Project Topic: Online Bookstore Database Management System

Project Scope:

Design and implement a SQL database for an online bookstore. The database should handle various aspects of book inventory, customer orders, and administrative functions.

Steps to Implement the Project:

1. Database Design (DDL - Data Definition Language):

- Step 1: Identify and define the entities (tables) needed for the bookstore database. Examples include:

- Books(ISBN, title, author, publisher, genre, price, etc.)

- Customers(customer\_id, name, address, email, etc.)

- Orders(order\_id, customer\_id, order\_date, status, total\_amount, etc.)

- Order Details(order\_id, ISBN, quantity, price)

- Employees(employee\_id, name, position, etc.)

- Categories, Publishers, Reviews, etc.

**DONE**

- Step 2: Define the relationships between the tables (primary keys, foreign keys).

- Step 3: Implement the schema using SQL commands (`CREATE TABLE`, `ALTER TABLE` for constraints, etc.).

**DONE**

2. Populating Data (DML - Data Manipulation Language):

- Step 4: Insert sample data into the tables to populate them (`INSERT INTO` statements).

**DONE**

3. Querying Data (DQL - Data Query Language):

- Step 5: Write SQL queries to retrieve information such as:

- List of books by a specific author.

- Total sales by month.

- Customers who purchased more than a certain amount.

- Best-selling books.

- Pending orders.

- etc.

4. Advanced Queries and Subqueries:

- Step 6: Incorporate subqueries to solve complex queries. For example:

- Find customers who have placed orders exceeding a certain total amount.

- Identify books that have never been ordered.

5. Using Joins:

- Step 7: Utilize different types of joins (`INNER JOIN`, `LEFT JOIN`, `RIGHT JOIN`) to combine data from multiple tables. For example:

- Retrieve order details along with customer information.

- List books along with their publishers.

6. Creating Views:

- Step 8: Design and create views for commonly used queries. For instance:

- Create a view to show all orders along with customer details.

- Create a view for books that are currently in stock.

7. Testing and Optimization:

- Step 9: Test the database queries and ensure they return accurate results.

- Step 10: Optimize queries for better performance if necessary (indexing, query restructuring).

8. Documentation:

- Step 11: Document the database schema, sample queries, and any specific business rules or assumptions made during the design phase by making ER Diagram.