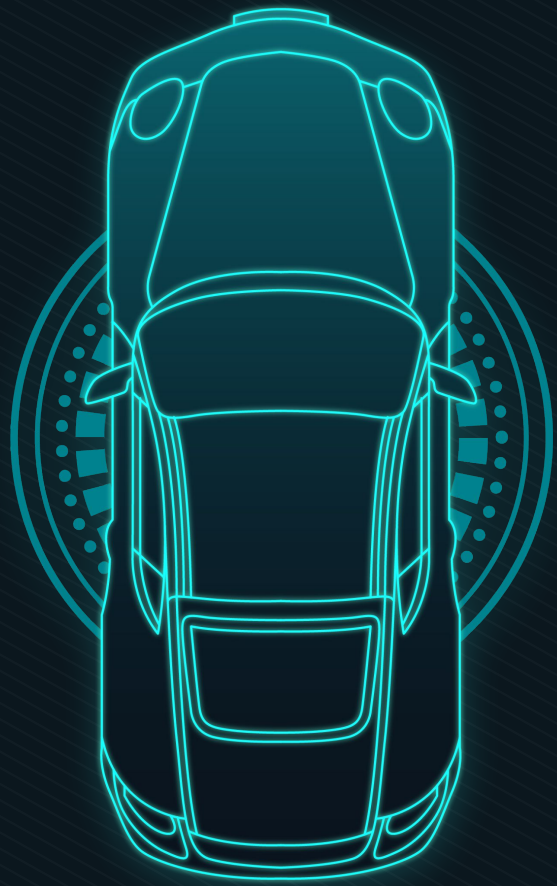
PROJECT TITLE

Car Price Prediction

An Exploratory Data Analysis



PRESENTATION BY

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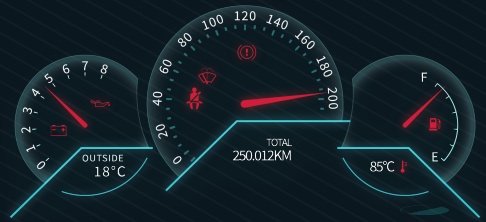


INTRODUCTION

Analyzing historical car sales data to understand key factors influencing car prices and identify trends for accurate price prediction.

DATASET OVERVIEW

Description:

Dataset pertains to car sales.

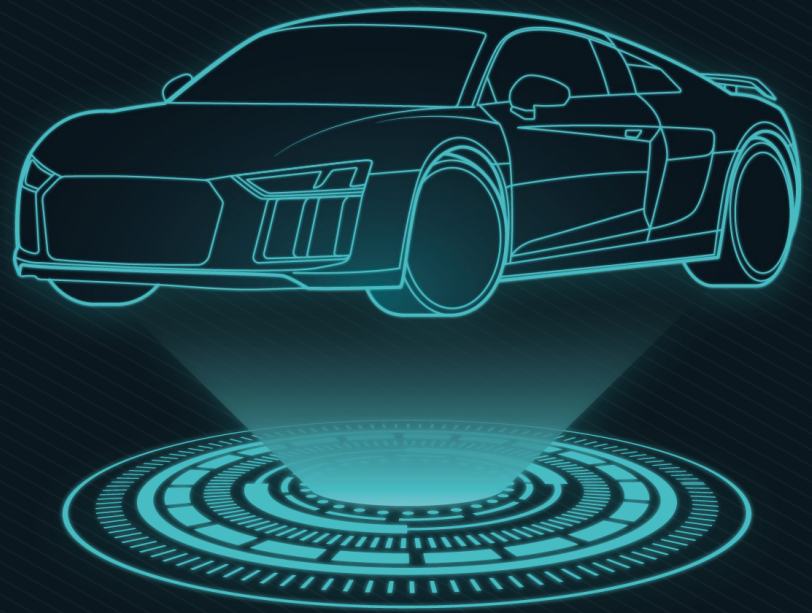
Encompasses details such as car brand, model, transmission type, fuel type, manufacturing year, mileage, and sale price.

Total 2,500 cars sold, with a total sales value of $131.60M.

Average car price of $52.64K across 7 unique brands.

Key Attributes:

- ★ Car Brand
- ★ Model
- ★ Transmission Type
- ★ Fuel Type
- ★ Manufacturing Year
- ★ Mileage
- ★ Sale Price
- ★ Car ID (for counting)



DATA CLEANING PROCESS

Handling missing values (e.g., imputation or removal).

Correcting data types (e.g., ensuring numerical fields are numeric).

Addressing inconsistencies in categorical data (e.g., standardizing brand names).

