Byte's

Gian Lacson, Ashley H, Bianca I, Christian R, Fernando C

IS 475 1001

Professor Hu

Business Problems & Business Rules

Question 1

Byte's is an e-commerce platform specializing in computer parts that faces significant challenges related to inventory management. Inventory management issues that have emerged are frequent stockouts and overstocking. These two problems not only cause issues in the supply chain but also create problems with customer satisfaction and sales performance. Currently, there is no system in place. To prevent these problems, we need to create a system to optimize inventory levels to further our objectives in this business.

Question 2

Employee is the entity, followed by Employee_ID as a key attribute. The remaining attributes are Employee_Name, Phone_No, and Address. This is who will place the order from the supplier regarding the products needed for the business.

Order is the entity, followed by Order_ID as a key attribute. The remaining attributes are Quantity Ordered and Order Date. An employee ID will be included as a foreign key in this entity because they are ordering. Supplier ID will also be included because they are receiving the order. In a separate table, product ID will also be included in an order. This would contain all the data in regard to ordering products for the business. For example, this could be applied to the amount of GPUs, CPUs, PSUs, and other computer hardware to help us analyze order information between the business and a company such as NVIDIA.

Product would be the entity, Product ID would be the key attribute, and the attributes would be Product_Name, Category, Price, and Wholesale_Cost. Price and Wholesale_Cost

should be recorded as decimal values, and Product_ID should be a unique identifier. Supplier ID will be a foreign key in this table because they are supplying the products.

Supplier would be another entity, Supplier_ID would be the key attribute, and the attributes would be Supplier_Name, Email, and Phone_Number. This is who supplies the products for our company.

Inventory is the entity, followed by Inventory_ID as a key attribute. The remaining attributes are Product_ID and Stock_Quantity. This is needed to manage the business's inventory to ensure that we have enough products to sell. Product ID will be a foreign key in this table because a product is stored in inventory.

Sale would be the entity, Sale_ID would be the key attribute while the other attributes are Sale_Date, Quantity_Sold, Revenue, and Product_ID. Product_ID would be a foreign key from the entity, Products. Product ID will be a foreign key in this table because products are involved in a sale.

1. Employee
   a. Employee_ID
   b. Employee_Name
   c. Phone_No
   d. Address
2. Order
   a. Order_ID***PK
   b. Product_ID***FK
   c. Employee_ID***FK

    d. Quantity_Ordered

    e. Order_Date

    f. Supplier_ID***FK

3. Product

    a. Product_ID ***PK

    b. Product_Name

    c. Category

    d. Price

    e. Wholesale_Cost

4. Supplier

    a. Supplier_ID***PK

    b. Supplier_Name

    c. Contact_Info

        i. Email

        ii. Phone_Number

5. Inventory

    a. Inventory_ID

    b. Product_ID***FK

    c. Stock_Quantity

6. Sale

    a. Sale_ID

    b. Sales_Date

c. Quantity_Sold

d. Product_ID***FK

e. Revenue

Question 3

The business value of the database being developed is cost-efficient, enhances reporting

for decision-making, provides predictions, and competitive advantage. The database is

cost-efficient because it will help the company not to order too much stock or too little. It will

enhance reporting for decision-making by developing comprehensive sales and inventory reports

while improving operational efficiency. The database will also provide predictions to anticipate

shortages of supply in the future. Understanding market trends and the company's position

within the market allows more accurate forecasting, resulting in a competitive advantage and

greater scalability. Because of predictability, the business can quickly adapt to changing market

dynamics and take advantage of opportunities that may arise. All in all, this will position the

company for long-term success.

