

A PROJECT REPORT ON WHOLESALE MANAGEMENT DATABASE PROJECT

Submitted by

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**CSA0537
DATABASE
MANAGEMENT
SYSTEM FOR DATA
MODEL**



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WHOLESALE MANAGEMENT SYSTEM DATABASE

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1. ABSTRACT:

The aim of this project is to develop an efficient database management system to automate operations and provide insightful analytics for wholesale businesses. The key objectives are to maintain accurate real time inventory by tracking stock levels, suppliers, and reorder needs. Record complete customers and order information to deliver items on time. Manage customer accounts and overdue payments through detailed financial records. Calculate monthly profit totals to identify performance across periods. Optimise the supply chain by monitoring popular and slow-moving items. Generate reports on supplier reliability, customer purchase history, and other metrics. Plan purchasing and sales activities based on stock levels and demand. Improve business efficiency by centralising information storage and retrieval. Provide a user-friendly interface to minimise manual record-keeping. Ensure data accuracy, consistency, and security through a relational database. By meeting these goals, the system will benefit wholesale companies by automating everyday processes, minimising costs, avoiding stock outs, sustaining cash flow, and enabling data-driven business insights. The streamlined operations and comprehensive analytics will provide a significant competitive advantage.

2. INTRODUCTION:

The wholesale management system is a database application designed to help wholesale businesses manage their inventory, suppliers, customers, and financial records. This system will allow managers to track stock levels, reorder stock, record customer purchases, track payments, and calculate monthly profits.

The core functionality of this system revolves around maintaining up-to-date inventory records in the Stocks table. This table stores the stock ID, name, and quantity in stock for each item. Managers can view low stock levels and create reorder records in the StockReorder table to indicate which items need restocking.

The system also maintains supplier information in the Buyers table, including buyer ID, name, address, and the stock they supply. This makes it easy to reorder from regular suppliers.

On the sales side, the Customers table stores customer information like name, address, and ID. The Payments table tracks both pending and received customer payments. The Defaulters table lists customers with overdue payments.

To calculate profits, the MonthlyProfit table stores the profit totals for each month. The DeliveryDates table tracks promised delivery dates for customer orders, ensuring orders are fulfilled on time based on stock levels.

By centralising all this business information in an organised database system, managers can better track inventory, connect with suppliers, service customers, and analyse their business performance. The wholesale management system aims to simplify day-to-day operations and provide actionable insights.

GRANT CHART:

	Month 1				Month 2				Month 3		
	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3
Gathering Data And Problem Identification	2024-01-30					2024-02-20					
Analysis		2024-02-06									
Designing Tables				2024-02-19							
Implementation					2024-03-08						
Testing							2024-03-10				
Results and Conclusion										2024-03-19	

3. METHODOLOGY:

It appears that the process you described adheres to the standard software development life cycle (SDLC) approach. The following is a synopsis of each phase involved in creating a database for a wholesale management system:

1. Project Scope Definition:

This stage entails establishing the parameters, objectives, and deliverables of the undertaking. It guarantees that the goals are well understood, laying the groundwork for all other actions.

2. Requirement Gathering:

During this stage, managers, end users, and other pertinent parties provide information about the needs for the wholesale management system database. Both functional and non-functional components of the system are covered by these criteria.

3. System Design:

The system architecture and design are developed following the collection of requirements. Determining the system's components, interfaces, data flows, and structure falls under this category. This might entail creating modules for order processing, inventory management, customer management, and other areas of a wholesale management system.

4. Database Design:

The creation of the database schema is the main goal of this stage. It entails specifying the tables, constraints, connections, and data models in accordance with the previously obtained criteria. During this phase, factors including performance, scalability, and normalisation are taken into account.

5. Implementation:

The wholesale management system database is really developed at this phase. On the basis of the designs produced in the earlier stages, developers construct code. This stage might entail creating user interfaces, integrating different components, and writing the backend functionality.

6. Testing:

After the implementation is finished, a thorough testing process is conducted to make sure the system satisfies the requirements and operates as intended. User Acceptance Testing (UAT), System Testing, Integration Testing, and Unit Testing are all included in this. During this stage, problems and bugs are found and fixed.

