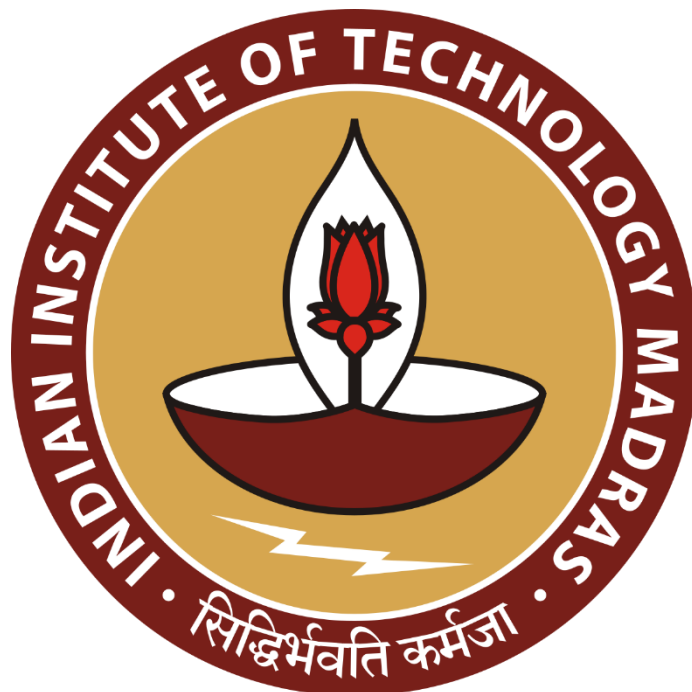# Business Data Management Capstone Project

Final Submission

Empowering Business Growth through Data-Driven Insights

Name: Lakshika Sheoran

Email id- 22f2001175@ds.study.iitm.ac.in

Roll no: 22f2001175

TABLE OF CONTENT

1) Executive Summary and Title:
TITLE: - "Empowering Business Growth through Data-Driven Insights"

The capstone project for Pradeep Maan Trading Company aims to address the challenges of medium-sized retailer faces with profit margins and inventory management since its establishment in 2023. Specializing in fertilizers, urea, and pesticides, the company is experiencing difficulties that are impacting both net profit and sales. This project will focus on optimizing inventory management, enhancing sales, and formulating effective marketing strategies to improve overall profitability.

To achieve these objectives, the project will begin with a detailed analysis of sales data, examining patterns, fluctuations in purchase prices, and seasonal trends. By identifying top-performing and underperforming SKUs, the project will inform targeted marketing and inventory decisions. Various Excel tools, including pivot tables, bar graphs, and line graphs, will be utilized for data visualization and trend analysis, allowing for a clear understanding of sales performance and enabling data-driven decision-making.

Additionally, the project will assess current inventory management practices to pinpoint inefficiencies and evaluate existing marketing strategies to identify gaps for improvement. Recommendations will focus on improve cash flow. Furthermore, targeted marketing campaigns will be developed based on the SKU performance analysis, emphasizing high-margin products, while dynamic pricing strategies will adapt to market conditions to enhance sales margins.

Ultimately, this comprehensive approach aims to improve net profit margins, enhance visibility into sales performance, and streamline goods flow, leading to increased efficiency. By leveraging thorough data analysis and strategic planning, the project seeks to position Pradeep Maan Trading Company for growth and profitability in a competitive market. The current steps involve analyzing existing sales and inventory data, recommending strategies to the business and monitoring progress to make necessary adjustments based on ongoing analysis.

2) Detailed Explanation of Analysis Process/Method:

2.1: Analysis of Sales and Purchase Data:

MS Excel serves as the primary tool for conducting the analysis. Sales data is collected from the owner's laptop along with prices of each product from "Pradeep Maan Trading Company" over the period of 3 months.

The collected data has been pre-processed such as handling missing values, correcting typing errors & sorting, are performed.

- The pre-processed sales data comprises a total of 21 columns. Among these, 1 column represents the date, the next 10 columns represent the sales quantity of each SKU, and the following 10 columns represents the selling price of each SKU on the given day.

DAP(50 kg/bag)	Urea(45 kg/bag)	NPK(50 kg/bag)	Cotton Seed Nawab Gold(1kg/packet)	Cotton Seed Katha BG-II(1kg/packet)	Cotton Seed S-004(1kg/packet)	SSG SX-17 5kg(5kg/packet)	Menaka 71(100gm/packet)
						SALES QUANTITY	
1	18	4	1	3	4	2	2
3	11	3	2	2	2	1	1
7	5	4	1	1	1	2	2
13	5	3	1	4	2	1	1
19	6	1	2	2	1	1	1
12	17	4	2	1	1	1	1
5	25	2	3	2	1	2	2
5	9	3	1	1	2	1	1
15	32	6	1	1	1	1	1
10	2	9	1	1	1	2	2
28	6	2	2	2	2	2	2
11	23	2	1	1	2	3	3
23	7	5	1	1	3	1	1
26	7	4	2	2	1	1	1
1	12	6	2	2	1	1	1
3	1	1	3	3	1	2	2
7	4	4	1	1	2	1	1
13	9	7	2	1	1	4	1
19	8	3	1	1	4	2	1
12	15	6	2	2	2	1	2
5	5	2	1	1	1	2	1
5	9	2	1	1	2	1	4

Figure-1: Data of Sales Quantity

DAP	Urea	NPK	Seed Naw	Seed Kat	on Seed S	G SX-17 5	Menaka 71	S ICHIBA	riphos 1
						SELLING PRICE			
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹32
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30
₹1,350	₹267	₹1,200	₹850	₹800	₹850	₹600	₹80	₹400	₹30

Figure-2: Data of Selling Price

- Using the sales quantity and selling price, the revenue for each SKU on any given day, Total daily revenue, and the Average of sales quantity, selling price and revenue can be calculated using the following formula:

$$\textbf{Revenue} = \textbf{Sales Quantity} * \textbf{Selling Price}$$
$$\textbf{Total Daily Revenue} = \sum (\textbf{Revenue of SKU on any given day})$$
$$\textbf{Average} = \textbf{Sum of values for each SKU / Number of days}$$

- Similarly, purchase data has been collected for every SKU, which consists of purchase quantity and purchase price. Using this data, the cost is calculated of SKU.