Outlier detection and treatment (e.g., for mileage or price).

Feature engineering (e.g., creating 'Car Age' from 'Manufacturing Year').

DAX FUNCTIONS

Overview of DAX Functions Applied:

CALCULATE(SUM(Sales[SalePrice])): To calculate total sales value.

AVERAGE(Sales[SalePrice]): To determine average car price.

COUNTROWS(Cars): To count total cars sold.

DISTINCTCOUNT(Cars[Brand]): To count unique car brands.

FILTER(ALL(Cars), Cars[Transmission] = "Automatic"): For specific segment analysis.

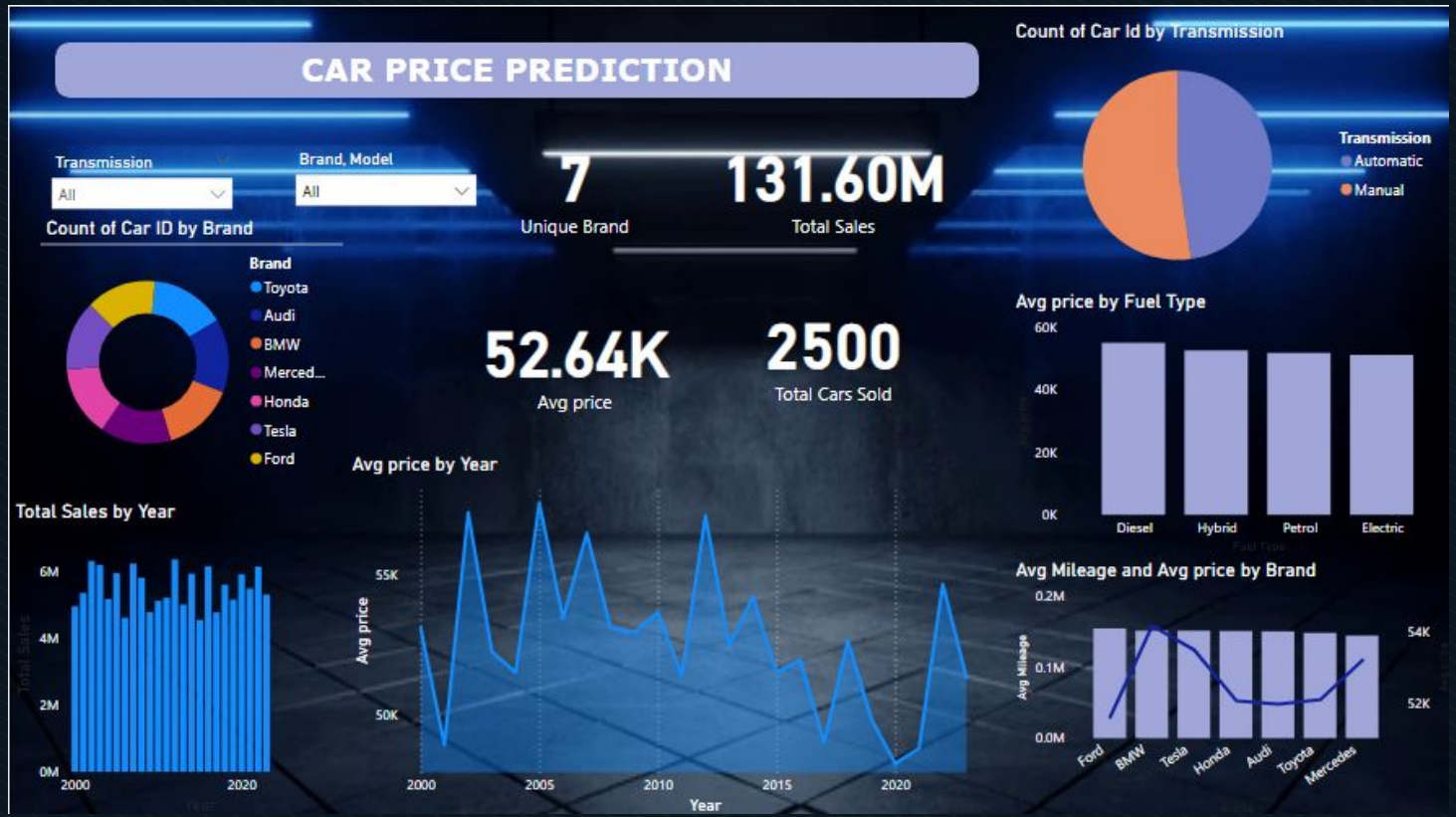
IMPACT ON ANALYSIS:

