# NANDHA ENGINEERING COLLEGE

## (Autonomous Institution)

Erode-638 052


## TABLEAU-TWO CREDIT COURSE

## IV – Semester

**B.Tech - Artificial Intelligence and Data Science**

**NAME : SANJAI.R**

**BRANCH : B.TECH AI & DS**

**YEAR : II**

# WHAT IS TABLEAU ?

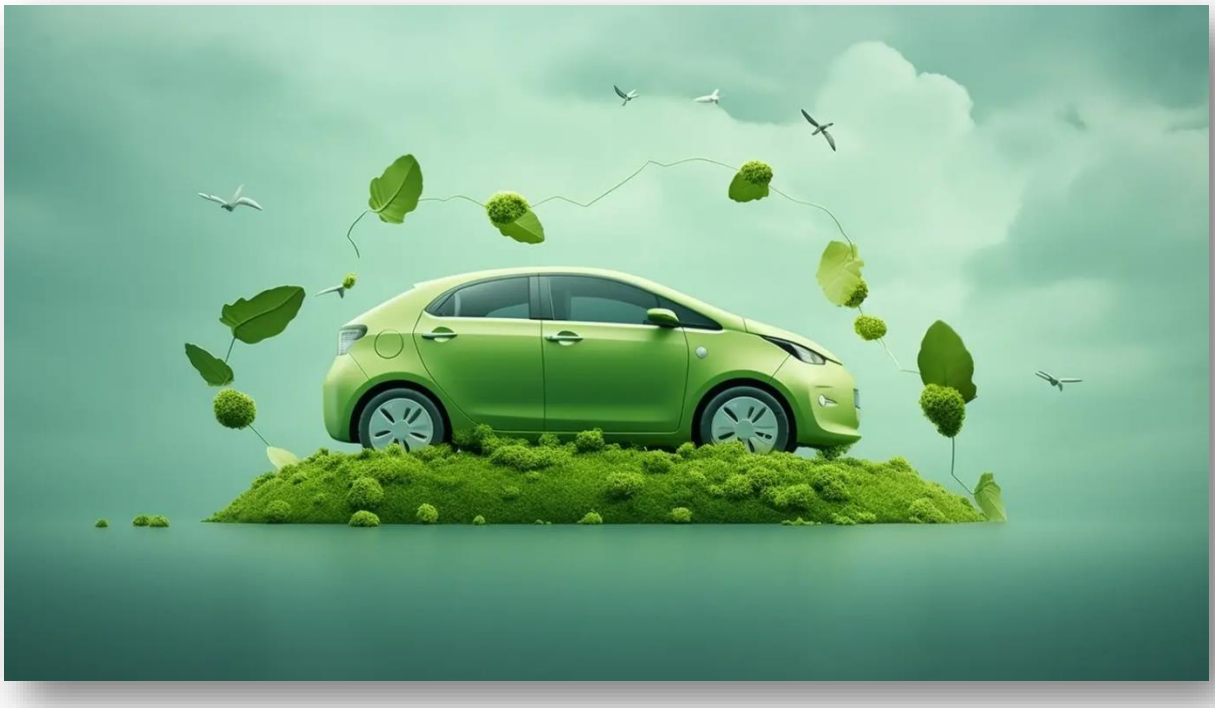
- Tableau is one of the most powerful and fastest-growing data visualization tools used in the Business Intelligence industry. It enables users to analyze, visualize, and understand data easily by converting raw information into an interactive, understandable, and visually attractive format.
- Tableau works with a wide range of data sources such as Excel files, SQL databases, Google Sheets, cloud services, and more. It provides drag-and-drop functionalities, which makes building complex charts, dashboards, and reports easy even for non-technical users.
- With the help of Tableau, businesses and researchers can discover hidden patterns, track trends, and make better data-driven decisions quickly. Its ability to handle real-time data and large datasets without compromising performance makes it a leading tool in today's analytics landscape.

