- Models with high safety ratings and good efficiency can serve as key campaign icons.

3. Sales & Distribution Division

- Sales data shows a correlation between production year, brand, and sales volume.
- Distribution can be optimized in regions with high demand for new models with superior battery specifications.
- Recommendation: Use historical data for inventory forecasting and annual distribution strategy adjustments.

General Recommendations

Companies can strengthen their market position by:

1. Integrating R&D findings into promotional strategies.
2. Adjusting prices based on competitor trends and technological efficiencies.
3. Optimizing the distribution chain for the best-performing models in the market.

Introduction

Name. : Yudhistira Pandu D

Batch : 032

Objective explanation. : This EDA aims to provide a comprehensive understanding of electric vehicle (EV) performance and trends through analysis of sales data, technical specifications, and product characteristics. The analysis results support three key divisions—R&D, Marketing, and Sales & Distribution—in identifying efficient product innovations, understanding pricing and specification trends, and optimizing distribution and sales strategies. Overall, this EDA serves as the foundation for data-driven strategic decision-making in the electric vehicle industry.

Conclusions

Based on the results of exploring electric vehicle (EV) sales data and specifications, it can be concluded that the EV industry development trend shows increasing energy efficiency and decreasing CO_2 emissions, accompanied by increasingly competitive prices every year.

Business Insights:

1. Product R&D Division

- Manufacturers with the highest range-to-battery-capacity ratio demonstrate strong technological efficiency.
- Research can focus on medium-capacity batteries with shorter charging times, as efficiency and charging speed are key selling points in the global EV market (based on BloombergNEF 2024 EV industry trends).

2. Marketing Division

- The average price of electric cars tends to decrease over time, while technical performance improves.
- Communication strategies can emphasize "added value at a competitive price" and environmental friendliness without compromising quality.
- Models with high safety ratings and good efficiency can serve as key campaign icons.

Objective Exploratory Data Analysis

This dashboard aims to provide a comprehensive overview of electric vehicle (EV) performance, trends, and efficiency based on sales data, technical specifications, and product characteristics. Its main objective is to assist strategic decision making in three main areas of the company:

1. Product Research & Development Division (Product R&D)
    - Objective: To identify manufacturers and models that demonstrate the best energy efficiency through analysis of driving range, battery capacity, and CO_2 emissions.
    - Benefits: Helps determine research focus on battery types, optimal capacity, and energy efficiency innovations for electric vehicles.
2. Marketing Division
    - Objective: To understand the price and specification trends of electric cars over time, as well as market perceptions of new battery types and technologies.
    - Benefits: Developing product value promotion and communication strategies that emphasize efficiency, innovation, and price reductions without sacrificing quality.

