Inventory Management Analysis: Addressing Deadstock and Stock Discrepancies

A Proposal report for the BDM Capstone Project

Submitted by

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Declaration Statement

I am working on a Project Title “Inventory Management Analysis: Addressing Deadstock and Stock Discrepancies”. I extend my appreciation to **Jothi Polymers Private Limited**, 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.

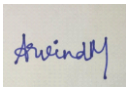
I am dedicated to adhering to the information of academic honesty and integrity, and I am receptive to any additional examination or validation of the data contained in this project report.

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.

Signature of Candidate:

02-02-2025

X 

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Date:02/02/2025

1 Executive Summary

This project is about Jothi Polymers Private Limited which manages Business-to-Business activities that deal with engineering polymers and other plastic-related materials.

The major problem faced by the company is deadstock which leads to less or no particular stock movement. They also face stock mismatches in warehouses that affect their inventory management and stock planning.

Python libraries can be used for data-cleaning processes. By leveraging Microsoft Excel's analytical and data visualization tools, a more actionable and clearer understanding to solve these problems can be made. Using this information, helpful and effective approaches can be suggested to the business. Python libraries will be used for the data cleaning process.

The expected outcome helps the company to handle deadstock effectively thereby avoiding unnecessary accumulation of inventory and properly organiz the stocks so that mismatches don't occur.

2 Organization Background

The company that I am working with is Jothi Polymers Private Limited (CIN: U25209TN2016PTC104322), an organized B2B entity founded by Mr. Kalyana Sundar. They are channel partners who collaborate with specific suppliers for a particular item. The company was started under proprietorship in 2008 and became a private limited in 2016.They have extended their market to a large base since their inception.

They mainly trade and deal with engineering polymers such as Polycarbonate, Nylon, etc. They import polymers from foreign countries like Germany and South Korea and supply them across various parts of South India. They also receive stocks locally from places like Ankleswar, Thiruvallur, Uran, etc. They usually receive a minimum of 25 kg of stock in 60 X 20 cm bags.

The company supplies polymers to Automotive, Electrical & Electronics, Medical and, Appliance industries. Started as a modest business firm, the company currently accounts for over Rs.200 crore business turnover with two branches in Chennai and Bengaluru.

3 Problem Statement

The business majorly faces the following problems:

3.1 **Handling of deadstock**: Decision could not be made if customers suddenly cut ties with the company due to certain reasons. So, these stocks get accumulated in the godown.

3.2 **Stock Quantity mismatch**: While transferring the goods from godown to end customers, some stocks may be wrongly sent. Some could also not be sent. This is usually identified later in offices while accounting. This leads to time delay and customers may be dissatisfied.

4 Background of the Problem

While discussing with the owner, the following reasons potentially led to above problems:

Problem 1: Deadstock usually occurs due to sudden loss of customers and the stocks intended to be sold to them get accumulated and become obsolete due to the following:

1. Absolute reasons like unexpected demand drop which is a situation in which a customer suddenly closes their base leading to accumulation of excess inventory at various stages for the company. This can also be due to forecasting errors that lead to overproduction.
2. Minimum Order Quantity (MOQ) sometimes leads to overordering of goods which can further cause storage constraints, cash flow issues when market conditions change, etc.

Problem 2: Stock mismatches usually occur due to errors in order fulfillment and inventory Tracking is related to:

1. Labors not knowing to read the stock name. For example, NGC 3001 NATURAL may be placed instead of NGC 3010 BLACK.
2. Poor communication between warehouse and office staff.
3. Due to storage constraints, stocks may be arranged in scattered places. While transferring, some of them may be missed out. This is identified later only when the office staff intervenes.

5 Problem Solving Approach

The following steps are planned for avoiding deadstock and stock quantity mismatches and their corresponding details are also mentioned.

1. **Data Collection and Organization:**

- The company maintains data in Tally which is collected for about 3 years.
- This data is converted to Microsoft Excel for better analysis and visualization.
- Also, relevant information from the collected data is combined to get a consistent picture.

2. **Data Cleaning:**

- Python can be used for Data Cleaning as it provides useful libraries like pandas to handle the data as .csv files.
- It also makes it easier to handle missing data, detect outliers and unify them.

