SOFTWARE REQUIREMENTS SPECIFICATION

For

Inventory Management System

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1. Introduction

1.1 Purpose

The main objective of this document is to illustrate the requirements of the project Inventory Management system. The primary purpose of inventory management is to ensure there is enough goods or materials to meet demand without creating overstock, or excess inventory.The main purpose of inventory management is to help businesses easily and efficiently manage the ordering, stocking, storing, and using of inventory. By effectively managing your inventory, you'll always know what items are in stock, how many of them there are, and where they are located.

1.2 Document Conventions

Entire document should be justified.

Convention for Main title

- Font face: Times New Roman
- Font style: Bold
- Font Size: 14

Convention for Sub title

- Font face: Times New Roman
- Font style: Bold
- Font Size: 12

Convention for body

- Font face: Times New Roman
- Font Size: 12

1.3 Scope of Development Project

- **Manage Inventory**: Inventory management helps to manage the stock of the company. it provides proper details of the products what kind of raw material, what are the sizes we require and etc. to the purchasing department.
- **Less Storage**: When the inventory management provides proper information to management, they buy according to them which helps the company to store fewer products.
- **Improve Productivity:** Inventory management helps to improve the productivity of the machines and manpower. Employees are aware of stocks and the quantity that require to produce.
- **Increase Profits:** Inventory management helps to improve the profits of the company. it helps to provide proper information about stocks, that saves the unnecessary expenses on stocks.

1.4 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

1.5 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

- Websites **http://www.slideshare.net/**
- **http://ebookily.net/doc/srs-inventory-management-system**
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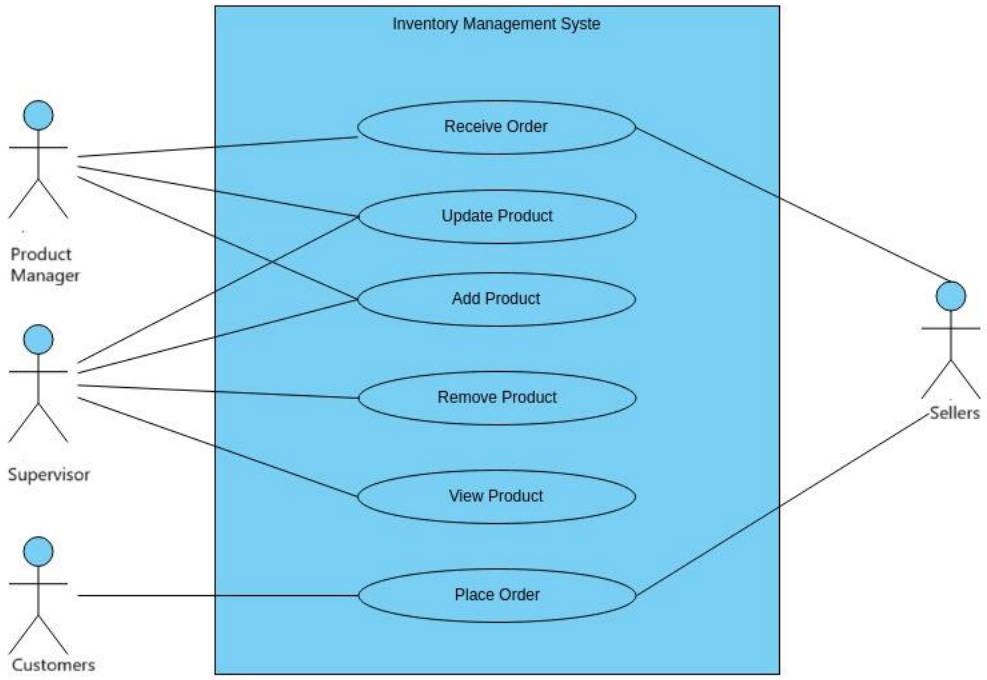
2. Overall Descriptions

