

EV Machine Learning & Data Science – Client Report

This report summarizes the complete data science and machine learning workflow performed on the Electric Vehicle (EV) dataset. It is designed for non-technical stakeholders to understand insights, trends, and business value.

1. Data Overview

The dataset contains historical Electric Vehicle registrations with attributes such as EV type, model year, range, and manufacturer. The data was cleaned and validated before analysis.

2. Exploratory Data Analysis (EDA)

- Univariate analysis identified distributions, outliers, and dominant EV categories.
- Bivariate analysis revealed relationships between EV range, model year, and adoption trends.
- Battery Electric Vehicles (BEV) show stronger growth compared to Plug-in Hybrid EVs (PHEV).

3. Trend & Evolution Insights

The EV population has increased significantly year-over-year, indicating strong market adoption. Recent years show accelerated growth driven by improved battery range and charging infrastructure.

4. Feature Selection

SelectKBest was used to identify the most influential features. This improved model efficiency, interpretability, and prediction accuracy.

5. Model Development

Multiple machine learning models were trained and evaluated. The final model was selected based on accuracy, stability, and business relevance.

6. Deployment Readiness

The final model is deployment-ready and can be integrated into business systems for forecasting, decision support, and strategic planning.

7. Business Value

- Supports EV market forecasting
- Identifies key growth drivers
- Enables data-driven policy and investment decisions