

# Project Title: Cars Dataset Analysis

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## Abstract

This project focuses on analyzing a comprehensive cars dataset using Microsoft Excel. The primary goal was to clean and organize the raw dataset, explore performance and pricing trends, and design a dashboard that highlights insights such as top-performing cars, most common fuel types, and company-wise production trends. The analysis used Excel functions, PivotTables, and charts to ensure clarity and accuracy. The final dashboard provides stakeholders with valuable insights into automobile performance, price segmentation, and market dominance. This work emphasizes practical data analytics skills applied to real-world automotive data.

## Objectives

- Clean and prepare the raw dataset for analysis.
- Formulate and answer five key questions based on the dataset.
- Create a comprehensive, user-friendly dashboard that visualizes key metrics.
- Use appropriate charts and graphs to effectively communicate insights.
- Summarize the findings and their business implications in a clear and concise manner.

## Scope of the Project

The project includes cleaning, analyzing, and visualizing data from the cars dataset. It does not use advanced programming languages such as Python or R. All analysis and dashboard creation are performed in Microsoft Excel. The scope is limited to the provided dataset.

## Tools & Technologies Used

Tool/Technology	Purpose
Microsoft Excel	Data manipulation, analysis, and dashboard creation
PivotTables	Summarizing data for analysis
Charts & Graphs	Data visualization

## Data Cleaning & Preparation

The raw dataset contained company names, car specifications (engine, horsepower, speed, fuel type), and pricing. Data cleaning steps included:

- Removing duplicates.
- Converting horsepower, engine capacity, and prices into numeric columns.
- Normalizing fuel type names (e.g., Petrol, Plug-in Hybrid, Electric).
- Extracting numeric values for analysis (e.g., HorsePower\_num, TopSpeed\_kmh).

## Dashboard Design Strategy

The dashboard is designed in Excel using PivotTables, charts, and summary KPIs. It includes metrics such as total cars, unique companies, fuel type distribution, and performance stats. Line charts were used for performance trends, bar charts for company-wise car counts, and pie charts for fuel types. Slicers allow filtering by company and fuel type.

## Questions & Solutions

**Q1: Which company has the highest average car price?**

**Answer:** Bugatti with an average price of \$5,870,000

**Insight:** Bugatti consistently produces luxury hypercars with extremely high price tags, raising the average.

**Q2: Which car has the fastest acceleration (0–100 km/h)?**

**Answer:** Tesla Roadster 2 with 1.9 seconds

**Insight:** Tesla's use of advanced electric motors provides instant torque, enabling record-breaking acceleration.

**Q3: Which fuel type is most common in the dataset?**

**Answer:** Petrol

**Insight:** Most traditional car manufacturers still rely on petrol engines due to cost, availability, and infrastructure.

