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

Date	31 January 2025
Team ID	LTVIP2026TMIDS77028
Project Name	Rising Waters – A Machine Learning Approach to Flood Prediction
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 Input Management	Input rainfall & climate parameters through web form Validate input data (numeric checks, range checks)
FR-2	Flood Prediction	Process input data using trained ML model Generate prediction result (Flood / No Flood
FR-3	Result Display	Display prediction result in popup / alert message Show clear message indicating flood risk
FR-4	Model Management	Load trained ML model (.pkl file) Update / retrain model with new dataset
FR-5	Data Preprocessing	Apply scaling and feature transformation Handle missing or invalid values
FR-6	System Integration	Connect frontend (HTML/CSS) with backend (Flask) Retrieve model and dataset from storage

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The system should have a simple, responsive, and user-friendly interface for easy input and result display.
NFR-2	**Security**	User inputs should be validated and protected from malicious data injection.
NFR-3	**Reliability**	The prediction system should consistently provide accurate and stable results.
NFR-4	**Performance**	The system should generate predictions within a few seconds after input submission.
NFR-5	**Availability**	The web application should be accessible through a browser without installation.
NFR-6	**Scalability**	The system should support future integration with real-time weather APIs and cloud deployment.