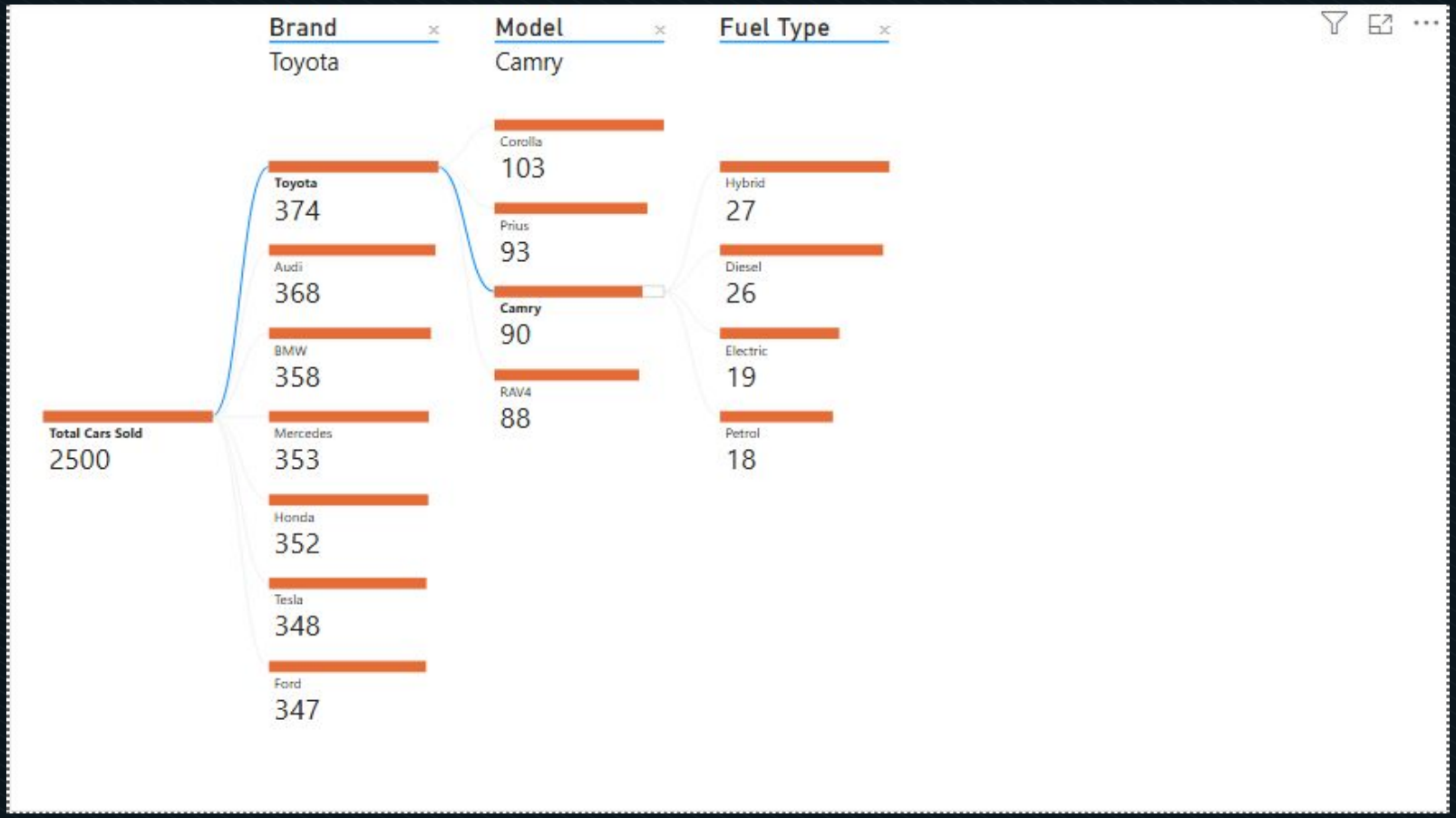
Enabled creation of key performance indicators (KPIs) like Total Sales Value and Average Car Price.

Facilitated granular analysis by transmission type, fuel type, and brand.

Allowed for time-based trend analysis of sales volume and average prices.