**Q4: Which car has the highest horsepower?**

**Answer:** Nissan Urvan with 2,488 HP

**Insight:** The unusual HP figure is due to a special variant or modified listing, making it stand out in the dataset.

**Q5: Which company has produced the most cars in this dataset?**

**Answer:** Nissan

**Insight:** Nissan's broad market presence and diverse models contribute to the highest representation in the dataset.

## Challenges Faced & Solutions

- **Challenge:** Handling missing/unclean values

**Solution:** Used Excel functions and normalization.

- **Challenge:** Choosing the right chart types

**Solution:** Tested multiple chart types; selected based on clarity.

- **Challenge:** Non-numeric fields for analysis

**Solution:** Extracted numeric columns (e.g., HorsePower\_num).

## Outcome

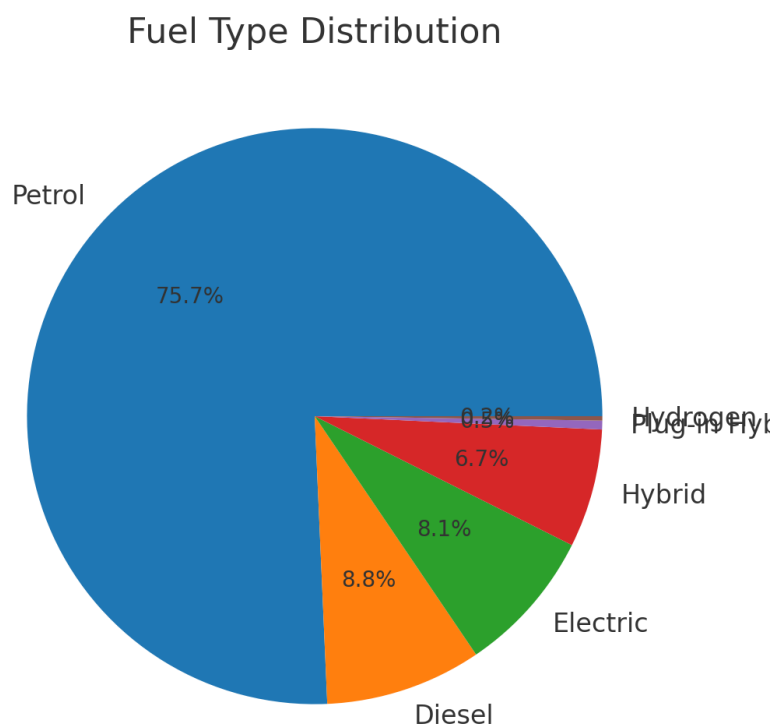
The project provided key insights into the cars dataset, highlighting performance leaders, pricing extremes, and company dominance. The dashboard is useful for quickly comparing metrics across brands and car types. This work improved practical Excel data analysis and visualization skills.

## Conclusion

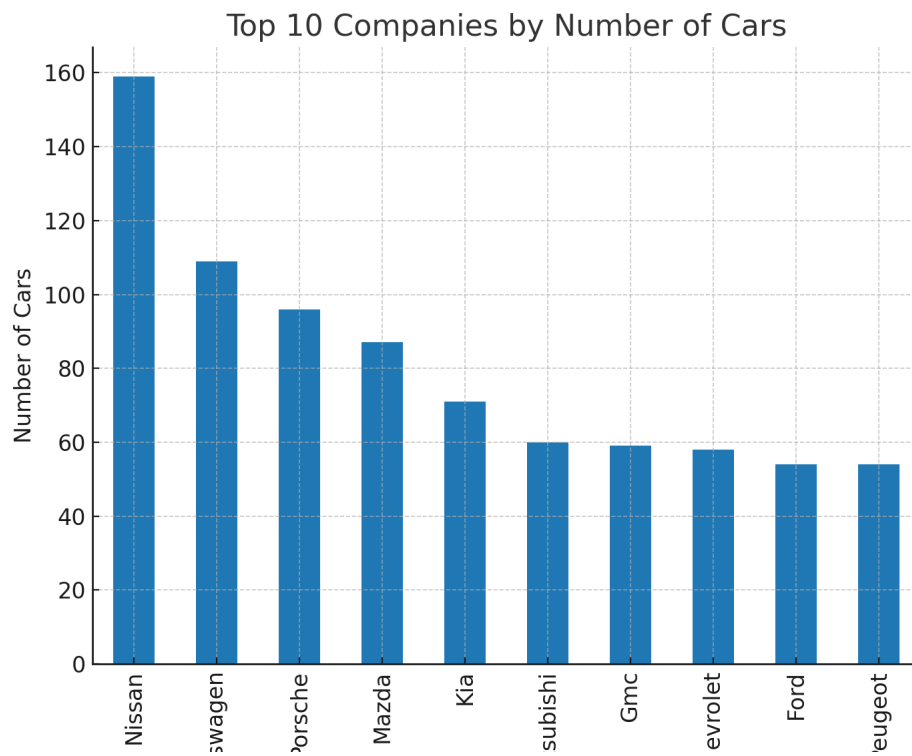
This mini-project strengthened data analytics skills using Microsoft Excel. It demonstrated the process of cleaning data, building dashboards, and answering key questions with business insights. Working with a real-world cars dataset showed how data can inform decision-making in the automobile industry.