3. Sales & Distribution Division

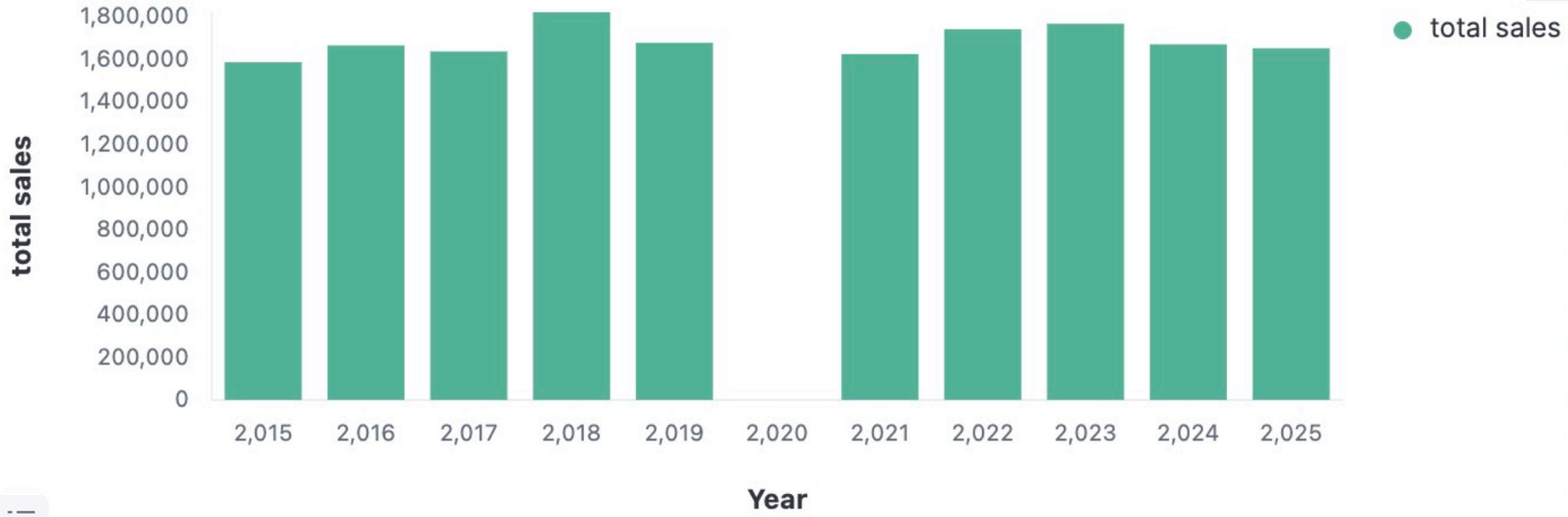
- Objective: To analyze sales patterns and market preferences based on production year and manufacturer to determine effective distribution strategies.
- Benefits: Optimizing sales targets and distribution areas according to market demand and electric car growth trends.

Objective Exploratory Data Analysis

This dashboard aims to provide a comprehensive overview of electric vehicle (EV) performance, trends, and efficiency based on sales data, technical specifications, and product characteristics. Its main objective is to assist strategic decision making in three main areas of the company:

1. Product Research & Development Division (Product R&D)
    - Objective: To identify manufacturers and models that demonstrate the best energy efficiency through analysis of driving range, battery capacity, and CO_2 emissions.
    - Benefits: Helps determine research focus on battery types, optimal capacity, and energy efficiency innovations for electric vehicles.
2. Marketing Division
    - Objective: To understand the price and specification trends of electric cars over time, as well as market perceptions of new battery types and technologies.
    - Benefits: Developing product value promotion and communication strategies that emphasize efficiency, innovation, and price reductions without sacrificing quality.
3. Sales & Distribution Division
    - Objective: To analyze sales patterns and market preferences based on production year and manufacturer to determine effective distribution strategies.
    - Benefits: Optimizing sales targets and distribution areas according to market

