Navigating the Challenges of Operating a Ready-to-wear Clothing Store

A End-term submission report for the BDM capstone project

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TABLE OF CONTENTS

1) Executive Summary and Title :

Divya Fashions is a medium-sized ready-made clothing store, founded by Mr. Narendra Kumar in 2017. It is located near the clock tower center, Mainroad, sattenapalli, Guntur dst.,522403,Andhra Pradesh. They are currently facing challenges with profit and inventory management, which is indirectly affecting their net profit and sales. The proposed capstone project aims to address these challenges by understanding inventory flow, improving sales, Managing profits and developing effective marketing strategies to increase net profit and sales for the store.

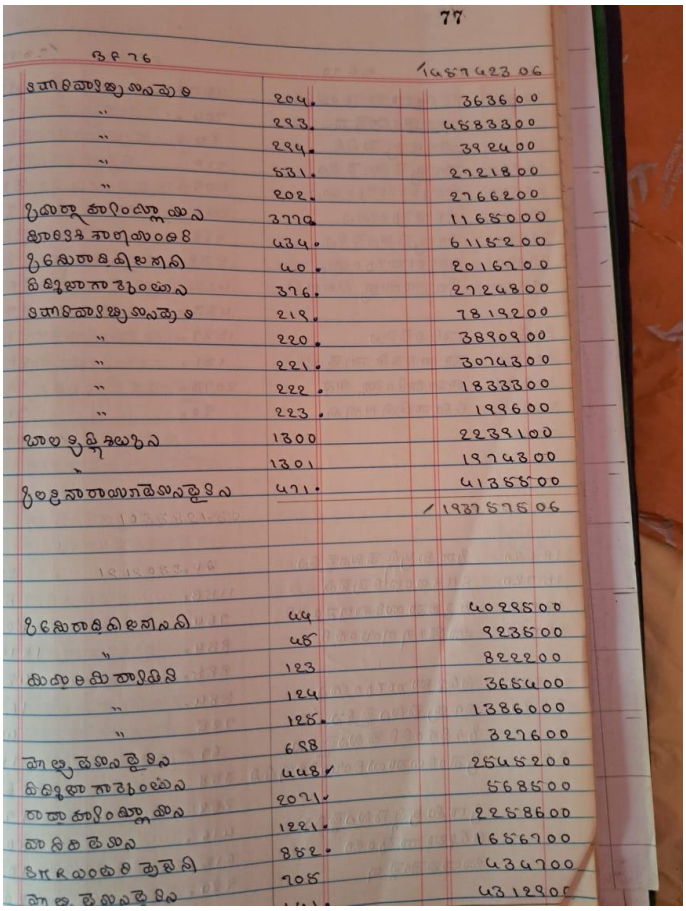
Getting into it, Our main objective for the capstone project to boost net profit by optimizing inventory management and determining the best choices of purchases to minimize the inventory that has not been selling and has been taking up space on the shelves for an extended period, causing overcrowding. To accomplish this, we conduct a detailed analysis of the inventory data, including the variations in purchase prices throughout the 6 months period. This thorough examination will help us identify patterns and make informed decisions to achieve our goals.In order to maximize our net profit, we are thoroughly analyzing the sales and revenue data. By using bar charts and line charts, we can identify patterns and trends in our sales. This will help us determine which SKUs are generating more profit, allowing us to focus on those and avoid the ones that are less profitable. It's crucial to identify any gaps or areas for improvement in our current strategy to ensure the success of the project. As part of the project, I will provide recommendations based on the analysis conducted.

To effectively analyze the sales data, inventory data, revenue data and make well-informed business decisions, I'll be using various spreadsheet tools like pivot tables, bar graphs, line graphs and pie-charts. These tools provide valuable visual representations of the sales data, helping us identify trends, patterns, and important insights. By leveraging these spreadsheet tools to examine the performance of different products, we can formulate recommendations, marketing strategies, and data-driven decisions to optimize revenue generation.

1) Detailed Explanation of Analysis Process/Method :

2.1) Analyzing Sales and Expenditure data :

As mentioned in the proposal and midterm submission, the sales and expenditure data is collected in an unstructured format. The data collected is entered into the spreadsheet for analyzing which is the duration of the 6 month period.



This raw data is entered into a spreadsheet and done various tasks such as basic data pre-processing tasks such as imputing missing values, data cleaning, correcting typing errors, and sorting the data. This prepares the data for analysis.

1. The processed sales data have 17 columns , where 8 columns represent the sales data quantity and another 8 columns represent the selling price of SKUs for each month, another column represents the date(via months).

