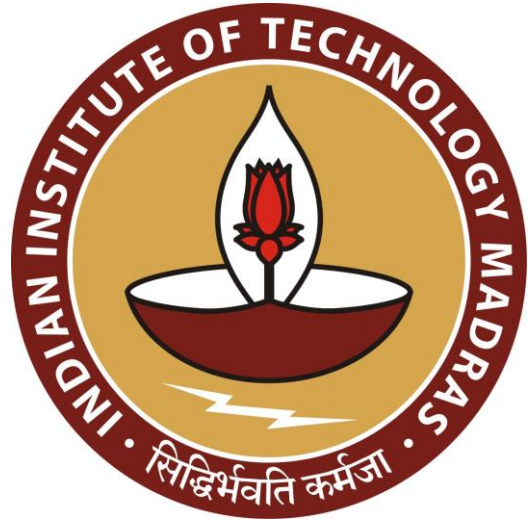


Business Data Management

End-Term Submission



Improving Performance at Apollo Pharmacy

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1) Executive Summary and Title:

Improving Performance at Apollo Pharmacy

This project focuses on improving the performance of Apollo Pharmacy by aiming challenges related to ineffective discount strategies and inventory management. These issues have led to reduced profitability, customer dissatisfaction and decreased footfalls at the store, particularly due to the strong competition from other pharmacies offering aggressive discounts.

The analysis includes a data-driven approach, employing descriptive statistics, visualizations, and advanced analytical techniques to unveil key trends and patterns. We will examine the competitive environment, analyse the relationship between discounts and sales, identify products with high demand or inventory issues, and predict future demand. By understanding the relationship between sales, discounts, and inventory turnover, Apollo Pharmacy can make informed decisions to improve its overall performance.

The aim is to develop a set of actionable recommendations for Apollo Pharmacy. These recommendations will focus on refining discount strategies to attract and retain customers while ensuring profitability. Alongside, we will provide insights into improving inventory management practices, so stock levels are optimized, avoiding both stockouts and excess inventory. By addressing these issues, Apollo Pharmacy can enhance operational efficiency, increase sales, and ultimately boost customer satisfaction. In a competitive pharmacy market, these improvements will help Apollo Pharmacy achieve sustainable growth and maintain a strong presence.

2) Detailed Explanation of Analysis Process/Method:

The analysis process for this project involved a systematic approach to data collection and analysis with the help of MS Excel, having focus on unleashing insights related to sales, discounts, and inventory management at Apollo Pharmacy. The following steps were undertaken:

2.1 Data Collection and Cleaning:

- Sales Data: All the sales data of 3 months for a few samples of products from different categories has been taken from Apollo Pharmacy. This data then was cleaned by removing unwanted columns such as Brand, Purchase Data & few others and then they were sorted date wise and category for each of them was mentioned using *VLOOKUP* function in MS Excel and then for each day products were sorted category wise.

Date	Product	Category	MRP	Quantity Sold	Discount	Selling Price
2024-04-01 00:00:00	Paracetamol	Pain Relief	10	15	15	8.5
2024-04-01 00:00:00	Ibuprofen	Pain Relief	15	13	15	12.75
2024-04-01 00:00:00	Aspirin	Pain Relief	12	12	15	10.2
2024-04-01 00:00:00	Diclofenac	Pain Relief	20	11	15	17
2024-04-01 00:00:00	Vicks VapoRub	Cold & Flu	30	13	12	26.4
2024-04-01 00:00:00	Benadryl	Cold & Flu	25	13	12	22
2024-04-01 00:00:00	Cetirizine	Cold & Flu	18	12	12	15.84
2024-04-01 00:00:00	Sinarest	Cold & Flu	22	13	12	19.36
2024-04-01 00:00:00	Vitamin C	Vitamins & Supplements	40	11	7	37.2
2024-04-01 00:00:00	Multivitamin	Vitamins & Supplements	50	11	7	46.5
2024-04-01 00:00:00	Calcium	Vitamins & Supplements	35	9	7	32.55
2024-04-01 00:00:00	Fish Oil	Vitamins & Supplements	60	12	7	55.8
2024-04-01 00:00:00	Band-Aid	First Aid	10	10	18	8.2
2024-04-01 00:00:00	Antiseptic Cream	First Aid	20	15	18	16.4
2024-04-01 00:00:00	Cotton Balls	First Aid	15	13	18	12.3
2024-04-01 00:00:00	Gauze	First Aid	12	14	18	9.84
2024-04-01 00:00:00	Antacids	Digestive Health	18	12	16	15.12
2024-04-01 00:00:00	Digene	Digestive Health	25	12	16	21
2024-04-01 00:00:00	Gelusil	Digestive Health	22	11	16	18.48
2024-04-01 00:00:00	Isabgol	Digestive Health	30	12	16	25.2

- Inventory Data: 3 months inventory data (for the same set of products as in Sales Data) has been taken from Apollo Pharmacy to study on its stock trends. This data was then sorted in a same ‘Product’ and ‘Category’ wise as in Sales Data for ease of further analysis. Data for Opening Stock, Quantity Received and Quantity Sold were already there but added a ‘Closing Stock’ column for ease.

