
Data Query Using MySQL Project

1. Project Overview

This project is designed to demonstrate strong **SQL querying skills** by solving business-oriented data questions. The focus is on **query logic, data retrieval, and analytical thinking**.

Multiple databases are used to reflect practical business scenarios across HR, sales, invoicing, inventory, and retail operations.

2. Project Objective

To showcase the ability to write **clean, efficient, and business-relevant SQL queries** using different SQL concepts such as **joins, aggregations, subqueries, window functions, case, etc**

3. Databases Used

The project uses four different databases, each representing a distinct business domain:

- **sql_hr**
Employee and office data used to demonstrate hierarchical relationships and organizational structure.
 - **sql_inventory**
Product-level data used for basic querying and inventory-style analysis.
 - **sql_invoicing**
Client, invoice, payment, and payment method data used for financial analysis, outstanding dues, and payment behavior.
 - **sql_store**
Retail-style data including customers, orders, order items, products, shippers, and order statuses, used for customer and sales analysis.
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4. What Was Done in This Project ?

The project answers **business-style questions** using SQL across multiple datasets. Key areas covered include:

- Retrieving customer, order, employee, and invoice data based on business filters
- Linking data across multiple tables to analyze relationships
- Identifying revenue patterns, payment behavior, and customer value
- Classifying data into meaningful business categories
- Performing analytical comparisons across rows without collapsing data

Each query is documented with comments explaining the business question it answers.

5. SQL Concepts Demonstrated

- **Basic SQL Statements**
SELECT, FROM, WHERE, ORDER BY, LIMIT
 - **JOINS**
 - INNER JOIN
 - OUTER JOIN
 - SELF JOIN
 - CROSS JOIN
 - **UNION**
Combining datasets with logical classification (e.g., active vs archived orders)
 - **Subqueries**
Used within WHERE and UPDATE statements for conditional logic
 - **Aggregate Functions & GROUP BY**
COUNT, SUM, AVG, MIN, MAX for revenue, invoices, and customer analysis
 - **Window Functions**
Analytical functions such as LEAD() for row-level comparison within partitions
 - **CASE Expressions**
Business classification such as:
 - Customer loyalty tiers
 - Invoice payment status
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6. Project Structure

The SQL logic is organized into multiple .sql files based on concept, such as:

- Basic Statements
- Joins
- Subqueries
- Aggregations & Group BY
- Window functions
- CASE expressions

This structure keeps the project modular, readable, and easy to evaluate.

7. Business Focus

All queries are framed around **practical business questions** related to sales, customers, payments, employees, and operations. The emphasis is on **how data is queried and structured** to support decision-making.

8. Conclusion

This project serves as a **query-focused SQL portfolio**, demonstrating the ability to work with multiple databases, apply core and advanced SQL concepts, and translate raw data into meaningful business insights.