Entity-Relationship Diagram
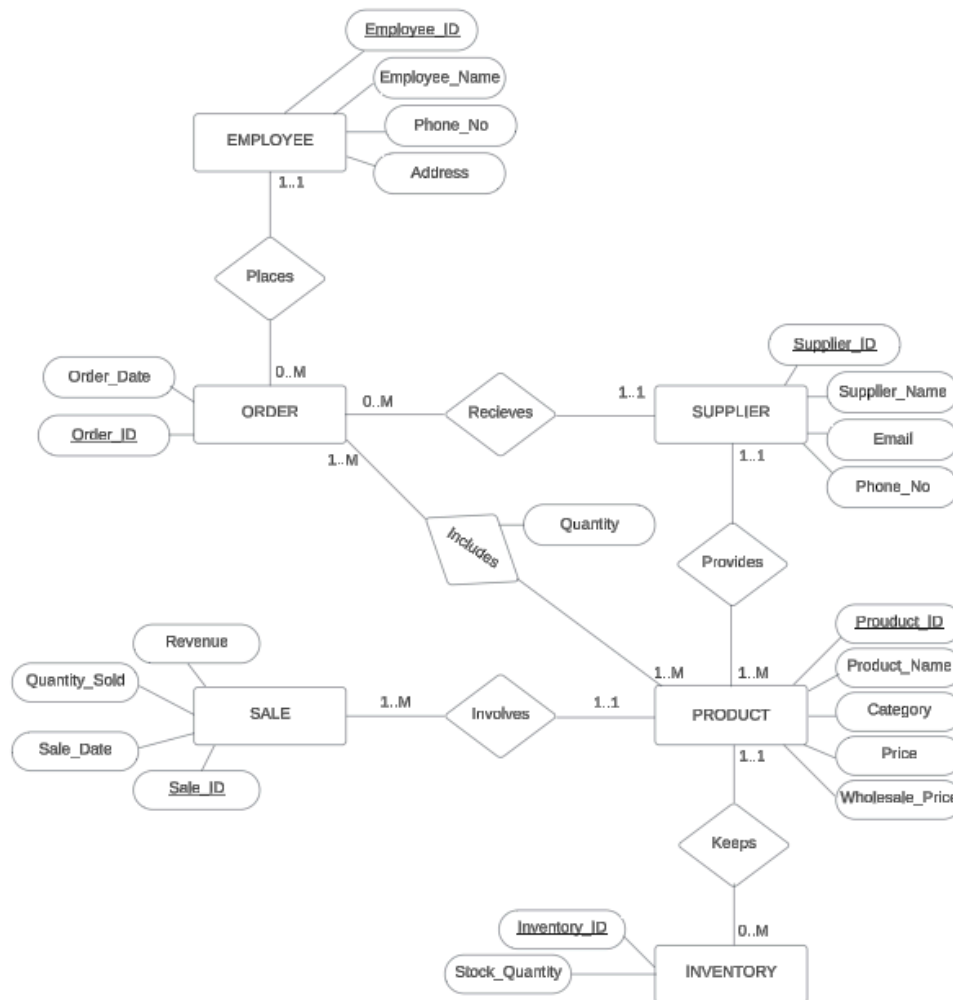
Description of Diagram:

[You can change the order if needed]

An employee has a unique employee ID, name, phone number, and address.

<u>An employee -> order, an order -> employee</u>:

 An order has a unique order ID and order date including the quantity of products.

An order -> supplier, a supplier -> order:

An order -> product, a product -> order:

A supplier has a unique supplier ID, name, and contact information such as email and phone number.

A supplier -> product, a product -> supplier:

A product contains a unique product ID, name, category, price, and wholesale price.

A product -> inventory, inventory -> product:

An inventory contains an inventory ID and stock quantity.

A sale includes sales ID, date, quantity sold, and revenue.

A product -> sale, a sale -> product:

Logical Schema

EMPLOYEE	Employee_ID	Employee_Name	Phone_No	Address

ORDER	Order_ID	Employee_ID	Order_Date	Supplier_ID

ORDER_PRODUCT	Product_ID	Order_ID	Quantity

SUPPLIER	Supplier_ID	Supplier_Name	Email	Phone_No

PRODUCT	Product_ID	Supplier_ID	Category	Price	Wholesale_Cost	Product_Name

INVENTORY	Inventory_ID	Product_ID	Stock_Quantity

SALE	Sale_ID	Product_ID	Quantity_Sold	Revenue