

Problem Statement — Legacy Car Sales Analysis

Background

Legacy is a multi-region automobile retailer and distributor that sells new and used cars across several dealer regions. Over the last few quarters Legacy has expanded its product mix (multiple body styles, colours and brands) and opened several dealer locations in different regions. With increased inventory complexity and a push to improve profitability, Legacy's leadership needs a single source of truth to monitor sales performance, spot trends, and quickly take corrective actions.

Current pain points include:

- Leadership doesn't have easily accessible, consolidated KPIs (YTD / MTD sales, YTD average price, cars sold) displayed in a clear format for monthly reviews.
- Regional managers lack a fast way to compare dealer-region performance and identify underperforming areas.
- Product and pricing teams cannot quickly assess which body styles, colours, or companies drive revenue or margin changes over time.
- The operations team needs a transaction-level details view to trace individual sales (for audits, warranty follow-ups, or customer service inquiries).

To address these gaps, Legacy has commissioned a dynamic Power BI dashboard that provides both high-level KPI monitoring and drill-through detail for transaction-level analysis.

Your Role

As the Data Analyst / Power BI Developer engaged by **Legacy**, your responsibilities are:

- Ingest and clean Legacy's transactional dataset (Car Sales.xlsx).
 - Model the data in Power BI, building relationships and measures required for robust KPI calculation (YTD, MTD, YOY, PTYD comparisons, average price calculations, counts of cars sold, etc.).
 - Design and implement an interactive two-page Power BI report (Overview + Details) that meets business needs and supports operational decision-making.
 - Implement slicers/filters for Body Style, Dealer Name, Transmission, Engine and other attributes so users can analyze subsets of the business.
 - Create visuals and table/grid layouts that allow both executive summaries and transaction-level investigation.
 - Validate KPI calculations against source data and produce documentation describing the report capabilities and how to interpret each visual.
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Problem Statements:

Problem Statement 1 — KPI Requirements

The dashboard must provide clear, trusted, real-time insights into key performance indicators so Legacy's leadership and regional teams can make informed decisions, monitor progress, and identify trends and opportunities. Specifically:

1. Sales Overview

- Year-to-Date (YTD) Total Sales
- Month-to-Date (MTD) Total Sales
- Year-over-Year (YOY) Growth in Total Sales
- Difference between YTD Sales and Previous Year-to-Date (PTYD) Sales

2. Average Price Analysis

- YTD Average Price
- MTD Average Price
- YOY Growth in Average Price
- Difference between YTD Average Price and PTYD Average Price

3. Cars Sold Metrics

- YTD Cars Sold
- MTD Cars Sold
- YOY Growth in Cars Sold
- Difference between YTD Cars Sold and PTYD Cars Sold

Problem Statement 2 — Charts & Visual Requirements

The report must include the following visuals to support different stakeholder needs:

1. YTD Sales Weekly Trend

- A line chart showing the weekly trend of YTD sales (X-axis: weeks; Y-axis: total sales amount) to help spot seasonality and spikes.

2. YTD Total Sales by Body Style

- A pie (or donut) chart visualizing the distribution of YTD total sales across different car body styles (SUV, Hatchback, Sedan, Passenger, Hardtop, etc.).

3. YTD Total Sales by Colour

- A pie (or donut) chart presenting the contribution of car colours (Pale White, Black, Red, etc.) to YTD total sales.

4. YTD Cars Sold by Dealer Region

- A map visualization to showcase YTD cars sold by dealer region so regional performance is easily compared geographically.

5. Company-wise Sales Trend in Grid Form

- A tabular grid that displays company-level metrics (company name, YTD average price, YTD cars sold, YTD total sales, percentage of Grand Total YTD sales, and simple bar/indicator columns for quick comparison).

6. Details Grid Showing All Car Sales Information

- A detailed transactional table that presents all relevant information for each car sale (e.g., Car_id, Date, Customer Name, Dealer Name, Company, Colour, Model, Total Sales, etc.) to support audit, service, and root-cause analysis.

Deliverables & Acceptance Criteria

- A two-page Power BI report (Overview + Details) with the exact KPIs and charts specified above.
- Interactive slicers for Body Style, Dealer Name, Transmission, Engine, and any other relevant attributes.
- Correctness of KPI calculations validated against the provided Car Sales dataset.
- Clear layout suitable for executive consumption (top-line KPIs) and operational use (maps and details grid).
- Documentation (short) describing each KPI, the filters available, and how to use the report for common tasks (monthly review, regional deep-dive, transaction lookup).