US Car Sales Dashboard Project Documentation

Overview:

The primary objective of this project is to design and develop a comprehensive Car Sales Dashboard utilizing Power BI. The focus will be on creating an interactive platform that extracts valuable insights from visual representations of key performance indicators (KPIs) associated with our car sales. Through this dashboard, our aim is to provide a user-friendly interface that empowers stakeholders to easily interpret and analyse crucial data, fostering informed decision-making based on a deeper understanding of our sales performance trends.

Requirements:

KPI:

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 (PYTD) Sales

2. **Average Price Analysis:**

   - YTD Average Price
   - MTD Average Price
   - YoY Growth in Average Price
   - Difference Between YTD Average Price and PYTD Average Price

3. **Cars Sold Metrics:**

- YTD Cars Sold
- MTD Cars Sold
- YoY Growth in Cars Sold
- Difference Between YTD Cars Sold and PYTD Cars Sold

Charts:

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 Colour:** Present the contribution of various car colours to the YTD total sales through a donut chart.
4. **YTD Cars Sold by Dealer Region:** Showcase the YTD sales data based on different dealer regions using a bar 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, colour, sales amount, dealer region, date, etc.

Goal:

The project goal is to implement an intuitive and dynamic Car Sales Dashboard using Power BI, with a focus on extracting actionable insights from visualized key performance indicators (KPIs). This dashboard aims to provide a centralized platform for stakeholders to comprehensively analyse and interpret critical data related to car sales. By achieving this goal, the project seeks to enhance decision-making processes, enabling the team to make informed and strategic choices based on a real-time understanding of sales performance trends and patterns.

Data Source: [Kaggle Dataset](#)

Tools Used:

- Excel - Data Cleaning
- Power BI – Data Analysis & Visualization

Data Preparation & Modelling Approach:

- Data Loading and Inspection.
- Handling Missing Values.
- Removing Blank Values and Outliers.
- Data Cleaning and Formatting.
- Creating Calendar Table.
- Establishing Relations for Data Model.

Insights:

- **Year-to-Date (YTD) Total Sales:** A remarkable $371.2 million.

- **Year-over-Year (YOY) Growth in Total Sales:** An impressive 23.59% increase.

- **YTD Average Price:** Stands at $28,000.

- **YOY Growth in Average Price:** Slightly down at -0.75%.

- **YTD Cars Sold:** An incredible 13,300 units.

- **YOY Growth in Cars Sold:** A whopping 24.57% rise.

- **YTD Sales Weekly Trend:** Notable peaks in weeks 39, 46, and 50.

- **YTD Total Sales by Body Style:** SUVs take the lead.

- **YTD Total Sales by Colour:** Pearl White cars stand out with 11.26k sales, followed by black and red cars.

- **YTD Cars Sold by Dealer Region:** The Austin region emerges as the top performer with around 4,135 sales.

- **Top 5 Companies by Car Sales**
  - Chevrolet leads the way with 1,819 cars sold.
  - Dodge follows closely with 1,671.
  - Ford with 1,614.
  - Volkswagen with 1,333.
  - Mercedes-Benz with 1,285.

- **YTD Car Sales Body Style:**
  - SUVs dominate the landscape, accounting for the largest share at 26.91%, total sales of $100M
  - Hatchbacks follow closely, covering 22.30% of the sales with a revenue of $8M
  - Sedans secure a significant portion at 19.85%, contributing $74Min sales.
  - Passenger vehicles claim a share of 17.09%, generating $63M in sales.
  - Hardtops round out the categories, encompassing 13.85% and $51M sales.

- **Dealers Analysis**
  - We've also identified the top 4 and bottom 4 dealers by car sales, making it easy to discern who the top performers are and who needs improvement.

- **Region Based Sales Analysis**
  - Additionally, we've analysed car sales by region and colour, providing clear insights into which car colours are performing well in specific regions.

Areas for Business Improvement:

- **Enhance Marketing Strategies:**
  - Utilize insights on top-selling colours and body styles to tailor marketing campaigns and meet customer preferences.

- **Strategic Inventory Management:**
  - Leverage the popularity of SUVs by optimizing inventory to meet customer demand and capitalize on trending styles.

- **Dealer Performance Optimization:**
  - Identify and implement best practices from top-performing dealers to enhance sales strategies and improve overall dealer performance.

- **Focus on Low-Performing Regions:**
  - Allocate resources to regions with lower sales figures and explore strategies to increase market share.

- **Refine Average Price Strategies:**
  - Analyse the slight dip in the Year-over-Year (YoY) growth in average price. Consider pricing strategies or promotions to boost average transaction values.

- **Customer Engagement Initiatives:**
  - Engage with customers to understand the reasons behind the popularity of certain car colours and styles, ensuring a customer-centric approach.

- **Competitive Analysis:**
  - Regularly benchmark against competitors, especially the top 5 companies, to identify opportunities for improvement and maintain a competitive edge.

- **Continuous Monitoring:**
  - Implement ongoing monitoring of the YTD sales weekly trend to quickly adapt to market fluctuations and capitalize on peak sales periods.

By focusing on these areas, the business can fine-tune its strategies, improve customer satisfaction, and stay ahead in the dynamic automotive market.

Conclusion:

The Car Sales Dashboard project has successfully achieved its goal of providing a dynamic and intuitive platform for extracting actionable insights from key performance indicators (KPIs) related to our car sales.

Through comprehensive data analysis and visualization using Power BI, we've uncovered valuable insights that can significantly impact our decision-making processes