**Problem Statement**

ER Diagram (description)

Tables with schema

Features

Relationships

Sample Data 8-10 SQL Queries

✅ **1. Project Title**

Bookstore Management System (SQL Only Project)

✅ **2. Problem Statement**

The objective of this project is to design and implement a **relational database system** for an online bookstore that efficiently manages book inventory, customer information, author details, and sales transactions. The database aims to streamline business operations, improve data accuracy, and enable easy access to key insights related to inventory, customers, and sales performance.

✅ **3. ER Diagram (Textual Description)**

**Entities:**

Books

Authors

Genres

Customers

Orders

Order Details

Payments

✅ **4. Relationships:**

A book can have one or more authors (1 : M)

A book belongs to one Genre (1 : 1)

A customer can place multiple orders (1 : M)

Each order has multiple items (1 : M)

Each Order Detail refers to a book (1 : 1)

Each order has one payment

✅ **5.Features**

Book Inventory Management

Customer Details

Orders and Transactions

Authors and Categories

Payments and Stock Updates

✅ **6.Tables and Schema**

Here’s the structure in SQL DDL format

**CREATE DATABASE IF NOT EXISTS OnlineBookstoreDB**;

**CREATE TABLE Customers** (

Customer\_ID INT PRIMARY KEY,

Name VARCHAR(255) NOT NULL,

Email VARCHAR(255) NOT NULL,

Phone VARCHAR(50),

Created\_At TIMESTAMP NOT NULL DEFAULT CURRENT\_TIMESTAMP,

Street VARCHAR(255),

City VARCHAR(100) NOT NULL,

State VARCHAR(100),

Postal\_Code VARCHAR(20) NOT NULL,

Country VARCHAR(50) NOT NULL);

**CREATE TABLE Authors** (

Author\_ID INT PRIMARY KEY,

Name VARCHAR(255) NOT NULL,

Bio TEXT);

**CREATE TABLE Genres** (

Genre\_ID INT PRIMARY KEY,

Genre\_Name VARCHAR(100) NOT NULL UNIQUE);

**CREATE TABLE Books** (

Book\_ID INT PRIMARY KEY,

Title VARCHAR(255) NOT NULL,

Author\_ID INT NOT NULL,

Genre\_ID INT NOT NULL,

Price DECIMAL(10,2) NOT NULL DEFAULT 0.00,

Stock\_Quantity INT NOT NULL DEFAULT 0,

CONSTRAINT fk\_author FOREIGN KEY (Author\_ID) REFERENCES Authors(Author\_ID),

CONSTRAINT fk\_genre FOREIGN KEY (Genre\_ID) REFERENCES Genres(Genre\_ID));

**CREATE INDEX** idx\_books\_title ON Books(Title);

**CREATE TABLE Orders** (

Order\_ID INT PRIMARY KEY,

Customer\_ID INT NOT NULL,

Order\_Date DATETIME NOT NULL DEFAULT CURRENT\_TIMESTAMP,

Total\_Amount DECIMAL(10,2) NOT NULL DEFAULT 0.00,

CONSTRAINT fk\_customer FOREIGN KEY (Customer\_ID) REFERENCES Customers(Customer\_ID));

**CREATE INDEX** idx\_orders\_customer\_id ON Orders(Customer\_ID);

**CREATE TABLE OrderDetails** (

Order\_ID INT NOT NULL,

Book\_ID INT NOT NULL,

Quantity INT NOT NULL DEFAULT 1,

Price DECIMAL(10,2) NOT NULL DEFAULT 0.00,

PRIMARY KEY (Order\_ID, Book\_ID),

CONSTRAINT fk\_orderdetails\_order FOREIGN KEY (Order\_ID) REFERENCES Orders(Order\_ID),

CONSTRAINT fk\_orderdetails\_book FOREIGN KEY (Book\_ID) REFERENCES Books(Book\_ID));

