Project Design Phase
Proposed Solution Template

Date	20 Feb 2026
Team ID	LTVIP2026TMIDS65668
Project Name	Online-Payments-Fraud-Detection-using-Machine-Learning
Maximum Marks	2 Marks

Proposed Solution – Online Payment Fraud Detection Prediction

S.No	Parameter	Description
1	**Problem Statement**	Online payment fraud is increasing rapidly due to the growth of digital transactions. Financial institutions and payment platforms struggle to detect fraudulent activities in real time, leading to financial losses, customer dissatisfaction, and regulatory risks. Traditional rule-based systems fail to identify evolving fraud patterns.
2	**Idea / Solution Description**	Develop a machine learning-based fraud detection system using historical transaction data. The solution integrates classification models such as **Random Forest and XGBoost** with a **Flask-based web dashboard** to provide real-time fraud prediction. - Analyzes transaction features like amount, transaction type, and account balances. - Provides instant prediction of **Fraud / Not Fraud**. - Stores trained model as .pkl for deployment.
3	**Novelty / Uniqueness**	- Uses **machine learning algorithms** instead of traditional rule-based detection. - Learns evolving fraud patterns from historical data. - Provides a **user-friendly dashboard** for prediction and monitoring. - Focuses on real-time deployment with scalable architecture.
4	**Social Impact / Customer Satisfaction**	- Reduces financial losses for banks and customers. - Improves trust in digital payment systems. - Enhances transaction security and reliability. - Minimizes false fraud alerts, improving customer experience.
5	**Business Model (Revenue Model)**	- SaaS-based subscription model for banks and fintech companies. - Licensing of fraud detection API to payment gateways. - Enterprise integration services for financial institutions.
6	**Scalability of the Solution**	- Can be deployed on **cloud platforms (AWS/GCP/Azure)** for large-scale transaction processing. - Supports API integration with banking systems and payment gateways. - Designed for scalability using microservices and containerization (Docker/Kubernetes). - Easily extendable to other fraud detection domains (credit card, insurance, e-commerce).

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