DAP(50 kg/bag)	Urea(45 kg/bag)	NPK(50 kg/bag)	Cotton Seed Nawab Gold(1kg/packet)	Cotton Seed Katha BG-II(1kg/packet)	Cotton Seed S-004(1kg/packet)	SSG SX-17 5kg(5kg/packet)	Menaka 71(100gm/packet)	Pandy CS ICHIBAN 700ML(50kg/
						PURCHASE QUANTITY		
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	60	60	40	0	0	0
0	0	0	0	0	0	0	0	0
0	0	100	0	0	0	0	0	0
0	0	0	0	0	0	60	0	60
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
250	275	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	75	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	20	0	0	0

Figure-3: Data of Purchase Quantity

Figure-4: Data of Purchase Price

- Along with the cost, total daily cost, total cost, and average of purchase price for each SKU are calculated for 3 months using the following formulas:

$$\text{Cost} = \text{Purchase Quantity} * \text{Purchase Price}$$
$$\text{Total Daily Cost} = \sum (\text{Cost of SKU on any given day})$$
$$\text{Average} = \text{Sum of values for each SKU / Number of days}$$

2.2: <u>Enhancing Overall Business Profitability</u>:

- By doing discussion with the owner of Pradeep Maan Trading Company, we identified that profits are declining due to the emergence of new shops, and the presence of online shopping platforms (Amazon.in, bigbasket and so on). The inconsistency of profits poses challenges to the sustainability of the business.

- Therefore, our initial step was to assess the profitability of each day & each SKU of products at Pradeep Maan Trading Company. To accomplish this, I utilized sales and purchase data to compute the profit/loss, profit/loss (%) & revenue (%) for each SKU on a daily basis using the following formula:

$$\text{Profit/Loss} = \text{Revenue} - \text{Cost}$$
$$\text{Total Profit/Loss (\%)} = (\text{Profit (SKU) / Total Profit}) * 100$$
$$\text{Total Revenue (\%)} = (\text{Revenue (SKU) / Total Revenue}) * 100$$

Product	Profit/Loss	Revenue	% of Total Profit/Loss	% of Total Revenue	Profit Margin %
DAP	₹ 73,079	₹ 13,20,300	72.56%	51.09%	2%
Urea	₹ 13,259	₹ 2,39,584	13.16%	9.27%	3%
NPK	₹ 8,826	₹ 4,09,200	8.76%	15.83%	2%
Cotton Seed Nawab Gold	₹ 4,675	₹ 1,58,950	4.64%	6.15%	3%
Cotton Seed Katha BG-II	₹ 12,970	₹ 1,23,200	12.88%	4.77%	9%
Cotton Seed S-004	₹ 4,475	₹ 1,24,100	4.44%	4.80%	3%
SSG SX-17 5kg	₹ 9,650	₹ 89,400	9.58%	3.46%	8%
Menaka 71	₹ 4,884	₹ 14,179	4.85%	0.55%	21%
Pandy CS ICHIBAN 700ML	-₹ 31,955	₹ 1,00,875	-31.73%	3.90%	8%
Missile Chloropyriphos 1.5%D.P 100 Gm	₹ 850	₹ 4,600	0.84%	0.18%	18%
	₹ 1,00,712	₹ 25,84,387			8%

Figure-5: Profitability Analysis for each SKU's

Total Daily Expenditure	Total Daily Revenue	Total Profit/ Loss	Date
₹ 1,875	₹ 20,587	₹3,195	01-04-2024
₹ 0	₹ 17,492	₹4,020	02-04-2024
₹ 0	₹ 20,673	₹9,420	03-04-2024
₹ 0	₹ 29,773	₹17,490	04-04-2024
₹ 0	₹ 34,169	₹25,560	05-04-2024
₹ 0	₹ 31,191	₹16,170	06-04-2024
₹ 0	₹ 22,603	₹6,720	07-04-2024
₹ 0	₹ 17,609	₹6,720	08-04-2024
₹ 0	₹ 39,988	₹20,220	09-04-2024
₹ 0	₹ 29,183	₹13,410	10-04-2024
₹ 1,26,300	₹ 49,819	₹37,740	11-04-2024
₹ 0	₹ 30,030	₹14,790	12-04-2024
₹ 1,18,100	₹ 44,256	₹30,990	13-04-2024
₹ 55,200	₹ 47,456	₹35,040	14-04-2024
₹ 0	₹ 17,408	₹1,320	15-04-2024
₹ 0	₹ 14,307	₹4,020	16-04-2024
₹ 0	₹ 20,610	₹9,386	17-04-2024
₹ 4,02,200	₹ 35,069	(₹3,13,790)	18-04-2024

Figure-6: Profitability Analysis on any given day

- Given that there was initial inventory for every SKU at the beginning and end of the data collection period, the COGS of each SKU was determined using the following formula:

COGS = Initial Inventory + Purchases (Cost) – Ending Inventory

Date	Missile Chloropyriphos 1.5%D.P 100 Gm	DAP	Urea	NPK	Cotton Seed Nawab Gold	Cotton Seed Katha BG-II	Cotton Seed S-004	SSG SX-17 5kg	Menaka 71	Pandy CS ICHIBAN 700ML	Missile Chloropyriphos 1.5%D.P 100 Gm
30-06-2024	₹ 25	₹0	₹0	₹0	₹0	₹0	₹0	₹0	₹0	₹ 40,700	₹0
	₹ 25	₹ 13,60,825	₹ 1,73,950	₹ 4,13,200	₹ 1,56,750	₹ 1,46,000	₹ 1,44,375	₹ 99,000	₹ 9,750	₹ 1,11,000	₹ 3,875
Initial Inventory	₹ 3,97,500	₹ 52,632	₹ 51,964	₹ 27,225	₹ 14,600	₹ 17,325	₹ 13,200	₹ 2,340	₹ 28,120	₹ 200	
Ending Inventory	₹ 5,11,104	₹ 257	₹ 64,790	₹ 29,700	₹ 50,370	₹ 42,075	₹ 32,450	₹ 2,795	₹ 6,290	₹ 325	
COGS	₹ 12,47,221	₹ 2,26,325	₹ 4,00,374	₹ 1,54,275	₹ 1,10,230	₹ 1,19,625	₹ 79,750	₹ 9,295	₹ 1,32,830	₹ 3,750	
Avg. Inventory	₹ 4,54,302	₹ 26,445	₹ 58,377	₹ 28,463	₹ 32,485	₹ 29,700	₹ 22,825	₹ 2,568	₹ 17,205	₹ 263	

Figure-7: COGS / Final Expenditure Analysis

Finally, the cumulative profit was calculated for the Pareto chart:

