Detailed Analysis on NN Traders
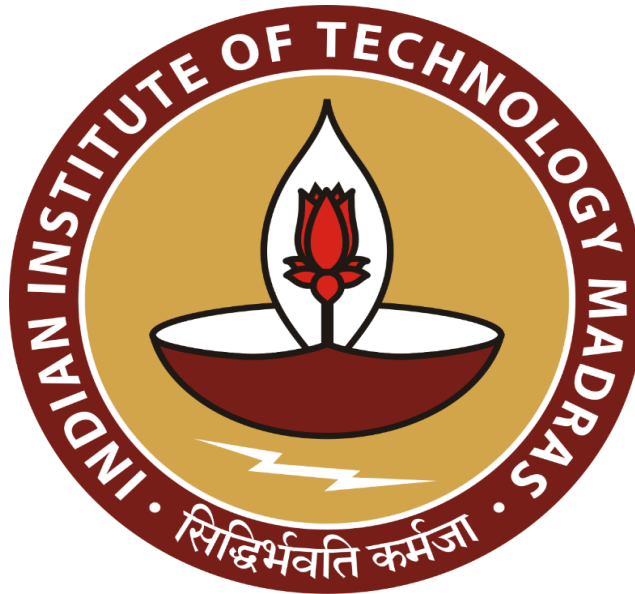
BDM Capstone Project

Mid-Term Submission

Submitted by

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Declaration Statement

I am working on a Project titled "Detailed Analysis on NN Traders". I extend my appreciation to NN Traders, 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 from 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 principles 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 understand that all recommendations made in this project report are within the context of the academic project taken up towards course fulfillment in the BS Degree Program offered by IIT Madras. The institution does not endorse any of the claims or comments.

Signature of Candidate: Md Anas Alam

Name: Md Anas Alam

Date: 06-07-2024

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Executive Summary

NN Traders is a B2b business specialized in selling its products of the home textile segment such as curtains, bedsheets and other home textile products in Rourkela and its surrounding region. Despite being a profitable business the business faces a lot of challenges in inefficiency in inventory management and deadstock which ties up valuable capital and storage space ultimately leading to reduced profitability of the business.

To address these challenges, I intended to analyze the business sales data by using various analytical methods and modern tools. We aim to uncover patterns and trends that will give us insight to help in better and informed decisions by deploying trend analysis in sales and inventory data. This analytical method will help us in identifying high demands and optimal stock levels .

The expected outcome is to improve overall efficiency and effectiveness in inventory management and provide profitability to NN traders. By minimizing deadstock the business can unlock the stuck capital and overall improve the cash-flow. Efficient inventory management helps us in maximizing sales which will lead us to improve customer satisfaction as the products are more likely to be available when needed. Ultimately, these improvements will improve the sustainable growth of the NN traders enabling them to gain reputation and better service experience in the market and achieve its business objectives. Through data driven intuition and strategic understanding NN traders can make its operation efficient and drive the business to long term success and stand out in the competitive market.

Proof of Originality

Video Interaction link: 🖼 **BDM(Proof of originality)**

Organization picture and Authorization letter: 🖼 **BDM(Proof of originality)**

Meta Data

The data consisting different sheets in present in the location: DATA

Here are explanation about the data present in the link provided above:

Sales sheet

Under sales sheet sales data have been provided and the span of data is from April 2022 to April 2024, the data corresponds to two columns i.e Months and revenue generated, this data has been cleaned and all the anomalies have been identified, hence this sheet consist of only revenue generated by the business corresponding to the month of the year.

Purchase sheet

purchase sheet corresponding to purchase of the items made by the business to fulfill its inventory and create optimal stock in the inventory for the undisturbed flow of goods to its customer. This data consists of two columns i.e month-year and total amount spent in purchasing for the particular month of the year. The sheet consists of purchase data from April-2022 to April-2024 and some of the months where business doesn't make any purchase have been denoted by null or '-'.

