MODULE 6: MySQL CRUD & Joins (Full Backend) (11 Exercises)

40. Create a database retail_app and two tables: customers and orders. Insert 10 rows.
41. Write SQL: fetch all customers who placed more than 2 orders.
42. Write SQL: list products that were never ordered.
43. Write SQL: total amount spent by each customer.
44. Write SQL: orders of each customer including customers with zero orders (left join).
45. Write SQL: all products and match orders even if no sale occurred (right join).
46. Write SQL: find customers ordering from multiple categories.
47. Write SQL: list top 3 highest revenue orders.
48. Write SQL: detect missing customer_id or product_id in orders.
49. Write SQL: generate a report of (customer × month × total amount).
50. Write a SQL query using CROSS JOIN to generate all (customer × product) combinations.

MODULE 7: Python + MySQL Integration (Medium Level Mini Projects)

Project 1: Employee Management CLI App

Connect Python ↔ MySQL and build features:

- Add employee
- View all
- Update salary
- Delete employee
- Search by name
- Export to CSV

Project 2: Retail Analytics Tool (Python + MySQL + Pandas)

Create a module that:

- Reads orders from MySQL
- Loads products from CSV
- Merges and generates a revenue dashboard
- Computes top 5 customers
- Saves final report to Excel

Project 3: Library Database + Python Search

- Create MySQL tables for books and members
- Insert sample data
- Build Python script to search books by name/author
- Track borrow and return dates

Project 4: Billing Generator (CSV + JSON + Python)

- Read product catalog from CSV
- Generate bills from JSON input
- Calculate totals, tax, and discounts
- Save bill history to MySQL
