



L OVELY
P ROFESSIONAL
U NIVERSITY

Discipline of CSE/IT

Lovely School of Computer Science and Engineering

Lovely Professional University, Phagwara

POWER BI Report File: -

SPORTS CAR DATA ANALYSIS USING POWER BI

Submitted by: *Satyam Kumar Singh*

Registration No: *12309199*

Section: *K23KR*

Course Code: *INT374*

Under the Guidance: *Dr. Mrinalini Rana*

CERTIFICATE

This is to certify that **Satyam Kumar Singh** bearing Registration no. **12309199** has completed INT 374 project titled, "Financial Analytics Dashboard Using Power BI" under my guidance and supervision. To the best of my knowledge, the present work is the result of his/her original development, effort and study.

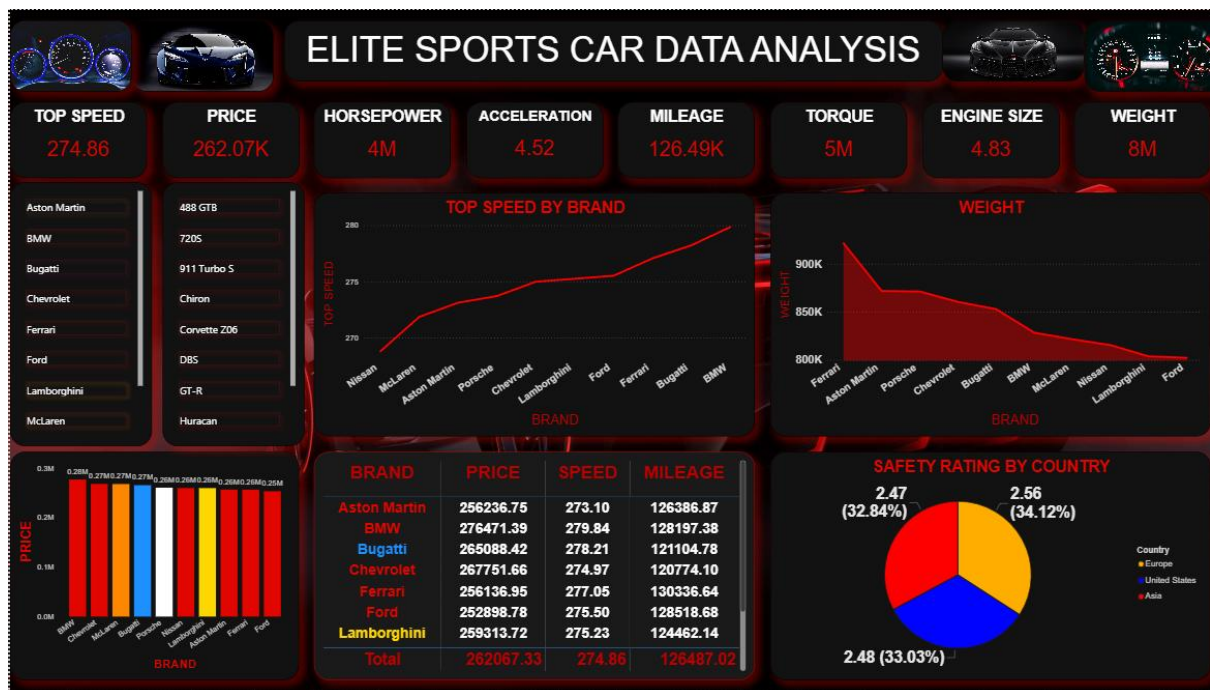
Name of the Supervisor

Dr. Mrinalini Rana

School of Computer Science and Engineering

Lovely Professional University
Phagwara, Punjab.

Date:12 Dec 2025



Important links

Finance dataset link:

<https://www.kaggle.com/datasets/wlwwwlw/elite-sports-cars-in-data>



L OVELY
P ROFESSIONAL
U NIVERSITY

DECLARATION

I, **Satyam Kumar Singh**, a student of **Computer Science and Engineering** under the **CSE/IT Discipline** at **Lovely Professional University, Punjab**, hereby solemnly declare that the project titled **“Power BI Dashboard for Sports Car Data Analysis”** is an original work carried out by me during the **January–April 2025** semester under the guidance of **Dr. Mrinalini Rana**.

I affirm that all the data, analysis, visualizations, and results presented in this report are based on my own sincere efforts and have been prepared strictly in accordance with the academic guidelines of the university. Any material taken from published or unpublished sources has been duly acknowledged in the references section.

I further declare that this project report has not been submitted earlier to any other university or institution for the award of any degree, diploma, or certification.

