CAR SALES ANALYSIS USING POWERBI

Project Requirements (Problem Statement)

To meet the objective, the dashboard must deliver on two key functional areas: high-level KPI tracking and detailed visual analysis.

1. Key Performance Indicator (KPI) Requirements

The main overview screen must prominently display the following top-level metrics, updated in real-time:

- **Core Sales Metrics:**
  - Year-to-Date (YTD) Total Sales
  - Month-to-Date (MTD) Total Sales
- **Sales Growth Analysis:**
  - Year-over-Year (YoY) Growth Percentage (Total Sales)
  - Absolute variance ($) between current YTD Sales and Previous YTD (PTYD) Sales
- **Pricing Metrics:**
  - YTD Average Price
  - MTD Average Price
- **Pricing Growth Analysis:**
  - YoY Growth Percentage (Average Price)
  - Absolute variance ($) between current YTD Average Price and PTYD Average Price
- **Unit Metrics:**
  - YTD Cars Sold
  - MTD Cars Sold
- **Unit Growth Analysis:**
  - YoY Growth Percentage (Cars Sold)
 - Absolute variance (units) between current YTD Cars Sold and PTYD Cars Sold

1.2 Visualization & Charting Requirements

To provide a comprehensive view of the sales data, the dashboard must include the following visual components:

- **Sales Velocity:** An area or line chart illustrating the **YTD Sales Weekly Trend** to identify patterns and seasonality.
- **Product Mix (Style):** A donut or pie chart visualizing the **YTD Total Sales by Body Style** to understand which car types are driving revenue.
- **Product Mix (Aesthetics):** A donut or pie chart presenting the **YTD Total Sales by Color** to track customer preferences.
- **Geospatial Analysis:** An interactive map chart displaying **YTD Cars Sold by Dealer Region** to pinpoint high-performing and low-performing territories.
- **Brand Performance:** A detailed grid (table) summarizing sales performance by **Company** (Brand), including YTD Sales, YTD Average Price, YTD Cars Sold, and contribution to the grand total.

- **Data Granularity:** A separate "Details" page or tab containing a comprehensive grid with line-item information for all car sales (e.g., model, date, dealer, customer, etc.).

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2. Dashboard Analysis & Key Insights (Solution)
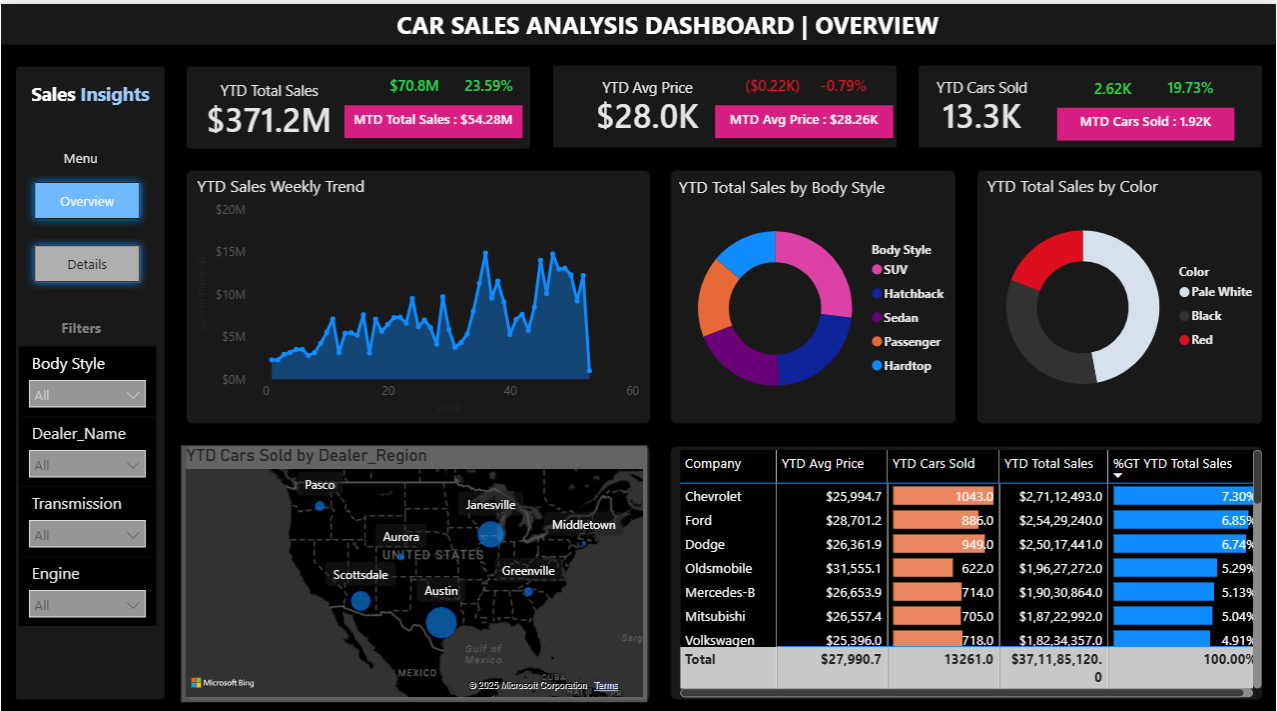
Based on the provided "Car Sales Analysis Dashboard" , the following analysis and solution insights can be drawn.

2.1 Top-Level KPI Performance

The headline KPIs reveal a story of significant growth in volume, but a slight compression in pricing.

- **YTD Total Sales:** The company has achieved **$371.2M** in total sales year-to-date.
- **Sales Growth:** This represents outstanding performance, with **23.59%** growth over the previous year. This translates to a total increase of **$70.8M** compared to PTYD.
- **YTD Cars Sold:** Sales volume is the primary driver of this growth. The company has sold **13.3K** cars, which is **2.62K** more units than the previous year (a **19.73%** increase).
- **Average Price:** The YTD Average Price per car is **$28.0K**. This is slightly *lower* than the previous year, showing a negative growth of **-0.79%** or a decrease of **$0.22K** (-$220) per vehicle.

Insight: The company is executing a high-volume strategy. While revenue is up significantly (23.59%), it is being driven by selling *more* cars (19.73% increase) rather than *more expensive* cars (average price is down -0.79%).

2.2 Detailed Visual Analysis

- **YTD Sales Weekly Trend:** The line chart shows significant volatility in weekly sales, with frequent peaks and troughs. There is a very strong upward trend in the most recent weeks of the year (approximately weeks 48-52), culminating in the highest sales peak of the year. This suggests a very strong end-of-year sales push or seasonal demand.
- **YTD Total Sales by Body Style:** The market is clearly dominated by two segments. **SUV** (pink) is the largest contributor to sales, followed by **Hatchback** (purple). Sedan, Passenger, and Hardtop styles make up a much smaller, secondary portion of the business.
- **YTD Total Sales by Color:** Customer preference for color is more distributed. **Pale White** (light gray) is the top-selling color, with **Black** and **Red** following closely. These three colors account for the vast majority of all sales.
- **YTD Cars Sold by Dealer_Region:** The map highlights key sales territories. including **Greenville**, **Janesville**, **Austin etc** . form Bubbles we could sense that **Austin** is the highest selling region with record sales of 2290 followed by **Janesville** selling 2113