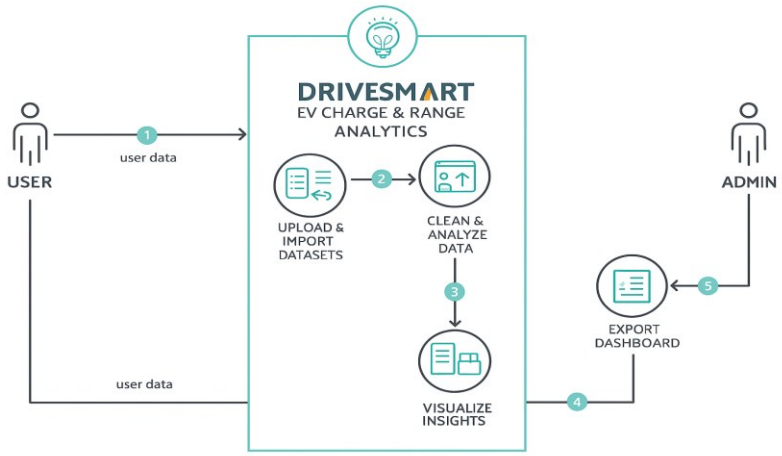
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	26 June 2025
Team ID	LTVIP2025TMID51636
Project Name	Visualizing Electric Vehicle Trends: An Analysis of Range, Brands, and Powertrain Features Using Tableau
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



Guidelines:

- Include all the processes (As an application logic / Technology Block)
- Provide infrastructural demarcation (Local / Cloud)
- Indicate external interfaces (third party API's etc.)
- Indicate Data Storage components / services
- Indicate interface to machine learning models (if applicable)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Interface to visualize EV data insights (dashboards, graphs)	Tableau Public, HTML, CSS
2.	Data Preparation Logic	Scripts used to clean, filter, and prepare data for analysis	Python (Pandas, NumPy)
3.	Data Analysis Logic	Logic to compute KPIs and summaries (e.g., avg speed, efficiency)	Tableau Calculated Fields, Excel
4.	Data Source	Datasets used for EV analysis	CSV Files, Excel Sheets
5.	Database (optional)	Backend data storage (if scaling or central access needed)	MySQL / SQLite (optional)
6.	Cloud Storage (optional)	Store dataset backups or Tableau extracts	Google Drive, IBM Cloud Object Storage
7.	File Storage	Local storage for dashboards, data files, screenshots	Local Filesystem
8.	External API-1	Weather data for charging decision insights (optional)	OpenWeatherMap API / IBM Weather API
9.	External API-2	EV Station Location / Map data (optional)	Google Maps API / NREL API
10.	Infrastructure	Platform used for development and visualization	Local System, Tableau Public Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks and tools used for data cleaning and visualization	Python (Pandas, NumPy), Tableau Public, Jupyter Notebook
2.	Security Implementations	Dataset stored and shared securely; minimal exposure to sensitive data	File-level protection, Google Drive Access Control, No login data used
3.	Scalable Architecture	Project can scale by integrating more datasets, APIs, or deploying via cloud BI tools	Tableau Public (scalable dashboard), Cloud-based deployment (optional)
4.	Availability	Dashboards are accessible via Tableau Public; downloadable offline	Tableau Public Cloud, Google Drive, Local System
5.	Performance	Lightweight dashboards with optimized data sources; performs well on local/cloud	CSV Optimization, Filtered Data in Tableau, Extract Mode