I. **Sort the profits of each SKU in descending order.**
$$(P1 >= P2 >= P3 >= \ldots >= Pn)$$

II. **Calculate the cumulative profit as go down the sorted list.**
$$(CPi = P1 + P2 + \ldots + Pi)$$

Product	% of Total Profit	Cumulative Profit %
DAP	72.56%	72.56%
Urea	13.16%	85.73%
Cotton Seed Katha BG-II	12.88%	98.61%
SSG SX-17 5kg	9.58%	108.19%
NPK	8.76%	116.95%
Menaka 71	4.85%	121.80%
Cotton Seed Nawab Gold	4.64%	126.44%
Cotton Seed S-004	4.44%	130.89%
Missile Chloropyriphos 1.5%D.P 100 Gm	0.84%	131.73%
Pandy CS ICHIBAN 700ML	-31.73%	100.00%

Figure-8: Profit Analysis of each SKU for Pareto Chart

2.3: Inventory Optimization:

After discussing with the owner, we got to know that inventory management was the primary concern. The owner mentioned that there was an excessive accumulation of inventory of products at the end of each month, which made it challenging to purchase new stock due to inflation and lower profits.

Inventory data was collected for every SKU on the first day of data collection (i.e., 01/04/2024). Subsequently, inventory data was calculated using sales, purchases, and initial inventory, as described by the following formula:

Ending Inventory = Initial Inventory + Purchases (Qty.) – Sales (Qty.)

Date	DAP	Urea	NPK	Cotton Seed Nawab Gold	Cotton Seed Katha BG-II	Cotton Seed 5-004	SSG SX-17 5kg	Menaka 71	Pandy CS ICHIBAN 700ML	Missile Chloropyriphos 1.5%D.P 100 Gm
01-04-2024	300	204	44	33	20	21	24	36	76	8
02-04-2024	299	186	40	32	17	17	22	34	72	82
03-04-2024	296	175	37	30	15	15	21	33	69	81
04-04-2024	289	170	33	29	14	14	19	31	66	80
05-04-2024	276	165	30	28	10	12	18	30	64	78
06-04-2024	257	159	29	26	8	11	17	29	62	75
07-04-2024	245	142	25	24	7	10	16	28	58	74
08-04-2024	240	117	23	21	5	9	14	26	57	73
09-04-2024	235	108	20	20	4	7	13	25	55	72
10-04-2024	220	76	14	19	3	6	12	24	53	71
11-04-2024	210	74	5	18	2	5	10	22	52	68
12-04-2024	182	68	3	76	60	43	8	20	48	66
13-04-2024	171	45	1	75	59	41	5	17	45	64
14-04-2024	148	38	96	74	58	38	4	16	44	62
15-04-2024	122	31	92	72	56	37	63	15	102	60
16-04-2024	121	19	86	70	54	36	62	14	100	59
17-04-2024	118	18	85	67	51	35	60	12	96	58
18-04-2024	111	14	81	66	50	33	59	11	93	56
19-04-2024	348	280	74	64	49	32	55	10	91	53
20-04-2024	329	272	71	63	48	28	53	9	89	52
21-04-2024	317	257	65	61	46	26	52	7	88	50
22-04-2024	312	252	63	60	45	25	50	6	85	49
23-04-2024	307	243	61	59	44	23	49	2	84	48
24-04-2024	300	231	59	57	42	22	48	75	81	47
25-04-2024	289	210	54	55	40	21	47	74	78	46

Figure-9: Data of Inventory

Using inventory data, we calculate the total daily inventory, average daily inventory, and average inventory for each SKU using the following formulas:

Total Daily Inventory = $\sum$ (Inventory of SKU on any given day)

Average Daily Inventory = Total Daily Inventory / Number of SKUs

Average (for each SKU) = Sum of values for each SKU / Number of days

TOTAL DAILY INVENTORY	AVERAGE DAILY INVENTORY	Date
766	77	01-04-2024
801	80	02-04-2024
772	77	03-04-2024
745	75	04-04-2024
711	71	05-04-2024
673	67	06-04-2024
629	63	07-04-2024
585	59	08-04-2024
559	56	09-04-2024
498	50	10-04-2024
466	47	11-04-2024
574	57	12-04-2024
523	52	13-04-2024
578	58	14-04-2024
650	65	15-04-2024
621	62	16-04-2024
600	60	17-04-2024
574	57	18-04-2024
1056	106	19-04-2024
1014	101	20-04-2024
969	97	21-04-2024
947	95	22-04-2024

Figure-10: Total & Average Inventory Analysis on any given day

2.4: Analysis of Fixed Costs:

- For Fixed Cost Analysis, cost of furniture, laptop/printer, Wifi charges paid, Electricity bill paid, salary paid to employees, CCTV Cameras were calculated for a period of 3 months (according to data) along with depreciation rates defined in AS.

- According to the data, total fixed cost (Net Book Value) was calculated using the following formula:

Net Book Value = Original Cost of Asset – Depreciation Expense

Depreciation Expense = (Original Cost of Asset * Depreciation Rate)/100

Total Fixed Cost = $\sum$ (Net Book Value)

FIXED COST ANALYSIS				
	Cost	Rate of Depreciation	Depreciation	Net Book Value
Furniture	₹ 50,000	15%	₹ 7,500	₹ 42,500
Laptop/ Printer	₹ 50,000	40%	₹ 20,000	₹ 30,000
CCTV Cameras	₹ 30,000	40%	₹ 12,000	₹ 18,000
Wifi charges Paid	₹ 1,800	100%	₹ 1,800	₹ 0
Electricity Bill Paid	₹ 1,800	100%	₹ 1,800	₹ 0
Salary Paid	₹ 10,000	100%	₹ 10,000	₹ 0
Total Fixed Cost	₹ 1,43,600	Total Normalized Fixed Cost	₹ 53,100	₹ 90,500

Figure-11: Normalized Fixed Cost Analysis

3) Results and Findings:

3.1: Analysis (Sales and Purchases):

- The following graph shows the revenue generated on any given day over a period of 3 months from April to June.
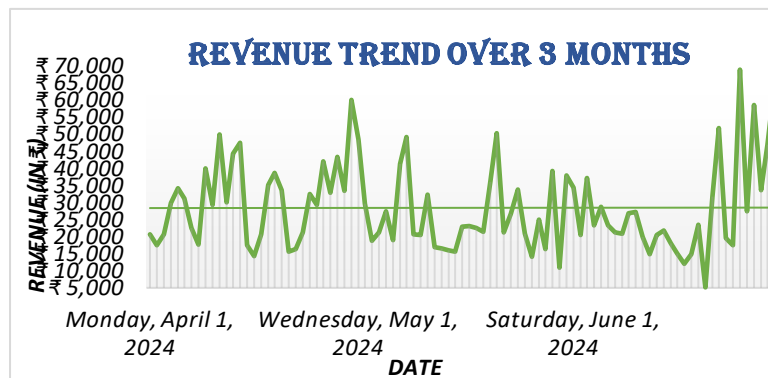
Figure-12: Revenue Trend over 3 months

- The revenue fluctuates significantly from day to day, indicating unpredictable variations in sales pattern. This could be due to various factors such as demand cycles, promotional activities, or stock availability.