			SALES				
men's wear	kids wear	under garments	women western	jeans wear	sports wear	lehangas	chudidhars
8	13	38	22	12	9	7	10
30	32	15	27	28	14	22	30
10	20	12	18	12	11	30	19
5	14	10	7	2	10	10	14
9	6	18	5	5	8	8	7
18	13	13	8	4	0	4	3

			SELLING PRICE						
Date(Monthly based)	men's wear	kids wear	under garments(both M& F)	women western	Jeans wear	sports wear	lehangas	chudidhars	
Nov 2022	1,350	1,200	400	1,200	999	650	2,500	900	9,199
Dec 2022	1,500	2,400	450	1,245	1,620	1,100	3,500	1,200	13,015
Jan 2023	1,000	2,300	475	999	1,250	1,199	2,500	1,100	10,823
Feb 2023	950	2,000	400	999	1,150	1,200	2,000	1,000	9,699
Mar 2023	950	1,500	400	999	1,200	1,100	1,750	1,120	9,019
Apr 2023	1,200	2,150	400	1,100	1,100	780	1,600	1,100	9,430

2. Using the above sales quantities and selling price, we can calculate the **total revenue** of each month by using the following formula:

$$Revenue = Selling\ price * Sales$$

$$Total\ Revenue = \sum_{i=0} R_i$$

where R_i = Revenue made at i^{th} day

1. Similarly, purchase data is collected into a spreadsheet and analyzed to get the total expenditure of each month.

				PURCHASE				
	men's wear	kids wear	under garments(	women western	Jeans wear	sports wear	lehangas	chudidhars
7,849	10	15	60	30	40	20	30	35
11,129	40	27	10	35	10	15	20	25
9,200	15	30	11	0	10	9	10	20
8,555	0	0	9	7	6	8	5	15
8,170	9	10	10	15	0	4	4	0
8,220	5	9	14	8	5	0	3	0

			PURCHASE PRICE					
Date(Monthly based)	men's wear	kids wear	under garments(both M& F)	women western	Jeans wear	sports wear	lehangas	chudidhars
Nov 2022	1,200	1,000	350	1,000	850	599	2,000	850
Dec 2022	1,400	2,200	350	980	1,400	999	2,700	1,100
Jan 2023	900	2,110	400	800	1,100	1,000	1,990	900
Feb 2023	850	1,800	375	800	1,100	1,120	1,560	950
Mar 2023	900	1,400	300	850	1,000	1,000	1,600	1,120
Apr 2023	900	2,000	300	920	900	650	1,450	1,100

- So, as above done for the sales data, similarly we can calculate the total expenditure for each month by the following formula:

$$Expenditure = Purchase\ Quantity * Purchase\ Price$$

$$Total\ Expenditure = \sum_{i=0} E_i$$

where E_i = Expenditure at i^{th} day

2.2) Optimizing the inventory of the store:

- So, after chatting with the owner, I found out that their main concern is inventory management. They mentioned that at the end of the month, they have a lot of stock left and their profits are low. This makes it difficult for them to buy new stock due to inflation.
- So, to calculate the Inventory, we use sales and purchased data by the following formula:

$$Inventory_i = Initial\ Inventory_i - Sales_i + Purchase_i$$

C5 =C4-SALES!L4+PURCHASE!L4

	A	B	C	D	E	F	G	H	I
1				INVENTORY					
2	Date(Monthly based)	men's wear	kids wear	under garments(	women western	Jeans wear	sports wear	lehangas	chudidhars
3	Nov 2022	250	170	97	219	120	98	0	7
4	Dec 2022	252	172	119	227	148	109	23	32
5	Jan 2023	262	167	114	235	130	110	21	27
6	Feb 2023	267	177	113	217	128	108	1	28
7	Mar 2023	262	163	112	217	132	106	0	29
8	Apr 2023	262	167	104	227	127	102	0	22
9		1,555	1,016	659	1,342	785	633	45	145
10	AVG	259	169	110	224	131	106	8	24

- So, using this result, average inventory is calculated for each month and each SKU.

TOTAL DAILY INVENTORY	AVERAGE MONTHLY INVENTORY
961	120.125
1,082	135.25
1,066	133.25
1,039	129.875
1,021	127.625
1,011	126.375
AVERAGE INVENTORY =	128.75
AVG. INVENTORY(in RS.)	142491.3802

2.3) Analyzing the profit of the store:

- So, to calculate the profit/loss for each month , and for each SKU, we can use sales and purchased data to calculate the profit/loss by the following formula:

$$Profit = Sales - Purchase$$
$$Profit_{SKU}\% = (profit_{SKU} / T.profit)\%$$

SKU	P/L(₹)	TOTAL PROFIT %	REVENUE (SALES) (₹)	TOTAL REVENUE %	PROFIT MARGIN%
Men's wear	5,410	4.658692638	100,700	11.33865999	84.81481481
kids wear	32,603	28.07529687	203,350	22.89688688	84.83405483
under garments	211	0.1816976242	44,050	4.959960005	86.30363036
women western	4,021	3.462588373	98,785	11.12303403	86.37012127
jeans wear	10,783	9.285523608	85,048	9.57626966	85.53991893
sports wear	4,354	3.749343391	55,239	6.219823626	85.16061259
lehangas	57,450	49.47169909	209,900	23.63440647	86.40192539
chudidhars	1,295	1.115158404	91,040	10.25095934	84.37175493
	116,127		888,112		

