System's Requirements Specification

1. INTRODUCCIÓN

1.1 Purpose

The purpose of the inventory control system is to automate and improve inventory management in a hardware store warehouse. The system will enable accurate real-time tracking of the quantity of merchandise available, automate inventory registration and updates, efficiently categorize products, provide alerts and notifications for low stock levels, generate detailed reports, and offer data analysis capabilities. Overall, the purpose of the system is to optimize efficiency, reduce errors, streamline operations, and support data-driven decision-making to enhance overall inventory management in the hardware store.

1.2 System Scope

The name chosen for the system is **Ferrinventory**, this system will be in charge of keeping the inventory of the products that are in the warehouse of the Hardware store. What the system will do when a customer requests a specific product, the employee can open the inventory system to check availability in the warehouse, allowing better development of employees when providing the service.
The products will be categorized, allowing the display of some information on each product, allowing better control of availability. Ferrinventory will become an indispensable tool to optimize inventory management and improve the customer experience in the Hardware Store.

Objectives

- **Automation:** Implement a system that automates inventory management tasks, reducing the reliance on manual processes. The system should be updating the inventory records in real-time.
- **(Real-Time) Inventory Tracking:** Ensure that the system provides accurate, real-time information about the quantity of each item present in the warehouse.
- **Product Categorization:** Develop a system that categorizes products based on their type, brand, and other relevant attributes.
- **Alerts and Notifications:** Implement an alert mechanism that notifies warehouse personnel when stock levels for specific items reach a predefined threshold.

Benefits

- **Improved Efficiency:** By automating inventory management tasks, we can save time and effort. This will free up employees to focus on more activities, such as customer service.
- **Accurate Stock Control:** We can ensure accurate stock control, reducing the risk of overstocking or stockouts. This will lead to improved customer satisfaction and optimized inventory levels.
- **Streamlined Operations:** The new inventory control system will streamline various processes, including order fulfillment, stock replenishment, and returns management.

1.3 Definiciones, Acrónimos y Abreviaturas

Name	Description
User	Person who will use the system to manage processes
SRS	Software Requirements Specification
FR	Functional requirement
NFR	Non-functional requirement

1.4. References

2 General Description

The Program will help to organize the stock in the warehouse, thus avoiding the loss or excess of any product, it will also perform the entry and exit of merchandise, it will consist of a warning indicating that a product is about to run out, only the warehouse employees can access the inventory system, with this it will be possible to maintain the order in the warehouse

2.1.Product's perspective
The program's perspective aims to provide the hardware store with an efficient and high-quality system that automates processes and reduces the workload of employees. Additionally, it aims to prevent overstocking or understocking of products from suppliers.

The goal is to achieve an optimal balance in inventory management, ensuring that the store does not exceed the necessary stock levels or have insufficient quantities to meet customer demand. Overstocking can lead to storage issues and tie up financial resources, while understocking can result in lost sales and dissatisfied customers.

By implementing this system, the hardware store will benefit from improved inventory control, streamlined operations, and enhanced decision-making capabilities. The system will

facilitate accurate tracking of inventory levels, prompt notifications for replenishment when stock levels are low, and provide insights into demand patterns and product performance.

Ultimately, the perspective of the program is to create an efficient and automated solution that optimizes inventory management, minimizes costs, and ensures the hardware store can meet customer needs effectively.

2.2 Product's Function

The system will track merchandise inflow and outflow, update inventory records in real-time, and provide accurate information on item quantities in the warehouse. It will categorize products based on type, brand, and relevant attributes to facilitate efficient inventory management and retrieval. The system will also include alerts and notifications to notify warehouse personnel when stock levels reach predefined thresholds, enabling proactive inventory management. Additionally, the system will have reporting capabilities to generate comprehensive inventory reports and perform data analysis, providing insights into sales trends and popular items.

2.3. User Characteristics
The users of this software are the warehouse operators of a hardware store. Their educational level may vary from school-level to higher education, but it is common for these operators to have a high school diploma. They have technical expertise in areas such as mechanics, electricity, plumbing, carpentry, and more of the kind.

These operators have practical experience and knowledge in various trades related to the hardware industry. They possess hands-on skills and understanding in areas such as repairing and maintaining equipment, handling electrical and plumbing systems, working with carpentry tools, and performing tasks relevant to the hardware store operations.

2.4. Restrictions
- Languages and technologies in use: JAVA.
- Servers must be able to serve queries concurrently.
- Interface to be used with internet.
- The inventory system must have adequate security and access restrictions to ensure that only authorized individuals can access information and make changes to the inventory.