Sales vs purchase sheet

Under the "sales vs purchase" sheet we have joined the data from the sales and purchase sheet using "VLOOKUP". The major intention behind joining these two tables was to identify deadstock and provide visualization through graphs and as mentioned above this data also consists of sales and purchase data from April-2022 to April-2024.

Category and Unit Performance sheet

This sheet has been derived from the sales data with the intention to analyze the performance of each SKU unit. This sheet provides us the performance of each SKU with SKU listed as their HSN code in the column and date with the format of "Month-year" in the rows.

Profit Analysis sheet

Under the Profit analysis sheet we have created two columns and twenty five rows with columns corresponding to data in "Month- Year" format and total profit made by the company in or the particular month of the year. This sheet will help us to provide the growth and performance of the company.

Descriptive statistics

The mean or average revenue generated by the NN traders for the period of two financial years i.e "April-2022 to April-2024" stands at an average of rupees 7.49 lakhs per month. Out of 25 months an equal of 12 months given a revenue below the average revenue i.e (7.49 lakhs) generated by the NN traders and almost 52% of the total duration of two financial years that is 13 months in the span of total 25 months has given a revenue above the average revenue of 7.49 lakhs. The maximum revenue was noted in the month of March-2023 with the revenue of almost 12.5 lakhs rupee and above. Whereas, the month of February in the year 2024 has been considered as one the bad performing months for NN traders where the business has generated record lowest revenue of 3.74 lakhs in the span of the two financial years. The standard deviation for the given sales data is nearly 2.19 lakhs which suggests that the monthly sales revenue typically deviates from the mean by this amount. The first quartile, second quartile and third quartile calculated from the given sales data is 5.73 lakhs, 7.55 lakhs and 9.43 lakhs respectively which leads us to the conclusion that 25% of the months i.e nearly 6 months has generated revenue less than 5.73 lakhs, 50% i.e almost half of the time on the period of 25 months the business has generated a revenue less than or equal to 7.55 lakhs and 75% of the total time span i.e for almost 19 months NN traders has generated a revenue less than or equal to 9.43 lakhs. The Interquartile range (IQR) for the given sales data is 3.69 lakhs which means that 50% of the total sales revenue generated by the NN traders spread over the range of 3.69 which can be alternatively referred to as 50% of the revenue generated by NN traders is greater the first quartile and less than third quartile.

The average purchases made by NN traders is 6.70 lakhs for the time period of two years where Business made the highest purchase of 15.85 lakhs in the month of December 2023 and the business didn't do any purchase in March-2023 and January-2024. The business maintained a standard deviation of 3.63 lakhs in purchase.

Upon categorizing SKUs into several categories based on the HSN number a collection of 13 different SKUs comes into consideration which adds up to make a sum of 105410 which NN traders sold in the given period of two years. Adding to that the SKU which was sold the most and has largest contribution in the sales data is the SKU with HSN number "6304" which contributes roughly around 36.06% which is 38008 in numbers in the overall sales done by NN traders and the SKUs with HSN number "7615" and "3926" contributes least in the overall sales data contribution about 0.04% in the total span of two years in sales which is 40 unit each in numbers. Also, NN traders gave its record highest sales in the month of June-2023 when NN traders sold 4066 units of HSN "6005".

Detailed Explanation of the Analysis process and Methods Used:

Identifying sales trends:

Identifying sales trends gives the benefit of making informed decisions in business growth through analyzing historical data and identifying covered patterns and behavior. Sales trends analysis helps us to identify the recurring cycle or pattern in the sales data corresponding to a specific period of time. It also helps in making informed decisions about future and forecast future trends by analyzing the present and historical sales trends. Here we have used sales trends for NN traders sales data for the same above mentioned reason, we intended to identify recurring patterns from NN Traders sales data and Business performance for each month of the year which will ultimately give us idea to make future prediction and help business to target it best performing month for the ultimate growth of the Business.

