Project Design Phase
Proposed Solution Template

Date	12 February 2026
Team ID	LTVIP2026TMIDS54415
Project Name	Online Payment Fraud Detection using Machine Learning
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1	**Problem Statement (Problem to be solved)**	Online payment users and financial institutions face increasing risks of fraudulent transactions, identity theft, phishing attacks, and delayed fraud detection. Traditional rule-based systems fail to detect complex and evolving fraud patterns in real-time, leading to financial losses and reduced trust in digital payments.
2	**Idea / Solution Description**	Develop a Machine Learning-based Online Payment Fraud Detection System that analyzes transaction data in real-time, generates fraud probability scores, and classifies transactions as Fraud or Legitimate. The system sends instant alerts, blocks high-risk transactions, logs activities, and provides an admin dashboard for monitoring fraud statistics and model performance.
3	**Novelty / Uniqueness**	Real-time fraud prediction using ML models (Random Forest/XGBoost). Fraud probability scoring instead of simple rule-based detection. Automated alert & blocking mechanism. Integration-ready API for banks/payment gateways. Continuous model retraining capability for adapting to new fraud patterns.

4	**Social Impact / Customer Satisfaction**	Reduces financial fraud and cybercrime impact. Increases trust in digital payments. Enhances financial security for individuals and businesses. Protects vulnerable users from phishing and scams. Improves customer confidence and satisfaction.
5	**Business Model (Revenue Model)**	Subscription-based model for banks and payment gateways. API-based pricing per transaction analyzed. SaaS (Software as a Service) model deployment. Enterprise fraud analytics dashboard licensing.
6	**Scalability of the Solution**	Cloud deployment (AWS/Azure) for handling high transaction volumes. Microservices-ready architecture. Model retraining with large datasets. Scalable database for millions of transactions. API-based integration for multiple banks and fintech platforms.