**Project: Car Sales Dashboard:**

**Background:** Our company is a car dealership that sells various car models. To effectively track and analyze our sales performance, we need a comprehensive Car Sales Dashboard in Power BI.

**Objective:** The objective of this project is to design and develop a dynamic and interactive Car Sales Dashboard using Power BI. The dashboard will visualize critical KPIs related to our car sales, helping us understand our sales performance over time and make data-driven decisions.

**Problem Statement 1: KPI's Requirement**

The dashboard should provide real-time insights into key performance indicators (KPIs) related to our sales data. This will enable us to make informed decisions, monitor our progress, and identify trends and opportunities for growth.

**Dashboard Overview**

**KPI's Requirement**

**1.Sales Overview:**

1. Year-to-Date (YTD) Total Sales
2. Month-to-Date (MTD) Total Sales
3. Year-over-Year (YOY) Growth in Total Sales
4. 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 Requirement**

**1.YTD Sales Weekly Trend:**

Display a line chart illustrating the weekly trend of YTD sales. The X-axis should represent weeks, and the Y-axis should show the total sales amount.

**2.YTD Total Sales by Body Style:**

Visualize the distribution of YTD total sales across different car body styles using a pie chart.

**3.YTD Total Sales by Color:**

Present the contribution of various car colors to the YTD total sales through a pie chart.

**4.YTD Cars Sold by Dealer Region:**

Showcase the YTD sales data based on different dealer regions using a map chart to visualize the sales distribution geographically.

**5.Company-Wise Sales Trend in Grid Form:**

Provide a tabular grid that displays the sales trend for each company. The grid should showcase the company name along with their YTD sales figures.

**6.Details Grid Showing All Car Sales Information**:

Create a detailed grid that presents all relevant information for each car sale, including car model, body style, color, sales amount, dealer region, date, etc.

**Functionalities Used in the Car Sales Dashboard**

**1.Data Connections and Preparation:**

- Connecting to Excel Files

- Data Cleaning
- Data Modelling
- Data Processing
- Power Query
- Date Tables

**2.Advanced Data Analysis:**

- DAX (Data Analysis Expressions)
- Time Intelligence Functions (YTD, MTD, PTYD)
- Functions like MAX, MAXX, and RANK
- Date Functions

**3.Visualization and Calculations:**

- Text Functions
- Filter Functions
- Calculations with SUM/SUMX
- Conditional Formatting
- Custom Charts

**4.Mapping and KPI Creation:**

- Maps and Custom Maps
- Creating KPIs
- New Card Visuals

**5.Interactive Elements:**

- Creating Charts
- Formatting Visuals
- Creating Functions
- Navigation Features

**Car Sales Dashboard**

**DAX Calculations**

**A.Calendar Table and Date Fields**

**1.Calendar Table:**

CALENDAR(MIN(car_data[Date]), MAX(car_data[Date]))

**2. Year:**

YEAR('Calendar Table'[Date])

**3.Month:**

FORMAT('Calendar Table'[Date], "MMMM")

**4.Week:**

WEEKNUM('Calendar Table'[Date])

**B.Sales Metrics**

**1.YTD Total Sales:**

TOTALYTD(SUM(car_data[Price ($)]), 'Calendar Table'[Date])

**2.PYTD Total Sales:**

CALCULATE(SUM(car_data[Price ($)]), SAMEPERIODLASTYEAR('Calendar Table'[Date]))

**3.Sales Difference:**

[YTD Total Sales] - [PYTD Total Sales]

**4.Sales Diff Colour:**

IF([Sales Difference] > 0, "Green", "Red")

**5.YoY Sales Growth:**

[Sales Difference] / [PYTD Total Sales]

**6.MTD Total Sales:**

TOTALMTD(SUM(car_data[Price ($)]), 'Calendar Table'[Date])

**7.MTD KPI:**

CONCATENATE("MTD Total Sales: ", FORMAT([MTD Total Sales], "$0.00K"))

**C.Average Price Metrics**

**1.Avg Price:**

SUM(car_data[Price ($)]) / COUNT(car_data[Car_id])

**2.YTD Avg Price:**

TOTALYTD([Avg Price], 'Calendar Table'[Date])

