**High Impact Skills Development Program in DS & AI**

**Data Visualization Project**

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**Report on Electric Vehicle Tableau Project**

**Project Overview:**

The goal of the Tableau project is to provide comprehensive insights into the electric vehicle (EV) market, focusing on both Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs). This analysis will allow for a deeper understanding of market trends, growth patterns, and consumer preferences by leveraging data visualization techniques.

**Key Performance Indicators (KPIs):**

The project will focus on several key performance indicators (KPIs) to analyze the electric vehicle market effectively:

1. **Total Vehicles**:
   * Objective: Analyze the overall number of electric vehicles, including both BEVs and PHEVs, to assess the size and growth of the market.
   * Metric: Total number of vehicles.
2. **Average Electric Range**:
   * Objective: Understand the average electric range of vehicles in the dataset to track technological advancements in battery efficiency.
   * Metric: Mean electric range of vehicles.
3. **Total BEV Vehicles**:
   * Objective: Evaluate the total number of BEVs in the dataset to understand the extent of fully electric vehicles.
   * Metric: Total BEVs and percentage of BEVs compared to overall EVs.
4. **Total PHEV Vehicles**:
   * Objective: Examine the total number of PHEVs to assess the contribution of plug-in hybrids in the market.
   * Metric: Total PHEVs and percentage of PHEVs compared to overall EVs.

**Charts and Visualizations:**

The following charts will be used to visualize key aspects of the data:

1. **Total Vehicles by Model Year (2011 Onwards)**:
   * **Visualization**: Line or Area Chart
   * **Purpose**: Illustrate the distribution and growth of electric vehicles over time, starting from 2011, to identify adoption trends.
2. **Total Vehicles by State**:
   * **Visualization**: Map Chart
   * **Purpose**: Show the geographic distribution of electric vehicles across different states to highlight regions with higher or lower adoption rates.
3. **Top 10 Total Vehicles by Make**:
   * **Visualization**: Bar Chart
   * **Purpose**: Identify the top 10 electric vehicle manufacturers by the number of vehicles, offering insights into the market dominance of specific brands.
4. **Total Vehicles by CAFV Eligibility**:
   * **Visualization**: Pie or Donut Chart
   * **Purpose**: Display the percentage of vehicles eligible for Clean Alternative Fuel Vehicle (CAFV) incentives, which helps understand the impact of incentives on vehicle adoption.
5. **Top 10 Total Vehicles by Model**:
   * **Visualization**: Treemap
   * **Purpose**: Highlight the top 10 electric vehicle models by total number of vehicles, offering insights into consumer preferences and popular models.

**Conclusion:**

This Tableau project is designed to provide a comprehensive analysis of the electric vehicle market by visualizing essential KPIs and trends. By focusing on BEV and PHEV data, it will offer key insights into market growth, consumer preferences, and geographic distribution. The use of Tableau’s powerful visualization tools will ensure clear communication of these insights, helping stakeholders make informed decisions about the future of electric vehicles.

The End