**Database Analysis**

1)Business Requirements

The business requirements for an online store database typically include the following:

Data Storage: The database must be able to store and manage large amounts of data, including customer information, order information, product information, and inventory information.

Data Security: The database must be secure to protect sensitive information such as customer information and financial data.

Scalability: The database must be able to handle increasing amounts of data as the business grows and more customers are added.

Reliability: The database must be highly available and provide consistent, accurate data even during high traffic periods.

Integration with Other Systems: The database must be able to integrate with other systems such as payment gateways, shipping systems, and customer relationship management (CRM) systems.

Reporting and Analytics: The database must be able to provide real-time reports and data analytics to support business decision making.

User-Friendly Interface: The database must have a user-friendly interface that allows staff to manage customer information, products, orders, and inventory efficiently and easily.

Customers will need the following attributes:

Customer ID: a unique identifier for each customer.

Name: the customer's first and last name.

Email: the customer's email address.

Password: the customer's password, which should be hashed and stored securely.

Billing Address: the customer's billing address, including street address, city, state, zip code, and country.

Shipping Address: the customer's shipping address, including street address, city, state, zip code, and country.

Phone Number: the customer's phone number.

Order History: a record of the customer's previous orders.

Date Registered: the date the customer created their account.

Last Login Date: the date the customer last logged into their account.

Orders will need the following attributes:

Order ID: a unique identifier for each order.

Customer ID: a reference to the customer who placed the order.

Order Date: the date the order was placed.

Total Price: the total cost of the order, including products, taxes, and shipping costs.

Payment Method: the method of payment used for the order, such as credit card, PayPal, or bank transfer.

Order Status: the current status of the order, such as pending, processing, shipped, delivered, or cancelled.

Shipping Method: the method of shipping used for the order, such as standard, express, or overnight.

Shipping Address: the shipping address for the order.

Billing Address: the billing address for the order.

Product Details: a reference to the products included in the order, including product ID, quantity, and price.

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Products will need the following attributes:

Product ID: a unique identifier for each product.

Product Name: the name of the product.

Description: a detailed description of the product, including its features and benefits.

Price: the cost of the product.

Categories: the categories to which the product belongs, such as electronics, clothing, or home goods.

Images: one or more images of the product.

Availability: whether the product is currently in stock or out of stock.

Stock Quantity: the number of units of the product currently in stock.

Minimum Stock Level: the minimum number of units of the product that should be kept in stock.

Date Added: the date the product was added to the online store.

**Inventory will need the following attributes:**

Product ID: a reference to the product in the Products table.

Stock Quantity: the number of units of the product currently in stock.

Minimum Stock Level: the minimum number of units of the product that should be kept in stock.

Reorder Point: the stock level at which the product should be reordered.

Reorder Quantity: the number of units to be reordered when the reorder point is reached.

Supplier ID: a reference to the supplier who supplies the product.

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Returns will need the following attributes:

Return ID: a unique identifier for each return.

Order ID: a reference to the order that the return is associated with.

Customer ID: a reference to the customer who initiated the return.

Product ID: a reference to the product being returned.

Return Date: the date the return was initiated.

Reason for Return: the reason for the return, such as defective product, incorrect product received, or change of mind.

Refund Amount: the amount of money to be refunded to the customer.

Refund Method: the method of refund, such as credit back to the original payment method or store credit.

Return Status: the current status of the return, such as pending, approved, or rejected.

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**Categories will need the following attributes:**

Category ID: a unique identifier for each category.

Category Name: the name of the category.

Description: a brief description of the category.

Image: an image associated with the category.

**Deals will need the following attributes:**

Deal ID: a unique identifier for each deal.

Product ID: a reference to the product in the Products table.

Start Date: the start date of the deal.

End Date: the end date of the deal.

Deal Price: the discounted price of the product during the deal period.

Description: a description of the deal.

Image: an image associated with the deal.

Status: the status of the deal, such as active or inactive.

2)Conceptual Design

a- E-R Diagram

b- relationship list

Customers and Orders: A customer can have many orders, and an order belongs to one customer. This is a one-to-many relationship, and is usually represented as a foreign key in the Orders table that references the primary key of the Customers table.

Orders and Products: An order can have many products, and a product can be part of many orders. This is a many-to-many relationship, and is usually represented using a separate table, such as Order Details, that maps the relationship between Orders and Products.

Products and Inventory: A product can have one inventory record, and an inventory record belongs to one product. This is a one-to-one relationship, and is usually represented as a foreign key in the Inventory table that references the primary key of the Products table.

Products and Deals: A product can be part of many deals, and a deal can include many products. This is a many-to-many relationship, and is usually represented using a separate table, such as Deal Products, that maps the relationship between Products and Deals.

Orders and Returns: An order can have many returns, and a return belongs to one order. This is a one-to-many relationship, and is usually represented as a foreign key in the Returns table that references the primary key of the Orders table.

Products and Categories: A product can belong to many categories, and a category can have many products. This is a many-to-many relationship, and is usually represented using a separate table, such as Product Categories, that maps the relationship between Products and Categories.

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