- The analysis indicates that the Average Daily Revenue stands at ₹28,399.86, with a standard deviation of ₹12,781.28. This high standard deviation indicates moderate

8

revenue fluctuation around the average.

- Maximum revenue generated: ₹68,822.00

- Minimum revenue generated: ₹5,136.50
  Range = ₹63,685.50 which can be find by using formula,
  Range = Max - Min

⬥ The following graph is to identify the most significant contributors to the Total revenue.
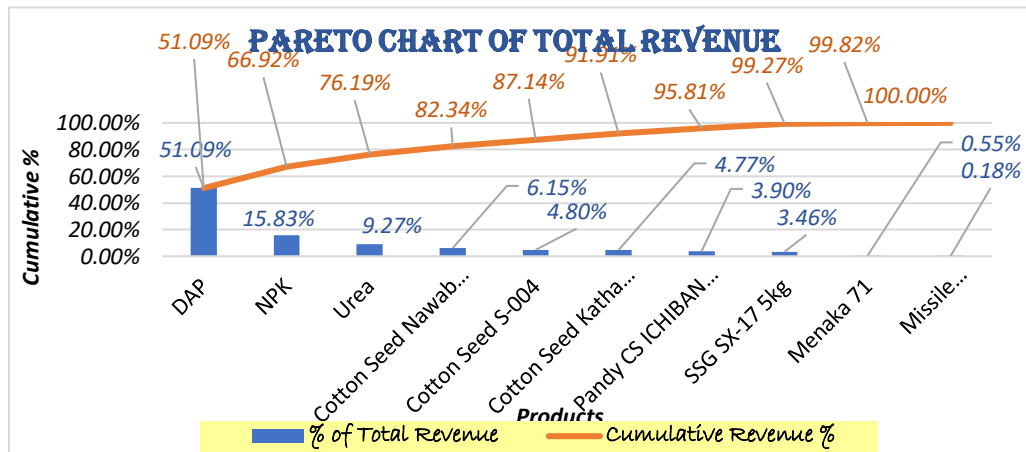
Figure-13: Pareto Chart of Total Revenue

- Based on above analysis, it is evident that "DAP", "NPK", "Urea" is the primary revenue generating SKUs for the shop. These three SKUs contribute approximately 80% to the total revenue generated by the shop, as depicted in the Pareto chart.

⬥ The following graph illustrates the proportion of each SKU's contribution to the total revenue generated, as well as to the total sales volume of the shop over a period of 3 months from April to June.
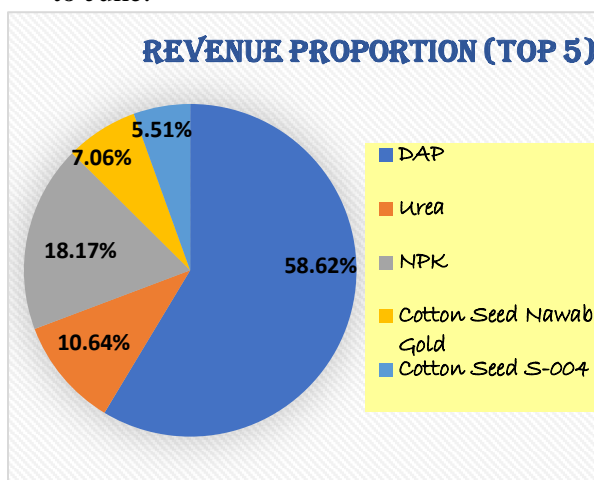
Figure-14: Revenue Proportion
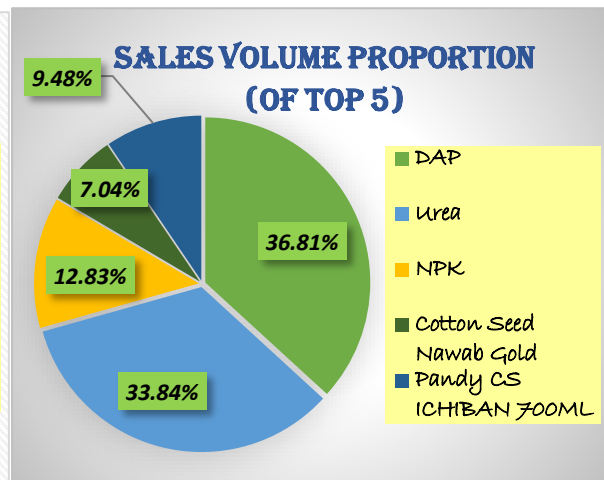
Figure-15: Sales Volume Proportion

- "DAP": Dominates both revenue and volume, indicating well-priced product with

9

strong demand wide market acceptance.

- "Urea": High revenue and volume, plays critical role in maintaining market share through high sales, even though its profitability per unit may be lower.

- "NPK": High revenue and volume indicate a popular, premium product.

- "Cotton Seed Nawab Gold": Moderate contributions suggest this is lower demand product with limited market reach.

After Sales, to analyze the fluctuation or trend in purchase price, the below graph is plotted for the purchase price of each SKU over the period of 3 months.
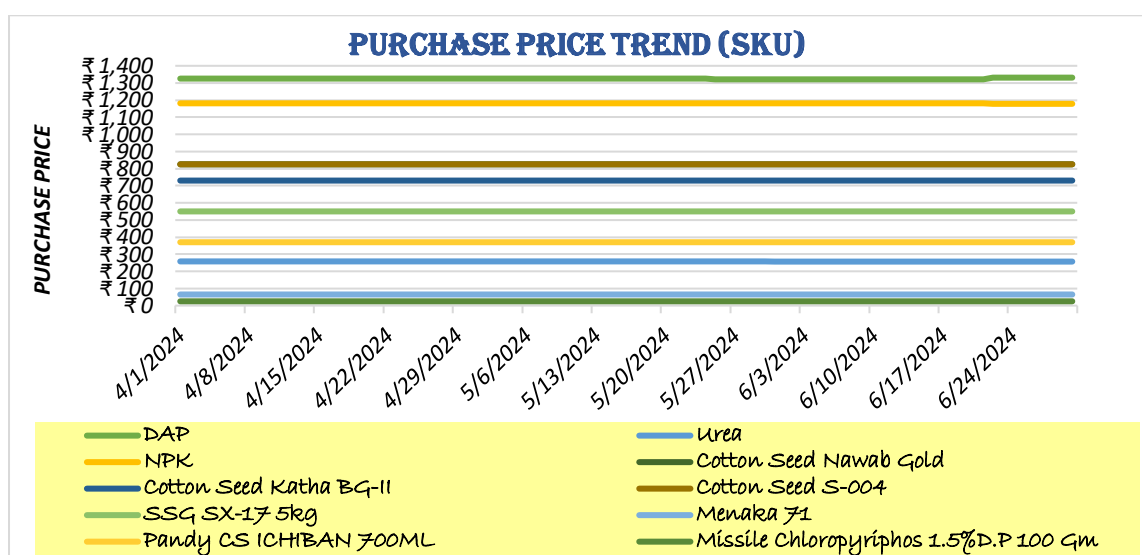
Figure-16: Purchase Price Trend