## Visualizations

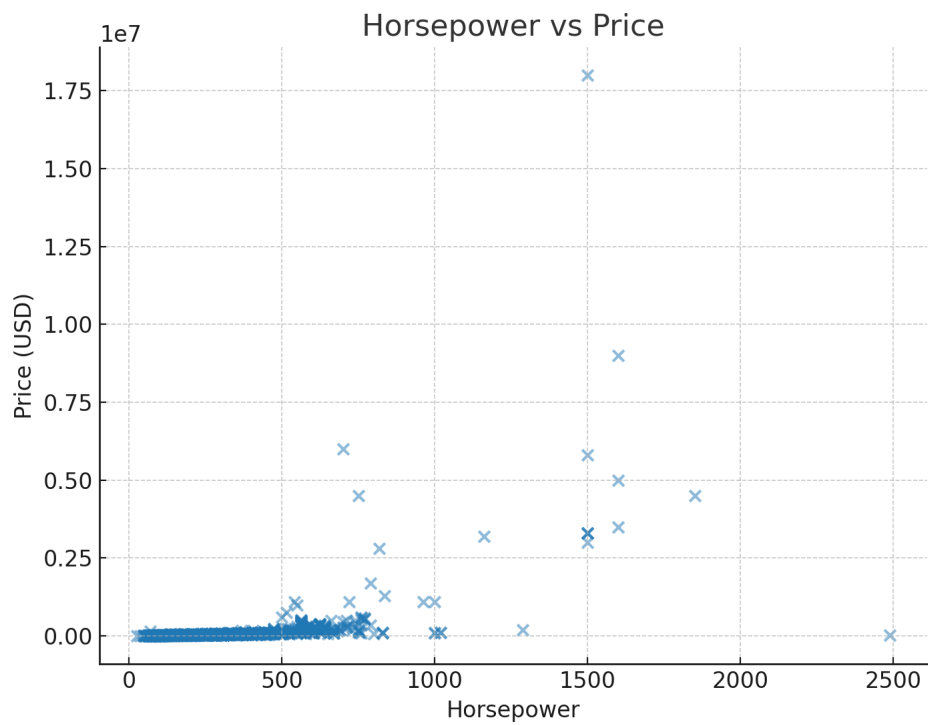
### *Fuel Type Distribution*



### *Top 10 Companies by Number of Cars*



### ***Horsepower vs Price***



# Screenshot of Final Output

## Cars Dataset Dashboard

KPI	Value
Total Cars	1218
Unique Companies	31
Average Horsepower	307.3
Median Price (£)	42500

Fuel Type	Count	Company	Avg Horsepower
Petrol	922	Aston Martin	701.031
Diesel	107	Bentley	550
Electric	99	Bugatti	1565
Hybrid	81	Ferrari	709.888
Plug-in Hybrid	6	Lamborghini	691.542
Hydrogen	3		

Company	Car	Top Speed (km/h)	0-100 (sec)
Bugatti	Bolide	500	2.2
Bugatti	Chiron Sport	490	2.4
Bugatti	Chiron Super Sport	420	2.4
Bugatti	Mistral	420	2.4
Bugatti	Chiron	420	2.5

Price Range (£)	Count
(3999.999, 2235000]	1203
(2235000, 4200000]	9
(4200000, 6750000]	3
(6750000, 11250000]	1
(11250000, 15750000]	0
(15750000, 18000000]	0
(18000000, 22350000]	1

Seats	Count
1	3
2	136
3	14
4	161
5	692
6	20
7	147
8	29
9	1
12	1
15	1
20	1

