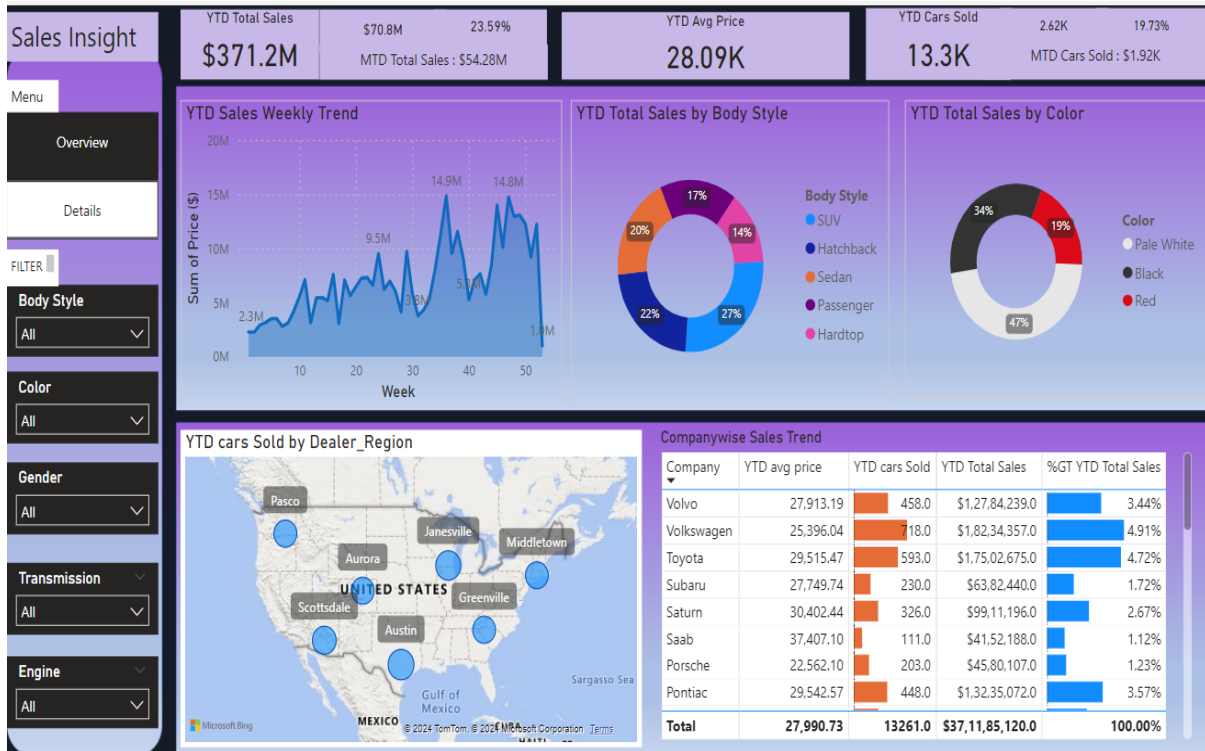


# CAR SALES DASHBOARD



# Project Overview

## Car Sales Dashboard Report

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### Project Overview

#### Problem Statement

The company, a car dealership, aims to monitor its sales performance across multiple car models. To support data-driven decisions and track performance effectively, a comprehensive Car Sales Dashboard was created in Power BI. This dashboard includes:

1. **KPIs Requirement:** Key metrics to assess sales performance.
2. **Charts Requirement:** Visual representations to showcase sales insights.

#### Objective

The project's goal was to create an interactive, dynamic dashboard in Power BI that visualizes critical Key Performance Indicators (KPIs) related to car sales. This tool allows for a detailed understanding of sales trends over time, enabling data-driven decision-making.

#### Scope

The dashboard covers data from the years 2022 to 2023, with a focus on KPIs related to car sales.

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### Methodology

1. **Data Collection and Cleaning**
  - Sales data was gathered from existing databases, followed by a thorough data cleaning process to ensure data accuracy and completeness.
  - The dataset was checked for any missing or inconsistent values before loading into Power BI.
2. **Dashboard Design**
  - Initial wireframes and layouts were created to organize user interactions and data flow.
  - The design emphasized ease of use and interactivity, catering to quick performance tracking and in-depth analysis.
3. **Power BI Development**
  - Power BI was utilized to develop the dashboard by integrating required data sources and DAX calculations to generate KPIs.
4. **DAX (Data Analysis Expressions)**
  - DAX functions were used to compute critical metrics such as Year-to-Date (YTD) totals, Month-to-Date (MTD) values, Year-over-Year (YOY) growth, and the difference between current and previous periods.