## Advantages of Tableau

1. User-Friendly Interface,
2. Handles Large Data Efficiently,
3. Real-Time Data Analysis,
4. Wide Variety of Visualizations,
5. Connects to Multiple Data Sources,
6. Interactive and Dynamic Dashboards,
7. Mobile Device Compatibility

# ELECTRIC VEHICLE DATA ANALYSIS:

- The project aims to analyze the growth and adoption trends of Electric Vehicles (EVs) over the years.
- It focuses on identifying the most popular EV brands, models, and their market share.
- The project studies the distribution of EVs across different states in the USA.
- It compares the usage patterns between Battery Electric Vehicles (BEV) and Plug-in Hybrid Electric Vehicles (PHEV).
- The project promotes awareness about clean transportation and supports data-driven decision-making in the EV industry.



# CHARTS IN THE DASHBOARD:

## 1. Key Performance Indicators:


- **Total Vehicles:**

  Total number of electric and plug-in hybrid electric vehicles recorded in the dataset.

- **Average Electric Range:**

  Represents the average distance an electric vehicle (EV) can travel on a full charge.

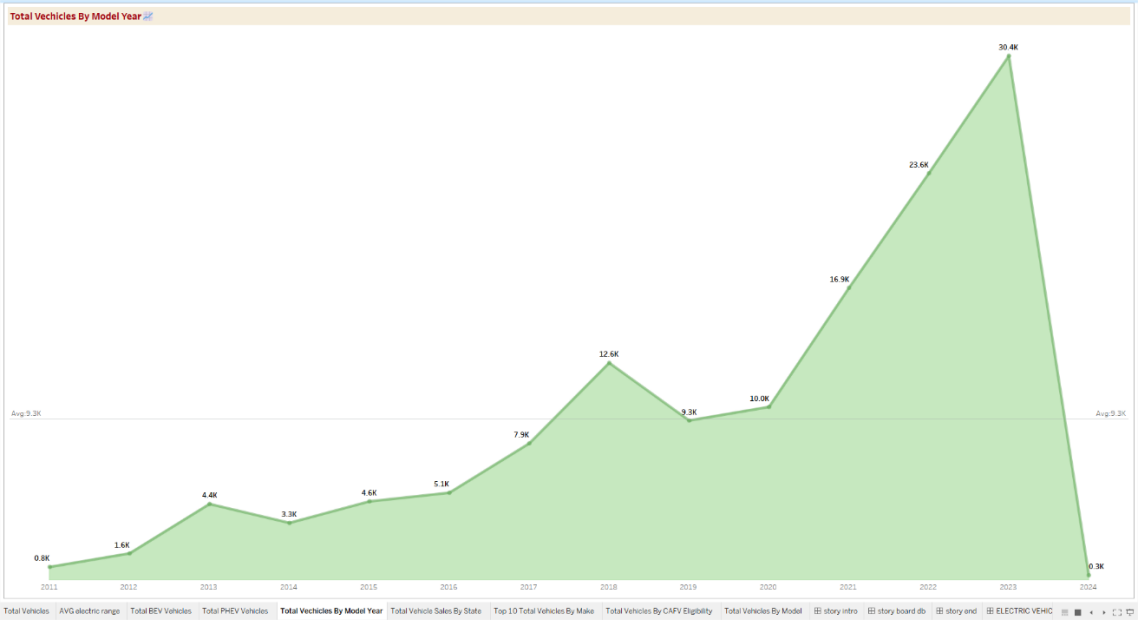
- **Total BEV Vehicles (Battery Electric Vehicles):**

  Total number and percentage of purely electric vehicles (no gasoline engine).

- **Total PHEV Vehicles (Plug-in Hybrid Electric Vehicles):**

  Total number and percentage of plug-in hybrids (both battery and gasoline engine).

