CS 306 PROJECT PHASE I

Sinem Gül Kaya

Göksu Gültekin

İlke Kanıl

**Supply Chain Management System**

DESCRIPTION

A "Supply Chain Management System" is a comprehensive database application designed to efficiently track, manage, and comprehensively address an organization's internal resources to ensure the effective operation of the flow of goods and materials within a supply chain, spanning from suppliers to consumers. The supply chain includes the entire process, starting from the time the product or service leaves the manufacturer until it reaches the customer. It includes all activities in this process such as human resources, technology and resources used, and logistics network. It empowers businesses by streamlining and enhancing procurement, optimizing inventory management, ensuring accurate order fulfillment, customer satisfaction. This system facilitates data-driven decision-making, cost efficiency, and risk mitigation, all of which contribute to the overall efficiency and adaptability of a business's supply chain operations, ultimately fostering customer loyalty and competitiveness in the market. By emphasizing precision in data and providing instant visibility, the system guarantees smooth functioning, shortens the time it takes to complete tasks, and keeps operational expenses at a minimum.

The "Supply Chain Management System" empowers businesses by streamlining procurement and order fulfillment, resulting in improved efficiency and reduced operational costs. It ensures enhanced customer satisfaction through real-time order tracking and accurate inventory management. Additionally, its data-driven insights enable informed decision-making, and effective supplier relationship management contributes to improved pricing and performance. This system offers end-to-end visibility and control over supply chain operations, benefiting businesses of all sizes with increased competitiveness and customer satisfaction.

1. Supplier Management:
   * Keep comprehensive supplier records, encompassing contact information, product listings, and pricing contracts.
   * Monitor supplier effectiveness and retain past supplier data for subsequent evaluation.
2. Product Inventory:
   * Maintain product information, including product names, descriptions, prices, and available quantities.
   * Supervise real-time stock levels to guarantee product availability and avoid shortages.
3. Warehousing Management:
   * Keep tabs on the whereabouts, storage capacity, and personnel in charge for each warehouse.
   * Oversee the transfer of inventory between warehouses and maintain an efficient distribution of stock.
4. Order Processing:
   * Simplify the initiation and handling of customer orders by including comprehensive order data, shipping particulars, and order statuses.
   * Produce packing lists and shipping labels to expedite the process of order fulfillment.
5. Delivery Tracking:
   * Tracking the movement of delivery from suppliers to warehouses and from warehouses to customers.
   * Dates of expected arrival and delivery should be noted to preserve supply chain transparency.
6. Customer Relationship Management:

• Preserve customer profiles containing contact details and their order history.

• Utilize customer data analysis to improve customer satisfaction and loyalty.

1. Returns Management:

• Monitor product returns, which include explanations for the returns and related order items.

• Administer the logistics of returns and make necessary inventory modifications.

1. Reporting and Analytics:
   * Provide thorough reports that cover order status, stock levels, supplier effectiveness, and other pertinent information.
   * Utilize data analytics to identify areas for improvement and to improve the efficiency of the supply chain.

ER DIAGRAM



RELATIONAL MODEL

CREATE TABLE Supplier (

SupplierID INT PRIMARY KEY,

SupplierName VARCHAR(255),

ContactName VARCHAR(255),

Email VARCHAR(255),

Phone VARCHAR(20)

);

CREATE TABLE Product (

ProductID INT PRIMARY KEY,

ProductName VARCHAR(255),

Description TEXT,

Price DECIMAL(10, 2),

QuantityInStock INT

);

CREATE TABLE Warehouse (

WarehouseID INT PRIMARY KEY,

Location VARCHAR(255),

Capacity INT,

ResponsiblePerson VARCHAR(255)

);

CREATE TABLE Shipment (

ShipmentID INT PRIMARY KEY,

SupplierID INT,

WarehouseID INT,

ShipmentDate DATE,

ArrivalDate DATE,

FOREIGN KEY (SupplierID) REFERENCES Supplier(SupplierID),

FOREIGN KEY (WarehouseID) REFERENCES Warehouse(WarehouseID)

);

CREATE TABLE Customer (

CustomerID INT PRIMARY KEY,

CustomerName VARCHAR(255),

ContactName VARCHAR(255),

Email VARCHAR(255),

Phone VARCHAR(20),

ShippingAddress TEXT

);

CREATE TABLE Order (

OrderID INT PRIMARY KEY,

CustomerID INT,

OrderDate DATE,

TotalAmount DECIMAL(10, 2),

FOREIGN KEY (CustomerID) REFERENCES Customer(CustomerID)

);

CREATE TABLE OrderItem (

OrderItemID INT PRIMARY KEY,

OrderID INT,

ProductID INT,

Quantity INT,

UnitPrice DECIMAL(10, 2),

FOREIGN KEY (OrderID) REFERENCES Order(OrderID),

FOREIGN KEY (ProductID) REFERENCES Product(ProductID)

);

CREATE TABLE Return (

ReturnID INT PRIMARY KEY,

OrderItemID INT,

ReturnDate DATE,

Reason TEXT,

FOREIGN KEY (OrderItemID) REFERENCES OrderItem(OrderItemID)

);