**Tools Used :-** Power BI and Power Query

## **Steps taken and Dax functions used for analysis:-**

First created “Calendar Table” as Timeline measures for analysis, using

### **Table View > New Table > Logic of columns >**

1) Calendar Table = `CALENDAR(MIN(car_data[Date]),MAX(car_data[Date]))`

2) Table View > New column > Month = `FORMAT('Calendar Table'[Date],"MMMM")`

3) Table View > New column > Week = `WEEKNUM('Calendar Table'[Date])`

4) Table View > New column > Year = `YEAR('Calendar Table'[Date])`

## **Then, created New measures for Sales overview KPI's:-**

### **Year-to-Date (YTD) Total Sales**

DAX

YTD Total Sales = `TOTALYTD(SUM(car_data[Price ($)]),'Calendar Table'[Date])`

*Purpose:* This metric provides cumulative sales from the start of the year to the current date, allowing stakeholders to track year-over-year performance and overall progress toward annual sales goals.

### **Month-to-Date (MTD) Total Sales**

DAX

MTD Total Sales = `TOTALMTD(SUM(car_data[Price ($)]),'Calendar Table'[Date])`

*Purpose:* MTD sales measure performance within the current month, helping to monitor short-term trends and quickly identify any mid-month fluctuations or changes in sales momentum.

### **Previous Year-to-Date (PYTD) Total Sales**

PYTD Total Sales = `Calculate(SUM(car_data[Price ($)]),SAMEPERIODLASTYEAR('Calendar Table'[Date]))`

*Purpose:* This metric provides Previous year cumulative sales from the start of the year to the current date, allowing stakeholders to track year-over-year performance comparison and overall progress toward annual sales goals.

### **Difference between YTD Sales and Previous Year-to-Date (PTYD) Sales**

Sales Difference = `[YTD Total Sales] - [PYTD Total Sales]`

*Purpose:* Shows difference in sales between the current and previous year-to-date, helping track if the dealership is exceeding last year's performance.

## Year-over-Year (YOY) Growth in Sales

DAX

YOY Sales Growth =  $\frac{[\text{Sales Difference}]}{[\text{PYTD Total Sales}]}$

*Purpose:* YOY growth allows the dealership to compare current sales with the same period in the previous year. This metric helps identify growth or decline trends, which can be essential for setting future goals and adjusting sales strategies.

### ➤ Cars Sold Metrics

## YTD Cars Sold

DAX

YTD cars Sold = `TOTALYTD(COUNT(car_data[Car_id]),'Calendar Table'[Date])`

*Purpose:* Reflects the total count of cars sold from the start of the year, providing a clearer picture of sales volume trends.

## MTD Cars Sold

DAX

MTD cars Sold = `TOTALMTD(COUNT(car_data[Car_id]), 'Calendar Table'[Date])`

*Purpose:* Tracks monthly car sales to quickly assess demand changes within the current month.

## PYTD Cars Sold

PYTD Cars Sold = `CALCULATE(COUNT(car_data[Car_id]),SAMEPERIODLASTYEAR('Calendar Table'[Date]))`

## Cars Sold Difference

Cars Sold Difference =  $[\text{YTD cars Sold}] - [\text{PYTD Cars Sold}]$

## YOY Growth in Cars Sold

DAX

YOY Car Sold Growth =  $\frac{[\text{Cars Sold Difference}]}{[\text{YTD Cars Sold}]}$

*Purpose:* Evaluates changes in the number of cars sold compared to the previous year, essential for understanding shifts in demand.

# **Steps for Creating the Dashboard Components in Power BI**

## **1. Setting Up KPIs**

- **Year-to-Date (YTD) Total Sales**
  - In *Fields* pane, right-click on the Sales table and select **New Measure**.
  - Formatted this measure as currency. This KPI show cumulative sales for the current year, providing insight into annual performance.
- **Month-to-Date (MTD) Total Sales**
  - Create a new measure in the Sales table.
  - Formatted as currency. This measure tracks monthly sales to monitor performance within the current month.
- **YOY Growth in Sales**
  - Add a new measure.
  - Formatted as a percentage. This KPI helps assess growth trends by comparing sales with the previous year.
- **Difference between YTD Sales and PTYD Sales**
  - Create a new measure for year-to-date comparison.
  - This KPI calculates the difference in sales between the current and previous years to track annual performance.

## **2. Map Chart for Dealer Region Sales**

- **Setting Up a Map Chart:**
  - Inserted a *Map* visual from the *Visualizations* pane.
  - Drag Dealer Region to the *Location* field.
  - Add YTD Cars Sold as the *Size* field.
  - This visual shows the volume of cars sold by region, providing insights into geographic performance.

