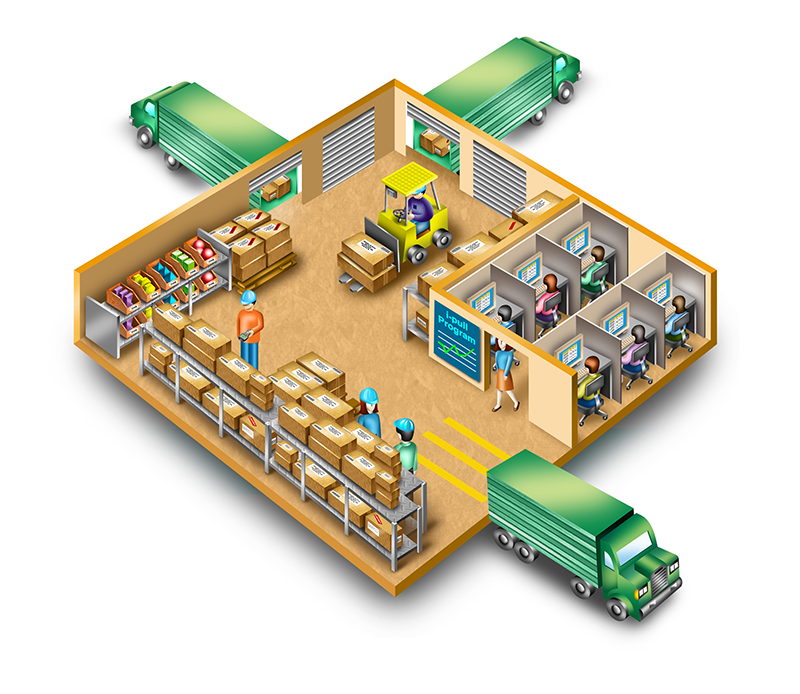


**Palestine Technical University-Kadoorie**

Computer Systems Engineering Department



**A Warehouse Management System**

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**Abstract:**

This project introduces a sophisticated Warehouse Management System (WMS) designed to meticulously track inbound and outbound inventory movements, monitor stock levels, manage expiration dates, and advance reservation for warehouses ,easy access to the storage with financial reports.

The system offers real-time visibility into inventory flows, ensuring accurate records of goods entering and leaving the warehouse. Additionally, it includes features to monitor and prevent stock from expiring, minimizing wastage and maximizing profitability. By integrating payment methods, the system facilitates seamless transactions, enhancing operational efficiency. Through this comprehensive approach, the WMS optimizes inventory control, mitigates losses due to expiration, and streamlines financial processes, ultimately bolstering warehouse operations.

**1 . INTRODUCTION**

This project introduces a sophisticated Warehouse Management System (WMS) designed to meticulously track inbound and outbound inventory movements, monitor stock levels, manage expiration dates, and streamline payment methods with easy access to the storage

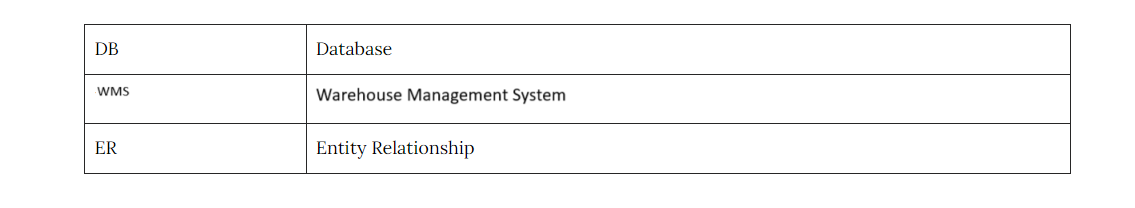
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**1.1 Purpose**

The purpose of this document is to build an online system to manage the warehouses and track inbound and outbound inventory to ease access to the storage.

**1.2 DOCUMENT CONVENTIONS**

This document uses the following conventions.



**1.3 INTENDED AUDIENCE AND READING SUGGESTIONS**

This project is a prototype for the warehouse management system and it is restricted within the college premises. This has been implemented under the guidance of college professors(**Dr. Osama Hamed**)

This project is useful for the large companies that have very large storage spaces that and as well as to the shop owners

**1.4 PROJECT SCOPE**

The purpose of the online warehouse management system is to ease manage the warehouses and track inbound and outbound inventory to ease access to the storage and to create a convenient and easy-to-use application for shop owner to request an order and know my estimated time of arrival.

