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

Date	24 June 2025
Team ID	LTVIP2025TMID48398
Project Name	Visualization Tool for Electric Vehicle Charge and Range Analysis
Maximum Marks	4 Marks

Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Tableau dashboards and stories where users view and interact with visuals	Tableau Public / Tableau Desktop
2.	Application Logic-1	Data preparation, cleaning, and joining of datasets before importing into Tableau	Excel
3.	Application Logic-2	Data aggregation, filtering, and calculation logic inside Tableau	Tableau Calculated Fields
4.	Application Logic-3	Creating KPIs and metrics (e.g., avg. charging time, EV range analysis)	Tableau Measures
5.	Database	Local or cloud-based data storage for Tableau to connect to	MySQL
6.	File Storage	Raw datasets stored in cloud or local before being used	Google Drive / Local Files
7.	Infrastructure (Server / Cloud)	Tableau Desktop or Tableau Public online dashboard hosting	Tableau Public / Tableau Online

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Data pre-processing or optional analysis before importing into Tableau	Python (with Pandas, NumPy, Matplotlib), Jupyter Notebook, Google Sheets (cloud-based)
2.	Security Implementations	Tableau Public doesn't offer private dashboards; for secure data sharing, Tableau Online or Server is used. If using Google Sheets or cloud databases, ensure access is restricted.	Tableau Public is not secure.
3.	Scalable Architecture	The architecture is scalable if you move from static Excel/CSV to live connections (Google Sheets, BigQuery, etc.) and use Tableau Online for dashboard distribution	Use **live connections** Cloud-based datasets (e.g., BigQuery) Scheduled refresh in Tableau Online
4.	Availability	If hosted on Tableau Public, dashboards are publicly accessible anytime. For private, always-on dashboards, use Tableau Online or Server	Tableau Online or Server provides better availability and control
5.	Data Source Flexibility	Supports multiple formats: CSV, Excel, Google Sheets, databases like MySQL, BigQuery etc.	Easy to switch between static and dynamic sources