Sales and Purchase(Inventory) Analysis:

We intended to perform sales and inventory analysis because the business was facing the problem of inefficient inventory management and risk of deadstock and stockout. By performing sales and inventory analysis we can pull out the business from the mentioned problem in the following ways:

1. Optimizing Inventory Management: Overstock ties up the capital that can be used in aspects of business growth, performing sales and inventory analysis can help us understand the market need and plan our inventory accordingly and not only reduce the chances of overstock but also reduce the chance of stockout which will ultimately leads to free capital and better customer experience.
2. Strategic planning and forecasting: By doing analysis on historical data it will help us predict the future trends enabling us to better plan inventory and procurement. This foresight support in making strategies and decision making and also efficient management of product sales cycle.
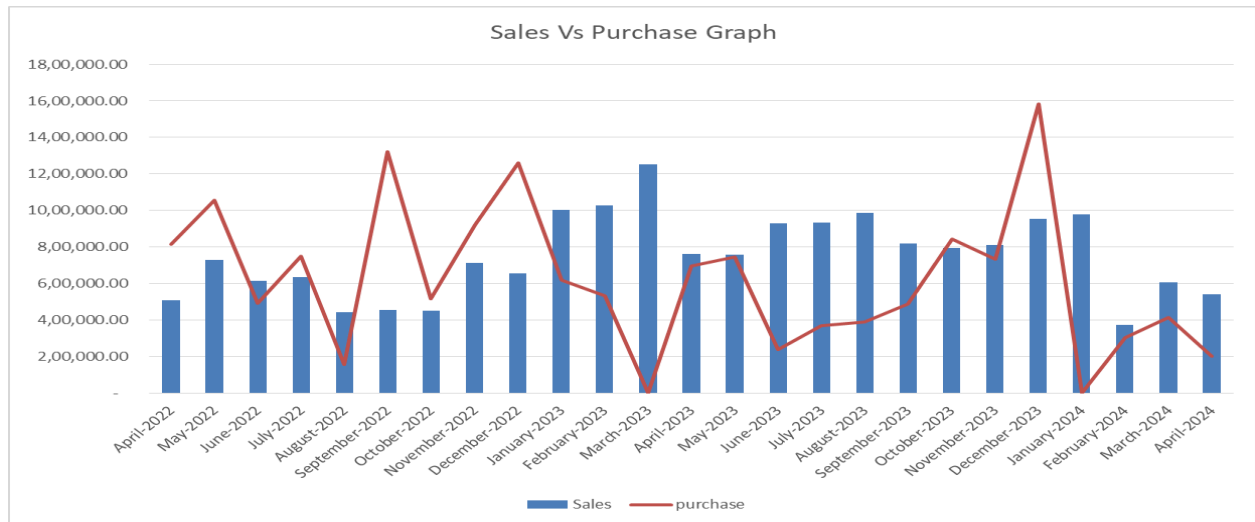
Category sales Analysis:

Category wise sales analysis plays an important role in increasing the profitability of the business and target best selling and highest revenue generating product in the segment. This type of analysis breaks the data into different categories such as SKU units, region, brand or customer segment. Here, in the case of NN traders we have performed category sales analysis upon different SKU units based on their HSN code and identified five highest revenue generating SKUs. These are: "5407", "6005", "6301", "6303" and "6304" out of which "6304 " is the best performing SKU for NN traders with an average sales of 1520 units every month. So, by performing category wise sales analysis we get to know that "6304" is the highest revenue generation SKU for NN traders for the year April-2022 to April-2024. Hence, the business will focus more on such SKUs and consider bringing more units from such SKUs to increase the profitability of the company.

