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

Date	31 January 2025
Team ID	LTVIP2026TMIDS79606
Project Name	online payments fraud detection using machine 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	Transaction Input Management	The system shall allow users to enter transaction details (Time, Amount).
FR-2	Input Validation	The system shall validate all required fields before submission.
FR-3	Fraud Prediction Processing	The system shall process input data using the trained ML model.
FR-4	Data Preprocessing	The system shall scale and transform input data using the saved scaler before prediction.
FR-5	Fraud Probability Calculation	The system shall generate fraud probability using the trained XGBoost model.
FR-6	Result Display	The system shall display whether the transaction is Legitimate or Fraudulent
FR-7	Risk Score Display	The system shall display the fraud risk percentage on the UI.
FR-8	Error Handling	The system shall display meaningful error messages for invalid or incomplete input.
FR-9	Model Loading	The system shall load the trained model (.pkl file) at application startup.
FR-10	Web Interface Access	The system shall allow users to access the application through a web browser
FR-11	Prediction Response	The system shall return prediction results instantly after submission.
FR-12	Transaction Logging (Optional Enhancement)	The system shall store transaction results for future monitoring (if implemented).

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The user interface shall be simple, intuitive, and easy to use.
NFR-2	**Security**	The system shall prevent unauthorized modification of the trained ML model.
NFR-3	**Reliability**	The system shall operate without crashing during valid user input.
NFR-4	**Performance**	The system shall generate prediction results within 2–3 seconds.
NFR-5	**Availability**	The web application shall be accessible whenever the server is running.
NFR-6	**Scalability**	The system shall allow future integration with real-time payment gateways.