Sales Amount per Year of Production



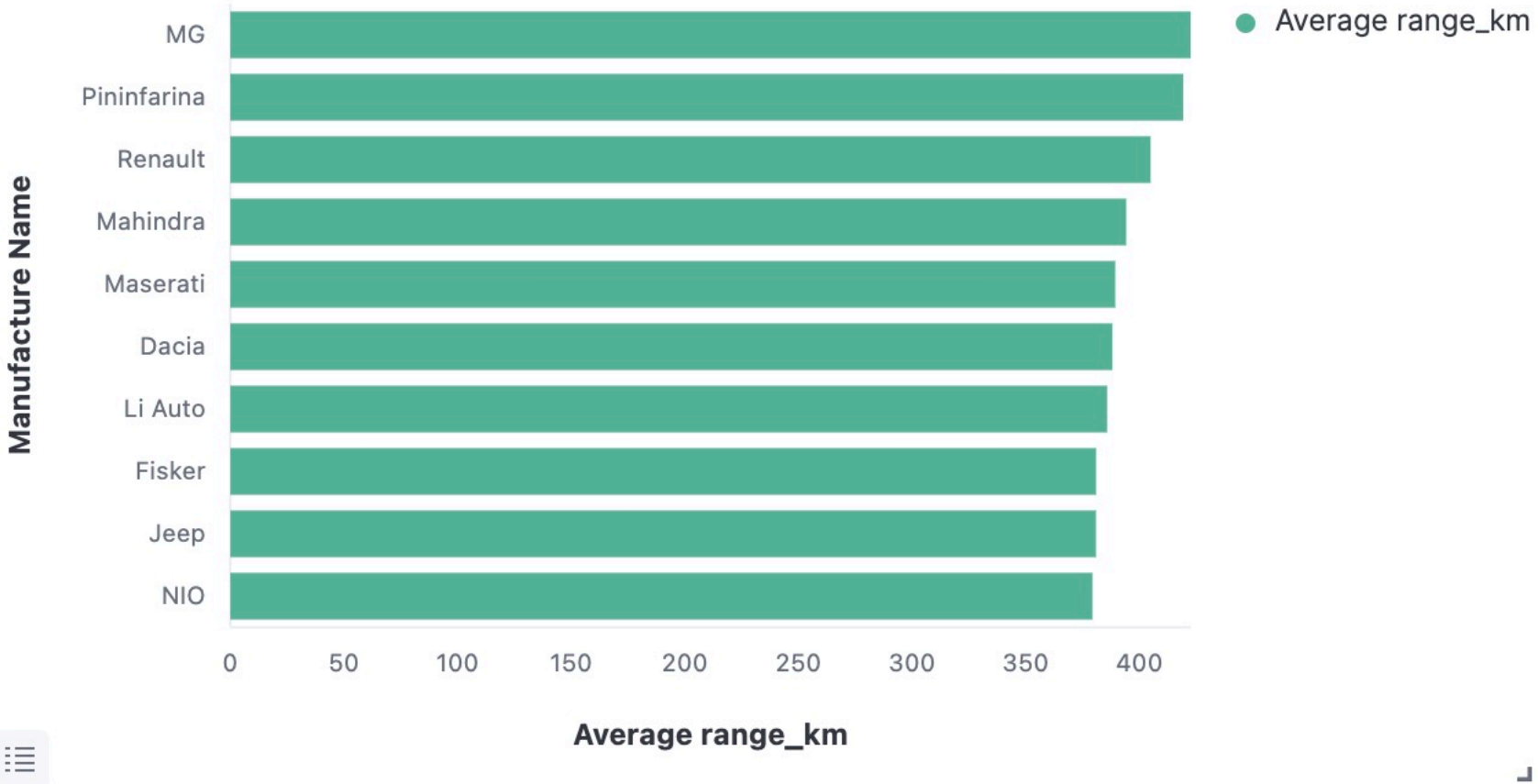
Information

For: Sales & Distribution Division

Objective: To observe sales trends per production year.

Insight: Latest models tend to have higher sales — inventory and distribution opportunities can be focused on the latest models.

