**Car Sales Dashboard (2024–2025) — Project Report**

* **Introduction**

**Overview of the dashboard**

The Car Sales Dashboard (2024–2025) is an interactive Power BI dashboard designed to visualize and analyze the performance of car sales across multiple regions, brands, fuel types, and dealers. It provides a comprehensive overview of total sales, profit, and quantity sold, along with profit margins and key performance trends. The dashboard enables users to easily explore the data through slicers, charts, and visual indicators, allowing for quick and data-driven decision-making.

**Objective of the analysis**

The main objective of this dashboard is to evaluate the sales performance of different car brands and dealers, identify high-performing regions, and understand customer preferences based on fuel type and payment modes. Through this analysis, businesses can gain actionable insights to improve sales strategies, optimize dealer operations, and enhance overall profitability.

**Importance of car sales insights**

In the competitive automotive market, data-driven insights are crucial for maintaining growth and profitability. By analyzing sales trends, profit margins, and brand performance, companies can make informed decisions about inventory management, marketing campaigns, and regional expansion. The Car Sales Dashboard helps stakeholders visualize these critical metrics at a glance, enabling better forecasting and strategic planning for future business growth.

* **Tools & Technologies Used:-**

**Power BI**

Power BI was the primary tool used to design, visualize, and publish the dashboard. It allowed the integration of data from multiple sources, data cleaning using Power Query, and the creation of interactive visuals and DAX measures to analyze performance metrics.

**Microsoft Excel / CSV Data Source**

The dataset used for this project was imported from a CSV or Excel file containing detailed records of car sales. The dataset included attributes such as *Brand, Dealer Name, Fuel Type, Quantity Sold, Sales Amount, Profit, Region,* and *Payment Mode*.

**Data Modeling**

A star schema model was created in Power BI to maintain a clean and efficient relationship structure between data tables. Calculated measures such as Total Sales, Total Profit, Total Quantity, and Profit Margin (%) were created using DAX functions to enhance data analysis and insights.

**Visualization Techniques**

Various Power BI visuals were utilized, including:

* **Cards** for KPIs (Sales, Profit, Quantity, and Profit Margin)
* **Line chart** for monthly sales trends
* **Bar and Column charts** for brand-wise and profit-wise comparisons
* **Pie and Donut charts** for regional and fuel-type distribution
* **Map visualization** for geographical performance
* **Tables** for dealer-wise sales details
* **Slicers** for interactivity and easy filtering
* **Data Preparation**

**Dataset Overview**

The dataset used for this project contained detailed information about car sales across multiple locations. It included attributes such as:

* **Date:** The transaction or sale date.
* **Brand:** The car manufacturer (e.g., Toyota, Tesla, BMW, etc.).
* **Dealer Name:** The authorized dealer who made the sale.
* **Fuel Type:** The type of fuel used (Petrol, Diesel, Electric, Hybrid).
* **Quantity Sold:** The number of cars sold per transaction.
* **Sales Amount:** The total value of sales.
* **Profit:** The profit generated from each sale.
* **Region:** The geographical area of the sale.
* **Payment Mode:** The mode of customer payment (Cash, Credit, Online, etc.).

**Data Cleaning**

Data cleaning was performed in **Power Query Editor** within Power BI to ensure the dataset was accurate and consistent. The following steps were carried out:

* Removed duplicate records and null values.
* Standardized column names and formats (e.g., date, currency).
* Replaced inconsistent entries in categorical columns such as *Brand* and *Fuel Type*.
* Verified numeric columns (like *Sales Amount* and *Profit*) for incorrect or missing data.

**Data Transformation**

After cleaning, several transformations were applied:

* Added calculated columns for *Profit Margin (%)* = (Profit / Sales Amount) × 100.
* Converted data types to ensure accurate aggregation and visualization.
* Grouped and summarized data where necessary for analysis (e.g., by region or brand).
* Created a proper relationship model between different data tables to enable smooth interactivity.

**Data Validation**

Finally, a validation step was performed to cross-check totals and ensure the integrity of the dataset. Random samples were compared against raw data to confirm the accuracy of sales and profit values.

* **Dashboard Design**

**Layout Planning**

The layout of the Car Sales Dashboard was carefully designed to provide a clear and intuitive view of all the key performance indicators (KPIs) and insights at a glance. The dashboard was divided into sections:

* The **top section** displays the main KPIs, such as *Total Sales*, *Total Profit*, *Total Quantity Sold*, and *Profit Margin (%)*.
* The **middle section** contains the key visualizations showing *sales by brand*, *sales trends over time*, and *regional performance*.
* The **bottom section** includes more detailed visuals like *dealer-wise performance*, *sales by fuel type*, and *top regions or models by sales*.

This structure ensures that the viewer can first understand the overall performance and then explore deeper insights.

**Colour Theme & Formatting**

A consistent and professional color theme was used to make the dashboard visually appealing and easy to interpret.

* **Blue and green tones** were used to represent growth and performance.
* **Neutral backgrounds** ensured the visuals stood out clearly.
* Conditional formatting and data labels were applied to highlight key metrics and trends.  
  Icons and KPI cards were used to make important figures quickly recognizable.

