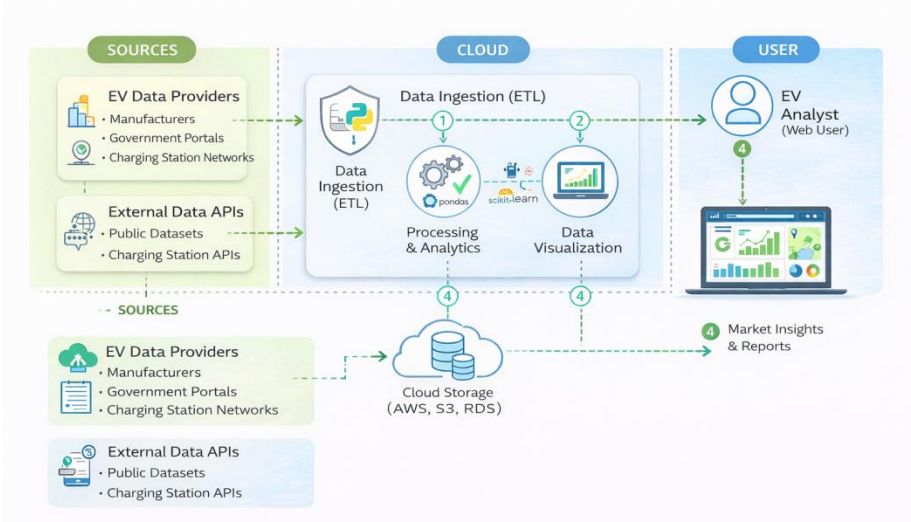
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	31 January 2026
Team ID	LTVIP2026TMIDS90945
Project Name	Visualizations tools of ev charge and range analysis
Maximum Marks	4 Marks

Technical Architecture:

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

Example: EV Market & Performance Analytics System



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)

S.No	Component	Description	Technology
1.	User Interface	Interface for EV analysts to interact with dashboards and reports	HTML, CSS, JavaScript, Power BI / Tableau

2.	Application Logic-1	Data ingestion and preprocessing logic	Python
3.	Application Logic-2	EV sales and battery performance analytics	Python (Pandas, NumPy)
4.	Application Logic-3	data visualization and reporting logic	Power BI / Matplotlib
5.	Database	Stores structured EV sales and performance	MySQL
6.	Cloud Database	Cloud-based storage for large EV datasets	AWS RDS / Google BigQuery
7.	File Storage	Storage for raw datasets and reports	AWS S3 / Local File System
8.	External API-1	Fetch public EV datasets and statistics	Government EV Data APIs.
9.	External API-2	Charging station location data	OpenChargeMap API
10.	Machine Learning Model	Forecasting EV adoption and performance trends	Python (Scikit-learn)
11.	Infrastructure (Server / Cloud)	loyment environment	Local System / AWS Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks used for data analysis and visualization	Pandas, NumPy, Matplotlib
2.	Security Implementations	Secure access and data protection	User Authentication, Role-Based Access
3.	Scalable Architecture	System supports growing EV datasets	Cloud-based 3-Tier Architecture
4.	Availability	High availability for users	Cloud Hosting with Backup Storage
5.	Performance	Efficient handling of large datasets	Optimized SQL Queries, Data Caching