	Men's wear	kids wear	under garments	women western	jeans wear	sports wear	lehangas	chudidhars
AVG PURCHASE PRICE	1025	1751.666667	345.8333333	891.6666667	1058.333333	894.6666667	1883.333333	1003.333333
AVG SELLING PRICE	6,750	11,550	2,525	6,542	7,319	6,029	13,850	6,420
AVG PROFIT	5,725	9,798	2,179	5,650	6,261	5,134	11,967	5,417

$$Purchase = T.Purchase + I.Inventory - E.Inventory$$

Where I.Inventory = Initial inventory ,
E.Inventory = End inventory ,
T.Purchase = Total purchase

fx =(INVENTORY!B3*K3)

	P	Q	R	S	T	U	V	W	X	Y	Z	AA
								EXPENDITURE				
ıar	sports wear	lehangas	chudidhars	men's wear	kids wear	under garments(	women western	Jeans wear	sports wear	lehangas	chudidhars	TOTAL EXPENDITURE
40	20	30	35	12000	15000	21000	30000	34000	11980	60000	29750	213730
10	15	20	25	56000	59400	3500	34300	14000	14985	54000	27500	263685
10	9	10	20	13500	63300	4400	0	11000	9000	19900	18000	139100
6	8	5	15	0	0	3375	5600	6600	8960	7800	14250	46585
0	4	4	0	8100	14000	3000	12750	0	4000	6400	0	48250
5	0	3	0	4500	18000	4200	7360	4500	0	4350	0	42910
71	56	72	95	94100	169700	39475	90010	70100	48925	152450	89500	754260
			Initial Inventory(₹.)	2500	2550	5820	6570	4800	1960	0	245	
			End Inventory(₹.)	1310	1503	1456	1816	635	0	0	0	
			Final expenditure(₹.)	95290	170747	43839	94764	74265	50885	152450	89745	771985

2.4) Fixed Cost Analysis:

So, based on the data provided, the fixed costs for transportation, Air conditioners,rent, furniture, electricity, EMI,carry bags, salaries and loans were calculated for a period of 6 months. The depreciation rate was also considered, approximately based on the area.

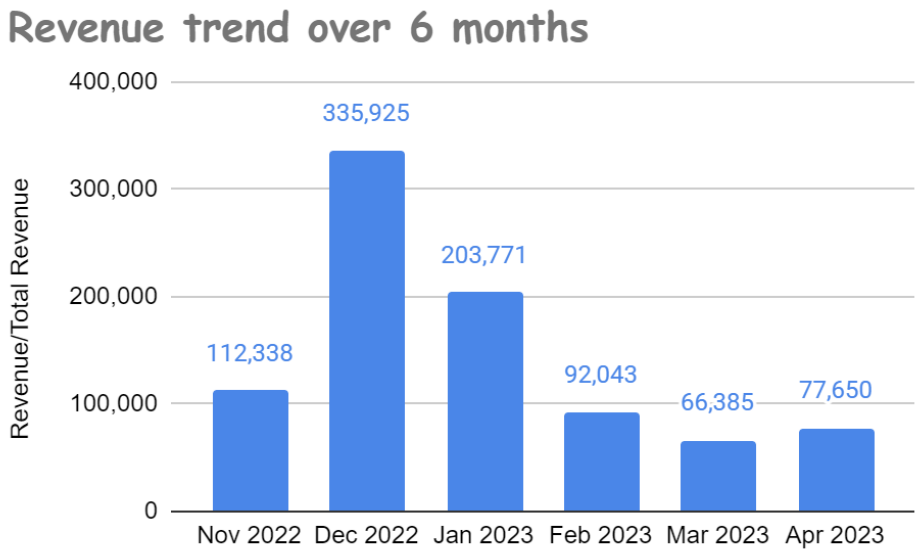
=SUM(D3:D11)

A	B	C	D
FIXED COST ANALYSIS			
	COST	RATE OF DEPRICIATION	DEPRICIATION
FURNITURE	300,000	1%	3000
AIR CONDITIONERS	35,000	15%	5250
ELECTRICITY(MONTH)	1200	40%	480
RENT	15,000	70%	10500
EMI	12,000	75%	9000
WATER CONTAINERS/FANS	11500	1%	115
CARRY BAGS	2500	100%	2500
DIESEL/TRANSPORT	4000	100%	4000
SALARY FOR WORKERS	40000	100%	40000
TOTAL FIXED COST	421,200		74845

