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

Date	18 February 2026
Team ID	LTVIP2026TMIDS24188
Project Name	Visualization Tool for Electric Vehicle Charge and Range Analysis
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Account Management	Registration through Form Registration through Gmail Registration through Credentials.
FR-2	Vehicle Input Module	Enter battery percentage Input vehicle type/model
FR-3	Range and Charge Analysis	Display estimated range based on input Visualize charge level and consumption trend Suggest optimal charging stations
FR-4	Interactive Map View	Show nearby charging stations Filter stations based on power availability Highlight reachable area on current charge
FR-5	Session History and Reporting	Show previous charge sessions Export usage and performance data
FR-6	Admin Dashboard	Manage station database View user analytics

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The interface must be intuitive for EV users, analysts, and admins, with smooth navigation across modules.
NFR-2	**Security**	Secure authentication and role-based access must be implemented to prevent unauthorized access.
NFR-3	**Reliability**	System must provide consistent performance and accurate range estimations during peak usage hours.
NFR-4	**Performance**	Real-time data updates and visualizations should render within 2 seconds of input for a smooth user experience.

NFR-5	**Availability**	The system should be operational 99.9% of the time, ensuring accessibility for daily EV planning.
NFR-6	**Scalability**	The tool should scale to accommodate more users, vehicles, and charging data without performance degradation.