3. **Handling Deadstock:**

- The deadstock pattern may be analyzed, so that we can predict stocks that become stagnant.
- The percentage of deadstock with total inventory can be calculated and further analysis can be made on how to avoid them.
- Also, stocks with no movement for prolonged periods are identified so that methods to sell them in other ways can be found.

4. **Stock Quantity Mismatch Analysis:**

- Compare office and warehouse data to identify discrepancies
- Analyze dispatch records so that comparisons can be made with dispatch quantities and changes in stock level to identify potential mismatches.

5. **Visualization, Solution Development and Feedback**:

- Collected data is visualized using Excel tools to study and draw conclusions
- This is helps develop effective solutions and avoiding these problems in the future.
- Finally, the cumulative feedback can be sent to the company for further improvements.

Data required for analysis:

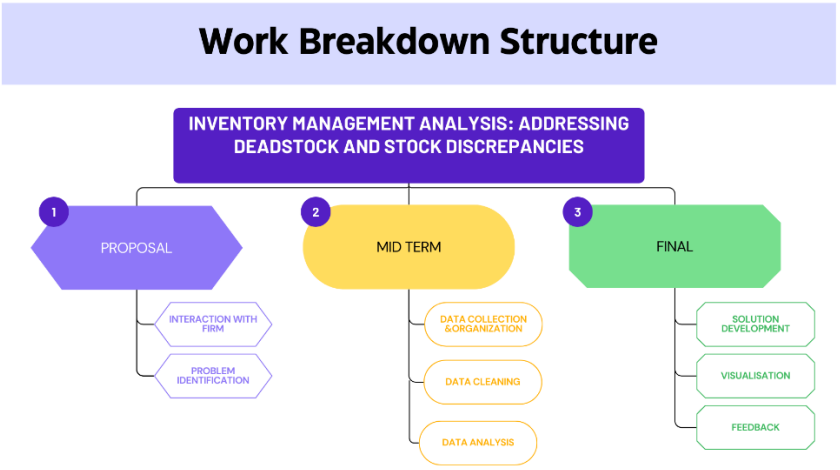
Information on Stock and their corresponding grades is essential to analyze their movement.

Stock information for at least 3 years is collected for different stocks to predict which might become obsolete in the future. Their corresponding quantities and values are also collected for visualization purposes.

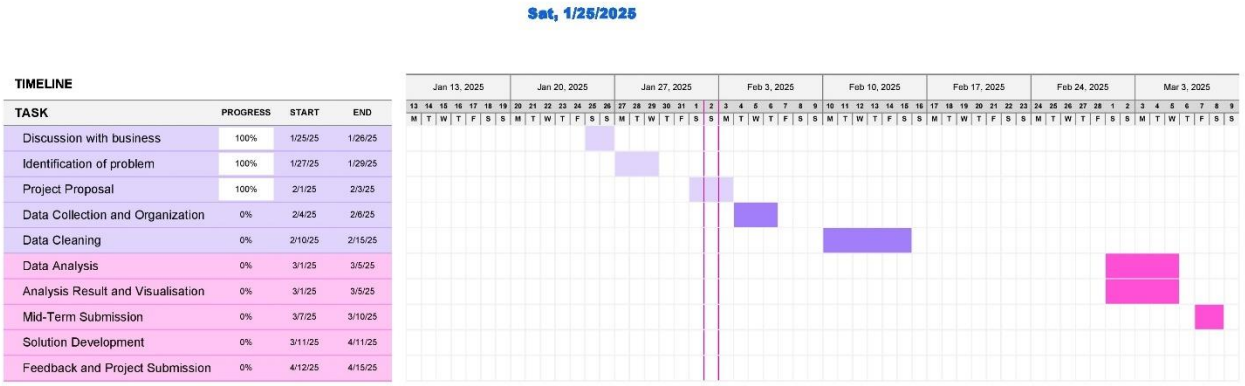
Opening and Closing Stock that are sent for transportation is also collected, to compare them with the office data. This data is usually present in PO and Dispatch advice.

6 Expected Timeline

6.1 Work Breakdown Structure:



6.2 Gantt chart:



7 Expected Outcome:

The following outcomes are expected after analyzing the data:

- Reducing stagnant stocks, thereby freeing up the amount tied to their procurement.

- Better and accurate stock reconciliation process between office records and warehouse stock.

- Reducing overstocking of less moving items thereby providing a chance to invest this capital in expanding the business.

- Reducing time delay and increasing operational efficiency of the business.