Horizontal Chart Average Range/Km ervery Manufacturer



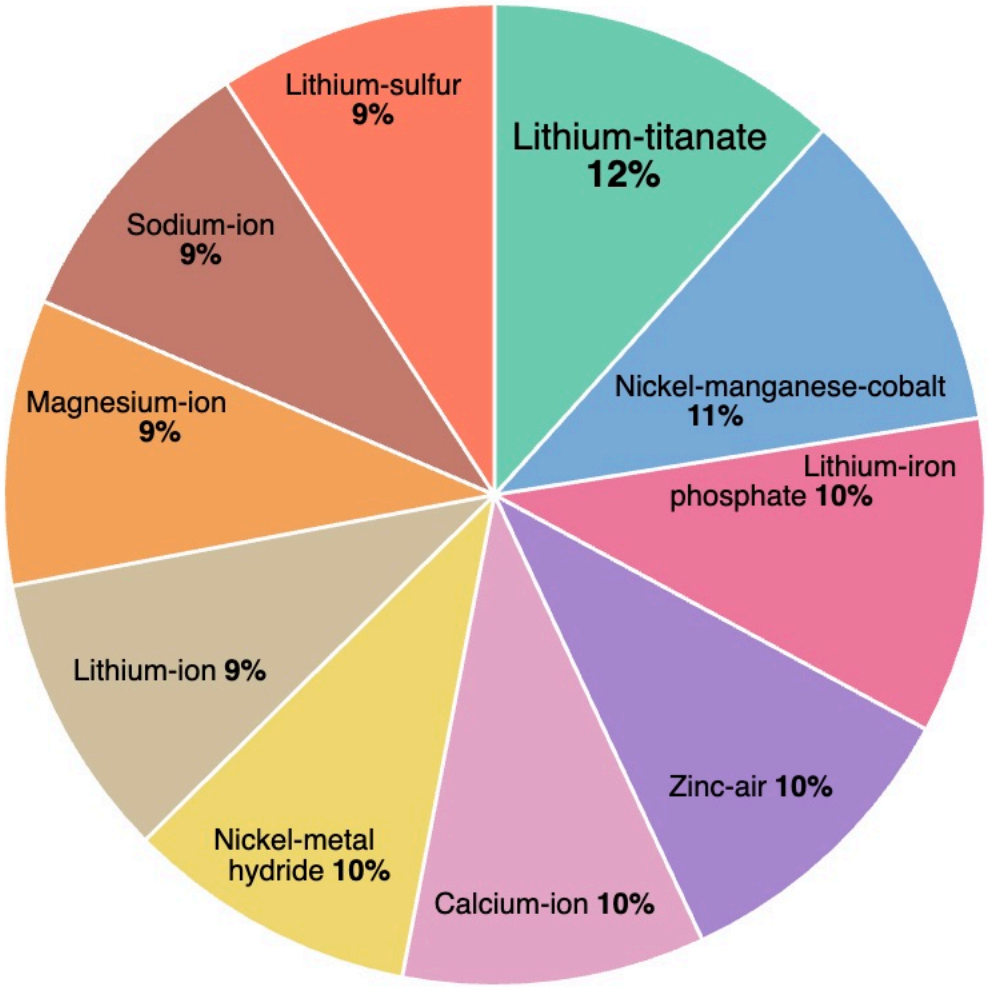
Information

To Division : R&D

Objective: To find out the manufacturer with the best average mileage.

Insight: Manufacturers with higher average range_km have a superior battery technology efficiency.

