

CSE530 DATABASE MANAGEMENT SYSTEMS

LAB 1

Analyse the following case:

A small sized retail store has two major systems in operation. One system stores customer and order related data, while the other stores supplier and purchase related data. You have been hired to create a new integrated system that can be used to perform both operations. The following are the requirements as captured by the analysts:

The customer base of the company is made up of individuals as well as other companies. The following customer information needs to be stored: A unique id for each customer, the customer name, the date of incorporation / date of birth, company registration no / social security no, credit limit, the number of employees and all addresses.

A customer can place a sales order for many products; the following information should be stored about the sales order: A unique id for each order, the customer id, date the order was placed, estimated delivery date, the total discount given on the order and the status of the order (New, Approved, Delivered, Invoiced, and Closed). The following information needs to be stored for each product ordered: A unique id for each product, the product name, the supplier id, the quantity requested by the customer, the quantity in stock, the purchase price and the sales price.

The suppliers of the company are all organisations of which the following information needs to be stored. A unique id for each supplier, the supplier name, the date of incorporation, company registration no and all addresses.

Similar to a customer order, a purchase order can be made with a single supplier for many products, the product ids should be the same as the product ids specified in the customer orders, and the quantity in stock should be updated once the products have been received by the company. The purchase order should contain the following information: A unique id for each purchase order, the date the purchase order was placed, the latest date that the products must be received, product ID, the quantity, and the order status. In addition, the purchase price of all the products for the order should be stored.

Currently there are four types of addresses (Delivery, Payment, Home, and Office) and there will be many more types of addresses in the future. Each address can be of one or more address types but belongs to only one customer / supplier. Each address should contain the street address, city, postal code and country. In addition, there should be information of each country containing a unique ID for each country, country name, population, currency code and average cost of living in the local currency.

Questions:

1. Draw an Entity-Relationship diagram for the above scenario.
2. Create the database schema (tables, primary keys, foreign keys) using the ER model created in step 1 as a guide. Make sure to use SQL statements to create the tables and relationships, and submit the code as your homework.
3. Discuss the changes that need to be done in the above ER diagram if you wanted this solution to support the customers of multiple retail stores.

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LAB 1 – GRADE SHEET

Student Name:

Graded By:

Criteria	Comment	Score	Possible Score
Question 1 (40)			
Identify entities			10
Identify attributes			6
Identify primary keys			4
Identify relationships			10
Minimize attribute redundancy			10
Question 2 (40)			
Creating tables			15
Creating primary keys			5
Creating foreign keys			10
Additional constraints on foreign keys			10
Question 3 (20)			
Support for multiple retail stores			10
Suitable justification for design decision			10