7. Deployment:

The wholesale management system database is put into the production environment following a successful testing phase. This includes setting up servers, installing the software, and making sure the system is prepared for end customers to utilise.

8. Training and Documentation:

To acquaint administrators and end users with the wholesale management system database, training is given. Comprehensive documentation is also produced to instruct users on how to make efficient use of the technology.

9. Maintenance and Support:

To guarantee the system's seamless operation after it is installed, continuous maintenance and support are needed. This includes resolving issues, putting upgrades into place, and helping people when they need it.

10. Feedback and Iteration:

In order to pinpoint areas that require development and improvement, user input is gathered at the end. In order to better meet the changing demands of the company,

new features are added to the system or old ones are modified based on the feedback received.

4. LITERATURE SURVEY:

Effective inventory management is critical for wholesale distributors, as maintaining adequate stock levels while minimising carrying costs directly impacts profitability and customer service levels (Lee, Padmanabhan, & Whang, 1997). However, lacking real-time visibility across inventories can lead to excessive stock outs or overstocks. Lee et al. (1997) argue that information systems play a vital role in supporting inventory planning and replenishment by providing data on demand forecasts, supplier lead times, and item substitution possibilities. Wholesale information systems that integrate inventory control methods, such as periodic review and order point algorithms, allow companies to optimise inventory decisions. The researchers developed analytical models to evaluate the benefits of different inventory management information systems. Their results demonstrate that information systems can significantly reduce wholesale inventory costs and stockouts.

5. CODE:

-- Create table for products

```
CREATE TABLE products (  
product_id INT AUTO_INCREMENT PRIMARY KEY,  
product_name VARCHAR(100) NOT NULL,  
description TEXT,  
category VARCHAR(50),  
price DECIMAL(10, 2), -- Price of the product  
stock_quantity INT  
);
```

-- Create table for suppliers

```
CREATE TABLE suppliers (  
supplier_id INT AUTO_INCREMENT PRIMARY KEY,  
supplier_name VARCHAR(100) NOT NULL,  
contact_name VARCHAR(100),  
contact_email VARCHAR(100),  
contact_phone VARCHAR(20)  
);
```

-- Create table for purchases

```
CREATE TABLE purchases (  
purchase_id INT AUTO_INCREMENT PRIMARY KEY,
```

```

product_id INT,
supplier_id INT,
purchase_date DATE,
quantity INT,
unit_price DECIMAL(10, 2), -- Price per unit
total_price DECIMAL(10, 2), -- Total price of the purchase
FOREIGN KEY (product_id) REFERENCES products(product_id),
FOREIGN KEY (supplier_id) REFERENCES suppliers(supplier_id)
);

```

```

-- Create table for customers
CREATE TABLE customers (
customer_id INT AUTO_INCREMENT PRIMARY KEY,
customer_name VARCHAR(100) NOT NULL,
customer_email VARCHAR(100),
customer_phone VARCHAR(20)
);

```

```

-- Create table for sales
CREATE TABLE sales (
sale_id INT AUTO_INCREMENT PRIMARY KEY,
product_id INT,
customer_id INT,
sale_date DATE,
quantity INT,
unit_price DECIMAL(10, 2), -- Price per unit
total_price DECIMAL(10, 2), -- Total price of the sale
FOREIGN KEY (product_id) REFERENCES products(product_id),
FOREIGN KEY (customer_id) REFERENCES customers(customer_id)
);

```

6. IMPLEMENTATION:

To implement the provided SQL code for the wholesale management system database in your project, you can follow these step-by-step instructions:

Requirements Gathering:

Understand the requirements for your wholesale management system, including information about products, suppliers, customers, orders, inventory, etc.

Database Schema Design:

Design the database schema based on the gathered requirements. Define entities (tables) and their attributes, as well as relationships between them.

Choose a DBMS:

Select a suitable database management system (e.g., MySQL, PostgreSQL, SQLite) for implementing your database.

Create Tables:

Use SQL or the chosen DBMS's interface to create tables based on your database schema design. Make sure to define primary keys, foreign keys, and appropriate data types for each column.

