Project Design Phase
Proposed Solution Template

Date	21 February 2026
Team ID	LTVIP2026TMIDS65711
Project Name	Online Payments 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)	With the rapid growth of online transactions, fraudulent payment activities such as identity theft, phishing, card fraud, and transaction manipulation have increased significantly. Traditional rule-based fraud detection systems fail to detect complex and evolving fraud patterns in real time. There is a need for an intelligent, automated, and scalable system that can accurately identify fraudulent transactions while minimizing false positives.
2.	Idea / Solution description	The proposed solution is an Online Payment Fraud Detection System using Machine Learning. The system collects transaction data, preprocesses it, and applies ML algorithms such as Random Forest, Logistic Regression, or XGBoost to classify transactions as legitimate or fraudulent. The system integrates with a web interface or payment gateway API and provides real-time fraud prediction. Detected fraudulent transactions trigger alerts and are stored for further analysis.
3.	Novelty / Uniqueness	The system uses machine learning to dynamically learn patterns from historical transaction data instead of relying only on static rules. It supports real-time prediction, adaptive learning, and continuous model improvement. Feature engineering techniques and anomaly detection enhance detection accuracy while reducing false alarms. The solution is scalable and deployable on cloud platforms.
4.	Social Impact / Customer Satisfaction	The system enhances customer trust by protecting users from financial losses. It ensures safer digital transactions, reduces fraud-related risks for banks and e-commerce platforms, and improves customer satisfaction by minimizing false transaction declines. It

		contributes to a secure digital payment ecosystem.
5.	Business Model (Revenue Model)	The system can be offered as a SaaS-based fraud detection API for banks, fintech companies, and e-commerce platforms. Revenue can be generated through subscription plans, transaction-based pricing, enterprise licensing, or integration services. Custom fraud analytics dashboards can be provided as premium services.
6.	Scalability of the Solution	The solution can be deployed on cloud infrastructure to handle high volumes of transactions. It supports horizontal scaling, real-time processing, and integration with multiple payment gateways. The ML model can be retrained periodically to adapt to new fraud patterns, ensuring long-term scalability and performance.