Project Details

Project name: B2B Product Management System

Team number: Team 1

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Problem Statement

Our B2B Product Management System will focus on a manufacturer that ships products to businesses rather than individual consumers. The system will handle the storage and management of product stock, order tracking and customer data. The type of products we plan to ship are paper, stationary and office supplies, as this industry involves bulk and personalized shipping to various businesses. The database will support real-time tracking of orders and shipments, ensuring efficient route management and delivery.

The goal of this project is to provide a reliable database management system (DBMS) to improve the operational efficiency of manufacturers in businesses to businesses (B2B) deliveries. The DBMS will provide optimized product storing, order tracking and shipment status updates. Compared to Excel, this database offers better scalability and real-time capabilities, and can handle large volumes of orders and deliveries.

Target Users

The people who will access the database include inventory/logistics management to manage stock levels, the purchasing department to manage order supplies, the finance/accounting department for budgeting and generating reports on costs, the administrative staff to track orders and request supplies, and the IT department to make sure the database is functioning properly.

There are many naive users who will access the database through an application. This includes client businesses who will place orders on items, employees who keep track of inventory/stock, and update order status, and drivers from a third-party delivery service who can update the status of an order after delivery.

The person who will manage the database is a Database Administrator. They will be responsible for managing the database, its performance, and security. They will design and maintain the database structure, implement security measures, back up and recover data, monitor performance, and manage user access/permissions.

List of Relations

Order

- OrderID - int (primary key)
- CustomerID - int (foreign key)
- Total Price - float
- Destination - char(50)
- Order Date - datetime
- Delivery Date - datetime
- Status - enum(Pending, Transit, Delivered, Canceled)

Customer

- CustomerID - int (primary key)
- Customer Name - char(50)
- Email - char(50)
- Phone Number - char(20)
- Address - char(50)

Product

- ProductID - int (primary key)
- Product Name - char(50)
- Product Description - char(200)
- CategoryID - int (foreign key)

Order Item

- ItemID - int (primary key)
- ProductID - int (foreign key)
- OrderID - int (foreign key)
- Quantity - float

Unit Price - float

Stock Quantity - float

Item Price - float

Employee

EmployeeID - int (primary key)

Employee Name - char(50)

Title - char(50)

Email - char(50)

Phone number - char(20)

Category

CategoryID - int (primary key)

Category Name - char(50)

Web Interface

Our web interface would consist of a login page where employees of businesses can log in to access our website. The main site would include the name of our business, logo, and a navigation menu where you can access different pages of our website. There would be a page where you can see all available inventory of product that can be ordered, a page to actually complete the order on what has been added to "cart" (a checkout page) , a page to see the status on orders that have already been placed, and a page to see previous orders/transactions made by a certain business.

Data

For our B2B Product Management System, we will generate our own data to simulate the operations of the company that ships office supplies to businesses. The database will manage product storing, order tracking and customer data. Here are the following categories of data will be created:

1. Order: We will generate 100-200 customer orders to simulate the operations. Each order will include a unique OrderID, CustomerID, Total Price, Destination, Order Date, Delivery Date, Status.

   Example:

   - OrderID: 12345, CustomerID: 001, Total Price: $150.00, Destination: 456 Main St, City, State, Order Date: 9/8/2023, Delivery Date: 9/13/2023, Status: Delivered

2. Customer: We will generate 20-30 virtual business customer profiles, each of them will have a unique CustomerID, Customer Name, Email, Phone Number, Address.

   Example:

   - CustomerID: 001, Customer Name: Global Product Company, Email: contact@globalproduct.com, Phone Number: 123-456-7890

3. Product: We will generate product information for various office supplies such as pens, papers and other stationary items. Each product will have a unique ProductID, Product Name, Product Description, CategoryID, Unit Price, Stock Quantity.

   Example:

   - ProductID: 1001, Product Name: “SmoothFlow Ballpoint Pens - Pack of 10”, Product Description: “Experience smooth, effortless writing with SmoothFlow Ballpoint Pens. Designed with a comfortable grip and high-quality ink, these pens ensure clean, consistent lines, making them perfect for everyday use in the office or at home”, CategoryID: 1111, Unit Price: $15.00, Stock Quantity: 200

4. Order Item: The Order Item data is related to the Order data and Product data. Each Order Item data will have a unique ItemID, ProductID, OrderID, Quantity, Item Price.

   Example:

   - ItemID: 2001, ProductID: 1001, OrderID: 12345, Quantity: 10, Item Price: $150.00

5. Employee: We will generate 10-15 Employee information for the employees to login the system, edit storage, update product information, check order status and so on. Each Employee data will have a unique EmployeeID, Employee Name, Title, Email, Phone Number.

   Example:

   - EmployeeID: 001, Employee Name: John Smith, Title: Manager, Email: johnsmith@company.com, Phone Number: 254-536-2375

6. Category: We will generate different category information to classify different products. Each Category data will have a unique CategoryID, Category Name.

   Example:

   - CategoryID: 1111, Category Name: Pen