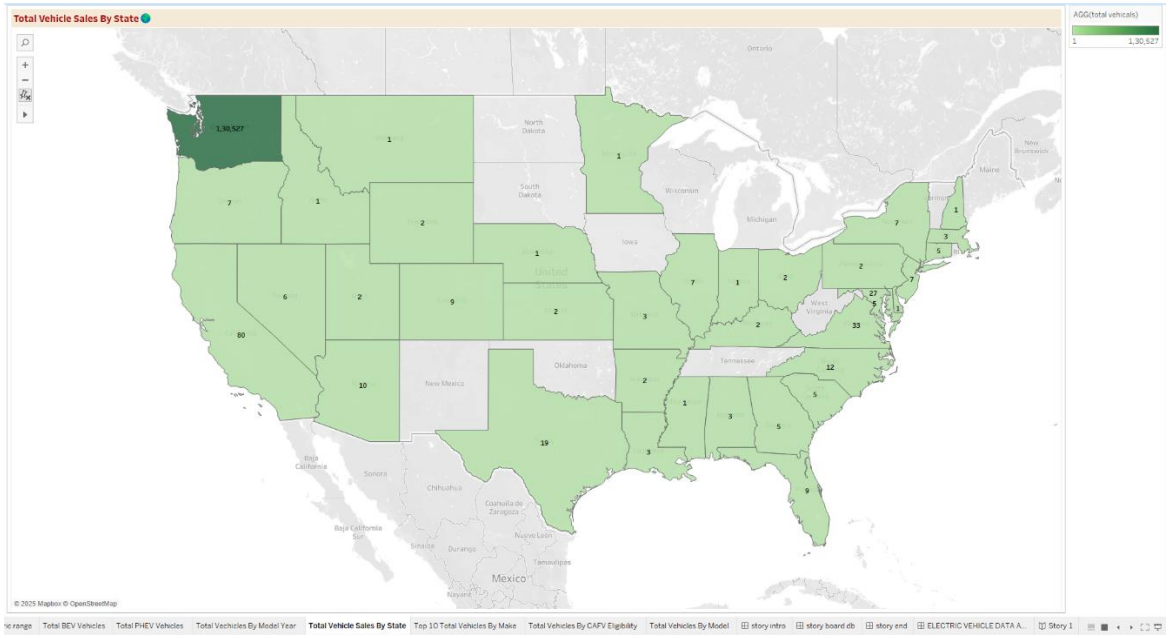
# 2.Total Vehicles by Model Year:




- Displays the trend of total electric vehicle sales across different model years (2011–2024).
- A noticeable surge from 2018 to 2023, peaking at 30.4K vehicles in 2023.
- 2024 sales are very low because of incomplete data.

**Insight**: Growing adoption of electric vehicles over time.

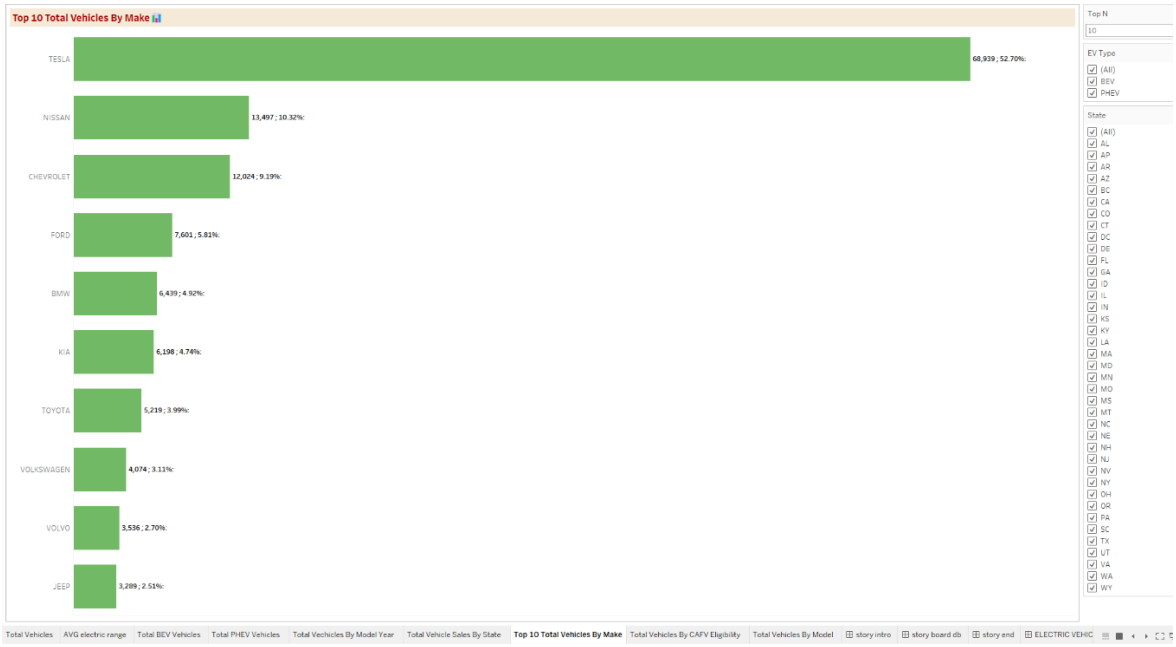
# 3.Total Vehicle Sales by State:




- Choropleth map showing vehicle counts by U.S. state.
- Darker shades represent higher sales numbers.
- Washington leads overwhelmingly with 1,30,527 vehicles.