**3.PYTD Avg Price:**

CALCULATE([Avg Price], SAMEPERIODLASTYEAR('Calendar Table'[Date]))

**4.Avg Price Diff:**

[YTD Avg Price] - [PYTD Avg Price]

**5.Avg Price Colour:**

IF([Avg Price Diff] > 0, "Green", "Red")

**6.YoY Avg Price Growth:**

[Avg Price Diff] / [PYTD Avg Price]

**7.MTD Avg Price:**

TOTALMTD([Avg Price], 'Calendar Table'[Date])

**8.MTD Avg Price KPI:**

CONCATENATE("MTD Avg Price: ", FORMAT([MTD Avg Price] / 1000, "$0.00K"))

**D. Car Sold Metrics**

**1.YTD Cars Sold:**

TOTALYTD(COUNT(car_data[Car_id]), 'Calendar Table'[Date])

**2.PYTD Cars Sold:**

CALCULATE(COUNT(car_data[Car_id]), SAMEPERIODLASTYEAR('Calendar Table'[Date]))

**3.Cars Sold Diff:**

[YTD Cars Sold] - [PYTD Cars Sold]

**4.Cars Sold Colour:**

IF([Cars Sold Diff] > 0, "Green", "Red")

**5.YoY Cars Sold Growth:**

```
[Cars Sold Diff] / [PYTD Cars Sold]
```

**6.MTD Cars Sold:**

```
TOTALMTD(COUNT(car_data[Car_id]), 'Calendar Table'[Date])
```

**7.MTD Cars Sold KPI:**

```
CONCATENATE("MTD Cars Sold: ", FORMAT([MTD Cars Sold], "$0.00K"))
```

**E. Chart Metrics**

**1.Total Sales:**

```
SUM(car_data[Price ($)])
```

**2.Max Point:**

```
IF(
   MAXX(ALLSELECTED('Calendar Table'[Week]), [Total Sales]) = [Total Sales],
   MAXX(ALLSELECTED('Calendar Table'[Week]), [Total Sales]),
   BLANK()
)
```

**Explanation of the Car Sales Dashboard DAX Calculations:**

**1. Date and Time Setup**

**Calendar Table:** Creates a table with all the dates in your data, so you can use them for analysis.

**Year, Month, Week:** Breaks down the date into year, month, and week for easy grouping of sales data.

**2. Sales Metrics**

**YTD Total Sales:** Calculates total sales from the start of the year up to today.

**PYTD Total Sales:** Finds the total sales during the same time last year.

**Sales Difference:** Shows how much sales increased or decreased compared to last year.

**Sales Diff Colour:** Adds color (Green for growth, Red for decline) to indicate sales performance.

**YoY Sales Growth:** Calculates the percentage growth in sales compared to last year.

**MTD Total Sales:** Calculates sales from the start of the current month until today.

**MTD KPI:** Displays the MTD sales in a label (e.g., "MTD Total Sales: $10K").

**3. Average Price Metrics**

**Avg Price:** The average price of cars sold.

**YTD Avg Price:** The average price of cars sold from the start of the year to today.

**PYTD Avg Price:** The average price during the same time last year.

**Avg Price Diff:** The change in average price compared to last year.

**Avg Price Colour:** Adds color to show if the average price went up (Green) or down (Red).

**YoY Avg Price Growth**: The percentage increase or decrease in the average price.

**MTD Avg Price:** The average price of cars sold this month so far.

**MTD Avg Price KPI:** Displays the MTD average price in a label (e.g., "MTD Avg Price: $10K").

**4. Cars Sold Metrics**

**YTD Cars Sold:** Total number of cars sold from the start of the year to today.

**PYTD Cars Sold:** Total cars sold during the same time last year.

**Cars Sold Diff:** The difference in the number of cars sold compared to last year.

**Cars Sold Colour:** Shows Green if more cars were sold, Red if fewer were sold.

**YoY Cars Sold Growth:** The percentage change in the number of cars sold compared to last year.

**MTD Cars Sold:** Total cars sold this month so far.

**MTD Cars Sold KPI:** Displays the MTD cars sold in a label (e.g., "MTD Cars Sold: 500").

**5. Charts and Highlights**

**Total Sales:** The total revenue from all car sales.

**Max Point:** Highlights the week with the highest sales on the chart.