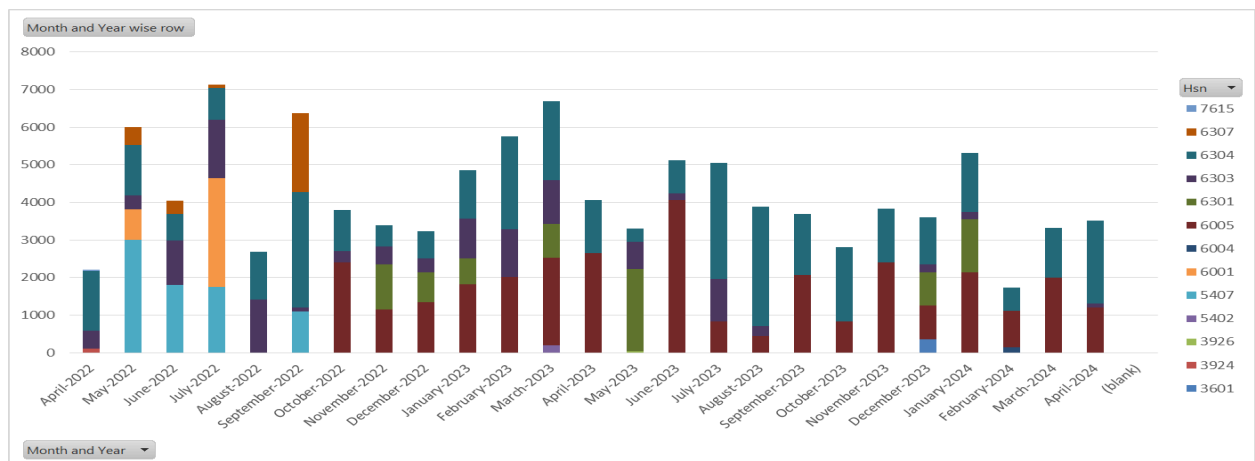## Results and Findings:

