Problem-Solution Fit

Online Payments Fraud Detection using Machine Learning

Problem-Solution Fit Canvas

PROBLEM	SOLUTION
Fraud in online payments is rising at 15% YoY, causing losses of $32B globally	Random Forest ML model trained on 6.3M synthetic PaySim transactions
Rule-based systems fail to adapt to new fraud patterns	Data-driven model learns from historical patterns and generalizes to new cases
High false-positive rate blocks legitimate customers	Probability-based scoring lets analysts set their own risk threshold
Non-technical users cannot interact with ML models directly	Flask web app provides simple, accessible form-based interface
Real-time decision making requires instant inference	Pre-trained pickle model provides sub-second predictions

Value Proposition

Our solution delivers a trained machine learning model packaged as an accessible web application that enables any user — from a data scientist to a bank analyst — to check whether a payment transaction exhibits fraud characteristics, receiving an instant probability-based verdict.

Fit Validation

- Problem validated by: Global fraud statistics, PaySim dataset characteristics
- Solution validated by: 99.96% test accuracy, 1.00 fraud precision, 0.85 F1-score
- User fit validated by: Simple web interface requiring zero ML knowledge to operate