Project Design Phase
Problem – Solution Fit

Date	15 Feb 2026
Team ID	LTVIP2026TMIDS43270
Project Name	Visualization Tool for Electric Vehicle Charge and Range Analysis with Tableau
Maximum Marks	2 Marks

Problem – Solution Fit
Electric Vehicle Charge & Range Insights with Data Visualization
1. Target Customer Segment:

Fleet managers, EV operations teams, sustainability officers, charging station operators, and senior executives who need actionable insights into electric vehicle performance and energy efficiency.

2. Problem Statement:

Organizations using electric vehicles struggle to monitor battery charge levels, driving range, charging efficiency, and operational costs due to fragmented data sources such as telematics logs, charging station records, and environmental datasets. The absence of a centralized, interactive dashboard makes it difficult to derive real-time, actionable insights for optimizing fleet performance and reducing downtime.

3. Existing Alternatives:

Manual Excel reports, static BI dashboards, telematics system exports, and third-party fleet management reports — often time-consuming, non-interactive, and lacking integrated environmental and performance analytics**.**

4. Why This Problem Matters:

Inefficient monitoring of EV performance can result in unexpected vehicle downtime, increased operational costs, poor battery maintenance, and inaccurate sustainability reporting. Without data-driven insights, organizations risk reduced efficiency, higher maintenance expenses, and slower adoption of EV optimization strategies.

5. Proposed Solution:

A centralized EV Charge & Range Analysis Dashboard built using Tableau and Python that integrates charging logs, trip data, energy consumption, and environmental factors into interactive visualizations. The dashboard provides real-time KPI monitoring, range trend analysis, charging station utilization insights, and battery performance tracking.

6. Unique Value Proposition:

Empowers organizations to optimize EV fleet operations through dynamic, interactive visualizations that transform raw performance data into actionable insights. The solution enables predictive analysis, cost optimization, and sustainability tracking in a single, user-friendly platform.

7. Key Metrics for Success:
• Reduction in unexpected vehicle downtime

• Improvement in average driving range efficiency
• Decrease in charging-related operational costs
• Faster decision-making through real-time KPI access
• Increased battery lifespan through performance monitoring

Purpose
Electric Vehicle Insights – Analyzing EV Charge and Range with Data Visualization

• To utilize data visualization tools (Tableau) for analyzing EV charge and range performance.
• To monitor battery health, charging efficiency, and energy consumption in real time.
• To identify patterns affecting EV range such as temperature, speed, and terrain.
• To support data-driven decision-making for fleet optimization and cost reduction.
• To integrate multiple data sources (charging logs, trip data, environmental data) into a unified dashboard.
• To enhance sustainability tracking through energy efficiency insights.
• To replace static reports and manual analysis with interactive, story-driven dashboards.