

## Project Design Phase

### Problem – Solution Fit Template

Date	15 February 2025
Team ID	LTVIP2026TMIDS73723
Project Name	Online payment fraud detection using machine learning
Maximum Marks	2 Marks

#### Problem – Solution Fit Template:

**Problem-Solution fit canvas 2.0**      Purpose / Vision

CS	1. CUSTOMER SEGMENTS	CS	2. CUSTOMER CONSTRAINTS	CC	5. AVAILABLE SOLUTIONS	AS
PROBLEMS <small>What's wrong?</small>	▶ Online banking users ▶ Credit/Debit card holders ▶ UPI users (PhonePe, Google Pay, Paytm) ▶ E-commerce customers ▶ Banks and financial institutions ▶ Payment gateway companies	▶ Lack of awareness about fraud ▶ Weak passwords ▶ Sharing OTP details ▶ Limited technical knowledge ▶ Slow response from banks	▶ Manual transaction monitoring ▶ Rule-based fraud detection systems ▶ OTP verification systems ▶ Traditional banking alerts	<b>Limitation:</b> These systems cannot detect new fraud patterns effectively	<small>Challenges</small>	
						<small>Opportunities</small>
Q <small>What needs to be done?</small>	▶ Protect users from fraudulent transactions ▶ Detect suspicious activities in real-time ▶ Reduce financial losses ▶ Improve transaction security ▶ Build customer trust in digital payments	▶ Protect users from fraudulent transactions ▶ Detect suspicious activities in real-time ▶ Reduce financial losses ▶ Improve transaction security ▶ Build customer trust in digital payments	▶ Users prefer fast and secure transactions ▶ Banks monitor high-risk transactions ▶ Users immediately report suspicious activities ▶ Customers expect instant alerts	<small>Opportunities</small>	<small>Challenges</small>	
TR <small>What triggers?</small>	▶ Sudden large transaction amount ▶ Multiple rapid transactions ▶ Logins from unusual location / device ▶ Transactions at odd hours ▶ Transfer to unknown beneficiaries	TR	5. EMOTIONS: BEFORE / AFTER	EM	8. CHANNELS & BEHAVIOUR	CH
TRIGGERS <small>What triggers?</small>	▶ Sudden large transaction amount ▶ Multiple rapid transactions ▶ Logins from unusual location / device ▶ Transactions at odd hours	TR	Before : ▶ Fear of losing money ▶ Lack of trust in online payments ▶ Anxiety after suspicious transactions	EM	▶ Online: ▶ Mobile Banking Apps ▶ UPI Apps ▶ E-commerce Websites ▶ SMS & Email Alerts	<small>Opportunities</small>
TR <small>What triggers?</small>	▶ Sudden large transaction amount ▶ Multiple rapid transactions ▶ Logins from unusual location / device ▶ Transactions at odd hours	TR	10. YOUR SOLUTION	SL	8. CHANNELS & BEHAVIOUR	CH
TRIGGERS <small>What triggers?</small>	▶ Sudden large transaction amount ▶ Multiple rapid transactions ▶ Logins from unusual location / device ▶ Transactions at odd hours	TR	Develop a Machine Learning-based Fraud Detection System that: ▶ Analyzes transaction patterns ▶ Uses ML algorithms (Logistic Regression, Random Forest) ▶ Classifies transactions as Fraud or legitimate ▶ Provides real-time prediction ▶ Sends fraud alerts Instantly ▶ Improves detection accuracy compared to traditional systems	SL	▶ Online: ▶ Mobile Banking Apps ▶ UPI Apps ▶ E-commerce Websites ▶ SMS & Email Alerts	<small>Opportunities</small>
EM <small>What emotions?</small>	▶ Fear of losing money ▶ Lack of trust in online payments ▶ Anxiety after suspicious transactions	EM	4. EMOTIONS: BEFORE / AFTER	EM	8. CHANNELS & BEHAVIOUR	CH
EMOTIONS <small>What emotions?</small>	▶ Fear of losing money ▶ Lack of trust in online payments ▶ Anxiety after suspicious transactions	EM	Before: ▶ Fear of losing money ▶ Lack of trust in online payments ▶ Anxiety after suspicious transactions	EM	▶ Offline: ▶ Bank branches / Customer care centers	<small>Opportunities</small>

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