Date: 12 Dec 2025

Place: Phagwara, Punjab

Signature of the Student: Satyam kumar Singh

Name: Satyam Kumar Singh

Registration Number: 12309199



L OVELY
P ROFESSIONAL
U NIVERSITY

ACKNOWLEDGEMENT

I express my deep sense of gratitude to my project guide **Dr. Mrinalini Rana**, Department of Computer Science and Engineering, Lovely Professional University, for their invaluable guidance, constant encouragement, and insightful suggestions throughout the duration of this project. Their technical expertise, constructive feedback, and continuous motivation were instrumental in shaping this project and ensuring its successful completion.

I am sincerely thankful to the **Department of Computer Science and Engineering**, Lovely Professional University, for providing a strong academic foundation, modern infrastructure, and a conducive learning environment that enabled me to apply theoretical knowledge to practical implementation. The support and cooperation extended by the faculty members of the department greatly contributed to enhancing my understanding of data analytics and Power BI tools.

I would also like to acknowledge the support of my peers and classmates who provided constructive feedback, shared ideas, and assisted in reviewing the dashboard during different phases of development. Their discussions and suggestions helped in improving the quality, accuracy, and usability of the final dashboard.

Finally, I extend my heartfelt thanks to my family and well-wishers for their constant encouragement, moral support, and motivation throughout the project period. Their belief in my efforts helped me remain focused and committed to completing this project successfully.

LinkedIn POST:

The screenshot shows a LinkedIn post by Satyam Kumar Singh, an Aspiring Data Scientist at Lovely Professional University. The post features a dashboard titled 'ELITE SPORTS CAR DATA ANALYSIS' with various charts and tables. The dashboard includes a bar chart for 'TOP SPEED BY BRAND', a line chart for 'PRICE', a pie chart for 'SAFETY RATING BY COUNTRY', and a table for 'TOP SPEED BY BRAND'. The post has 1 like and 1 comment. The comment by Satyam Kumar Singh says 'very good work'.

ELITE SPORTS CAR DATA ANALYSIS

Brand	Model	Top Speed (km/h)	Price (USD)	Horsepower (HP)	Acceleration (0-100)	Mileage (km/l)	Torque (kgm)	Engine Size (L)	Weight (kg)
BMW	3 Series	180	25000	250	6.0	15.0	25.0	2.0	1500
Mercedes	AMG GT	200	100000	500	3.5	10.0	40.0	4.0	1900
Ferrari	488 GTB	260	220000	600	3.0	12.0	45.0	3.9	1570
Lamborghini	Aventador	250	400000	700	2.8	10.0	55.0	6.5	1775

Post Link: https://www.linkedin.com/posts/singhsatyam05_powerbi-dataanalytics-datavisualization-activity-7406635630115323904-3gF7?utm_source=social_share_send&utm_medium=member_desktop_web&rcm=ACoAAFeSgk8BPkRcxavuVA1xuxYplxlidpvPzi8

1. INTRODUCTION

1.1 Project Overview

This project focuses on the design and development of an **interactive Elite Sports Car Data Analysis Dashboard** using **Microsoft Power BI**. The dashboard analyzes high-performance sports car data across multiple brands and models, providing insights into **speed, price, horsepower, torque, mileage, engine size, weight, and safety ratings** through visually rich and interactive analytics.

The dashboard enables users to compare elite sports cars dynamically and observe how performance and market attributes vary across brands and countries.

1.2 Problem Statement

With the growing number of elite sports car manufacturers and models, analyzing performance, pricing, and efficiency becomes complex. Challenges include:

- Difficulty in comparing car performance across brands
 - Lack of consolidated insights on price vs performance
 - Limited visualization of relationships between speed, torque, and engine size
 - No intuitive tool to analyze brand-wise dominance
-

1.3 Objectives

1. To develop a **single-page interactive Power BI dashboard** for elite sports car analysis
 2. To compare **performance metrics** such as top speed, horsepower, torque, and acceleration
 3. To analyze **price, mileage, and market demand** across brands
 4. To implement **dynamic filtering and theme-based interactions**
 5. To generate actionable insights for automotive analysis and comparison
-

1.4 Scope and Limitations

Scope

- Analysis of elite sports cars across multiple global brands
- Brand-wise, model-wise, and country-wise comparisons
- Dynamic visuals with slicers and interactive color themes
- Performance and market-based insights

Limitations

- Dataset represents historical/static data
 - No real-time automotive API integration
 - Limited to available attributes in the dataset
-

2. SOURCE OF DATASET

2.1 Dataset Description

The dataset contains structured information about elite sports cars with attributes related to:

- Performance
- Pricing
- Fuel efficiency

- Market popularity
- Safety ratings

Key Columns Include:

