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Full exercise in finance

Consider a billing database called BillingSystem dedicated to manage billing and invoicing processes for a retail or service-oriented business. It includes the following key entities:

1. **Customers**: Stores customer details such as name, contact information, and address.
2. **Products**: Maintains a catalog of products with their descriptions, prices, and available stock.
3. **Orders**: Tracks customer orders, including the total amount and associated customer information.
4. **OrderDetails**: Links orders with specific products, recording quantities and subtotals for each item.
5. **Payments**: Manages payments made for orders, including the payment method, amount, and date.
6. **Invoices**: Represents billing documents for orders, detailing due dates and payment statuses.
7. **Discounts**: Defines promotional discounts with validity periods and discount percentages.
8. **Taxes**: Stores tax details, including rates and applicability

Bellow is the relational scheme

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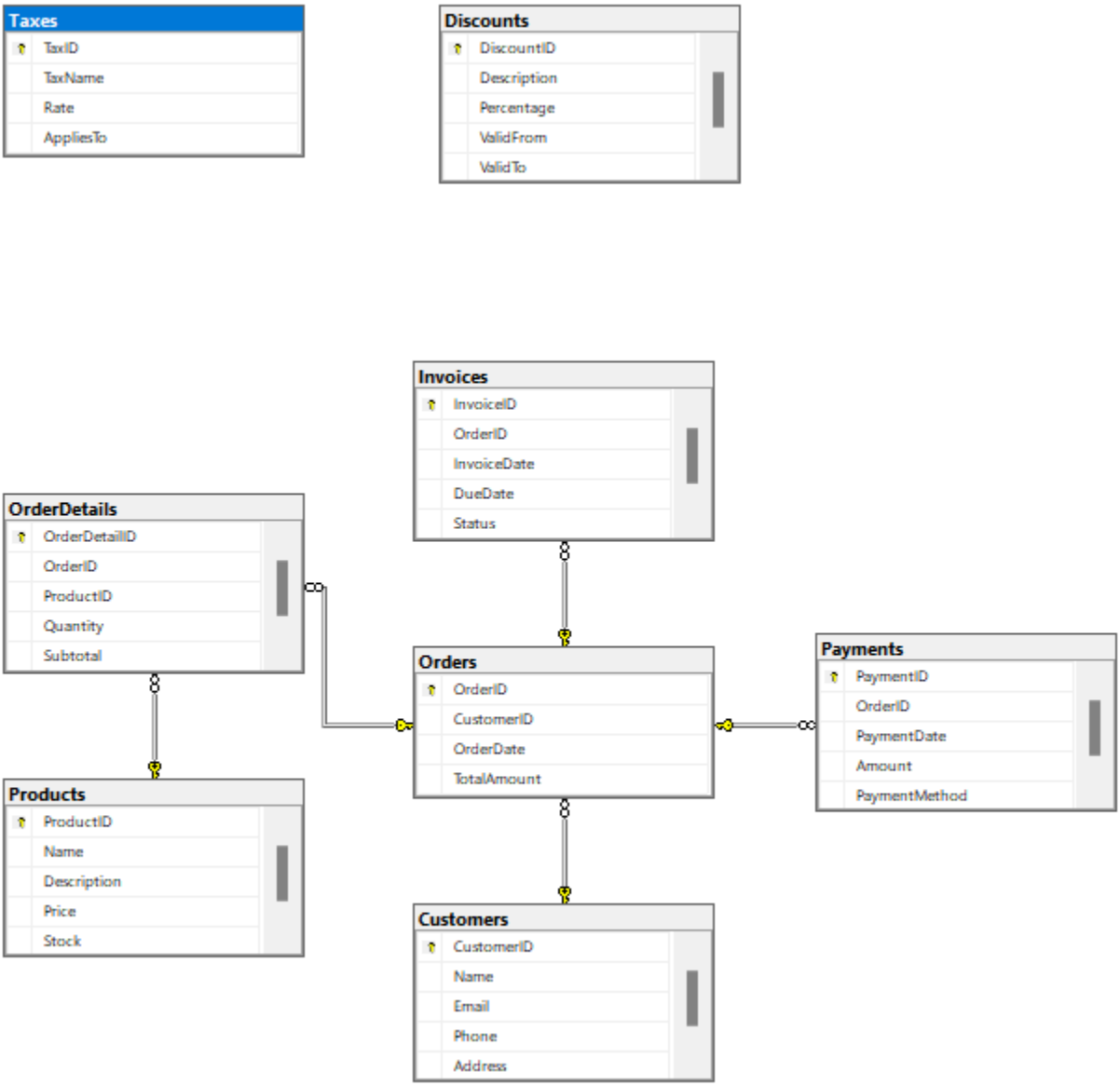
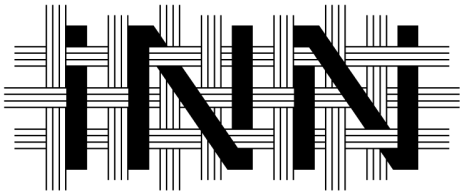


I. Data Query Language:

A- Query total sales (revenue) for each customer along with their names.
B- List all orders with their product names, quantities, and subtotals, including customer details.
C- Retrieve invoices that are overdue along with customer and order details.
D- List all products that are taxed, showing tax details and the product price including tax.



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E- Find customers who have made payments exceeding a specified amount in a single transaction.

II. Triggers and jobs:

A. Create a trigger to automatically update product stock when an order is placed (use transaction inside)
B. Write a trigger to send an invoice when an order is placed (use transaction inside)
C. Create a trigger to log all payment activities in an audit table.
D. Create a job that delete audit activities older than 2 years

III. Security:

A. Propose an AES bases solution to hide the columns ***TotalAmount*** in **Orders** table and the column ***Amount*** in **Payments** table