**Interactivity & User Experience**

The dashboard includes multiple **slicers and filters** that allow users to explore data dynamically. The available slicers include:

* **Brand**
* **Fuel Type**
* **Dealer Name**
* **Region**
* **Payment Mode**

These filters help users to drill down into specific categories, making it possible to analyze how each brand or region performs under different conditions.

**DAX Measures Used**

To enhance the analysis, several DAX (Data Analysis Expressions) measures were created, including:

* Total Sales = SUM(Sales[Sales Amount])
* Total Profit = SUM(Sales[Profit])
* Total Quantity = SUM(Sales[Quantity])
* Profit Margin (%) = DIVIDE([Total Profit], [Total Sales]) \* 100

These measures were used across visuals to ensure accurate and dynamic calculations.

**Final Layout Overview**

The final dashboard presents a clean, interactive, and business-ready design that enables users to gain insights instantly. It effectively combines visual storytelling with analytics, helping decision-makers monitor sales performance and take informed actions.

* **Explanation of Visuals**

**1. KPI Cards (Top Section)**

The top section of the dashboard contains **Key Performance Indicator (KPI) cards** that summarize the main metrics:

* **Total Sales:** Displays the total revenue generated from all car sales.
* **Total Profit:** Shows the cumulative profit earned.
* **Total Quantity Sold:** Represents the total number of vehicles sold during the period.
* **Profit Margin (%):** Indicates the overall profitability of the business by comparing profit to total sales.

These KPIs provide an instant overview of the company’s financial performance.

**2. Monthly Sales Trend (Line Chart)**

A **line chart** is used to display sales performance over time (month by month).  
It helps identify trends, such as peak sales months or seasonal dips in performance.  
For instance, if the chart shows higher sales during certain months, it can help management plan promotions or inventory accordingly.

**3. Sales by Brand (Column Chart)**

A column chart visualizes how each car brand contributes to total sales.  
This helps identify the top-performing brands (e.g., Tesla or Toyota) and those with lower performance.It provides valuable insights into customer preferences and market demand for specific brands.

**4. Profit by Brand (Bar Chart)**

This chart focuses on the profitability of each brand rather than just sales volume.  
A brand might have high sales but lower profit margins, while another may generate higher profits with fewer sales.  
It helps in understanding which brands offer the best return on investment.

**5. Sales by Fuel Type (Donut / Pie Chart)**

This visual categorizes total sales based on the type of fuel — such as Petrol, Diesel, Electric, or Hybrid.It helps analyze which fuel type is most preferred by customers, providing insights into market trends and shifting preferences toward eco-friendly vehicles.

**6. Sales by Region (Map or Pie Chart)**

A map visualization (or regional pie chart) displays the geographical performance of sales.  
It highlights which regions contribute most to overall sales and profits.  
This helps management identify strong markets and areas with potential for growth.

**8. Interactive Slicers (Filters)**

The dashboard includes slicers for Brand, Fuel Type, Dealer Name, Region, and Payment Mode. Users can apply filters to view customized data.For example, selecting “Electric” in the Fuel Type slicer instantly updates all visuals to show sales and profit data only for electric vehicles.This interactivity makes the dashboard flexible and user-friendly, allowing real-time exploration of insights.

* **Key Insights**

**Overall Sales Performance**The total car sales for the year reached 2584M, showing a steady increase of 12% compared to the previous year. Sales peaked in March, indicating strong customer demand during the holiday season.

**Top-Selling Car Models**  
Model Tesla emerged as the best-selling car, accounting for 28% of total sales, followed closely by Model Toyota at 22%. These models show high customer preference due to their features and competitive pricing.

**Sales by Region**The West region contributed the highest sales with 26.2% of total units, while the North region accounted for only 23.9%. This highlights regional demand differences and potential areas for targeted marketing.

**Seasonal Trends**  
Sales trends indicate peaks in March and October, while sales were lower in February, September, and November. This highlights clear seasonality in customer buying behaviour, suggesting that promotional efforts during high-demand months could maximize revenue, while targeted campaigns in slower months may help boost sales.

* **Suggestions / Recommendations**

**Focus Marketing on Peak Months**

* Since sales peak in **March and October**, increase marketing campaigns and promotions during these months to maximize revenue.

**Boost Sales During Low Months**

* Sales are low in **February, September, and November**. Introduce discounts, bundles, or special offers to encourage purchases during these slower months.

**Promote Top-Selling Models**

* Highlight **Model Tesla** and other high-demand cars in advertising campaigns, test drives, and showroom displays to drive more sales.

**Target High-Performing Regions**

* Concentrate sales efforts and inventory in regions with higher demand, like the **North region**, while exploring strategies to improve sales in lower-performing regions.

**Expand Tesla Options**

* Since, **Tesla** **are the most popular**, consider adding new Tesla variants or trims to attract more customers.

**Customer Engagement & Feedback**

* Collect customer feedback on low-selling months or models to understand barriers and improve product offerings.

**Seasonal Promotions & Offers**

* Plan festive season promotions or loyalty programs to retain existing customers and attract new buyers.
* **Conclusion**

The Car Sales Dashboard provides a clear overview of sales performance, customer preferences, and regional trends. Key insights reveal peak sales months, top-selling models, and areas for growth, while the recommendations suggest actionable strategies to optimize sales throughout the year. By leveraging these insights, the business can make informed decisions, improve customer engagement, and achieve sustained growth in car sales.