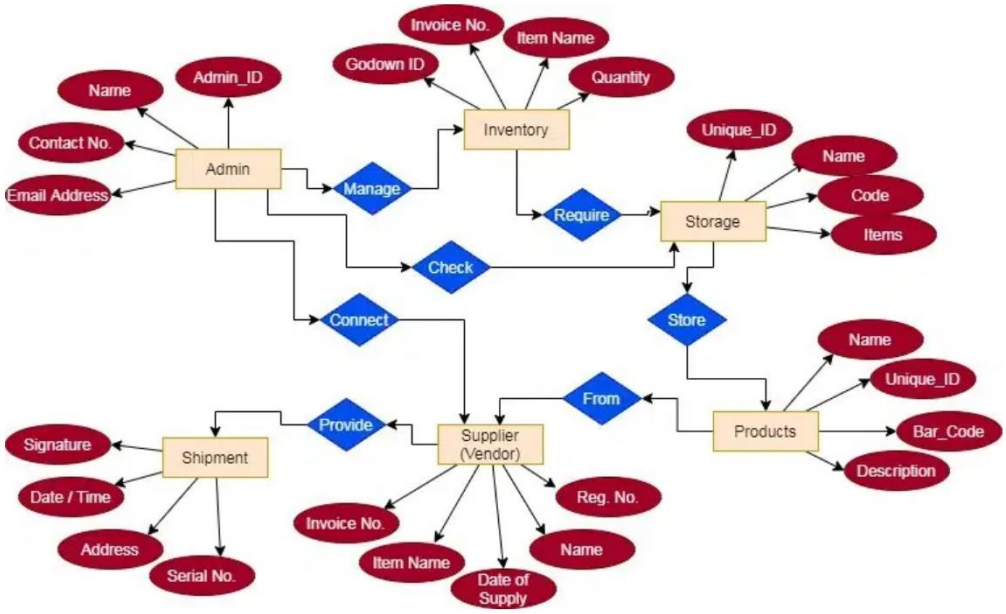
Use Case Diagram of Stock inventory Management System



This is a broad level diagram of the project showing a basic overview. The users can be either user can be manager or staff. This System will help to track and record all the inventory items details and manages end to end order process. Only authorized user can login and view details and update it or can do any inventory activities. This system enhances the inventory control, reduces resources and operational costs by handling some efficient techniques and helps in improving efficiency.

2.2 Product Function

Entity Relationship Diagram of Library Management System



The product function of a Stock Inventory Management System (SIMS) revolves around simplifying and optimizing inventory control. It empowers users to monitor inventory items in real-time, tracking details like quantity and location. Efficient order management, including purchase and sales order tracking, ensures smooth operations. Users can maintain accurate item information, from names to pricing, and make secure, role-based access with user authentication. The system generates insightful reports, aiding in inventory trend analysis and decision-making. Supplier management tools help nurture supplier relationships and ensure timely deliveries. Robust security features safeguard sensitive data, while integration capabilities promote data consistency across systems. Scalability ensures the system grows with the business. Comprehensive documentation and training resources ensure user proficiency, facilitating seamless integration into daily operations.

2.3 User Classes and Characteristics

The system provides different types of services based on the type of users [Manager/Staff]. The Manager will be acting as the controller and he will have all the privileges of an administrator. The member can be a staff of the store who will be accessing the Inventory System online.

The features that are available to the Librarian are: -

- A Manager will manage the inventory of the store.
- Can view the Sales and purchases made.
- Can check the stocks and make order for insufficient stocks.
- Can place order to the supplier.
- Can check profit and make order for only profitable stocks.

The features that are available to the Staff are: -

- The staff can add sale or purchase to inventory system database.
- Update database frequently.
- Continuous monitoring of stock to avoid stockout.
- Make the inventory report.
- Update status to manager.
- Make quality check for the products.

2.4 Operating Environment

The product will be operating in windows environment. The Stock Inventory Management System is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Also it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection. The hardware configuration include Hard Disk: 40 GB, Monitor: 15" Color monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

2.5 Assumptions and Dependencies

The assumptions are: -

- The coding should be error free.
- The system should be user-friendly so that it is easy to use for the users.
- The information of all users, stocks and suppliers must be stored in a database that isaccessible by the website.
- The system should have more storage capacity and provide fast access to the database.
- The system should provide search facility and support quick transactions.
- Users may access from any computer that has Internet browsing capabilities and an

Internet connection.

- Users must have their correct usernames and passwords to enter into their online accounts and do actions.

The dependencies are: -

- The specific hardware and software due to which the product will be run.
- On the basis of listing requirements and specification the project will be developed and run.
- The end users (admin) should have proper understanding of the product
- The system should have the general report stored.
- The information of all the users must be stored in a database that is accessible by the Stock Inventory System.
- Any update regarding the stock or sale or purchase is to be recorded to the database and the data entered should be correct.

2.6 Requirement

Software Configuration: -

This software package is developed using java as front end which is supported by sun micro system. Microsoft SQL Server as the back end to store the database.

Operating System: Windows NT, windows 98, Windows XP

Language: Java Runtime Environment, Net beans 7.0.1 (front end)

Database: MS SQL Server (back end)

Hardware Configuration: - Processor:
Pentium(R)Dual-core CPUHard Disk:
40GB

RAM: 256 MB or more

2.7 Data Requirement

The inputs consist of the query to the database and the output consists of the solutions for the query. The output also includes the user receiving the details of their accounts. In this project the inputs will be the queries as fired by the users like make an order, add sale etc. Now the output will be visible when the user requests the server to get details about stocks, payments or order etc.