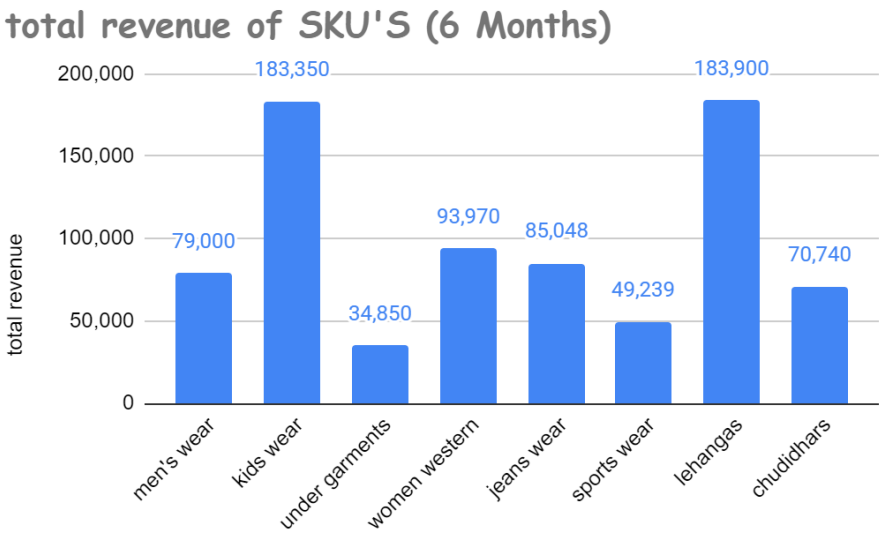
3) Results and findings:

3.1) Volume Analysis:

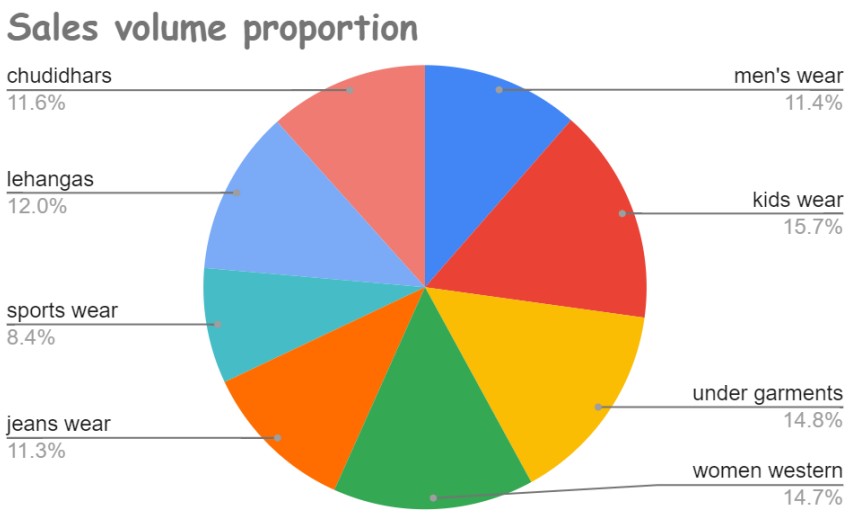
I've created a graph that shows the sales revenue generated over a period of six months.

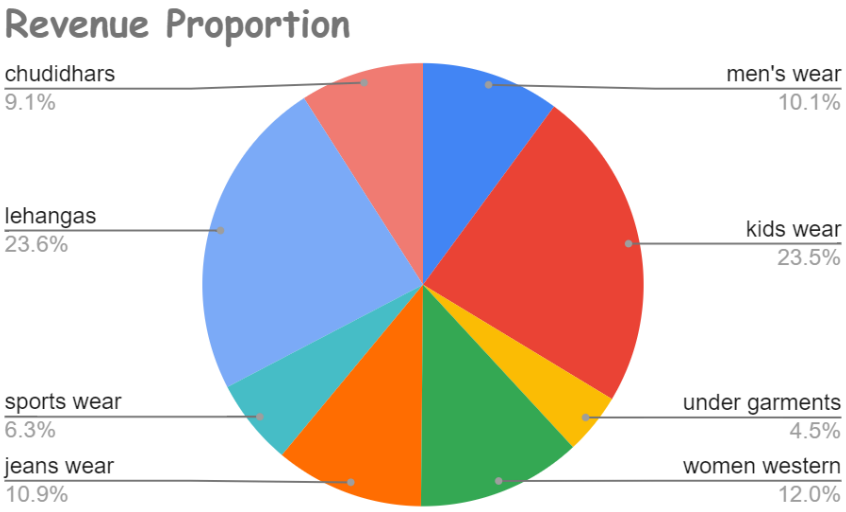


1. The above analysis shows that the month of *December(2022)* has the highest revenue followed by january.
2. Festive seasons like Christmas and pongal make those months have the highest revenue. While it can be seen that the shop is struggling to make revenue in non-festival months.
3. Festive seasons like Christmas and Pongal bring in the highest revenue for those months. However, it is evident that the shop is facing challenges in generating revenue during non-festival months. This highlights the importance of implementing strategies to boost sales and attract customers during these slower periods. By analyzing the sales data and price fluctuations, we can identify opportunities to increase revenue throughout the year and optimize inventory accordingly.
4. The above analysis shows that the **average monthly revenue stands at ₹148,019** with a **standard deviation ₹104344.91** which is high,indicating sales fluctuates greatly.



- Above analysis shows that kids wear and lehengas generates the highest revenue for the shop followed by women western wear as these contribute approx 60% of the total earnings made by the store.

