Bright Motors Car Sales Analysis (BRIGHTLEARN)

Purpose: Business Insights for a New Head of Sales using Historical Car Sales Data from Bright Motors

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1. INTRODUCTION & INSTRUCTIONS

1.1 INTRODUCTION

You have been provided with a dataset titled **"Bright Car Sales"**, which captures daily transactional and pricing information for vehicles sold by Bright Motors.

Bright Motors has recently appointed a **new Head of Sales**, whose mission is to expand the dealership network, improve sales performance, and optimize inventory. Your role, as a **Junior Data Analyst**, is to extract actionable insights from the historical car sales data and prepare a presentation that will help guide future sales and marketing strategies.

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2. OBJECTIVE

Use your data analytics, SQL, and data visualization skills to help Bright Motors understand:

- Which car makes and models generate the most revenue
- The relationship between price, mileage, and year of manufacture
- Which regions or locations have the highest sales volumes
- Emerging trends in customer purchasing preferences
- Recommendations to increase dealership profitability and efficiency

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3. TOOLS ALLOWED

You may use any of the following tools (or equivalents):

Coding / SQL Platforms:

- Snowflake

- Microsoft SQL Server
- Databricks
- Google BigQuery
- MySQL Workbench

Data Visualization:

- Microsoft Excel
- Power BI
- Google Sheets
- Google Looker Studio

Presentation / Reporting:

- Microsoft PowerPoint
- Canva

Project Planning:

- Miro
- Figma

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4. TASKS (Detailed)

Task 1 — Planning & Architecture (Miro or equivalent)

Create a Miro board (or any whiteboard tool) that outlines:

1. **Data Flow / Architecture Diagram** showing:
    - **Source**: car sales dataset (CSV/Excel file)
    - **ETL Pipeline**: data cleaning (e.g., removing duplicates, handling missing values, currency formatting)
    - **Storage**: Snowflake or chosen SQL database
    - **Analysis Layer**: SQL and visualization tools (Excel / Power BI)
    - **Presentation Layer**: PowerPoint / Canva
2. **Key Insights to Deliver:**
    - Revenue by car make and model
    - Sales distribution by year and fuel type
    - Regional performance (city or province)

    - Average selling price trends over time
3. **Key Calculations:**
    - `Total_Revenue = Selling_Price * Units_Sold`
    - `Profit_Margin = (Selling_Price - Cost_Price) / Selling_Price * 100`
    - Grouping by `Make`, `Model`, `Year`, `Region`, and `Fuel_Type`

Task 2 — Data Processing in Snowflake (or chosen SQL platform)

Steps:

1. Convert the provided Excel file into a CSV file.

2. Load the CSV file into Snowflake (or equivalent).

3. Perform data cleaning and transformations:

- Convert text-based prices (e.g., '15,000') to numeric format.
- Create a new column `total_revenue = selling_price * units_sold`.
- Calculate `profit_margin` and categorize cars by performance tiers (e.g., *High Margin*, *Medium Margin*, *Low Margin*).
- Group transactions by time periods (month, quarter, or year).

Task 3 — Data Analysis & Visualization (Excel / Power BI / Google Looker Studio)

- After transforming your data in Snowflake, export the processed dataset to Excel or connect Power BI directly to your database.
- Use slicers for region, fuel type, and year to allow interactivity.

Task 4 — Presentation to the Head of Sales

- Create a professional presentation that summarizes findings and recommendations.

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5. SUBMISSION GUIDELINES

Required files:

- Miro Plan / Architecture Diagram (image or link)
- Processed Dataset Spreadsheet (`car_sales_processed.xlsx`)
- Presentation File (`BrightMotors_Presentation.pdf`)
- SQL Script (`car_sales_queries.sql`)

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6. TIPS & NOTES

- Ensure all prices are converted to numeric formats (remove commas or currency symbols).
- Handle missing or inconsistent values carefully.
- Use clear and consistent column names in Snowflake.
- Include short insight notes in your dashboards.
- Your presentation should be visually appealing and concise.

End of Case Study