2.1 Product Perspective

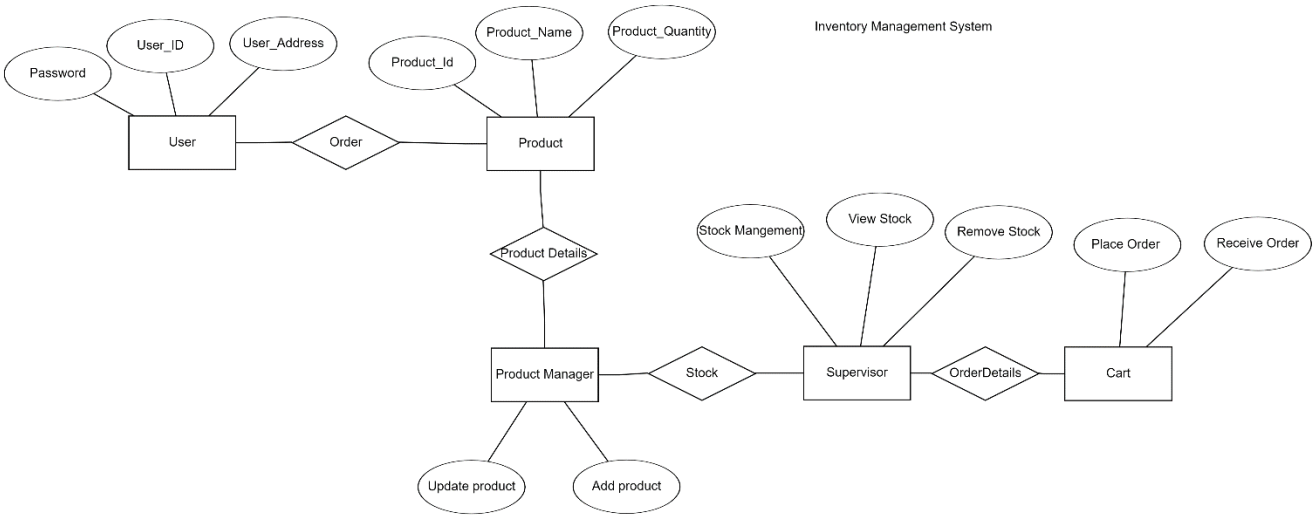
Use Case Diagram of Inventory Management System



An Inventory Management System UML use case diagram includes actors like Admin, Manager, Cashier, and Customer, with use cases such as Manage Inventory, Place Order, Process Sale, Generate Reports, Customer Registration, and Track Shipment, depicting their interactions and relationships. The diagram visually illustrates the system's functionalities and user roles.

2.2 Product Function

Entity Relationship Diagram of Inventory Management System



Inventory Management System ERD: Entities include Product (ProductID, Name, Description, StockQuantity, Price, SupplierID) and Supplier (SupplierID, Name, ContactInfo), with a relationship between Product and Supplier based on SupplierID.

2.3 User Classes and Characteristics

Inventory systems provide detailed records of new and returned products as they're entering or leaving the warehouse to help companies organize and account for their stock. These systems can also track data such as the number of units, cost per unit, serial number, lot numbers, purchase dates and production dates. The features that are available to the Inventory Mangement.

- Centralized inventory management.
- Tagging and Barcoding.
- Reporting of the business activities.
- Forecasting of the inventory.

- Alerts regarding the inventory details.
- Backup and security of the inventory.
- Internet of Things (IoT) and Cloud data software.

2.4 Operating Environment

The basic steps of inventory management include: Purchasing inventory: Ready-to-sell goods are purchased and delivered to the warehouse or directly to the point of sale. Storing inventory: Inventory is stored until needed. Goods or materials are transferred across your fulfillment network until ready for shipment.