The system is based on a relational database with its warehouse management and functions to control the outbound ,inbound and storage.

We will have a database server supporting thousands of types of goods, that is available in Palestine . above all, we hope to provide a comfortable a user experience along with the best pricing available and accurate timing.

* 1. **REFERENCES**
* <https://krazytech.com/projects>
* Software Engineering 9th Edition by Ian Sommerville

## 5. NONFUNCTIONAL REQUIREMENTS 5.1 PERFORMANCE REQUIREMENTS

## A) E-R DIAGRAM

## 

## 

## 5.2 SAFETY REQUIREMENTS

**5.2.1 Data Integrity**

## Financial Reports Table

## Implement data validation checks to ensure that revenue, expenses, and profit values are within acceptable ranges and formats.

## Enforce referential integrity constraints to maintain consistency between financial reports and associated data.

## Users Table

## Implement mechanisms to prevent duplicate usernames and ensure uniqueness of user accounts.

## Regularly validate and sanitize user input to prevent SQL injection attacks and other forms of data manipulation.

## Reservations Table

## Validate reservation dates to prevent overlaps and conflicts with existing reservations.

## Customers Table

## Enforce uniqueness of customer IDs and email addresses to prevent duplicate customer accounts.

## Implement validation checks to ensure the correctness of customer data entered into the system.

## WarehouseSections Table

## Validate section capacity values to ensure they are realistic and within acceptable limits.

## Employees Table

## Implement validation checks to ensure the correctness of employee data entered into the system.

## Mechanisms Table

## Validate mechanism prices to prevent negative or unrealistic values.

## Access Controls

## Enforce least privilege principles to ensure that users only have access to the data and functionalities necessary for their roles.

* 1. **SECURITY REQUIREMENTS**

**These security requirements aim to protect the confidentiality, integrity, and availability of data stored in the database and ensure compliance with regulatory requirements. Implementing these measures will help mitigate security risks and safeguard sensitive information against unauthorized access and malicious activities.**

* + 1. **Access Control**

1. **Financial Reports Table**

* **Only authorized users with appropriate roles (e.g., finance manager) shall have access to financial reports data.**

1. **Users Table**

* **Enforce access control measures to ensure that only authenticated users can access the Users table.**

1. **Reservations Table**

* **Access to reservation data shall be restricted to authorized users such as warehouse managers and customer service representatives.**

1. **Customers Table**

* **Protect customer data by enforcing access control measures and encrypting sensitive information such as passwords and email addresses.**

1. **WarehouseSections Table**

* **Access to warehouse section data shall be restricted to authorized personnel such as warehouse managers and supervisors.**

1. **Employees Table**

* **Secure employee data by enforcing access control measures and encrypting sensitive information such as employee names and contact details.**

1. **Mechanisms Table**

* **Access to mechanism data shall be restricted to authorized users such as inventory managers and procurement officers.**
  + 1. **Authentication Mechanisms**
* **Implement secure authentication mechanisms, such as username/password authentication .**
  + 1. **Data Encryption**
* **Implement encryption mechanisms to protect sensitive data stored in the database, such as passwords, email addresses, and financial information.**

**5.4 Software Quality Attributes**

## Availability

## Data in the database should be available when needed, especially for critical operations such as reservations.

## Application to the Database:

## Implement measures such as redundancy, load balancing, and failover to ensure continuous availability of data.

## Correctness

## Enforce data integrity constraints to maintain data consistency and accuracy.

## Validate input data to ensure that it meets specified criteria and prevent data errors or inconsistencies.

## Maintainability

## Implement version control for database schema changes and document database updates to ensure traceability and ease of maintenance.

## Usability

## The database system should be user-friendly and accessible on multiple devices to cater to a diverse user base.

## Ensure compatibility with various devices and screen sizes by implementing responsive design principles for web-based interfaces.

## GitHup resp: [Warehouse-management-system](https://github.com/ahmadtomeh03/Warehouse-management-system)