## **3. Line Chart for Company-Wise Sales Trend**

- **Creating a Sales Trend Chart:**
  - Inserted a *Line and Clustered Column Chart* from the *Visualizations* pane.
  - Set Date as the *Axis* to represent time.
  - Add YTD Sales or Sales Amount to the *Line Values* field.
  - This visual allows stakeholders to track the trend of sales over time and identify peak periods.

## **4. Pie Charts for Sales Breakdown**

- **YTD Total Sales by Body Style:**
  - Insert a *donut Chart* from the *Visualizations* pane.
  - Drag Body Style to the *Legend* field.
  - Place YTD Sales in the *Values* field to see the sales distribution by body style.

- **YTD Total Sales by Color:**
  - Inserted another *donut Chart*.
  - Drag Color to the *Legend* field.
  - Place YTD Sales in *Values* to view the distribution of sales by car color.
  - These visuals help identify popular car styles and colors.

## **5. Detailed Page with Car Sales Information**

- **Creating a Detailed Table:**
  - Inserted a *Table* visual from the *Visualizations* pane.
  - Add fields such as Model, Body Style, Color, Sales Amount, and Dealer Region.
  - This table serves as a detailed view, listing each sale transaction with key attributes for deeper analysis.

## **6. Additional Metrics and Calculations**

- **Average Price per Car**
  - Add a measure for average car price:  
DAX  
Avg Price = `SUM(car_data[Price ($)]) / COUNT(car_data[Car_id])`
  - This metric shows the typical sale price, helping with pricing strategies.
- **Total Cars Sold (YTD)**
  - Created a measure for total cars sold:
  - Provides insight into the total number of cars sold in the year, indicating volume trends.
  - By this we can capture the highest single sales point, which is useful for setting targets.

## **7. Finalizing and Formatting**

- **Adding Titles and Descriptions:**
  - Provide clear titles for each chart and KPI to make insights easily understandable.
- **Formatting the Dashboard:**
  - Use conditional formatting to highlight key insights.
  - Ensure currency and percentages are correctly formatted to enhance readability.
- **Interactive Features:**
  - Set up filters for regions, dates, or car models to allow users to interact with the data based on their needs.

## **Key Findings and Insights**

- **Peak Sales Point:** Sales peaked at \$14.9 million during a specific period.
- **YTD Total Sales:** \$371.2 million.
- **Average Price per Car:** Approximately \$28,090.
- **Total Cars Sold (YTD):** 13,300 vehicles

## **Recommendations based on key findings and insights to enhance sales performance and optimize dealership operations:**

1. **Leverage High-Performing Models**
  - Since a peak sales point reached \$14.9 million, analyze the specific car models, styles, and regions contributing to this peak. Consider increasing inventory or offering promotions on these high-demand models to maintain momentum.
2. **Focus on Regions with High Sales**
  - The map chart for YTD cars sold by dealer region indicates where demand is strong. Increase targeted marketing efforts in these high-performing regions to capitalize on established demand and strengthen customer loyalty. Alternatively, identify and investigate regions with lower sales to understand potential barriers or competition.
3. **Optimize Inventory Based on Popular Colors and Styles**
  - The pie charts on total sales by body style and color reveal preferences among customers. Adjust inventory to match these preferences, potentially reducing overstock in less popular styles and colors while increasing availability for higher-demand options.
4. **Monitor and Enhance Pricing Strategy**
  - With the average price per car at \$28,090, evaluate the dealership's pricing strategy to ensure competitiveness. Consider flexible pricing or financing options to attract more buyers, especially if certain models have slower turnover.
5. **Boost Monthly and Year-Over-Year Sales**
  - Use the YOY and MTD growth insights to set monthly targets. For months with historically lower sales, implement seasonal campaigns or limited-time offers to stimulate demand and level out fluctuations.
6. **Invest in Customer Retention and Follow-Up Programs**
  - Given the significant revenue from repeat customers, consider implementing a loyalty or referral program. Engage past customers with regular communications, promotions, and personalized offers based on their previous purchases.
7. **Analyze Dealer Performance and Provide Incentives**
  - Given that total YTD sales reached \$371.2 million, compare dealer performance based on regional sales data and incentivize top-performing dealers. A reward system based on sales metrics could motivate dealers to improve performance and maintain high customer satisfaction.

By implementing these recommendations, the dealership can leverage data insights to drive sales, optimize inventory, and strengthen its competitive edge in the car market.

## **Conclusion**

The Car Sales Dashboard provides a comprehensive view of sales performance, offering insights into trends, performance against previous years, and data-driven insights for decision-making. This tool equips the dealership with the ability to assess real-time performance and strategize improvements effectively.

**Thank you!**