Project Design Phase Solution
Requirements (Functional & Non-functional)

Team Id	LTVIP2025TMID47372

1.	**Data Collection Interface**	• Web interface or IoT device integration to collect real time EV data • API integration with EV chargers, fleet management software, or smart grid systems
2.	**Data Storage & Management**	• Centralized cloud based database to store raw EV usage and sustainability matrices • Capability to update records in real time.
3.	**Data Cleaning & Preprocessing**	• Tools or scripts to remove duplicates, handle missing values. • Categorization by Ev types eg:- 2-wheeler, 4-wheeler, commercial
4.	**Interactive Visualization (Tableau)**	• Dashboards showing key matrices like CO2 emissions avoided, battery efficiency, range trends, and energy • Filters by vehicle type, geography, owner profile, and usage type. • Trend analysis,
5.	**Analytics & Insights**	• Pattern recognition (e.g., peak charging hours, drgradation in battery performance). • Group-wise comparison (commercial fleets vs private users, urban vs rural EV users)

Project Name	EV sustainability Analysis
Date	25/06/2025

Functional Requirement :

Non Functional Requirement :

1.	Scalability	Should handle data from hundreds or thousands of users at a time
2.	**User-Friendliness**	**Dashboard and reports should be easy to navigate, with minimal training required.**
3.	**Performance**	Fast data processing and dashboard loading, even for large datasets.
4.	**Data Privacy & Security**	• Comply with data protection standards (like GDPR, ISO 27001). • Secure login and role-based access control to location data
5.	**Compatibility**	Should work on various devices (laptops, mobiles) and support data export (PDF, Excel)