Project Design Phase-II

Solution Requirements (Functional & Non-Functional)

Date	12 February 2026
Team ID	LTVIP2026TMIDS41565
Project Name	Online Payments Fraud Detection using Machine Learning
Maximum Marks	4 Marks

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Provide a simple and intuitive interface for customers and fraud analysts with clear fraud/legitimate results.

NFR-2	Security	Ensure secure transaction data handling using encryption, authentication,

Functional Requirements

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Transaction Input & Validation	Accept transaction details (amount, time, location, device info) and validate inputs
FR-2	Fraud Prediction	Classify transaction as Fraud or Legitimate using ML model
FR-3	Data Preprocessing	Handle missing values, encode categorical features, scale numerical inputs
FR-4	Model Inference	Load trained fraud detection model and return prediction with fraud probability score
FR-5	Alert & Notification System	Trigger alert/notification for suspicious transactions
FR-6	Dashboard & Reporting	Display fraud statistics, trends, and transaction monitoring dashboard
FR-7	Dataset & Model Management (Admin)	Upload/update transaction datasets and retrain or replace ML model

Non-Functional Requirements

		and strict input validation.
NFR-3	Reliability	Maintain consistent preprocessing and prediction using saved model artifacts (encoder, scaler, trained model).
NFR-4	Performance	Deliver real-time fraud detection with low latency (less than 1 second per transaction).

NFR-5	Availability	System should operate 24/7 with minimal downtime to support continuous transactions.
NFR-6	Scalability	Handle high volumes of concurrent transactions without performance degradation.
NFR-7	Maintainability	Use modular and welldocumented code to allow easy updates and model retraining.
NFR-8	Portability	Support deployment on Windows/Linux systems and be cloud-ready for future scaling.