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

Date	31 January 2026
Team ID	LTVIP2026TMIDS56025
Project Name	Exploratory analysis of rain fall data in india for agriculture
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 Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Rainfall Data Management	Upload Rainfall Dataset (CSV/Excel/API) Data Cleaning & Preprocessing State-wise Data Segmentation District-wise Data Segmentation Seasonal Classification (Kharif, Rabi, Zaid) Historical Data Storage
FR-4	Exploratory Data Analysis (EDA) of Rainfall Data for Agriculture	Monthly Rainfall Trend Analysis Year-wise Rainfall Comparison State-wise Rainfall Distribution Analysis Drought & Excess Rainfall Detection Correlation Analysis between Rainfall & Crop Yield

		Data Visualization (Graphs, Heatmaps, Dashboards) Predictive Insights for Crop Planning Downloadable Analytical Reports

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The system shall provide a user-friendly interface with intuitive dashboards, clear navigation, and interactive visualizations for rainfall analysis. The platform should support easy data upload and report generation without technical expertise.
NFR-2	**Security**	the system shall ensure secure user authentication (OAuth for Gmail/LinkedIn), encrypted password storage, HTTPS communication, OTP/email verification, and role-based access control for sensitive datasets
NFR-3	**Reliability**	The system shall ensure consistent performance with minimal downtime, accurate rainfall data processing, automated error handling, and regular data backup mechanisms.
NFR-4	**Performance**	The system shall process large rainfall datasets efficiently (e.g., multi-year state/district data) and generate analytical reports within acceptable response time (e.g., <5 seconds for dashboard queries).
NFR-5	**Availability**	The system shall maintain at least 99% uptime and be accessible across devices (desktop/mobile/tablet) with cloud-based hosting support.
NFR-6	**Scalability**	The system shall support increasing data volumes (multi-decade rainfall data), additional states/districts, and concurrent users without degradation in performance.