Ideation Phase
Online Payment Fraud Detection Using Machine Learning

Date	15 February 2026
Team ID	LTVIP2026TMIDS73723
Project Name	Online payment fraud detection using machine learning
Maximum Marks	2 Marks

Customer Problem Statement Template:

Problem Statement

With the rapid growth of online payments, digital wallets, credit/debit card transactions, and UPI systems, financial fraud has also increased significantly. Fraudulent transactions cause huge financial losses to banks, businesses, and customers.

Traditional fraud detection systems rely on manual monitoring or rule-based systems, which:

* Cannot detect new fraud patterns effectively

* Are slow in processing large volumes of transactions

* Generate high false alerts

Therefore, there is a need for an intelligent system that can automatically detect fraudulent transactions in real-time using machine learning techniques.

The main problem addressed in this project is:

To develop a machine learning model that can accurately classify online transactions as fraudulent or legitimate based on transaction data.

Real-World Application Example

Example 1: Online Credit Card Payment

Suppose a customer in India usually makes small transactions (₹500 – ₹2000). Suddenly, a transaction of ₹1,20,000 is made from a foreign location within minutes.

The fraud detection system will:

* Analyze transaction amount

* Check transaction location

* Verify spending pattern

* Compare with historical behavior

If the pattern looks suspicious, the system:

* Flags the transaction as fraud

* Sends an alert to the bank

* Blocks the card temporarily

This prevents financial loss.

Example 2: UPI Payment Fraud

A fraudster gains access to a user's UPI credentials and starts transferring money to multiple unknown accounts quickly.

The ML model detects:

* Multiple rapid transactions

* New unknown beneficiaries

* Unusual transaction timing

The system predicts it as fraudulent and stops further transactions.

Where It Is Used in Real Life

Fraud detection systems are used in:

* Online Banking Applications

* Credit/Debit Card Transactions

* E-commerce Platforms like Amazon and Flipkart

* Payment Gateways like PayPal, PhonePe, Google Pay

* Financial Institutions and Banks

This project helps improve security, reduce financial loss, and increase customer trust in digital payment systems.