**Insight**: EV adoption is highly concentrated in specific states.

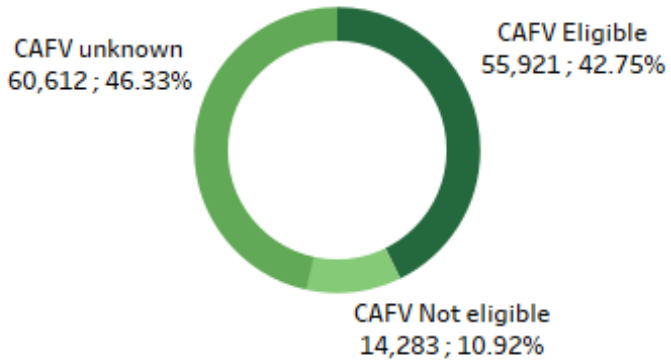
# 4.Top 10 Total Vehicles by Make:




- Ranks car manufacturers by the total number of electric vehicles.
- Top 3:
  - Tesla (68,939 vehicles, 52.70%),
  - Nissan (13,497 vehicles, 10.32%),
  - Chevrolet (12,024 vehicles, 9.19%).

**Insight**: Tesla dominates the EV market.

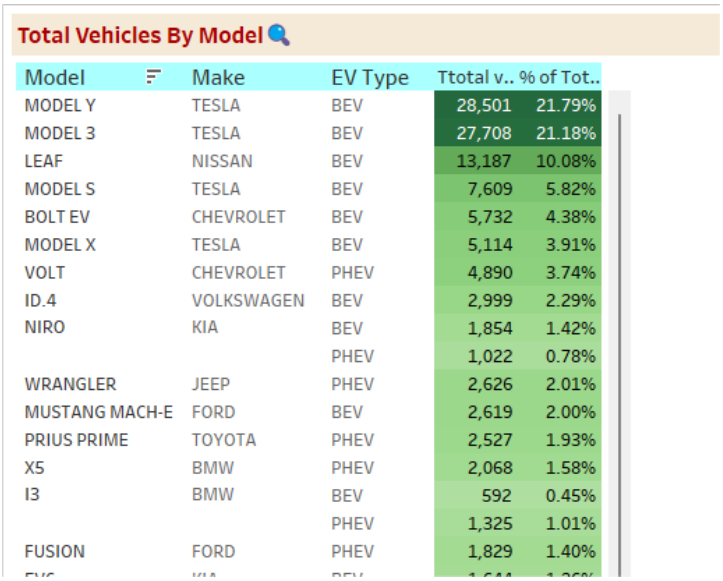
# 5.Total Vehicles by CAFV Eligibility:




- Divides vehicles into three categories:
  - Eligible: 42.75%
  - Not Eligible: 10.92%
  - Unknown Eligibility: 46.33%

