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# 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.

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## **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**

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## **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.

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## **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.

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## **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.

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## **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.

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