

Project Design Phase
Problem – Solution Fit Template

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| Date | 7 February 2026 |
| Team ID | LTVIP2026TMIDS48224 |
| Project Name | Online Payments Fraud Detection using Machine Learning |
| Maximum Marks | 2 Marks |

Problem – Solution Fit:

1. The Problem

In today's rapidly growing digital payment environment:

- Thousands of online transactions happen every second.
- Fraudulent transactions are increasing with new and evolving attack patterns.
- Traditional rule-based systems fail to detect modern fraud patterns effectively.
- Manual verification of transactions is slow, costly, and impractical.
- Users and organizations suffer financial losses due to delayed fraud detection.

There is a clear need for an automated, intelligent, and real-time fraud detection system.

2. The Solution

This project provides a Machine Learning–based Flask web application that:

- Uses a trained ML model on a Kaggle payment fraud dataset.
- Accepts transaction details from users through a web interface.
- Predicts instantly whether the transaction is Fraud or Not Fraud.
- Eliminates manual checking by automating fraud detection.
- Demonstrates how ML can be integrated into real-time payment security.

3. Behavioral Insights

- Online payments are increasing, and users expect secure transactions.
- Organizations prefer automated systems over manual verification.
- Fraud patterns change frequently, requiring adaptable ML models.
- Simple web interfaces improve usability and accessibility.

Template:

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| Define CS, fit into CC | 1. CUSTOMER SEGMENT(S) Who is your customer? I.e. working parents of 0-5 y.o. kids | 6. CUSTOMER CONSTRAINTS What constraints prevent your customers from taking action or limit their choices of solutions? I.e. spending power, budget, no cash, network connection, available devices. | 5. AVAILABLE SOLUTIONS Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? I.e. pen and paper is an alternative to digital notetaking | Explore AS, differentiate |
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| Focus on J&P, tap into BE, understand RC | 2. JOBS-TO-BE-DONE / PROBLEMS Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one, explore different sides. | 9. PROBLEM ROOT CAUSE What is the real reason that this problem exists? What is the back story behind the need to do this job? I.e. customers have to do it because of the change in regulations. | 7. BEHAVIOUR What does your customer do to address the problem and get the job done? I.e. directly related: find the right solar panel installer, calculate usage and benefits; Indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace) | Focus on J&P, tap into BE, understand RC |
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| Identify strong TR & EM | 3. TRIGGERS What triggers customers to act? I.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news. | 10. YOUR SOLUTION If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour. | 8. CHANNELS of BEHAVIOUR 8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7 | Extract online & offline CH of BE |
| | 4. EMOTIONS: BEFORE / AFTER How do customers feel when they face a problem or a job and afterwards? I.e. lost, insecure > confident, in control - use it in your communication strategy & design. | | 8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development. | |