**Insight**: A significant portion has unknown eligibility.

# 6.Total Vehicles by Model:



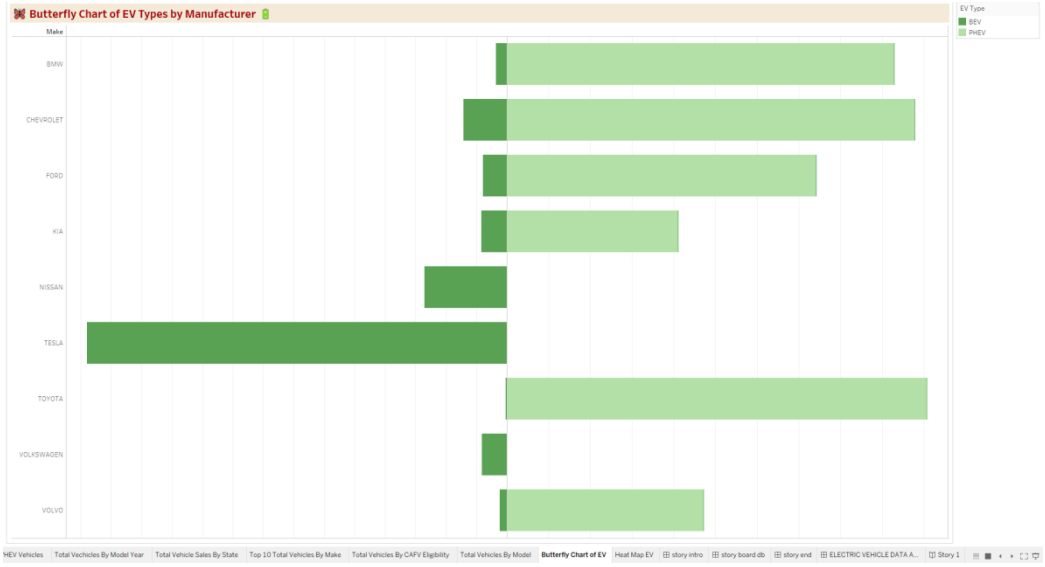
Total Vehicles By Model

| Model | Make | EV Type | Ttotal v.. | % of Tot.. |
|---|---|---|---|---|
| MODEL Y | TESLA | BEV | 28,501 | 21.79% |
| MODEL 3 | TESLA | BEV | 27,708 | 21.18% |
| LEAF | NISSAN | BEV | 13,187 | 10.08% |
| MODEL S | TESLA | BEV | 7,609 | 5.82% |
| BOLT EV | CHEVROLET | BEV | 5,732 | 4.38% |
| MODEL X | TESLA | BEV | 5,114 | 3.91% |
| VOLT | CHEVROLET | PHEV | 4,890 | 3.74% |
| ID.4 | VOLKSWAGEN | BEV | 2,999 | 2.29% |
| NIRO | KIA | BEV | 1,854 | 1.42% |
| | | PHEV | 1,022 | 0.78% |
| WRANGLER | JEEP | PHEV | 2,626 | 2.01% |
| MUSTANG MACH-E | FORD | BEV | 2,619 | 2.00% |
| PRIUS PRIME | TOYOTA | PHEV | 2,527 | 1.93% |
| X5 | BMW | PHEV | 2,068 | 1.58% |
| I3 | BMW | BEV | 592 | 0.45% |
| | | PHEV | 1,325 | 1.01% |
| FUSION | FORD | PHEV | 1,829 | 1.40% |

- Lists the most popular EV models with their respective make, type, total vehicles, and percentage share.
- Top 3 models:
  - Model Y (Tesla) - 28,501 units,
  - Model 3 (Tesla) - 27,708 units,
  - Leaf (Nissan) - 13,187 units.

**Insight**: Tesla models are highly preferred among buyers.

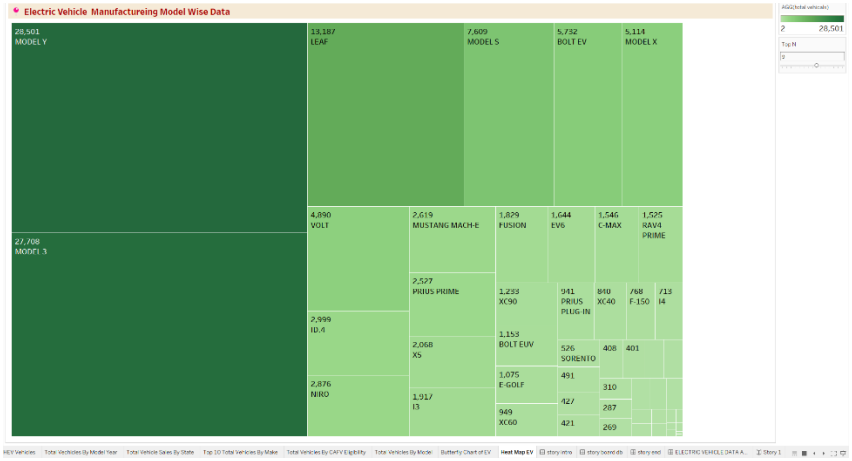
# 7.EV Types by Manufacturer:




- The manufacturers are listed vertically in the center.
- On the left side, the chart displays the number of BEVs (Battery Electric Vehicles) produced by each manufacturer.
- On the right side, it shows the number of PHEVs (Plug-in Hybrid Electric Vehicles).
- Each bar's length represents the volume of vehicles under each EV type for a particular manufacturer.

