



## ENSF 608 – Databases – Study Guide

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### Scenario: Bookora Online Bookstore

**System Description:** Bookora is a small online bookstore that sells printed and digital books to registered customers.

The system records information about books, authors, customers, orders, and payments.

#### Database Overview

- **BOOK** (BookID, Title, Category, Price, StockQuantity, PublishedYear)
  - Each book belongs to a single category (e.g., Science, History, Fiction) and may have more than one author.
- **AUTHOR** (AuthorID, FirstName, LastName, Country)
  - Authors may publish multiple books.
- **CUSTOMER** (CustomerID, Name, Email, City, Country, JoinDate)
- **ORDER** (OrderID, CustomerID#, OrderDate, Status)
  - Each order belongs to a single customer.
- **ORDERDETAIL** (OrderID#, BookID#, Quantity, UnitPrice)
  - Represents individual book items within an order.
- **PAYMENT** (PaymentID, OrderID#, Amount, Method, PaymentDate)

#### Additional Rules

- Customers can place multiple orders.
- Each book can appear in many orders.
- A book's stock is reduced when an order is confirmed.
- Managers run SQL queries to list top-selling books, track inventory, and calculate total sales per author.
- The database uses stored procedures to automate report generation and updates to stock levels.

#### Questions:

1. Explain why ORDERDETAIL is needed instead of placing BookID directly in the ORDER table.
2. Write a SQL command to create the CUSTOMER table with appropriate data types.
3. Suppose Bookora wants to track when a book's stock drops below 5. Describe how a trigger or procedure could be used to flag low inventory items.
4. A manager asks for a report showing each book category and the total revenue earned from sales in that category. Describe the query steps and SQL features you would use.
5. What would happen if you executed *UPDATE BOOK SET Price = Price \* 1.10* without a WHERE clause? Explain the risk and how to avoid it.
6. Provide an example of a stored procedure that returns all customers from a given country. Explain its input and output parameters.
7. Describe how JOIN operations help Bookora combine customer data with order information. Give one example using an INNER JOIN.
8. A developer uses *DELETE FROM BOOK* to clear inventory and accidentally removes all records. What recovery strategies and SQL design practices could reduce this risk in the future?

9. Which command creates a new table in the Bookora database?
- A) INSERT
  - B) ALTER
  - C) CREATE
  - D) UPDATE
10. When adding a new column for "Publisher" to BOOK, which command should be used?
- A) ALTER TABLE BOOK ADD COLUMN Publisher VARCHAR(50);
  - B) INSERT INTO BOOK (Publisher);
  - C) UPDATE BOOK SET Publisher = 'Penguin';
  - D) CREATE BOOK Publisher;
11. A developer runs: SELECT SUM (Price) FROM BOOK; and gets a syntax error. Why?
- A) Price is not numeric.
  - B) There is a space between SUM and the parenthesis.
  - C) SUM requires GROUP BY.
  - D) SUM is not supported in MySQL.
12. Which JOIN returns all books and their authors, even if some books have no listed author?
- A) INNER JOIN
  - B) RIGHT JOIN
  - C) LEFT JOIN
  - D) FULL JOIN
13. To find the average book price per category, which clause must be used?
- A) ORDER BY
  - B) GROUP BY
  - C) HAVING
  - D) DISTINCT
14. Which aggregate function returns the highest book price?
- A) MAX()
  - B) AVG()
  - C) MIN()
  - D) COUNT()
15. The command DROP TABLE PAYMENT; does what?
- A) Removes all data but keeps the table structure.
  - B) Deletes both data and table definition permanently.
  - C) Deletes only rows with NULL values.
  - D) Clears foreign keys only.
16. What is the purpose of the HAVING clause?
- A) Filter rows before aggregation.
  - B) Filter groups after aggregation.
  - C) Rename columns in the output.
  - D) Specify the sorting order.
17. The procedure CALL AddBook('SQL Basics', 45.00, 'Fiction'); likely performs:
- A) An INSERT operation into BOOK.
  - B) A SELECT operation on BOOK.
  - C) A DELETE operation on BOOK.
  - D) An UPDATE to change all book prices.

18. Which command combines rows from two tables when there is a match in both?
- A) LEFT JOIN
  - B) INNER JOIN
  - C) RIGHT JOIN
  - D) FULL JOIN
19. If WHERE is omitted in an UPDATE statement, what is the consequence?
- A) No rows are affected.
  - B) Only rows with NULL values change.
  - C) All rows in the table are updated.
  - D) The query fails to execute.
20. What does SELECT DISTINCT Category FROM BOOK; do?
- A) Shows every record in the table.
  - B) Shows each category once without duplicates.
  - C) Deletes repeated rows.
  - D) Counts unique values per category.
21. Which pair of commands represent schema manipulation operations?
- A) CREATE and ALTER
  - B) INSERT and DELETE
  - C) SELECT and JOIN
  - D) UPDATE and GROUP BY
22. A procedure is declared with IN and OUT parameters. What does OUT represent?
- A) A value returned to the caller.
  - B) A temporary variable inside the procedure.
  - C) A parameter passed by reference only.
  - D) A triggered event.
23. A student writes: SELECT Name Age FROM CUSTOMER; MySQL reports a syntax error. Why?
- A) The column Age does not exist.
  - B) Columns in SELECT must be separated by a comma.
  - C) FROM should appear before SELECT.
  - D) Names must be quoted.