- Brand, Model, Year, Country
 - Engine Size, Horsepower, Torque
 - Top Speed, Acceleration (0–100)
 - Mileage, Fuel Efficiency
 - Price, Market Demand, Popularity
 - Safety Rating, CO₂ Emissions
-

2.2 Data Characteristics

- Format: CSV
 - Records: Multiple brands and models
 - Data Types: Numeric, categorical, calculated fields
 - Completeness: No critical missing values
-

3. DATASET PREPROCESSING

3.1 Data Loading and Transformation

- Imported CSV file into Power BI Desktop
 - Verified column data types
 - Standardized numeric units (speed, price, mileage)
 - Renamed columns for clarity
-

3.2 Feature Engineering

Created calculated columns and measures such as:

```
Log_Price = LOG([Price])  
Log_Mileage = LOG([Mileage])
```

Derived metrics for:

- Brand-level aggregation
 - Average top speed
 - Total mileage
 - Average safety rating
-

3.3 Data Modelling

- Single fact table model
 - Optimized relationships for slicer performance
 - Disconnected tables used for **theme/color switching**
-

4. DASHBOARD IMPLEMENTATION



4.1 Dashboard Architecture

The dashboard follows a **single-page dark-themed layout** with the following sections:

1. Header & Branding
 2. KPI Cards (Top Speed, Price, Horsepower, Torque, Mileage, Weight)
 3. Brand & Model slicers
 4. Trend and comparison charts
 5. Distribution and summary table
 6. Country-wise safety analysis
-

4.2 Visual Components

4.2.1 Key KPIs

- Average Top Speed
- Average Price
- Total Horsepower
- Average Acceleration
- Total Mileage

- Total Torque
- Engine Size
- Weight

4.2.2 Charts Used

- **Line Chart:** Top Speed by Brand
 - **Area Chart:** Weight distribution by Brand
 - **Bar Chart:** Price comparison across brands
 - **Pie Chart:** Safety Rating by Country
 - **Table:** Brand-wise summary (Price, Speed, Mileage)
-

4.3 Interactive Features

- Brand and Model slicers
 - Cross-filtering between visuals
 - Dynamic theme color changes using images
 - Hover tooltips for detailed insights
-

4.4 DAX Measures and Calculations

Examples:

```
Average Top Speed = AVERAGE('Elite Sports Cars in Data'[Top_Speed])
```

```
Average Price = AVERAGE('Elite Sports Cars in Data'[Price])
```

```
Total Horsepower = SUM('Elite Sports Cars in Data'[Horsepower])
```

Dynamic color measure used for theme control:

```
Dashboard Color =  
VAR SelectedColor =  
    SELECTEDVALUE ( 'Color Selector'[ColorKey] )  
RETURN  
SWITCH (   
    SelectedColor,  
    "BLUE",    "#0033A0",  
    "WHITE",   "#FFFFFF",  
    "RED",     "#D50000",  
    "#D50000"  
)
```

6. ANALYSIS AND RESULTS



5.1 Performance Analysis

- Bugatti and BMW show the highest top speeds
- Ferrari and Lamborghini balance speed and design
- McLaren shows strong acceleration performance

5.2 Price Analysis

- Bugatti models dominate the high-price segment
- Porsche and Ferrari offer competitive pricing with performance balance
- Chevrolet and Ford show comparatively affordable performance

5.3 Mileage & Efficiency

- Lighter vehicles show better mileage
- Higher engine sizes correlate with increased fuel consumption

5.4 Safety & Country Analysis

- European brands show slightly higher safety ratings
 - US brands show strong performance-to-cost balance
-

7. VISUALIZATION TECHNIQUES



6.1 Chart Selection Rationale

- Line charts for trend analysis
 - Bar charts for comparison
 - Pie charts for proportional analysis
 - Tables for precise numeric comparison
-

6.2 Colour Scheme and Design

- Dark background for premium feel
 - Red, Blue, White dynamic themes
 - High contrast for readability
 - Brand-inspired visual aesthetics
-

7. CONCLUSION

7.1 Key Findings

- Elite sports cars show strong variation in speed, price, and efficiency
 - Brand identity strongly influences performance metrics
 - Dynamic dashboards enhance comparative analysis
-

7.2 Project Achievements

- Successfully built an interactive Power BI dashboard
 - Implemented advanced DAX logic
 - Achieved YouTube-style dynamic theme switching
 - Delivered a professional automotive analytics solution
-

8. FUTURE SCOPE

- Integration of real-time automotive APIs
 - Predictive analytics for performance trends
 - EV and hybrid car comparison
 - Mobile-optimized dashboard version
-

9. REFERENCES

- Microsoft Power BI Documentation
- Automotive Performance Datasets
- Data Visualization Best Practices