DASHBOARD OVERVIEW




Brand
Toyota
Model
Camry
Fuel Type
Total Cars Sold
2500
Toyota
374
Audi
368
BMW
358
Mercedes
353
Honda
352
Tesla
348
Ford
347
Corolla
103
Prius
93
Camry
90
RAV4
88
Hybrid
27
Diesel
26
Electric
19
Petrol
18

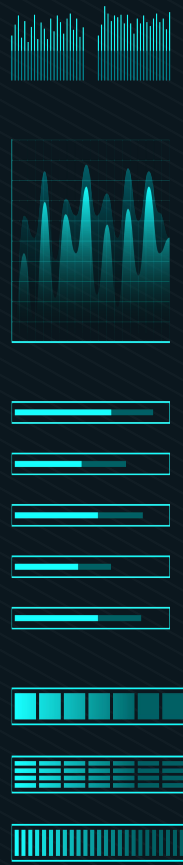

2500
Total Cars Sold
131.60M
Total Sales

Fuel Type	Diesel		Electric		Hybrid		Petrol		Total	
Brand	Total Sales	Count of Car ID	Total Sales	Count of Car ID	Total Sales	Count of Car ID	Total Sales	Count of Car ID	Total Sales	Count of Car ID
Audi	54,87,685.16	97	48,29,396.75	94	40,80,303.72	81	47,21,474.70	96	1,91,18,860.33	368
BMW	54,58,762.37	92	46,09,571.41	91	47,81,587.90	86	45,38,325.27	89	1,93,88,246.95	358
Ford	44,77,725.48	85	40,20,407.75	85	44,86,565.96	86	49,18,160.23	91	1,79,02,859.42	347
Honda	52,23,264.03	103	37,95,203.00	75	47,86,277.23	87	45,16,955.69	87	1,83,21,699.95	352
Mercedes	45,19,287.21	83	44,47,459.15	82	40,07,983.77	80	58,01,724.67	108	1,87,76,454.80	353
Tesla	49,60,410.12	88	53,28,574.06	100	43,97,319.41	85	39,23,186.93	75	1,86,09,490.52	348
Toyota	58,95,899.05	107	43,46,638.19	87	50,40,946.26	96	41,93,960.86	84	1,94,77,444.36	374
Total	3,60,23,033.42	655	3,13,77,250.31	614	3,15,80,984.25	601	3,26,13,788.35	630	13,15,95,056.33	2500

KEY INSIGHTS VISUALS

- Transmission Preference: Visual confirmation of significant preference for Automatic vehicles (e.g., via a pie chart).
- Brand Distribution: Donut chart showing sales distribution across brands, with Toyota as prominent.
- Fuel Type Pricing: Bar chart illustrating varying average prices across Diesel, Hybrid, Petrol, and Electric fuel types.
- Sales & Price Trends Over Time: Bar chart for Total Sales by Year and Line graph for Average Price by Year, showing fluctuations and peaks/troughs.
- Brand-Specific Performance: Chart comparing average mileage and average price by brand (e.g., Tesla's low mileage/high price vs. Ford/BMW's higher mileage/moderate price).

KEY INSIGHTS RECOMMENDATIONS



- Automatic Transmission Dominance: Strong market preference for automatic vehicles.
- Price Volatility: Significant fluctuations in average car prices over time, indicating influence from factors beyond just age.
- Brand Tiering: Observable differences in average price and mileage across brands (e.g., Tesla as a premium, low-mileage option).
- Fuel Type Market: No single fuel type dominates pricing, suggesting a mature market with distinct price segments.
- Sales Volume Fluctuations: Car sales are subject to cyclical trends or external economic factors.

RECOMMENDATIONS:

- Inventory Strategy: Prioritize stocking automatic models; focus on popular brands like Toyota while understanding niche appeal of brands like Tesla.
- Pricing Strategy: Consider manufacturing year, but also account for market volatility, economic conditions, and competitor pricing. Reflect premium for newer/electric vehicles like Tesla.
- Market Analysis & Forecasting: Investigate drivers behind sales and price fluctuations (e.g., economic recessions, new tech, policy changes) for improved forecasting.
- Targeted Marketing: Tailor campaigns based on fuel type preferences and associated price points; promote brands based on identified strengths.

CONCLUSION:

Overall Findings

- The analysis reveals critical factors influencing car prices, including transmission type, brand, fuel type, and manufacturing year.
- Market dynamics show significant volatility in sales volumes and average prices, highlighting the impact of external economic and market-specific factors.
- Understanding brand-specific performance metrics (mileage vs. price) is crucial for strategic decision-making.

REAL-WORLD APPLICATIONS:

- Dealers & Manufacturers: Optimize inventory, refine pricing strategies, and develop targeted marketing campaigns.
- Buyers & Sellers: Inform purchasing decisions and aid in setting competitive sale prices.
- Market Analysts: Provide a foundation for deeper market research and forecasting, identifying potential risks and opportunities.

"THANK YOU"