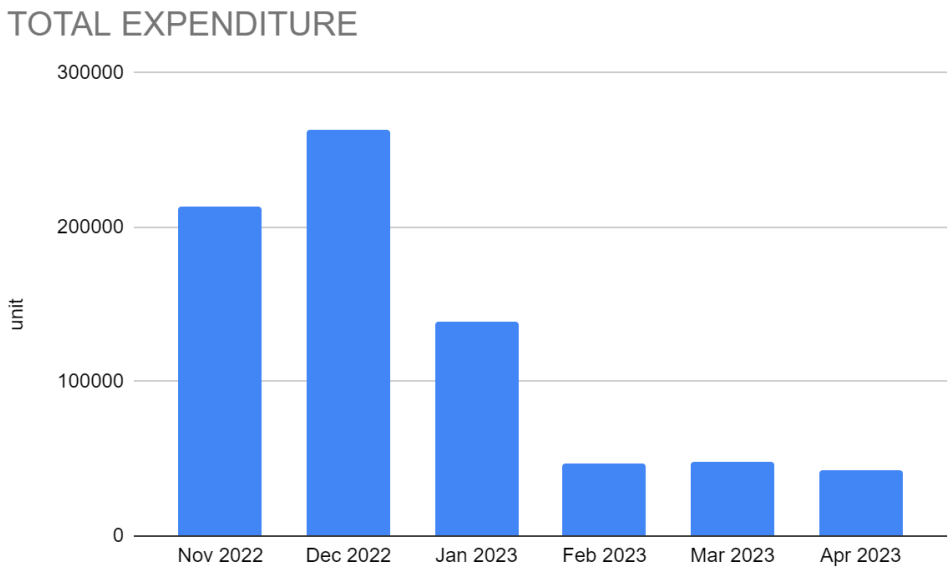




- From the above pie charts comparison, the revenue proportion of lehengas and kids wear is high compared to the sales proportion indicates that our bar chart is valid.

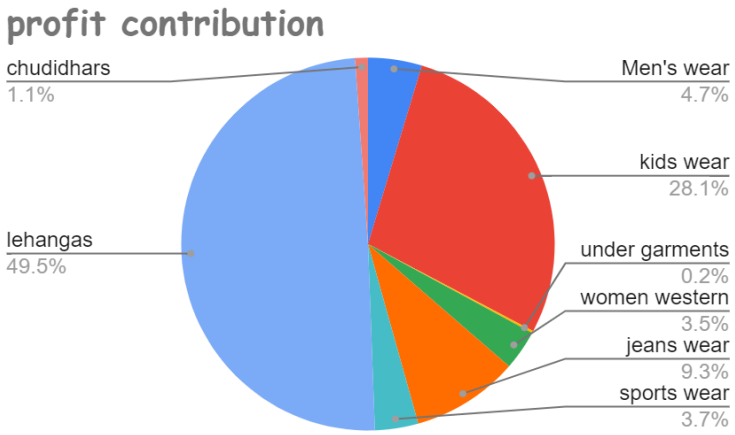
- Lehengas has a contribution of only 12% sales volume proportion , but in the revenue proportion as we observe, Lehengas is generating the highest proportion 23.6% indicating that lehengas generates more revenue with a low volume respectively.

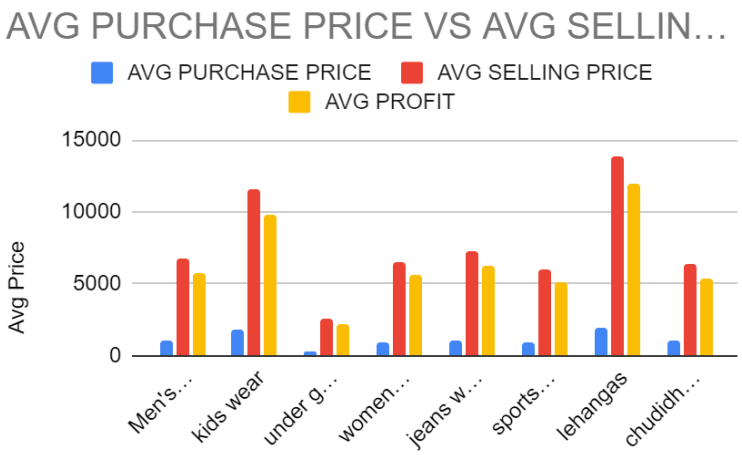
Average Purchase trends:



- Looking at the chart, we can observe that the total expenditure in December is higher. Interestingly, December also generates more revenue. This suggests that there might be a higher amount of dead stock for the upcoming months. On the other hand, February has lower expenditure but is also the third lowest revenue-generating month among the six months. This indicates a higher chance of newly purchased stock becoming dead stock.

