

Database Systems LAB – BSDSF23

(Morning and Afternoon)

Lab 08 – 02-05-2025

Copy the portable DB Browser for SQLite from server (\\printsrv) and start it.

OBJECTIVE : This lab focuses on implementing SQL **CASE** statements for conditional logic, enabling dynamic data manipulation and customized query outputs based on specified conditions.

- ☐ Customers (customer_id, name, email, city, signup_date)
- ☐ Orders(order_id, customer_id, order_date, total_amount)
- ☐ Order_items(order_item_id, order_id, product_id, quantity, unit_price)
- ☐ Products(product_id, name, category, price, stock_qty)

Use the above schema and write SQL statements for the following tasks.

TASK1: You have the Products table with information about product prices. Write a SQL query that will categorize each product's price into one of the following categories:

- Cheap: Price less than or equal to 1000
- Moderate: Price between 1001 and 3000
- Expensive: Price greater than 3000

Your query should return the following columns:

- Product Name (from the name column)
- Price (from the price column)
- Category: Either Cheap, Moderate, or Expensive based on the price

TASK2: Write a SQL query to apply discounts based on the following rules:

- Lahore: 10% discount for orders over 5000.
- Karachi: 5% discount for orders over 3000.
- Other cities: No discount.

Return the following columns:

- Customer Name (from Customers)
- Order ID (from Orders)
- Total Amount (from Orders)
- Discount Applied: Percentage or "No Discount"
- Discounted Total: The amount after applying the discount.

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TASK3: Classify each order in the Orders table into one of the following categories based on its total_amount:

- Low: ≤ 1000
- Medium: 1001 to 5000
- High: > 5000

Display the following for each category:

- The category name
- How many orders fall into that category
- The total of all order amounts in that category

TASK4: Calculate the total sales for each product (quantity \times unit price). Once the total sales are calculated, classify each product into one of the following categories:

- Low Seller: total sales ≤ 5000
- Medium Seller: total sales between 5001 and 20000
- High Seller: total sales > 20000

The query should display the following for each product:

- Product Name
- Total Sales
- Sales Category

Make use of a CASE expression to classify the products into the appropriate sales category based on the total sales.

TASK 5: Task Description:

You are given two tables: Customers and Orders. Display the following for all orders:

- Customer Name
- City
- Order ID
- Total Amount

However, you must conditionally change how the results are sorted:

- If the customer is from Lahore, sort their rows by total_amount in descending order.
- If the customer is from Karachi, sort their rows by order_id in ascending order.

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TASK6: Find the top 3 customers with the highest total order amount. For each of these customers, display their Customer Name, the Total Number of Orders, and the Total Amount Spent. Use a subquery to calculate the total amount spent by each customer. From this subquery, filter and rank customers to show only the top 3 based on their total amount spent. The results should include the customer name, the number of orders they have made, and their total amount spent, ordered from the highest to the lowest total spent.

TASK 7: List categories of products that have been ordered more than 10 times or the average stock quantity in that category is less than 50.

TASK 8: Write a SQL query to find customers who have ordered more products than the average number of products ordered in all orders. For each customer, display their name, city, and the total number of products ordered.

TASK 9: Write a SQL query to find products that have been ordered by more than 5 different customers. For each product, calculate the total revenue generated and categorize it based on revenue:

- "High Revenue" if the revenue is more than \$5000,
- "Low Revenue" if the revenue is less than or equal to \$5000.

NOTE : Make sure to fulfill all the requirements to get full credit.