**Northwind Traders: A Strategic Sales Analysis Project**

**1. Project Overview**

This project is a comprehensive sales analysis of the fictitious company, Northwind Traders. The primary objective was to transform raw, disconnected sales data into a cohesive, interactive Power BI dashboard. The goal was to uncover actionable insights into sales performance, customer behavior, operational efficiency, and employee performance to enable data-driven strategic decision-making.

The entire project was guided by the **MECE (Mutually Exclusive, Collectively Exhaustive)** principle, ensuring a structured, thorough, and efficient analysis from start to finish.

**2. The Analytical Process**

The project followed a multi-stage analytical process:

1. **Data Cleaning & Transformation (Excel)**: Initial data preparation was performed in Excel to clean the 8 raw CSV files, handle missing values, and create optimized columns (e.g., a pre-calculated Revenue column) to improve the performance of subsequent analysis.
2. **Exploratory Data Analysis (MySQL)**: The cleaned data was loaded into a MySQL database. A series of 15+ complex SQL queries were executed to answer specific business questions, validate hypotheses, and uncover deep patterns in the data related to customers, products, and sales trends.
3. **Insight Validation (Excel)**: The output of each SQL query was briefly visualized in Excel using Pivot Tables and Charts. This served as a rapid prototyping and quality assurance step to validate each insight before building the final dashboard.
4. **Dashboarding (Power BI)**: The final, interactive dashboard was built in Power BI. The architecture of the report directly mirrors the MECE framework, with dedicated pages for each analytical pillar:
   * Executive Summary
   * Customer Analysis
   * Sales & Order Performance
   * HR & Employee Dashboard
   * Supply Chain & Operations
   * Bonus: RFM Customer Segmentation

**3. Key Insights & Recommendations**

The analysis yielded several critical business insights:

* **Core Markets**: The business is heavily concentrated in the **USA and Germany**, with "VIP" markets like **Austria** and **Ireland** showing the highest average spend per order.
* **Seasonal Peak**: Sales consistently peak in the **fourth quarter (Q4)** of the year, driven by top-performing categories like **Beverages** and **Dairy Products**.
* **Customer Segments**: A bonus RFM analysis successfully segmented customers into actionable groups like **"Champions"** (best customers) and **"At Risk"** (customers who need re-engagement).
* **Operational Efficiency**: The analysis highlighted a stable, experienced workforce and identified a concentration of suppliers in Europe and the USA, pointing to a potential need for supply chain diversification.

Based on these insights, key recommendations include focusing marketing efforts on high-value markets, launching a targeted loyalty program, and optimizing inventory for seasonal demand.

**4. Tools & Technologies Used**

* **Data Cleaning**: Microsoft Excel
* **Data Storage & Querying**: MySQL Workbench
* **Data Visualization**: Microsoft Power BI (utilizing DAX, Calculated Columns, and Python Visuals)
* **Version Control**: GitHub

**5. How to View This Project**

1. **Power BI File**: The .pbix file in this repository can be downloaded and opened in Power BI Desktop.
2. **Deployed Link**: An interactive version of the dashboard can be viewed at the following link: https://drive.google.com/drive/folders/1HyeAJuJQXsPy5rsBzl\_vYXEzPr4KFbSB?usp=drive\_link
3. **SQL Queries**: All SQL scripts used for the EDA are available in the SQL\_Queries.txt file.