- The prices seem highly consistent without sharp increases or decreases for any of the products. High value products like seeds generally maintain higher prices than fertilizers and chemicals, as expected.

- Most products appear to have relatively stable prices over time period. There are no major fluctuations visible in graph. There is distinct product grouping based on price. Cotton Seeds are consistently more expensive than fertilizers like DAP and NPK.

- Products such as DAP, NPK, Urea and Missile Chlorpyriphos 15%DP 100Gm seem to maintain consistent purchase prices throughout the entire period. Products such as SSG SX-17 5KG and Pandy CS ICHIBAN 700ML are in lower price range indicating that these products have the least fluctuation and remain affordable.

3.2: Profit/Loss Analysis:

+ The following graph describes the average profit for each item in the shop.
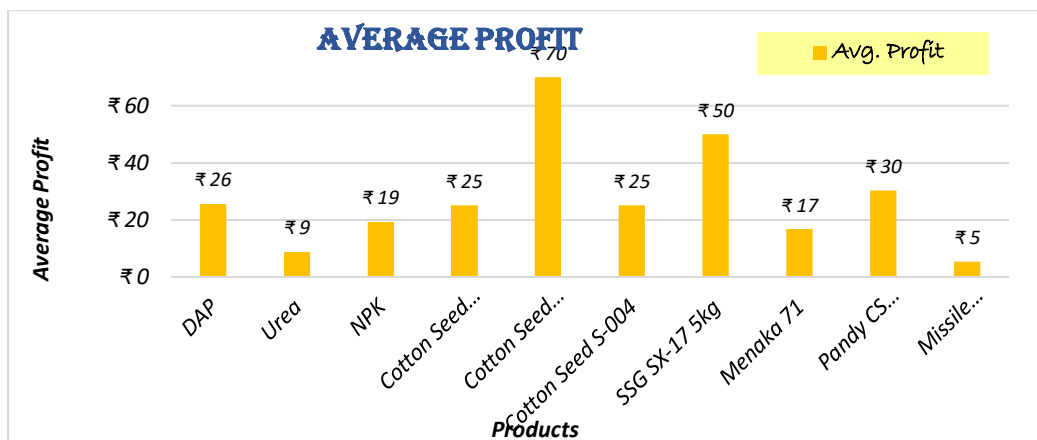
Figure-17: Average Profit

- From the above graph, it can be observed that Cotton Seed Katha BG-II, SSG SX-17 5KG are the items with the highest profit-generating capacity. Their high profit margin indicate that they are already significant contributors to the shop's total revenue. Therefore, to increase net profit, it may be beneficial to focus on optimizing their sales strategies.

+ To further analyze, the following graph illustrates each SKU's contribution to profit compared to its contribution to revenue:
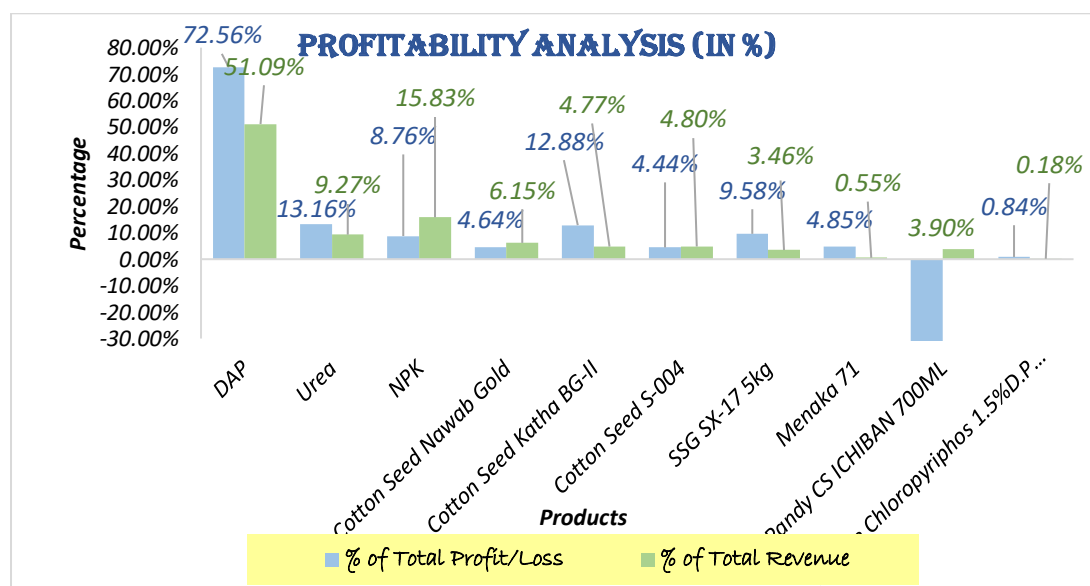
Figure-18: Profitability Analysis

- The above analysis shows that DAP, NPK, Urea are key products for generating both revenue and profit.