3. External Interface Requirement

3.1 GUI

The software provides good graphical interface for the user and the administrator can operate on the system, performing the required task such as create, update, viewing the details of the stock item.

- They simplify tasks like entering data, making inventory management faster and less error-prone.
- GUIs show inventory data instantly, so users always know what's in stock and what's happening with orders.
- They provide menus and buttons for users to move around the system, making it simple to find what they need.

- Users can search for specific items or filter data to find what they're looking for quickly.
- They can display alerts for important events like low stock levels or pending orders.
- GUIs allow administrators to control who can access what in the system, improving security.
- GUIs let users adjust the system's appearance and layout to suit their preferences.

Login Interface: -

User can login with their login credentials. If the user entered either his username or password incorrectly then an error message appears.

Search: -

The Manager or Staff can enter the item details he is looking for and then he can search for it.

Stock View:

Manager can view the stocks and he can update/edit it if needed.

Admin's Control Panel: -

This control panel will allow Manager to add/remove working staff; add, edit, or remove a stocks and other things and manage inventory operations.

4. System Features

The users of the system should be provided the surety that their account is secure. This is possible by providing: -

- User authentication and validation of members using their unique member ID
- Ensure that only authorized users can use and change the system.
- Keep track of what you have in stock in real-time.
- Protect sensitive data with encryption and access controls.
- Set levels for restocking and preventing shortages and get automated alerts for important events like low inventory.
- Handle inventory in different storage areas.

5. Other Non-functional Requirements

5.1 Performance Requirement

The performance requirements for a Stock Inventory Management System (SIMS) involve ensuring that the system operates smoothly and efficiently. It should respond quickly when users search for inventory items or perform actions like adding or updating stock. The system should also be able to handle a growing number of items and transactions without slowing down. For instance, it should maintain fast response times even as the inventory database grows. Additionally, it should have high availability to minimize downtime, ensuring that users can access the system whenever they need it. Performance requirements aim to provide a seamless and responsive experience for users while managing increasing data loads as the business expands.

5.2 Safety and Security Requirement

- Ensure secure access with username and password authentication.
- Implement role-based permissions to restrict user access to specific functions and data.
- Regularly back up data to prevent loss due to technical failures or data corruption.
- Ensure that physical access to servers and hardware is restricted to authorized personnel.
- Regularly update the SIMS and its components to patch security vulnerabilities.
- Continuously monitor and assess the system for potential security threats and vulnerabilities.

5.3 Requirement attributes

- There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes
- The project should be open source
- The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
- The user be able to easily download and install the system

5.4 Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data. This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither admin nor member should cross the rules and regulations.

5.5 User Requirement

User requirements for the SIMS project revolve around creating a user-friendly and efficient system for managing inventory. Users expect a straightforward interface that allows them to easily navigate the system and perform tasks such as tracking inventory levels, managing item information, and processing orders. Real-time data updates, search, and filtering capabilities are essential for quick access to information. Overall, these user requirements aim to streamline inventory management, reduce errors, and support data-driven decision-making.

The admin provides certain facilities to the users in the form of: -

- User-Friendly Interface: An easy-to-use and intuitive system.
- Real-Time Updates: Instant access to inventory data.
- Order Management: Ability to create, track, and manage orders.
- Search and Filters: Efficient tools for finding specific items.
- Security and Access Control: Protection of sensitive data.
- Notification: Automated Alerts for important events.

6. Other Requirements

6.1 Data and Category Requirement

There are different categories of users namely manager, staff, etc. Depending upon the category of user the access rights are decided. It means if the user is an administrator, then he can be able to modify the data, delete, append etc. All other users except manager only have the rights to check stock availability and make sales. Similarly, there will be different categories of stocks available. According to the categories of stocks their relevant data should be displayed. The categories and the data related to each category should be coded in the particular format.

6.2 Appendix

A: Admin, Abbreviation, Acronym, Assumptions; B: Books, Business rules; C: Class, Client, Conventions; D: Data requirement, Dependencies; G: GUI; K: Key; L: Library, Librarian; M: Member; N: Non-functional Requirement; O: Operating environment; P: Performance, Perspective, Purpose; R: Requirement, Requirement attributes; S: Safety, Scope, Security, System features; U: User, User class and characteristics, User requirement;

6.3 Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

- Administrator: A login id representing a user with user administration privileges to the software
- User: A general login id assigned to most users
- Client: Intended users for the software
- SQL: Structured Query Language; used to retrieve information from a database
- SQL Server: A server used to store data in an organized format
- Layer: Represents a section of the project
- User Interface Layer: The section of the assignment referring to what the user interacts with directly
- Application Logic Layer: The section of the assignment referring to the Web Server. This is where all computations are completed
- Data Storage Layer: The section of the assignment referring to where all data is recorded
- Use Case: A broad level diagram of the project showing a basic overview
- Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system's cases, their attributes, and the relationships between the classes
- Interface: Something used to communicate across different mediums
- Unique Key: Used to differentiate entries in a database

6.4 Class Diagram

A class is an abstract, user-defined description of a type of data. It identifies the attributes of the data and the operations that can be performed on instances (i.e. objects) of the data. A class of data has a name, a set of attributes that describes its characteristics, and a set of operations that can be performed on the objects of that class. The classes' structure and their relationships to each other frozen in time represent the static model. In this project there are certain main classes

which are related to other classes required for their working. There are different kinds of relationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities. Here ‘Manager’, ‘Supplier’, and ’Owner’ are the most important classes which are related to other classes.