Pie Chart Battery Type Proportion



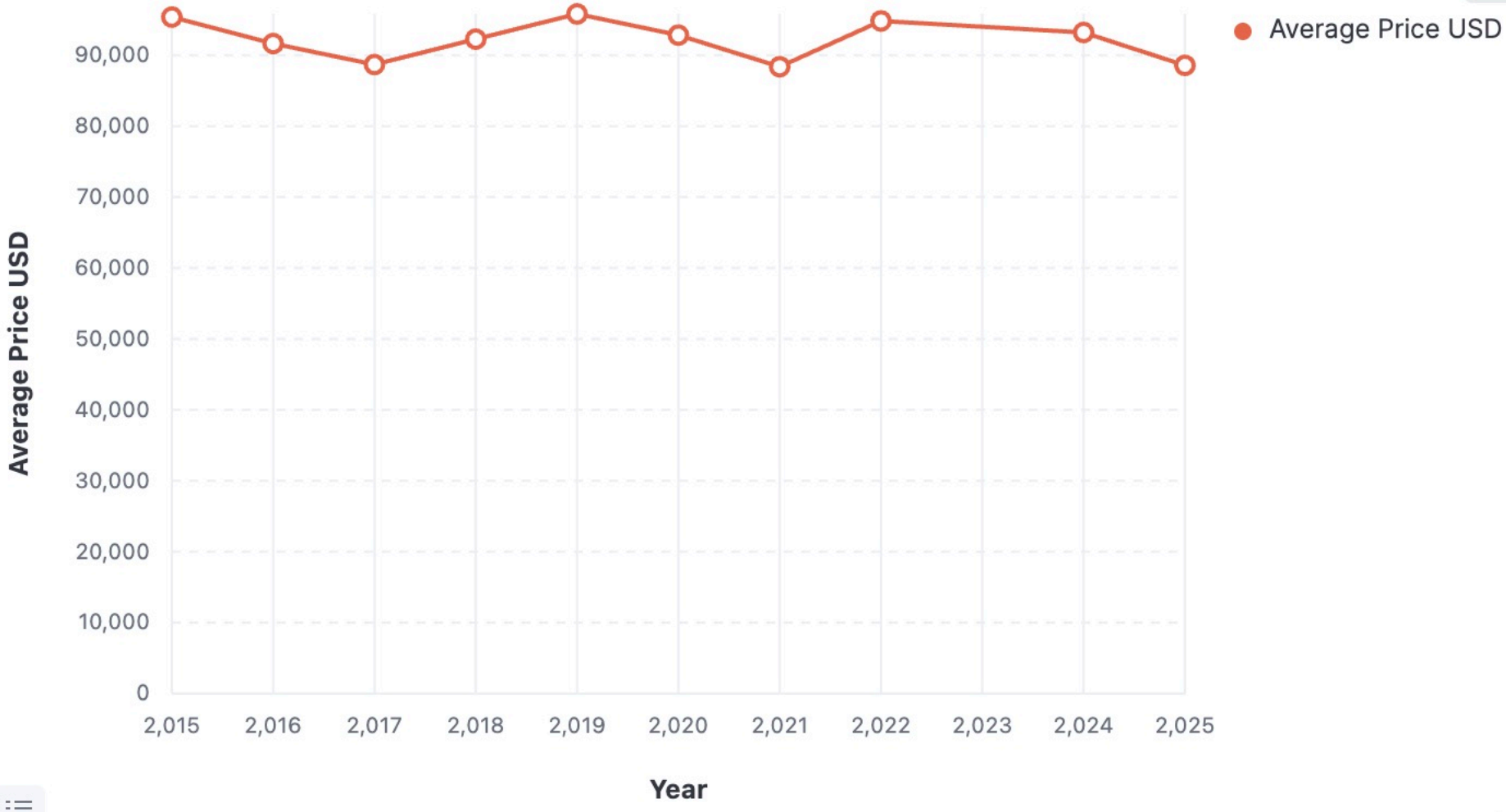
Information

For: R&D Division

Objective: To determine the composition of battery types used.

Insight: The dominant battery type (e.g., Lithium-ion) can be focused on for research and production efficiency.

