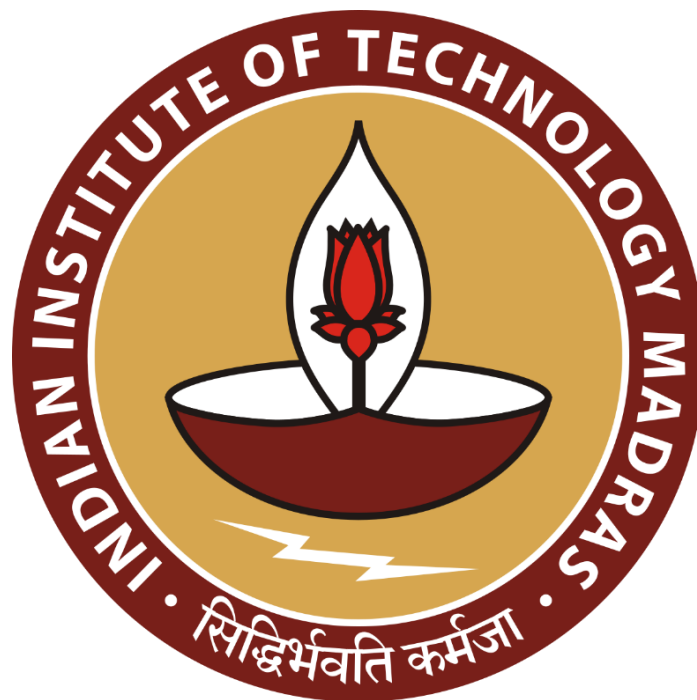# Payment Pattern Analysis and Rental Efficiency Tracking

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project Title " **Payment Pattern Analysis and Rental Efficiency Tracking** ". I extend my appreciation to **Power Tech Project Associates**, for providing the necessary resources that enabled me to conduct my project.

I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered through primary sources and carefully analyzed to assure its reliability.

Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

I am dedicated to adhering to the information of academic honesty and integrity, and I am receptive to any additional examination or validation of the data contained in this project report.

I understand that the execution of this project is intended for individual completion and is not to be undertaken collectively. I thus affirm that I am not engaged in any form of collaboration with other individuals, and that all the work undertaken has been solely conducted by me. In the event that plagiarism is detected in the report at any stage of the project's completion, I am fully aware and prepared to accept disciplinary measures imposed by the relevant authority.

I agree that all the recommendations are business-specific and limited to this project exclusively, and cannot be utilized for any other purpose with an IIT Madras tag. I understand that IIT Madras does not endorse this.

U Rao

Signature of Candidate:

Name: Udghosh Rao

Date:23/05/2025

1   Executive Summary

 This project focuses on understanding and solving data-related challenges faced by **Power Tech Project Associates**, a generator sales and rental business in Neemrana, Rajasthan. The business operates in both B2B and B2C modes and earns revenue through the sale, rental, repair, and commission of diesel generators.

Based on discussions with the owner, two key problems were identified: (1) difficulty in tracking outstanding payments from customers and (2) inconsistent rental usage of generators. The absence of a structured system to manage customer payments, rental returns, and generator availability creates issues with financial planning and asset utilization.

The goal of the project is to use basic business data such as generator rental records, sales invoices, and payment history to analyze trends in customer behavior, identify pending dues, and suggest improvements in record keeping. Data will be collected, cleaned, and analyzed using Excel and basic visual tools. The outcome of the project will be a clear summary of payment behavior, utilization patterns, and simple strategies to help the business streamline operations.

Ref:

1. https://asana.com/resources/executive-summary-examples
2. https://www.projectmanager.com/blog/write-an-executive-summary

2   Organization Background

Business Name: Power Tech Project Associates
Owner: Mr. Suresh
Location: Neemrana, Rajasthan
Sector: Generator sales, rental, repair, and commission services

Power Tech Project Associates is a small business offering sales and rentals of diesel generators. It serves local factories, events, and homes. The owner also provides repair services and facilitates sales for third parties, earning commission.

The business operates without any digital platform or formal customer database. Transactions are tracked manually and payments are often delayed, especially for high-value sales. The business depends on a limited number of customers, and rental frequency is uneven, leaving some generators idle.

Ref:

1. https://www.business.com/articles/writing-a-company-history/
2. https://bizfluent.com/write-organizational-background-5883.html

3   Problem Statement

Problem 1: Payment Delay and Tracking Difficulty
The business owner has no structured system to track which customers have paid fully and which are pending. Payments are sometimes spread over several weeks or months, making it difficult to forecast cash flow.