🍂 To validate our aforementioned findings, the following Pareto chart for total profit is plotted:
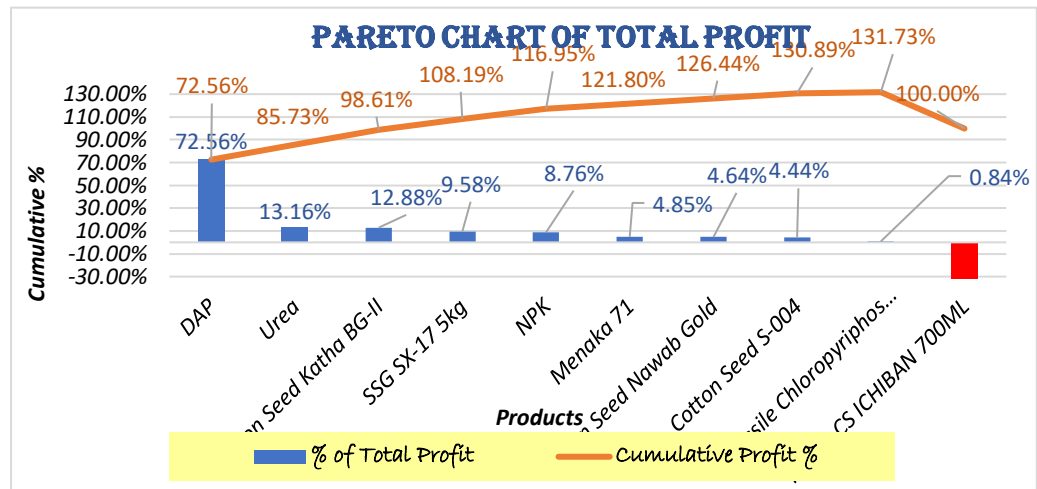
Figure 19: Pareto Chart of Total Profit

- From the above graph, we can see that DAP to be the SKU contributing to the 80% of shop total profit.

🍂 Furthermore, below graph is generated to analyze the Gross Profit/Loss over the period of 3 months:
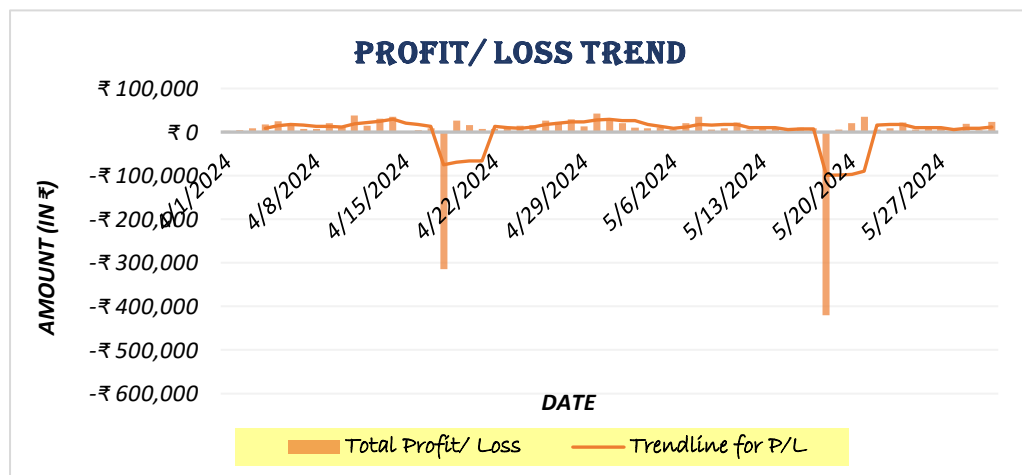
Figure-20: Profit/ Loss Trend

- There are significant dips into losses around the end of several months (e.g., around 22-Apr'24, 20-May'24), indicating periodic large expenses decline.
- The dip timings could be related to regular monthly expenses such as salaries, large inventory re-stocking purchases.
- The trendline for P/L shows fluctuations with recurring

dips, indicates a cyclic expenses pattern impacting profitability.

3.3: <u>Inventory Analysis</u>:

➕ To start with inventory analysis, below graph represents the average stock in units for every product.
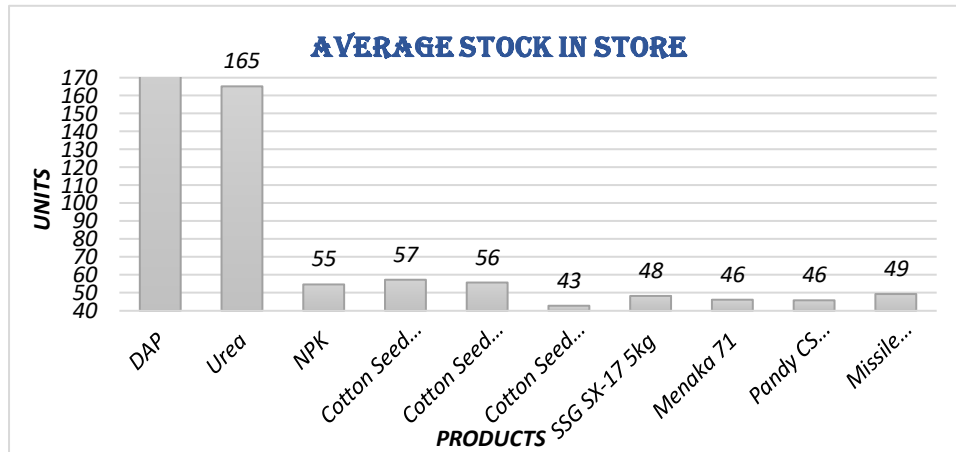
Figure-21: Average Stock in Store
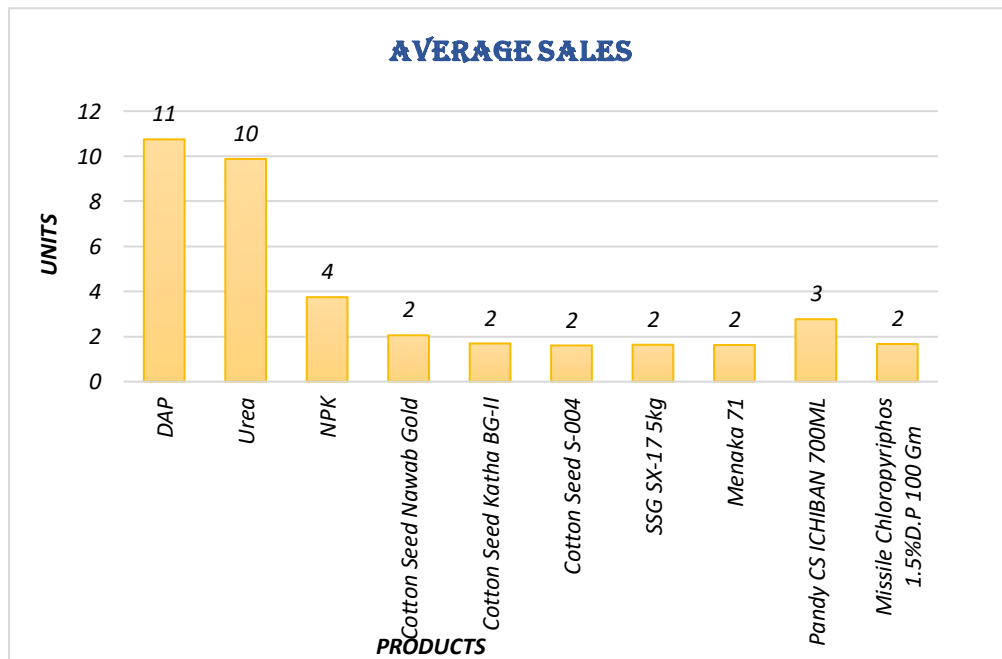
Figure-22: Average Sales

- After comparing the above avg. stock graph with the avg. sales of each item, it was found that items such as DAP, NPK and Urea have stock levels significantly higher than their average sales, indicating potential overstocking.