3.2) Profit/loss Analysis :



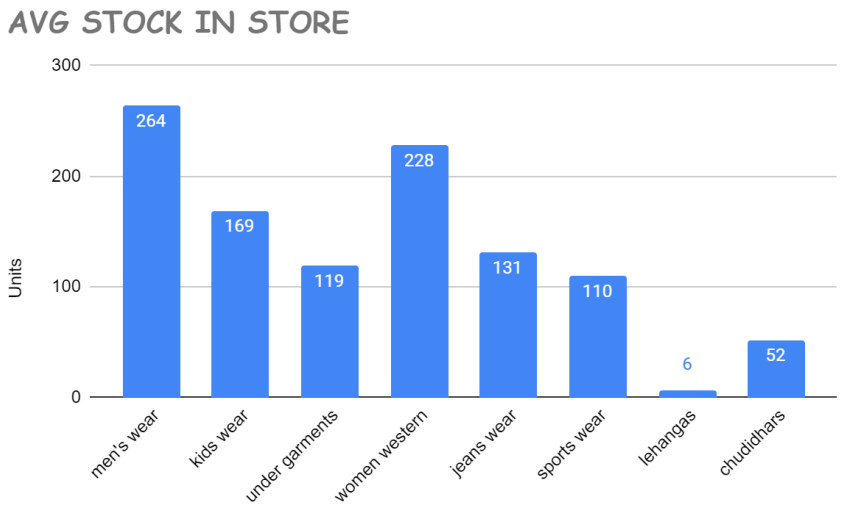


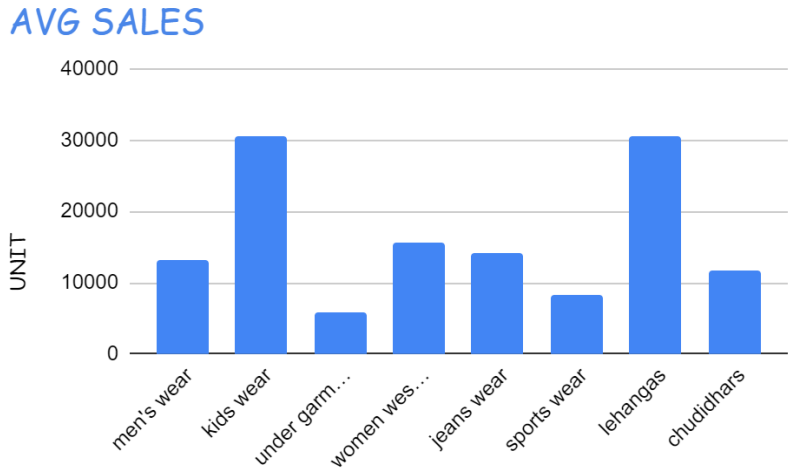
- From the above graphs, it's clear that lehengas and kids wear have the highest profit potential. When we compare this with the bar chart and profit volume proportion pie chart, it becomes evident that increasing the sales volume for kids wear and lehengas will directly contribute to boosting the shop's net profit.
- Upon closer observation, we can see that even though women western clothing generates more revenue, the profit analysis for women western is comparatively low when compared to other SKUs like jeans wear and sportswear. It's important to consider not just the revenue, but also the profitability of each SKU to make informed decisions for maximizing net profit.
- Although the purchase prices women western and jeans wear are low, they produce the most profit. So, it's clear that the owner should also improve the volume of jeanswear also.

3.3) Inventory Results:

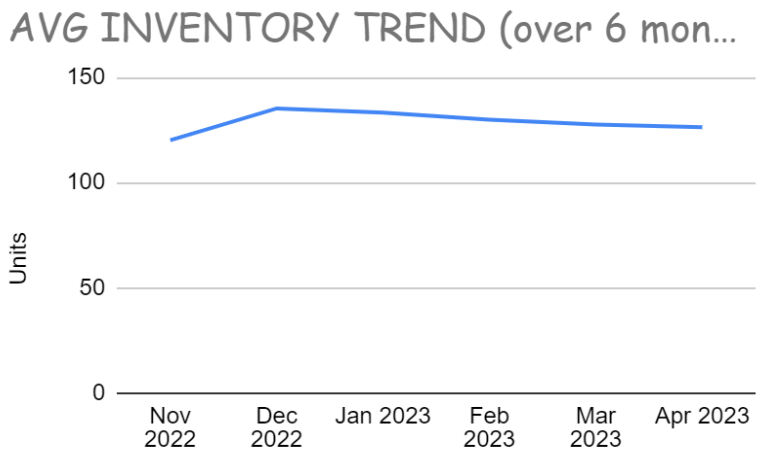
- Let's begin the inventory analysis. The graph provided represents the average stock in bags/cartons for each item. This information will help us understand the stock levels for each item and make informed decisions regarding inventory management.

- Comparing the below charts, the avg stock of lehengas are very low and the avg sales of them are very high.so no irregularities.





- It's evident from the data that Men's wear and Women's Western wear are the categories that experience the most deadstock. On top of that, the average sales for these categories are quite poor. To avoid dead stock, it would be wise for the owner to consider purchasing these products in lower quantities. This way, they can better manage their inventory and minimize the risk of having unsold items.



- When we look at the above graph, we can see that even though December generates the highest revenue, it also has the maximum inventory products left. This indicates poor planning and highlights the need for better inventory management strategies. By analyzing the trends in average inventory, we can identify the months where inventory levels are high and make adjustments to ensure more efficient planning and reduce the risk of excess inventory.