Line Chart Price Trends Against Production Year



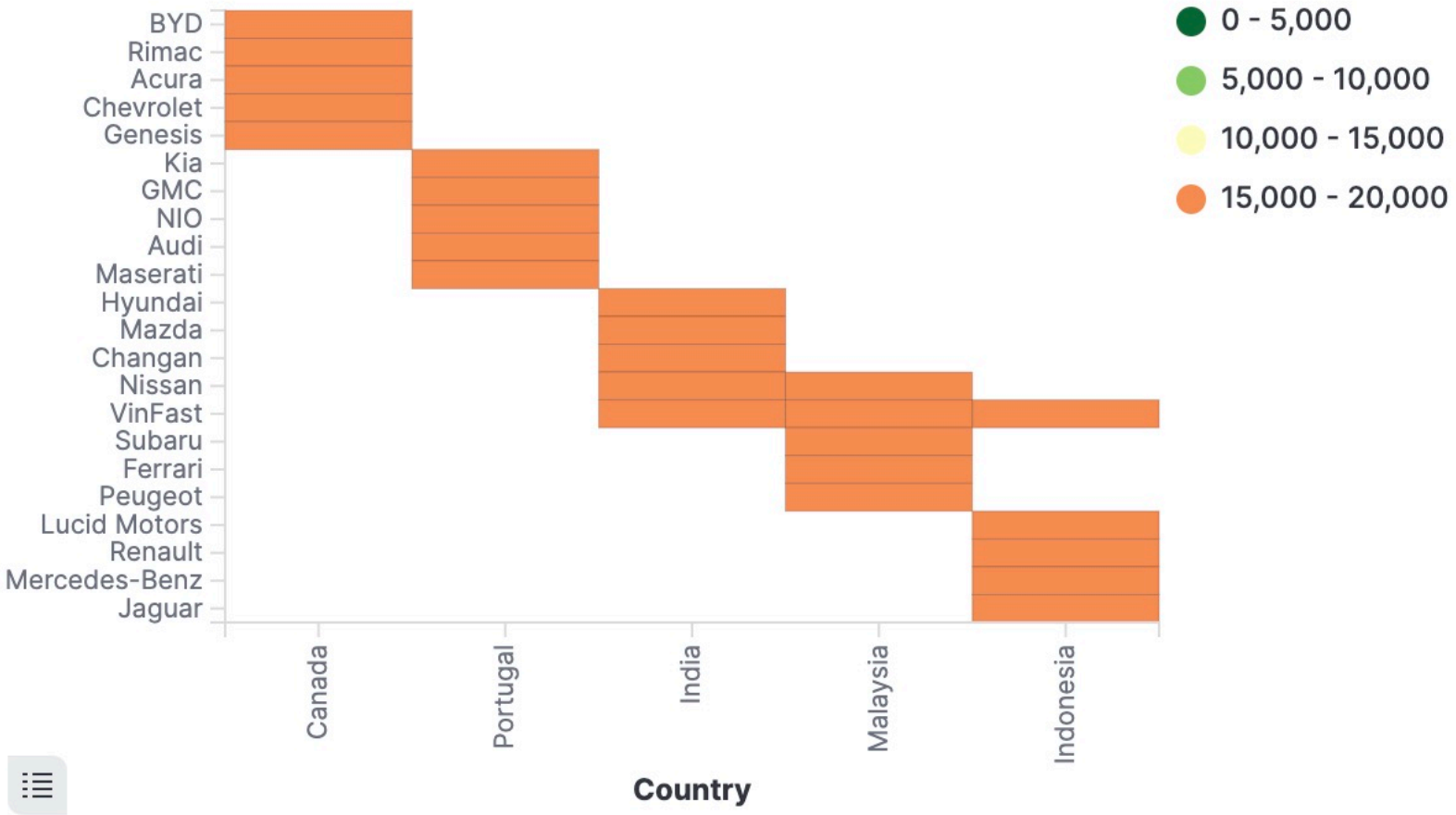
Information

For: Marketing Division

Objective: To observe the average price movement of electric cars each year.

Insight: If prices tend to decrease but specifications increase, promotions can emphasize "added value at a competitive price."

Heatmap — Sales Distribution by Country and Manufacturer



Information

For: Sales & Distribution Division

Objective: To understand the distribution of sales by country and manufacturer.

Insight: Countries with high sales are the primary targets for distribution and market expansion.

Table Data Average Battery Capacity and Mileage per Manufacturer

Manufacturer	Battery Capacity	Range / km
Maserati	96.703	389.424
Mahindra	93.897	394.233
Audi	93.798	356.439
VinFast	93.717	352.375
Tesla	92.342	348.333
Lotus	92.279	315.353
Li Auto	92.22	385.833
Lamborghini	91.624	315.237
Opel	91.366	322.625
Zeekr	90.514	329.862

Information

For: Product R&D Division

Objective: To examine the relationship between energy efficiency between manufacturers.

Insight: Manufacturers with a high ratio of range-km to battery capacity demonstrate the best technological efficiency.