**Insight**: Some manufacturers focus only on BEVs, while others offer both BEVs and PHEVs.

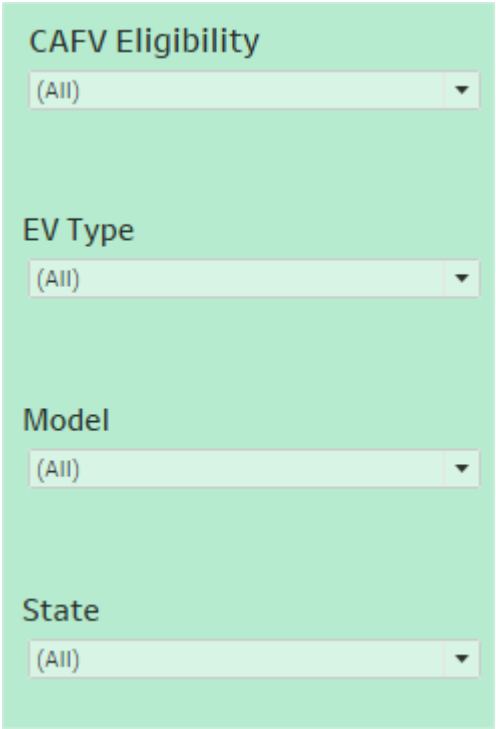
# 8.EV Manufactureing Model Wise Data:




- Each cell's color intensity represents the total number of vehicles:
    - Darker colors = Higher production or sales
    - Lighter colors = Lower production or sales
- This allows quick identification of the most successful models for each manufacturer.

**Insight**: A few flagship models dominate EV sales for each brand.

# 9.Dropdown Filters Available:




- **CAFV Eligibility:**

  Filter vehicles based on Clean Alternative Fuel Vehicle (CAFV) eligibility status — options include All, Eligible, Not Eligible, and Unknown.

- **EV Type:**

  Select the type of electric vehicle to display: BEV (Battery Electric Vehicle) or PHEV (Plug-in Hybrid Electric Vehicle).

