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

Date	17 june 2025
Team ID	LTVIP2025TMID43877
Project Name	GrainPalette A Deep Learning Odyssey In Rice Type Classification Through Transfer Learning
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	Image Upload & Processing	Upload rice grain image Validate image format/size (e.g., JPG/PNG, ≤5MB) Process image using MobileNetv4 AI model
FR-4	Result Display & Recommendations	Display rice type prediction (top 5 classes) Provide cultivation recommendations (water, fertilizer, etc.) Export results as PDF/SMS
FR-5	Feedback & Accuracy Reporting	Allow users to report misclassifications Collect user ratings for predictions

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Intuitive interface for non-tech users (e.g., farmers), with multilingual support (e.g., Hindi, Tamil) and voice-guided tutorials.
NFR-2	**Security**	Encrypt user data and uploaded images; implement OTP-based authentication to prevent unauthorized access.
NFR-3	**Reliability**	99% uptime during critical farming seasons (planting/harvesting) with error handling for poor connectivity.
NFR-4	**Performance**	Predictions delivered within 5 seconds even on low-bandwidth networks (<2 Mbps).
NFR-5	**Availability**	Offline mode for image uploads; sync results when connectivity resumes.
NFR-6	**Scalability**	Support 10,000+ concurrent users during peak seasons and expandable to new rice varieties.