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

Date	28 JUNE 2025
Team ID	LTVIP2025TMID34483
Project Name	Sustainable smart city assistant using IBM GRANITE LLM
Maximum Marks	4 Marks

✅ Functional Requirements (FRs)

FR No.	Functional Requirement (Epic)	Sub-Requirement (Story / Sub-Task)
FR-1	User Registration	Registration via Form
		Registration via Gmail
		Registration via LinkedIn
FR-2	User Confirmation	Confirmation via Email
		Confirmation via OTP
FR-3	Query Handling & Assistant Interaction	Ask queries via chat interface
		Natural Language Understanding via IBM Granite LLM
		Display relevant smart city data (e.g., waste, traffic, energy use)
FR-4	Data Insights & Visualization	Display personalized dashboards
		Generate sustainability reports based on user location or activity
		Allow download/share of reports
FR-5	Feedback and Improvement Loop	Collect feedback on assistant responses
		Use feedback to fine-tune assistant (Granite model loop)

✅ Non-Functional Requirements (NFRs)

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Interface should be intuitive, accessible, and user-friendly for all age groups.

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NFR-2	Security	User data (email, queries, feedback) must be protected with encryption and secure login.
NFR-3	Reliability	The assistant should function correctly and return consistent results at all times.
NFR-4	Performance	Response time from Granite LLM and city APIs should be under 2 seconds.
NFR-5	Availability	System should be available 99.9% of the time with fallback error handling.
NFR-6	Scalability	System should support thousands of concurrent users and scale with urban expansion.

✅ **Example User Stories for Reference**

- **As a user**, I want to ask sustainability-related questions so I can understand how to improve my carbon footprint.
- **As a city planner**, I want to view usage patterns in different wards to optimize public transport services.
- **As a resident**, I want to receive water-saving tips based on my neighborhood's usage trends.