13

⊕ As per owner claim of inefficient inventory management, the below graph is plotted to analyze inventory fluctuation over the period of 3 months:
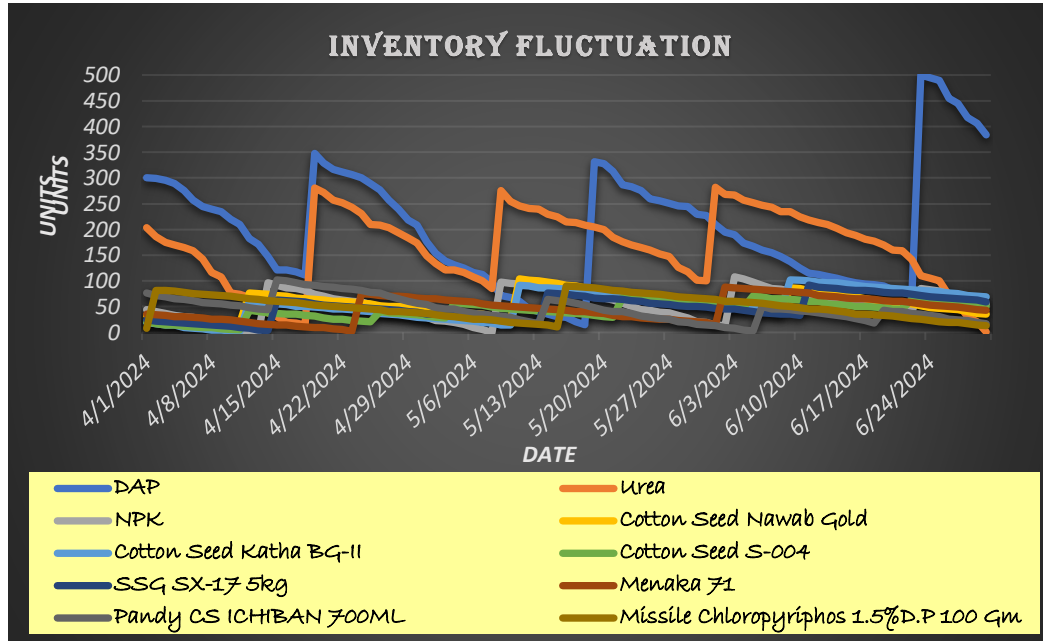
Figure-23: Inventory Fluctuation

• The high fluctuations across all SKUs indicate poor inventory planning. Despite restocking in response to demand, the persistent pattern of fluctuations suggests inefficiencies in inventory management.

• While restocking in response to low inventory levels is a good practice, the consistent high variance indicates that this approach may not be effectively managed. This could lead to increased holding costs and potential stockouts or overstocking.

3.4: Profit/Loss Insights:

FIXED COST ANALYSIS				
	Cost	Rate of Depreciation	Depreciation	Net Book Value
Furniture	₹ 50,000	15%	₹ 7,500	₹ 42,500
Laptop/ Printer	₹ 50,000	40%	₹ 20,000	₹ 30,000
CCTV Cameras	₹ 30,000	40%	₹ 12,000	₹ 18,000
Wifi charges Paid	₹ 1,800	100%	₹ 1,800	₹ 0
Electricity Bill Paid	₹ 1,800	100%	₹ 1,800	₹ 0
Salary Paid	₹ 10,000	100%	₹ 10,000	₹ 0
Total Fixed Cost	₹ 1,43,600	Total Normalized Fixed Cost	₹ 53,100	₹ 90,500

Figure-24: Fixed Cost Analysis

To further analyze the net profit, we first calculate the fixed costs using the data provided

14

by the owner.

- The above table provides us with Fixed cost analysis along with depreciation rate
- Items in above table can be majorly divided into two parts: Fixed Assets and Monthly Expenses.

From the above table, following calculations can be made:

- Total Fixed Cost: ₹1,43,600

- Total Normalized Fixed Cost: ₹53,100, which can be used to calculate "Net Profit" by using formula:
  Net Profit = **Gross Profit – Total Normalized Fixed Cost**

- Net Profit: ₹47,612

Further, the below graph is plotted to analyze Fixed Cost proportion:
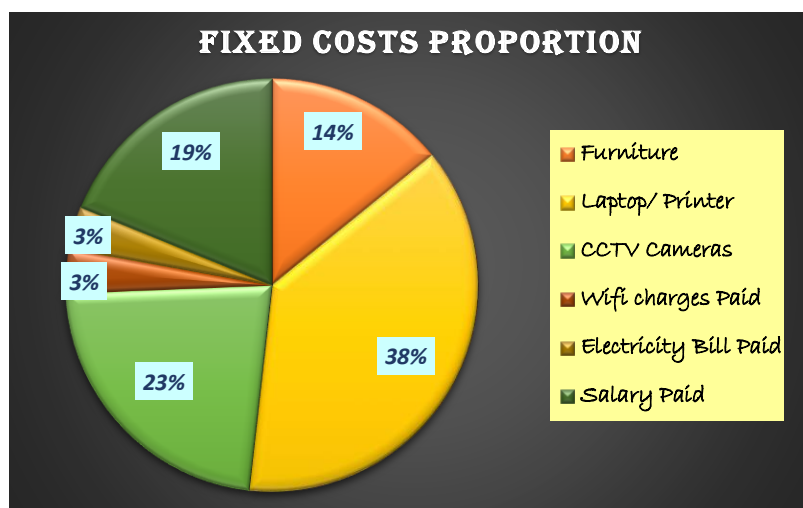
Figure 25: Fixed Cost Proportion

- From the above graph, it's evident that Laptop/Printer, CCTV Cameras are the main contributors to the fixed costs. However, these expenses are essential for the shop's operation, there may not be much possibility for reduction of it.

