**AXON SALES REPORT**

**Briefing:**

This project aims to revolutionize Axon, a classic cars retailer, by implementing a robust Business Intelligence (BI) solution using Microsoft PowerBI and MySQL. Axon currently faces challenges in managing and analyzing their sales data efficiently, leading to a lack of accurate and timely sales reports. The goal is to design and implement a user-friendly BI solution that empowers the sales team and management to seamlessly manage and analyze their sales data.

The MySQL sample database includes essential tables such as Customers, Products, Orders, Payments, Employees, and more, providing a comprehensive dataset for analysis. By leveraging PowerBI's visualization capabilities and SQL's data management features, this solution intends to enhance Axon's decision-making process.

**SQL Queries:**

**Total Revenue:** Calculated as the sum of the product of priceEach and quantityOrdered from the orderdetails table.

**COGS (Cost of Goods Sold):** Obtained by summing the product of buyPrice and quantityOrdered, joined between orderdetails and products.

**Total Profit:** Derived as the difference between Total Revenue and COGS.

**Profit Percentage:** Calculated by dividing Total Profit by Total Revenue and converting to a percentage.

**Total Orders:** Count of distinct order numbers from the orders table.

**Net Orders:** Count of distinct order numbers excluding those with status "Cancelled" or "Disputed."

**Gross Order Unit:** Total quantity ordered from orderdetails.

**Net Order Unit:** Gross Order Unit excluding orders with status "Cancelled" or "Disputed."

**Current Year Revenue:** Total revenue for the current year till the date of the latest order.

**Total Products:** Count of distinct product codes from the products table.

**Average Units Per Order:** Calculated by dividing the sum of quantityOrdered by the count of distinct order numbers.

**Average Shipping Duration:** Rounded average duration between orderDate and shippedDate.

**Average Order Value:** Calculated by dividing Total Revenue by Total Orders.

**Total Customers:** Count of distinct customer numbers from the customers table.

**Average Customer Spend:** Total Revenue divided by Total Customers.

**Total Pending Amount:** Difference between Total Revenue and the sum of payment amounts.

**Overall Churn Rate:** Percentage of inactive customers relative to Total Customers.

**Total Employees:** Count of distinct employee numbers from the employees table.

**Sales Representatives:** Count of distinct employee numbers with job title "Sales Rep."

**Higher Management:** Count of distinct employee numbers excluding "Sales Rep."

**Average Representatives' Revenue:** Total Revenue divided by the count of Sales Representatives.

**Average Representatives' Unit:** Total quantity ordered divided by the count of Sales Representatives.

**Total Offices:** Count of distinct office codes from the offices table.

**Total Regions:** Count of distinct territories from the offices table.

**Power BI Implementation:**

**Data Acquisition**

The first step involved importing all the tables from the classicmodels MySQL database into Power BI using the import method.

**Data Cleaning & Processing**

Checked for null values and discrepancies in the imported data.

Dropped irrelevant columns (e.g., images, addressline 2) with mostly null values.

Preserved some seemingly unused columns to maintain data integrity.

Added calculated columns such as 'Last Recorded Date,' 'Last Order Date,' 'Status,' 'Full Name,' etc.

**Data Modelling**

Created a Date table using Power BI's calendar function, established active and inactive relationships with orderDate, requiredDate, and shippedDate of orders table.

Developed a separate disconnected Measures Table to house the base DAX measures.

**DAX Measures**

Total Revenue: Sum of the product of priceEach and quantityOrdered.

Total Product Cost: Sum of the product of buyPrice and quantityOrdered.

Total Profit: Difference between Total Revenue and Total Product Cost.

Total Orders: Count of rows in the orders table.

Total Products: Count of distinct product names.

Total Customers: Count of distinct customer numbers.

Profit Percentage: Division of Total Profit by Total Revenue.

Pending Amount: Difference between Total Revenue and the sum of payment amounts.

Gross Order Unit: Total quantity ordered.

Net Order Unit: Gross Order Unit excluding cancelled or disputed orders.

Average Order Value: Total Revenue divided by Total Orders.

Active Customers: Count of distinct customer numbers with "Active" status.

Average Customer Spend: Total Revenue divided by Total Customers.

Average Units Per Order: Gross Order Unit divided by Total Orders.

Net Orders: Total Orders excluding cancelled or disputed orders.

Overall Churn Rate: Percentage of inactive customers relative to Total Customers.

**Visualizations:**

Card for all the Primary KPIs: Dashboard overview presenting key metrics.

Clustered Bar Chart: Visualizing revenue and profit breakdown by country. Breaking down revenue and profit by product line. Providing insights into customer-driven revenue and profit.

Stacked Bar Chart: Displaying revenue and profit by product name. Evaluating employee performance in terms of profit and revenue.

Donut Chart: Illustrating quarterly revenue distribution.

Bar Chart: Depicting yearly revenue trends. Highlighting customers with the most orders. Analysing employee performance in terms of units sold. Identifying top 10 products by units sold. Assessing employee performance in terms of average revenue per customer.

Waterfall Chart: Analysing monthly profit trends.

Area Chart: Visualizing revenue by month and year. Illustrating active customers over months and years.

3D Donut Chart: Representing products supplied by vendors.

Table: Displaying yearly revenue over products and month-over-month growth rate. Listing churned customers. Presenting sales trends over years by sales rep.

Decomposition Tree: Breaking down customers by status and country.

Tree Map: Visualizing average revenue per order by sales rep.

**Insights:**

Total revenue of 9.60 million across 27 countries, with the USA contributing the highest share at 34.08%.

Top-performing product lines: Classic Cars, Vintage Cars, and Motorcycles.

November exhibits a notable surge in monthly profit.

Euro+ Shopping Channel is a significant customer, contributing substantially to revenue and profit.

Top-performing employees: Gerard Hernandez, Leslie Jennings, and Pamela Castillo.

Average shipping days are low (4 days), reflecting efficient order fulfilment.

**Recommendations:**

Implement targeted marketing strategies in top-performing countries and product lines.

Optimize inventory management based on product performance.

Enhance customer retention strategies through loyalty programs and personalized offers.

Monitor and analyse factors contributing to the surge in November profits.

Strengthen relationships with key customers like Euro+ Shopping Channel.

Provide additional support or training to sales reps with lower average revenue per order.

**Conclusion:**

This BI solution not only addressed the immediate challenges faced by Axon in managing and analysing sales data but also provided a comprehensive and user-friendly platform for decision-making. The diverse visualizations and insightful KPIs enable Axon's sales team and management to make informed and strategic decisions for the future. The project lays the foundation for continuous improvement and adaptation in the dynamic landscape of classic car retail.

Thanks again for your consideration.

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