**CREATE INDEX** idx\_orderdetails\_order\_id ON OrderDetails(Order\_ID);

**CREATE TABLE Payments** (

Payment\_ID INT PRIMARY KEY,

Order\_ID INT NOT NULL,

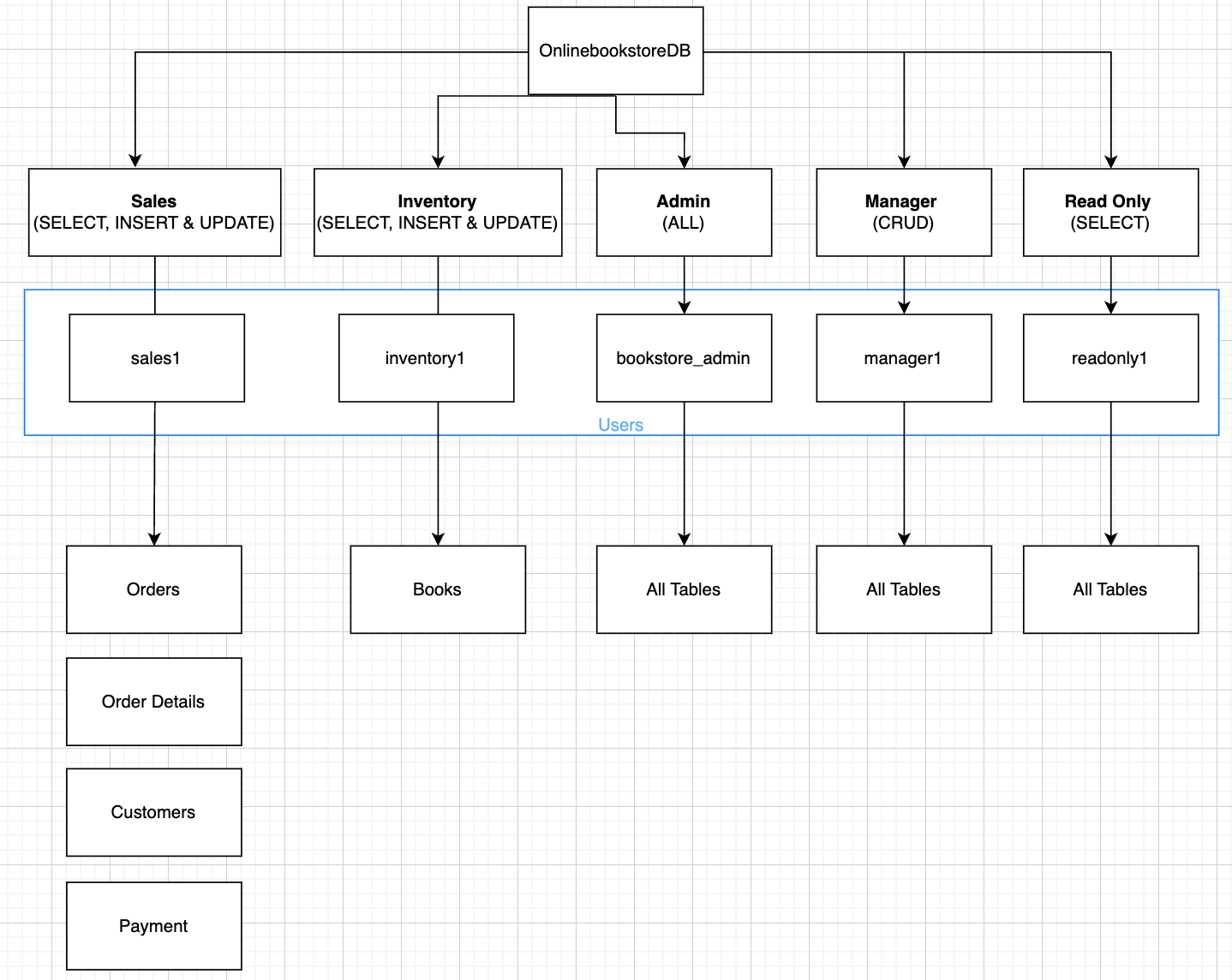
Payment\_Method ENUM('Cash', 'Credit Card', 'Debit Card', 'Paypal', 'Other') NOT NULL DEFAULT 'Cash',

Payment\_Status ENUM('Pending', 'Completed', 'Failed', 'Refunded') NOT NULL DEFAULT 'Pending',

Payment\_Date DATETIME NOT NULL DEFAULT CURRENT\_TIMESTAMP,

CONSTRAINT fk\_payment\_order FOREIGN KEY (Order\_ID) REFERENCES Orders(Order\_ID));

✅ **7. Roles & Permissions**



✅ **8.Sample Data Generation**

Sample data is extracted from AI, with a sample data for 500rows.

✅ **9. Data Analysis Queries for the following Topics**

**Sales Performance**

1. Which books generated the highest total revenue this year?

2. Who are the top 5 authors by total book sales?

3. What is the total monthly sales trend over the past year?

4. How many unique customers made purchases in the month of June'25?

**Inventory & Supply**

5. Which books are running low on stock and need restocking?

6. What is the total value of current inventory (price × stock)?

👩‍💻 **Customer Insights**

7. Who are the top 10 customers based on total spending?

8. Find the Customers who ordered the most books?

💡 **Business Optimization**

9. Which book categories or genres generate the most revenue?

10. Which books have not been sold in the last 6 months (slow movers)?