The assumptions are:-

Inventory management system to manage purchasing, distribution & multiple location warehousing activities

Inventory management system with integrated picking, shipping and shipment tracking

Inventory management system to handle sales & customer service management with one click quote to sales orders & multi-channel sales management

Inventory management system that provides real-time access to the information you need, organized how you want to see it

Inventory management system that includes over 100 reports & documents out of the box & the ability to create virtually any report or document with Crystal Reports®

Inventory management system with an end-to-end, fully-compliant EDI solution created for small and mid-sized businesses

Inventory management system that is built to handle substantial volume and growth without major system changes

Inventory management system that will transform your entire business

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 CPU

Hard Disk: 40GB

RAM: 256 MB or more

2.7 Data Requirement

Requirements for Effective Inventory Management:

A system to keep track of the inventory on hand and on order.

A reliable forecast of demand, including forecast error.

Knowledge of lead times and variability.

Estimates of holding, ordering and shortage costs.

Classification system for inventory.

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 book.

- It allows user to view quick reports like Product Delivered/Returned in between particular time.
- It provides stock verification and search facility based on different criteria.
- The user interface must be customizable by the administrator
- All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined
- The design should be simple and all the different interfaces should follow a standard template
- The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module

Login Interface:-

In case the user is not yet registered, he can enter the details and register to create his account. Once his account is created he can 'Login' which asks the user to type his username and password. If the user entered either his username or password incorrectly then an error message appears.

Search:-

The member or librarian can enter the type of book he is looking for and the title he is interested in,then he can search for the required book by entering the book name.

Categories View:-

Categories view shows the categories of product available and provides ability to the librarian to add/edit or delete category from the list.

Control Panel:-

This control panel will allow Supervisor to add/remove users; add, edit, or remove a resource. And manage lending options.

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
- Proper monitoring by the administrator which includes updating account status, showing a popup if the member attempts to issue number of books that exceed the limit provided by the Inventory policy, assigning fine to members who skip the date of return
- Proper accountability which includes not allowing a member to see other member's account. Only administrator will see and manage all member accounts

5. Other Non-functional Requirements

5.1 Performance Requirement

The proposed system that we are going to develop will be used as the Chief performance system within the different campuses of the university which interacts with the university staff and students. Therefore, it is expected that the database would perform functionally all the requirements that are specified by the university.

- The performance of the system should be fast and accurate
- Inventory Management System shall handle expected and non-expected errors in ways that prevent loss in information and long downtime period. Thus it should have inbuilt error testing to identify invalid username/password
- The system should be able to handle large amount of data. Thus it should accommodate high number of products and users without any fault.

5.2 Safety Requirement

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup so that the database is not lost. Proper UPS/inverter facility should be there in case of power supply failure.

5.3 Security Requirement

- System will use secured database.
- Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
- System will have different types of users and every user has access constraints.
- Proper user authentication should be provided.
- No one should be able to hack users' password.
- There should be separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

5.4 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.

5.5 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.

5.6 User Requirement

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

- Secure user authentication with role-based access.
- Real-time inventory tracking and product management.
- Automated alerts for low stock and order replenishment.
- Intuitive interface, analytics, and integration capabilities.

➢ Backup and Recovery

- ➢ Forgot Password
- ➢ Data migration i.e. whenever user registers for the first time then the data is stored in the server.
- ➢ Data replication i.e. if the data is lost in one branch, it is still stored with the server.
- ➢ Auto Recovery i.e. frequently auto saving the information.
- ➢ Maintaining files i.e. File Organization.
- ➢ The server must be maintained regularly and it has to be updated from time to time.

6. Other Requirements

6.1 Data and Category Requirement

An Inventory Management System (IMS) is designed to oversee and control the flow of goods within an organization. It involves the tracking of inventory levels, orders, sales, and deliveries.

6.2 Appendix

An appendix for an Inventory Management System documentation typically includes additional details that complement the main content of the document. The purpose of the appendix is to provide supplementary information that may be helpful for readers who want to delve deeper into specific aspects of the system.

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 diagram for an Inventory Management System (IMS) represents the static structure of the system by illustrating the classes, their attributes, methods, and the relationships among them.
Creating a comprehensive class diagram for an Inventory Management System involves identifying the main classes, their attributes, and their relationships. Below is a textual representation of a class diagram for an Inventory Management System.