

Project Design Phase

Problem – Solution Fit Template

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| Date | 5 February 2026 |
| Team ID | LTVIP2026TMIDS76029 |
| Project Name | Online Payments Fraud Detection using Machine Learning |
| Maximum Marks | 2 Marks |

Problem – Solution Fit Template:

The Problem–Solution Fit in this project means that we have identified a real and critical problem faced by banks, financial institutions, and online payment platforms — **increasing online payment fraud** — and developed a machine learning solution that effectively solves this problem.

Purpose:

- ☐ The purpose of this project is to detect fraudulent online payment transactions.
- ☐ The system uses machine learning to identify suspicious transaction patterns.
- ☐ Ensure that banks, payment platforms, and fintech companies get a practical, scalable, and automated fraud detection system.
- ☐ Reduce fraud losses and improve customer confidence in digital payment systems.
- ☐ Use transaction data, behavioral patterns, and ML models to make intelligent fraud predictions instead of relying on manual rules.

Template:

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|---|--|--|---------------|---------------------|--------------------|----------------------|---|--|
| 1. CUSTOMER SEGMENT (CS) CS <ul style="list-style-type: none"> Banks and Financial Institutions Online Payment Platforms E-commerce Companies FinTech Startups Digital Wallet Providers Customers performing online transactions | 6. CUSTOMER CONSTRAINTS (CC) CC <ul style="list-style-type: none"> Budget limitations Data privacy regulations Technical infrastructure gaps Resistance to new technology Integration challenges | 5. AVAILABLE SOLUTIONS (AS) AS <ul style="list-style-type: none"> Rule-based systems Manual monitoring Technical infrastructure gaps Resistance to new technology Integration challenges | | | | | | |
| 2. JOBS-TO-BE-DONE / PROBLEMS (J&P) J&P <ul style="list-style-type: none"> Detect fraudulent transactions before completion Reduce financial losses Monitor large-scale transaction data Improve customer trust and transaction security Automate fraud detection process | 7. PROBLEM ROOT CAUSE (RC) RC <ul style="list-style-type: none"> Complex transaction patterns Evolving fraud strategies Highly imbalanced datasets Lack of intelligent real-time systems Manual rule-based detection limitations | 8. BEHAVIOUR (BE) BE <ul style="list-style-type: none"> Address the problem early Implement intelligent automated systems Integrate ML-based fraud detection into web apps | | | | | | |
| 3. TRIGGERS (TR) TR <ul style="list-style-type: none"> Sudden increase in fraud cases Financial losses due to fraud Customer complaints Regulatory pressure <small>Regulatory pressure</small> | 8. YOUR SOLUTION (SL) SL <p>Machine Learning Fraud Detection System</p> <ul style="list-style-type: none"> Analyzes transaction data in real-time Uses multiple ML models (e.g., SVM) Performs comprehensive analysis Hyperparameter tuning, FinTigration Deployable via Flask web app | 9. CHANNELS of BEHAVIOUR (CH) CH <ul style="list-style-type: none"> Web-based interface SMS/email alerts Real-time dashboards | | | | | | |
| 4. EMOTIONS: BEFORE / AFTER EM <table style="width: 100%;"> <tr> <td>Fear of fraud losses</td> <td>Increased security</td> </tr> <tr> <td>Lack of trust</td> <td>Customer confidence</td> </tr> <tr> <td>Operational stress</td> <td>Slow fraud-detection</td> </tr> </table> | Fear of fraud losses | Increased security | Lack of trust | Customer confidence | Operational stress | Slow fraud-detection | 10. CHANNELS of SOLUTION (CH) CH <ul style="list-style-type: none"> Web-based interface Flask web application API integration | |
| Fear of fraud losses | Increased security | | | | | | | |
| Lack of trust | Customer confidence | | | | | | | |
| Operational stress | Slow fraud-detection | | | | | | | |