1. We can observe that the sales data graph is increasing slightly over the time span of two years and NN traders have noted highest revenue 12< lakhs in March 2023 and lowest in 4 Lakhs> revenue in February 2024.
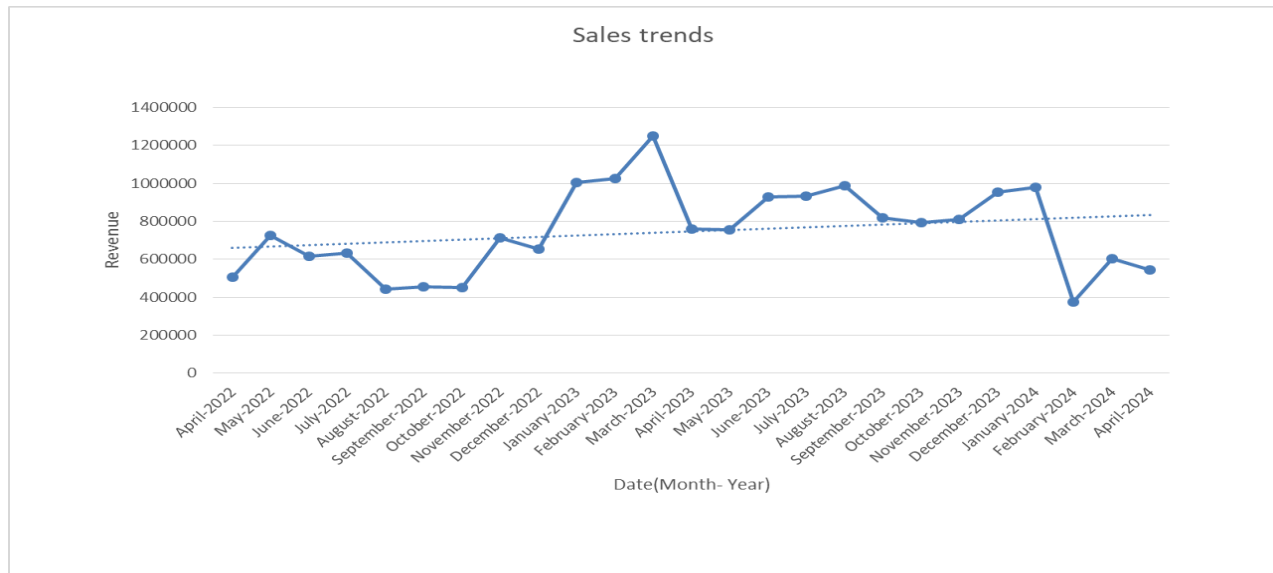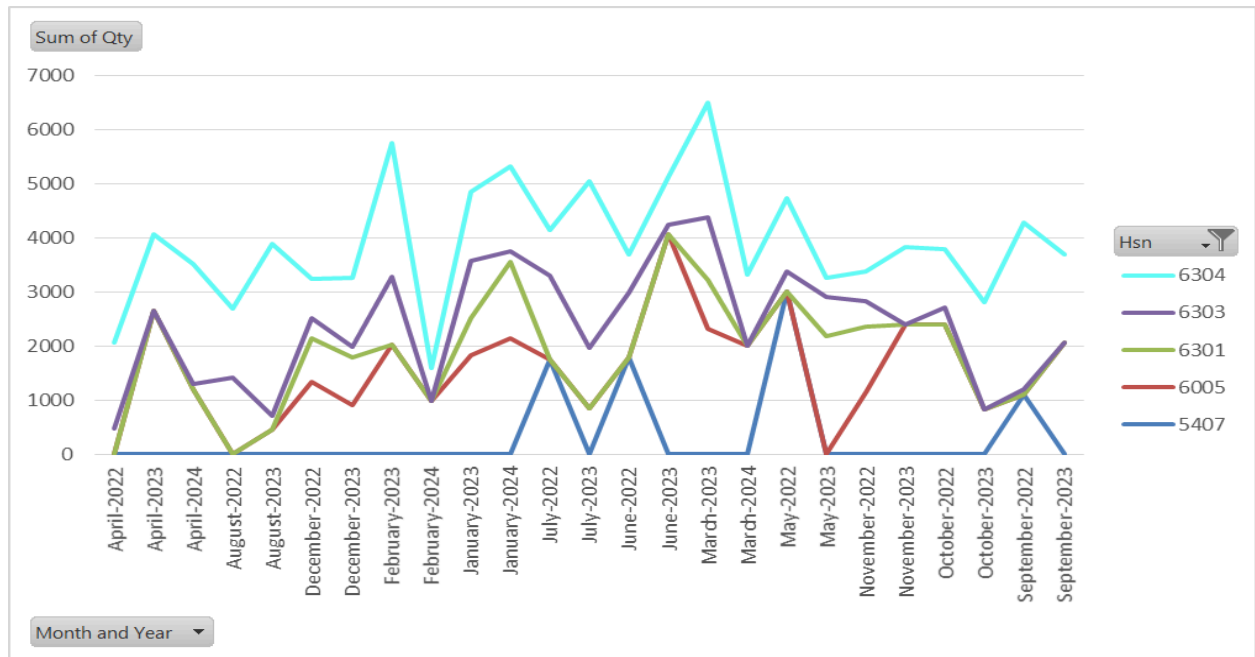

2. We plotted the graph of sales and purchase(Inventory) to get a clear view of overstock and deadstock. Here, we can clearly observe high spike in the purchase line in the month of May-2022, September-2022, December-2022 and December-2023 which concludes that NN Traders had made big orders in these month on the other hand we can observe company had not placed any order in the month of march 2023 and January 2024 and interesting NN traders has generated highest revenue in the month of March-2023 which is understood that the company has sold all of its previous months stocks.

Sales Vs Purchase Graph

3. We have created two graphs for category wise analysis graph-1 for the quantity of all the SKU units from the sales data given by NN Traders and Graph-2 for only the top five selling SKUs observed from Graph-1. We can clearly see that SKU with HSN 6304 is a high revenue generating SKU.

Graph-1

Graph-2