3.4) Final Insights:

To analyze the net profit, the first step is to calculate the fixed costs using the data provided by the owner. By determining the fixed costs, we can have a clearer understanding of the expenses that remain constant regardless of the level of sales. This information will be crucial in evaluating the profitability of the business and identifying areas for potential cost reduction or optimization.

12 | fx =SUM(D3:D11)

	A	B	C	D
1	FIXED COST ANALYSIS			
2		COST	RATE OF DEPRICIATION	DEPRICIATION
3	FURNITURE	300,000	1%	3000
4	AIR CONDITIONERS	35,000	15%	5250
5	ELECTRICITY(MONTH)	1200	40%	480
6	RENT	15,000	70%	10500
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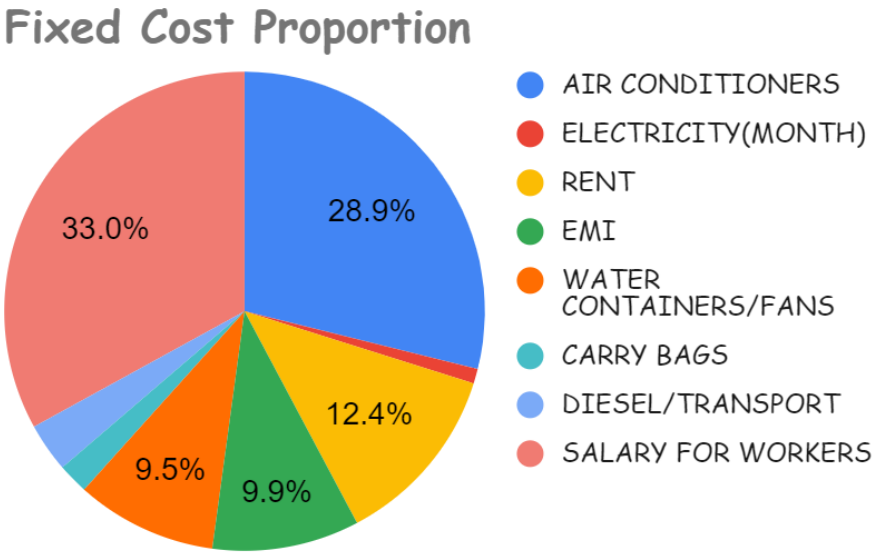
8	WATER CONTAINERS/FANS	11500	1%	115
9	CARRY BAGS	2500	100%	2500
10	DIESEL/TRANSPORT	4000	100%	4000
11	SALARY FOR WORKERS	40000	100%	40000
12	TOTAL FIXED COST	421,200		74845

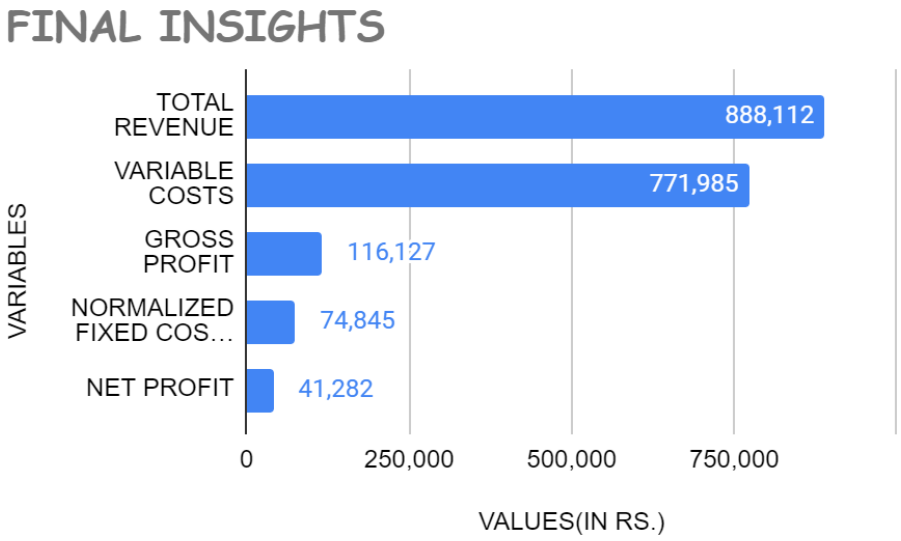
- The above table gives us a breakdown of the fixed cost analysis, including the depreciation rate approximated by the owner. This information will be valuable in assessing the overall cost structure of the business and understanding how depreciation impacts the net profit. By analyzing these figures, we can make informed decisions on how to optimize costs and improve the overall financial performance.
- In the fixed cost analysis, we can see that the loan and the cost of air conditioners were quite high, but their depreciation rate is very low. This suggests that the store has made a good investment in these areas. On the other hand, when compared to their depreciation rate, rent and salaries are the highest costs incurred by the owner. This information highlights the need to carefully manage these expenses and explore opportunities to optimize them in order to increase net profit.