4) Interpretation of Results and Recommendations:

4.1: Recommendation-1: Increase Sales of High-Profit Items

➢ Based on the analysis, it is evident that product such as Cotton Seed Katha BG-II and SSG SX-17 5KG have significantly higher average profit and profit margin compared to other items. The shop owner can take advantage of this by increasing

15

the sales of these items, resulting in higher profits and improve business performance.

- ➢ <u>Steps to Increase Sales of High-Profit Margin Items</u>:

- • <u>Strategic Planning</u>:

  - o Review the pricing strategy to ensure it is competitive yet profitable.

- • <u>Promotion and Advertising</u>:

  - o Develop targeted advertising campaigns to highlight the benefits and quality of these products.

- • Make use of digital Marketing for more profits.

- • <u>Incentivize Bulk Purchases</u>:

  - o Offer promotions or discounts for bulk purchases to encourage larger orders from customers.

4.2: <u>Recommendation-2: Optimize Inventory Levels</u>

- ➢ In line with the first recommendation, it is important to address items such as DAP, NPK, Urea significantly higher than their average sales, indicating potential overstocking. To optimize inventory and increase sales, implement the following strategies:

- • <u>Optimize Product Placement</u>:

  - o Ensure these items are prominently displayed and easily accessible to customers.

- • <u>Cross-Promotion</u>:

  - o Cross-promote these items with other popular or high-margin products to increase visibility and encourage additional sales.

4.3: <u>Recommendation-3: Adjust Inventory Re-order Level</u>

- ➢ The shop owner made poor decision in purchasing certain products, resulting in

significant overstocking. To avoid such situations and optimize inventory management, the following recommendations can be implemented:

- Time-based Restocking:
  - Restock inventory at fixed intervals to avoid last-minute purchasing decisions.

- Implement Minimum and Maximum Stock Levels:
  - Define minimum and maximum stock levels for each SKU to ensure optimal inventory levels. This helps in maintaining optimal inventory levels and preventing overstocking.

- Timing Restock with High Sales Periods:
  - Restock inventory slightly earlier than high sales periods to meet demand effectively. It helps to ensure sufficient inventory availability without excessive load or unnecessary risks.

- Demand Forecasting:
  - Use historical sales data and market trends to forecast demand accurately. This helps in making informed purchasing decisions and avoiding overstocking.

4.4: Recommendation-4: Optimize Financial Health

➢ The analysis reveals that the shop's current ratio is 3.45, which indicates a relatively good liquidity position. However, there is always room for improvement to ensure long-term financial stability. The current ratio can be further improved by increasing current assets through enhanced sales strategies. (based on formula given below)

Current Ratio = Current Assets / Current Liabilities

Current Assets = Cash & cash equivalents + Debtors + Inventory

Current Liabilities = Creditors + Bank Overdraft + O/S Expense

Current Assets = ₹8,10,156

17

Current Liabilities = *₹2,35,000*

Current Ratio = *3.45*

➢ Considering the constraints of the scenario, where the majority of profits are allocated to essential expenses for running the business, reducing liabilities might not be a feasible option. Therefore, the focus should be on increasing sales to boost current assets.

4.5: Recommendation-5: Additional Measures

4.5.1: Implement Effective Pricing Strategies

➢ To further boost profitability, consider implementing effective pricing strategies tailored to the business. Explore the following approaches:

- Bundle Pricing: Create bundled offers where related products are sold together at a discounted price. This strategy encourages customers to purchase multiple products and it increases the overall value of each transaction.

- Promotional Pricing: Introduce periodic promotions, such as volume discounts, seasonal offers, or loyalty rewards, to incentivize purchases and attract customers. These promotional pricing tactics can drive sales during peak seasons and cultivate customer loyalty.

4.5.2: Enhance Shop Display and Visual Merchandising

➢ Enhance the visual appeal of the shop and improve merchandising strategies to attract more customers:

- Strategic Product Placement: Showcasing high-demand products prominently near the entrance or in high-traffic areas can effectively capture customers' attention at Pradeep Maan Trading Company. By utilizing eye-catching signage and creative displays. This strategic placement not only draws customers in but also encourages impulse purchases, ultimately boosting overall sales and enhancing customer awareness of these essential products.

- Interactive Demonstrations: Organize interactive demonstrations or workshops to educate customers about the effectiveness and usage of various products. This hands-on approach allows customers to experience the products firsthand and increases

18

their confidence in making purchases.

- ➢ By implementing the aforementioned recommendations, the shop owner can enhance profitability, optimize inventory levels, and further improve the current ratio. This will lead to a more financially stable business and improved overall performance.

5) Conclusion:

In conclusion, the analysis of Pradeep Maan Trading Company's sales and purchase data has provided valuable insights and actionable recommendations to enhance profitability and optimize inventory management.

The analysis identified certain items, such as Cotton Seed Katha BG-II, SSG SX-17 5KG which have **high- profit margins** and represent significant opportunities for increasing sales. By implementing targeted marketing strategies, including seasonal promotions and partnerships with other businesses, the shop can capitalize on these high-profit items. Offering bulk sales and discounts can further incentivize customers to purchase larger quantities, thereby boosting sales volume and overall profitability.

Optimizing inventory management has proven to be a critical area for improvement at Pradeep Maan Trading Company. By restocking inventory earlier during high-sales periods and enhancing planning and forecasting, the shop can ensure adequate stock availability while avoiding excess buildup or shortages. This proactive strategy will not only maintain customer satisfaction but also reduce carrying costs and improve operational efficiency. Furthermore, the analysis underscores the significance of making informed purchase decisions to align inventory with market demand, ultimately contributing to the business's overall profitability and sustainability.

Monitoring price fluctuations and market trends will enable the shop owner to avoid purchasing items at inflated prices, minimizing losses and increasing profitability.

The analysis of fixed costs identified areas of expenditure that require attention. Continuously evaluating and optimizing these costs will improve cost efficiency and maximize profit margins.

Additionally, enhancing store displays and implementing effective pricing strategies can significantly boost customer attraction and sales. Strategic product placement, interactive demonstrations, and promotional pricing foster a positive shopping experience

and encourage additional purchases, ultimately leading to higher revenue and profitability. By adopting these recommendations, Pradeep Maan Trading Company can enhance its financial performance and strengthen its market position. It is essential for the shop owner to continually monitor and assess the effectiveness of these strategies to ensure ongoing success.

6) Important Link:

Excel sheet- Link1-Click here to open