2.5.Assumptions and dependencies
The hardware store currently uses the Windows operating system so the program will run on said operating system, if it happens that the user decides to change the operating system that is used, the respective changes to the program requirements will be made.

2.6. Future Requirements

Improvements will be made to the program to optimize it and create solutions for future problems that may appear and ruin the user experience.

3 Specific Requirements

3.1. External Interfaces

The system will be divided into three columns with the product titles, another one for inputs and outputs, in each of these columns the product code, price, description and quantity can be viewed.
In the products column are the items that are in the warehouse, in inputs are the items that are about to arrive at the warehouse and outputs are the products that are leaving the warehouse.

3.2. Functions

User Registration and Login:

Allow operators to create an account by registering their personal information, such as name, ID, and password.
This function ensures authentication and security by controlling operators' access to the system.

Inventory Management:

Track and record incoming and outgoing stock.
Update inventory records in real-time.
Maintain accurate information about the quantity and location of each item in the warehouse.
Monitor stock levels and generate alerts when items reach predefined thresholds.

Product Categorization:

Categorize products based on type, brand, ID.
Assign unique identifiers to each product for easy identification and retrieval.
Create product hierarchies or groupings to organize items efficiently.

Reporting and Analytics:

Generate reports on inventory levels, stock movements, and product performance.
Analyze sales trends, demand patterns, and stock turnover rates.
Provide insights for strategic decision-making, such as identifying slow-moving items or popular products.

Notifications and Alerts:

Send notifications to warehouse personnel regarding low stock levels, critical inventory issues, or pending tasks.

System Maintenance and Data Backup:

Perform regular system maintenance tasks, including database backups and software updates.
Ensure data integrity, reliability, and security through backup and recovery procedures.
By incorporating these functions, the inventory system will streamline inventory management processes, enhance accuracy, automate tasks, improve efficiency, and provide valuable insights for effective decision-making.

3.3. Performance Requirements

The system should allow the storage of records for at least 10,000 products. Additionally, the system should support continuous and concurrent usage by multiple employees, with a maximum of 2 employees at the same time. It should have a robust capability to track and record product entries and exits, allowing for easy access to the inventory history for auditing purposes.

The system should provide fast response times, enabling users to perform real-time queries and operations related to product management.

3.4. Design Restrictions.

-The system should categorize products based on their usage and color code.

-The system should have sufficiently large text size to be legible for middle-aged operators.

3.5. System Attributes

the attributes can be described as follows:

Reliability:

The system should consistently perform its inventory management tasks accurately and reliably.
Minimize the occurrence of errors or failures that could impact the accuracy of inventory data.
Implement backup and recovery mechanisms to ensure data integrity in case of system failures.
Regularly monitor system performance and conduct testing to identify and resolve any reliability issues.
Maintainability:

Design the system with a modular and structured approach to facilitate future maintenance and updates.

Use clean and well-documented code that is easy to understand and modify.

Implement logging and debugging functionalities to assist in troubleshooting and maintenance tasks.

Apply coding standards and best practices to ensure maintainability and code readability.

Portability:

Design the system to be compatible with various hardware and software environments commonly used in hardware stores.

Utilize platform-independent technologies and frameworks to ensure flexibility and portability.

Avoid dependencies on specific operating systems or hardware configurations that could limit system deployment.

Security:

Implement robust security measures to protect sensitive inventory data and prevent unauthorized access.

Use secure authentication methods, such as username and password, to control access to the system.

Define user roles and permissions to restrict certain tasks based on user authorization levels.

Employ encryption techniques to secure data transmission and storage.

Implement measures to detect and prevent potential security breaches, such as intrusion detection systems and regular security updates.

User Authorization:

Define different user roles, such as administrators, warehouse managers, and operators, with specific permissions and responsibilities.

Implement a secure login mechanism that verifies user credentials before granting access to the system.

Enforce access controls based on user roles to ensure authorized users can perform their designated tasks.

Maintain an audit trail to track user activities and identify any unauthorized actions.

By addressing these attributes, the system aims to provide a reliable and secure inventory management solution that can be easily maintained and deployed across different hardware and software environments. The implementation of user authorization mechanisms and security features ensures that only authorized personnel can access and perform specific tasks within the system, safeguarding the integrity of the inventory data.

3.6. Other Requirements
No more requirements needed.

4 Appendices

None.