- The above table is calculated as:
  - ☐ Total Fixed cost : 421,200 INR
  - ☐ Total Normalized Fixed cost : ₹74,845 .
    which can be used to calculate net profit using formula : (*Net profit = Gross Profit − Total Normalised Fixed Cost*)

- The net profit of **₹41,282** for 6 months is indeed the worst case scenario for a middle cloth wear showroom. When we calculate the net profit appropriately for 1 month, It is ₹7,000, which indicates loss ONLY. This is because the owner is spending a significant amount of money in lakhs to purchase the stock, and the net profit they are getting per month is less than ₹10,000, which is definitely not ideal. It's crucial for the owner to analyze the cost structure, optimize expenses, and explore strategies to increase revenue in order to improve the profitability of the showroom.



- The pie chart clearly shows that air conditioners and worker salaries are the major contributors to the fixed costs. Since these expenses are necessary for the shop's operations, it may be challenging to significantly reduce them. However, there are still opportunities to optimize these costs by exploring energy-efficient air conditioning options and evaluating staffing needs to ensure efficiency. While complete elimination may not be possible, finding ways to minimize these costs can help improve the overall profitability of the shop.



4) Interpretation of Results and Recommendation:

Recommendations :

- ## 4.1) Training of workers

Training the workers can definitely help in avoiding deadstock and improving sales. One way to incentivize the employees is by implementing a performance-based system, where those who sell more clothes can earn an extra salary per day. This not only motivates the workers to actively promote and sell the stock but also rewards their efforts. Additionally, offering discounts and buy one-get one offers on items that are not selling well can help to clear out the inventory and generate more sales. By implementing these strategies, the shop can effectively manage its stock and increase profitability.

So, to avoid deadstock, they can train the employees,(for example: who sell more clothes they will get an extra salary per day), discounts, and buy one-get one offers of the stock which is not in sales.

- ## 4.2) Increase the sales of high profit item (such as :- Lehengas and kids wear)

According to the analysis, it's clear that lehengas and kids wear have much higher profit margins compared to other items in the shop. To capitalize on this opportunity, the shop owner should focus on increasing the sales of these high-profit items. By promoting them more prominently, offering special deals or discounts, and highlighting their unique features, the shop can attract more customers and generate higher profits. This strategic approach will not only boost the shop's profitability but also enhance its overall assets.

- **4.3) Seasonal Promotions :**

Host seasonal sales and promotions to align with customer demand and encourage them to purchase items that may be sitting in dead stock. This can help clear out inventory and generate more sales.

Seasonal promotions can be a great strategy to increase the sales of high-profit margin items like kids wear. By hosting sales specifically targeted towards kids wear during seasons when there is increased demand, the shop can attract more customers and boost sales. Offering attractive discounts, bundle deals, or even organizing special events or contests related to kids wear can create excitement and encourage customers to make purchases. This targeted approach will not only help increase sales but also maximize the shop's profitability.

- **4.4) Bulk discounts and offers :**

As the highest dead stock in the store is women’s wear and men’s wear.Instead of selling individual quantities of women's wear and men's wear, the shop owner can offer enticing buy one get one free deals at discounted prices. This strategy not only attracts customers but also appeals to other business owners who may be interested in purchasing in bulk. By incentivizing customers to buy in larger quantities, the shop can increase sales volume and reduce dead inventory stock. It's a win-win situation that benefits both the customers and the shop owner.

- **4.5) Customer Feedback :**

Collect feedback from customers to understand their preferences and buying patterns. This information can help you make informed decisions about the inventory you stock and avoid purchasing items that are likely to become dead stock. Also, as mentioned in the problem statement 3, the store is facing a better reachout when compared to other stores in the town. This recommendation would be more helpful as they are trying to know the more demanded SKU’s. So, people prefer this store instead of any.

- **4.6) Inventory Management :**

  We can Implement an effective inventory management system that tracks sales, stock levels, and trends in real-time. This can help the owner identify slow-moving items early on and take proactive measures to sell them before they become dead stock.

5) interpretation /Conclusion :

Based on the analysis of Divya Fashions Store's sales , expenditure and inventory data, we have gained valuable insights and recommendations to enhance the shop's profitability and inventory management. The findings from the analysis have shed light on areas where improvements can be made to optimize inventory levels, reduce dead stock, and maximize profit. These recommendations will help Divya Fashions Store achieve better financial outcomes and ensure efficient management of their inventory.

The findings also emphasized the significance of optimizing inventory management. By replenishing inventory in advance during peak sales periods and enhancing planning and forecasting processes, the shop can ensure adequate stock availability without experiencing excessive inventory buildup or shortages. This approach will contribute to maintaining high levels of customer satisfaction, reducing carrying costs, and enhancing overall operational efficiency.

It's interesting to note that December generates the highest revenue but also has the maximum inventory left. This suggests that there might be room for improvement in planning and inventory management strategies. By analyzing the trends in average inventory, we can pinpoint the months with high inventory levels and make necessary adjustments to enhance planning efficiency and minimize the risk of excess inventory. This will ultimately contribute to better inventory management and improved profitability.

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