Problem 2: Underutilization of Rental Generators
Some generators are rented multiple times while others remain idle. There is no pattern available to see usage trends or understand customer demand.

These issues were identified during interaction with the owner. Since both problems directly affect income and asset usage, solving them is essential

Ref:

1. https://project-management.com/what-is-a-problem-statement/
2. https://www.isixsigma.com/getting-started/how-to-write-an-effective-problem-statement/
3. https://www.managementstudyguide.com/defining-project-problem-statement.htm

4   Background of the Problem

The business works primarily through personal relationships. Due to the lack of structured tracking for payments and rentals, generators are sometimes not returned on time or payments are left incomplete. The business relies on verbal agreements, and there is no follow-up schedule for pending dues.

Rental income is inconsistent. Some generators are overused while others are not rented at all. The business doesn't keep rental records digitally, and it's difficult to measure which generators are performing better.

Ref:

1. https://fhsu.pressbooks.pub/aep-research/chapter/background/
2. https://readwriteperfect.com/whats-the-difference-between-the-problem-background-and-problem-statement-in-your-dissertation-chapter-1/

5   Problem Solving Approach

5a. Methods with Justification:
- **Quantitative Methods:**

    - **Trend Analysis:** Identify how often each generator is rented, and which customers have pending payments.

    - **Payment History Review:** Use historical records to compute average payment delay and identify high-risk customers.

- **Qualitative Methods:**

    - **Owner Interview:** Understand rental behavior, past losses due to delays, and informal payment follow-ups.

5b. Intended Data Collection with Justification:
- Generator Rental Data (6 months): Start and end dates, rent charged, customer name, generator ID

- Payment Data: Sale amount, rent amount, amount received, pending dues

This data will help identify patterns in customer payment behavior and generator usage. The variables like payment date, delay days, rent duration, and generator frequency will be used for analysis.

5c. Analysis Tools and Justification:
- **Excel or Google Sheets:** For organizing, cleaning, and analyzing data

- **Bar/line charts:** For visualizing generator usage and payment trends

These tools are suitable for small business analysis and require no advanced technical skills

Ref:

1. https://upmetrics.co/blog/4-proven-techniques-for-effective-business-problem-solving
2. https://www.tycoonstory.com/7-steps-to-solve-business-problems-effectively/
3. https://online.purdue.edu/blog/business/problem-solving-techniques-in-business
4. https://www.businessballs.com/problem-solving-and-decision-making/decision-making-and-problem-solving/
5. https://www.ibm.com/garage/method/practices/discover/business-problem-to-ai-data-science-solution/
6. https://www.linkedin.com/pulse/solving-business-problems-data-science-waqas-ahmed-awan/

6   Expected Timeline

6.1   Work Breakdown Structure:

Ref:

1. https://acqnotes.com/acqnote/careerfields/work-breakdown-structure
2. https://www.wrike.com/project-management-guide/faq/what-is-work-breakdown-structure-in-project-management/
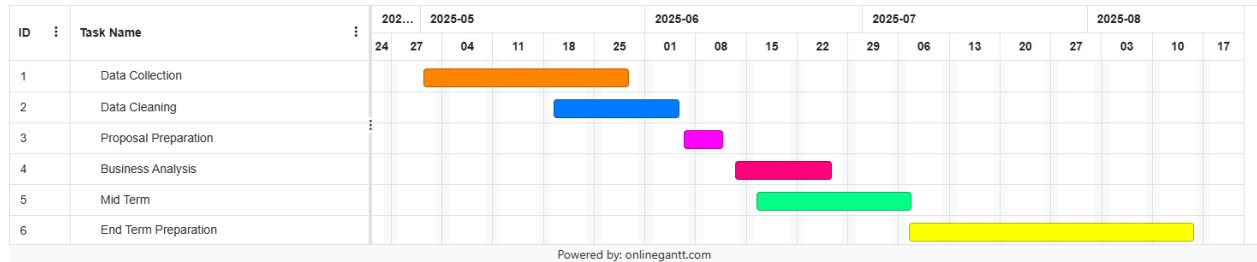
6.2   Gantt chart

Figure 1 Expected timeline for completion of project.

7   Expected Outcome

- Identify customers with frequent payment delays

- Create a rental utilization report per generator

- Provide a simple Excel format to track payments and rentals

- Help the owner prioritize customers and maintain steady cash flow

- Recommend basic documentation format for tracking purposes

The project will improve operational clarity for the business and allow the owner to manage payments and assets better using minimal resources.