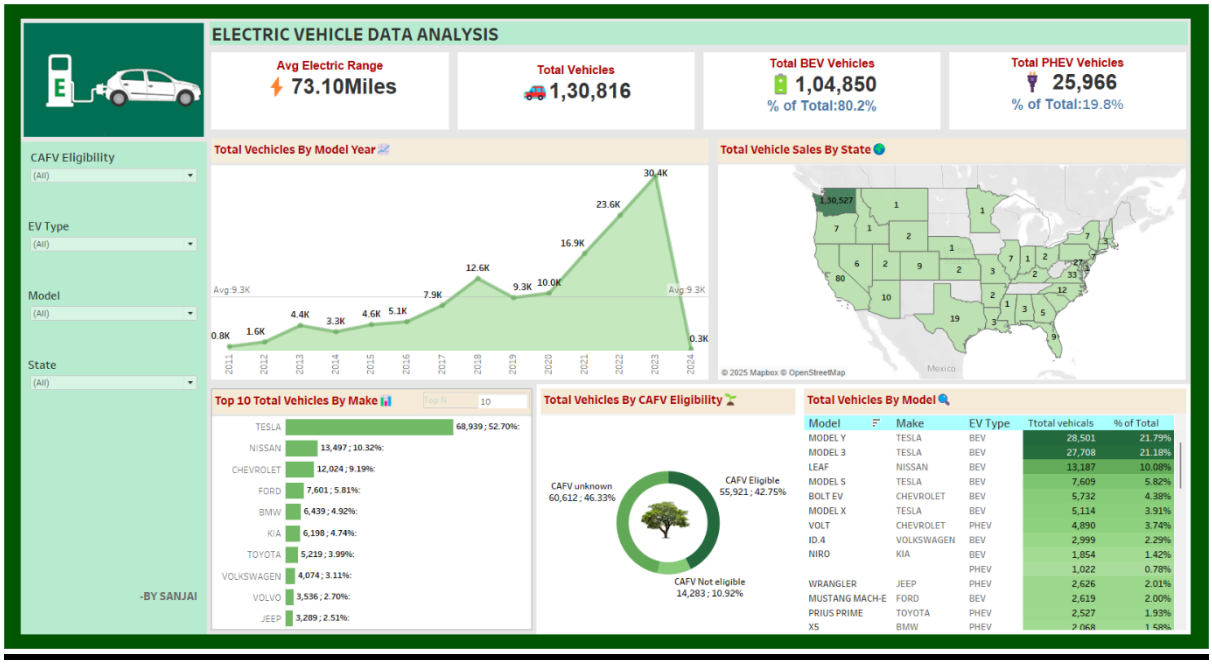
- **Model:**

  Choose a specific EV model (such as Tesla Model Y, Nissan Leaf, etc.) to view its total vehicle count, distribution across states, and other related metrics.

- **State:**

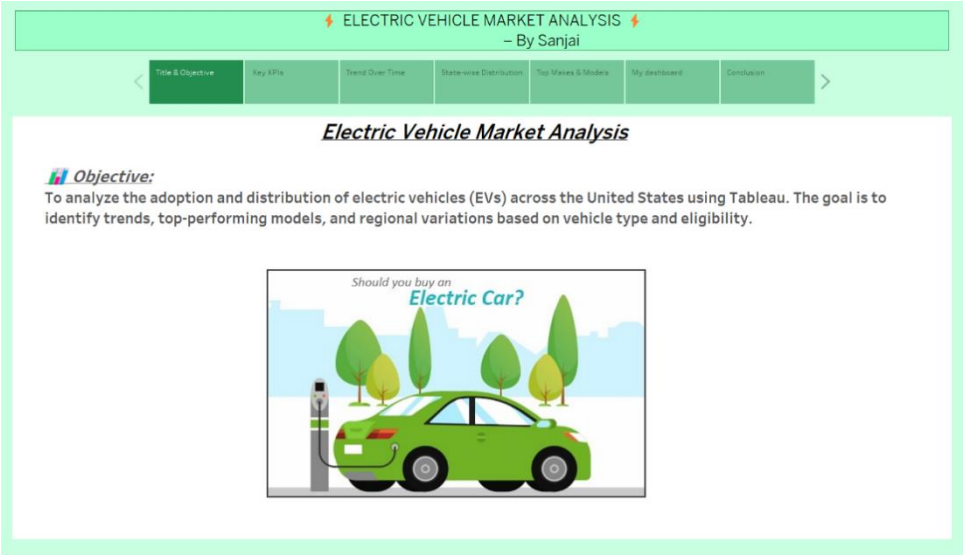
  Filter the data by a particular U.S. state to analyze the number and type of electric vehicles registered or sold within that state.

# EV DATA ANALYSIS DASHBOARD:




- This dashboard shows detailed information about Electric Vehicles (EVs) — including types, manufacturers, models, and states.
- It uses charts like donut charts, line charts, maps, and bar charts to make the data easy to understand.
- Users can apply filters for EV type, CAFV eligibility, model, and state to view specific information.
- The dashboard helps to quickly see trends in EV manufacturing and sales across different regions.

# EV DATA ANALYSIS STORY:




- This page introduces the main topic: *Electric Vehicle Market Analysis*.
- It defines the objective — to study EV adoption, top models, and regional sales patterns across the U.S.
- It explains that Tableau was used for data visualization and storytelling.
- The visual image (electric car and charging station) adds a relevant and appealing context.
- Sets the theme and flow for the entire dashboard and analysis.
- Prepares the reader to understand what insights they can expect from the dashboard.

## Conclusion:

- This electric vehicle market analysis provided valuable insights into the adoption patterns, top-performing models, and manufacturer strategies across different U.S. states.
- Through interactive charts and filters, users can easily explore trends by EV type, model, and eligibility status.
- The analysis shows that BEVs dominate the market, and manufacturers are taking different approaches toward full electrification.
- Overall, the dashboard serves as a useful tool for understanding the growth of electric vehicles and the future direction of the automotive industry.

# THANK YOU