Establish Relationships:

Define relationships between tables using foreign keys to ensure data integrity and enforce referential integrity constraints.

Add Indexes and Constraints: Consider adding indexes for faster querying and constraints (e.g., NOT NULL, UNIQUE) for data integrity.

Implement Business Logic:

Develop the application logic to interact with the database, including CRUD (Create, Read, Update, Delete) operations and any specific business rules.

Testing:

Test the database thoroughly to ensure that it meets all requirements and behaves as expected. Perform both unit testing and integration testing.

Optimization:

Optimise the database schema and queries for better performance if necessary. Consider indexing frequently queried columns and optimising complex queries.

Documentation:

Document the database schema, relationships, and any business logic implemented. This documentation will be helpful for future maintenance and enhancements.

Deployment:

Deploy the wholesale management system database to a production environment, ensuring proper security measures are in place to protect the data.

Maintenance and Updates:

Regularly maintain and update the database as needed based on changing requirements or performance issues. This may involve adding new features, optimising queries, or applying security patches.

7. TABLES:

product_id	product_name	description	category	price	stock_quantity
1	Product A	Description	Electronics	499.99	100
2	Product B	Description	Clothing	29.99	200
3	Product C	Description	Books	14.50	50

supplier_id	supplier_name	contact_name	contact_email	contact_phone
1	Supplier 1	John Doe	john@supplier1	123-456-7890
2	Supplier 2	Jane Smith	jane@supplier2	987-654-3210

purchase_id	product_id	supplier_id	purchase_date	quantity	unit_price
1	1	1	2024-03-25	50	450.00
2	2	2	2024-03-25	100	25.00

customer_id	customer_name	customer_email	customer_phone
1	Customer 1	customer1@email	123-456-7890
2	Customer 2	customer2@email	987-654-3210

sale_id	product_id	customer_id	sale_date	quantity	unit_price
1	1	1	2024-03-25	10	499.99
2	2	2	2024-03-25	20	29.99

8. CONCLUSION:

In summary, the deployment of a wholesale management database system is a critical advancement toward the coordination and effectiveness of wholesale operations. This all-inclusive system is the cornerstone for simplifying the complex procedures associated with purchasing, sales, suppliers, and customers. The solution streamlines the operational workflows of wholesale organisations by centralising and automating critical tasks like inventory tracking, procurement, and sales analysis. It also improves the entire experience for suppliers and customers by offering easy access to order management, sales transactions, and product information. The wholesale management database system's scalable design and rich feature set not only increase operational effectiveness but also strengthen ties with suppliers and customers, promoting long-term growth and competitiveness in the wholesale market.

9. FUTURE ENHANCEMENT:

The wholesale management database system will soon be enhanced with tools for supplier relationship management, advanced analytics, and streamlined ordering through integration with e-commerce platforms. While supply chain integration and predictive inventory algorithms would maximise productivity, mobile applications would offer access while on the go. Decision-making would be enhanced and chores would be automated by extending CRM capabilities and utilising AI and machine learning. The goal of these improvements is to produce an intelligent, adaptable platform that promotes growth and benefits all parties involved.

Evaluate Current System: Assess the existing wholesale management database system to identify strengths, weaknesses, and areas for improvement.

Gather Requirements: Collaborate with stakeholders to determine future needs and prioritise enhancements based on business goals and user feedback.

Research Technologies: Explore emerging technologies and industry best practices for wholesale management systems to inform enhancement strategies.

Develop Enhancement Roadmap: Create a structured plan outlining specific enhancements, timelines, and resource requirements.

Prioritise Enhancements: Rank enhancement initiatives based on their potential impact, feasibility, and alignment with business objectives.

Implement Enhancements: Execute enhancement projects according to the established roadmap, ensuring thorough testing and user acceptance.

Monitor and Iterate: Continuously monitor the performance of the enhanced system, gather feedback, and iterate on improvements to further optimise functionality and user experience.

Provide Training and Support: Offer training sessions and ongoing support to users to ensure smooth adoption of new features and workflows.

Measure Success: Define key performance indicators (KPIs) to measure the success of enhancements, such as increased efficiency, improved customer satisfaction, and reduced operational costs.

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