Date	Product	Category	Opening Stock	Quantity Received	In Stock	Quantity Sold	Closing Stock
2024-04-01 00:00:00	Paracetamol	Pain Relief	54	20	74	15	59
2024-04-01 00:00:00	Ibuprofen	Pain Relief	64	20	84	13	71
2024-04-01 00:00:00	Aspirin	Pain Relief	56	20	76	12	64
2024-04-01 00:00:00	Diclofenac	Pain Relief	84	20	104	11	93
2024-04-01 00:00:00	Vicks VapoRub	Cold & Flu	56	15	71	13	58
2024-04-01 00:00:00	Benadryl	Cold & Flu	89	15	104	13	91
2024-04-01 00:00:00	Cetirizine	Cold & Flu	74	15	89	12	77
2024-04-01 00:00:00	Sinarest	Cold & Flu	71	15	86	13	73
2024-04-01 00:00:00	Vitamin C	Vitamins & Supplements	68	10	78	11	67
2024-04-01 00:00:00	Multivitamin	Vitamins & Supplements	52	10	62	11	51
2024-04-01 00:00:00	Calcium	Vitamins & Supplements	68	10	78	9	69
2024-04-01 00:00:00	Fish Oil	Vitamins & Supplements	89	10	99	12	87
2024-04-01 00:00:00	Band-Aid	First Aid	90	25	115	10	105
2024-04-01 00:00:00	Antiseptic Cream	First Aid	89	25	114	15	99
2024-04-01 00:00:00	Cotton Balls	First Aid	77	25	102	13	89
2024-04-01 00:00:00	Gauze	First Aid	95	25	120	14	106
2024-04-01 00:00:00	Antacids	Digestive Health	61	12	73	12	61
2024-04-01 00:00:00	Digene	Digestive Health	92	12	104	12	92
2024-04-01 00:00:00	Gelusil	Digestive Health	66	12	78	11	67
2024-04-01 00:00:00	Isabgol	Digestive Health	95	12	107	12	95

$$\text{Closing Stock} = (\text{Opening Stock} + \text{Quantity Received}) - \text{Quantity Sold}$$

- Competitor Data: For comparisons and to find out the real problem, Apollo's Competitors' data was also required. So, 2 weeks of data for the same set of products as in Apollo's data was taken. It was cleaned and sorted to mainly contain data like sales data, discounts they offer, and revenue.

Competitor Name	Product	Category	Discount Amount	Quantity Sold	Date
Competitor A	Sinarest	Cold & Flu	17	12	2024-04-03 00:00:00
Competitor B	Digene	Digestive Health	22	14	2024-04-11 00:00:00
Competitor A	Isabgol	Digestive Health	20	15	2024-04-01 00:00:00
Competitor C	Cetirizine	Cold & Flu	20	14	2024-04-14 00:00:00
Competitor A	Paracetamol	Pain Relief	17	15	2024-04-01 00:00:00
Competitor B	Ibuprofen	Pain Relief	20	15	2024-04-01 00:00:00
Competitor C	Aspirin	Pain Relief	24	14	2024-04-01 00:00:00
Competitor B	Diclofenac	Pain Relief	21	13	2024-04-01 00:00:00
Competitor A	Vicks VapoRub	Cold & Flu	16	15	2024-04-01 00:00:00
Competitor A	Benadryl	Cold & Flu	16	15	2024-04-01 00:00:00
Competitor A	Cetirizine	Cold & Flu	17	14	2024-04-01 00:00:00
Competitor A	Sinarest	Cold & Flu	15	15	2024-04-01 00:00:00
Competitor A	Vitamin C	Vitamins & Supplements	11	13	2024-04-01 00:00:00
Competitor C	Multivitamin	Vitamins & Supplements	15	13	2024-04-01 00:00:00
Competitor A	Calcium	Vitamins & Supplements	12	10	2024-04-01 00:00:00
Competitor C	Fish Oil	Vitamins & Supplements	15	14	2024-04-01 00:00:00
Competitor A	Band-Aid	First Aid	20	12	2024-04-01 00:00:00
Competitor C	Antiseptic Cream	First Aid	28	15	2024-04-01 00:00:00
Competitor A	Cotton Balls	First Aid	22	15	2024-04-01 00:00:00
Competitor A	Gauze	First Aid	23	16	2024-04-01 00:00:00
Competitor A	Antacids	Digestive Health	20	12	2024-04-01 00:00:00

In this part, different functions like *VLOOKUP*, some formulas and sorting were used to organize the data.

2.2 Data Analysis for Sales & Revenue:

- After the Data Cleanup and Organization of the Data, it was important for the further analysis part to know the day wise Revenue of the stores, for both Apollo and its competitors. To calculate Revenue the following formula was used:

$$\text{Revenue} = \text{Quantity Sold} * \text{Selling Price}$$

$$\text{Where, Selling Price} = \text{MRP} * (1 - \text{Discount \%}/100)$$

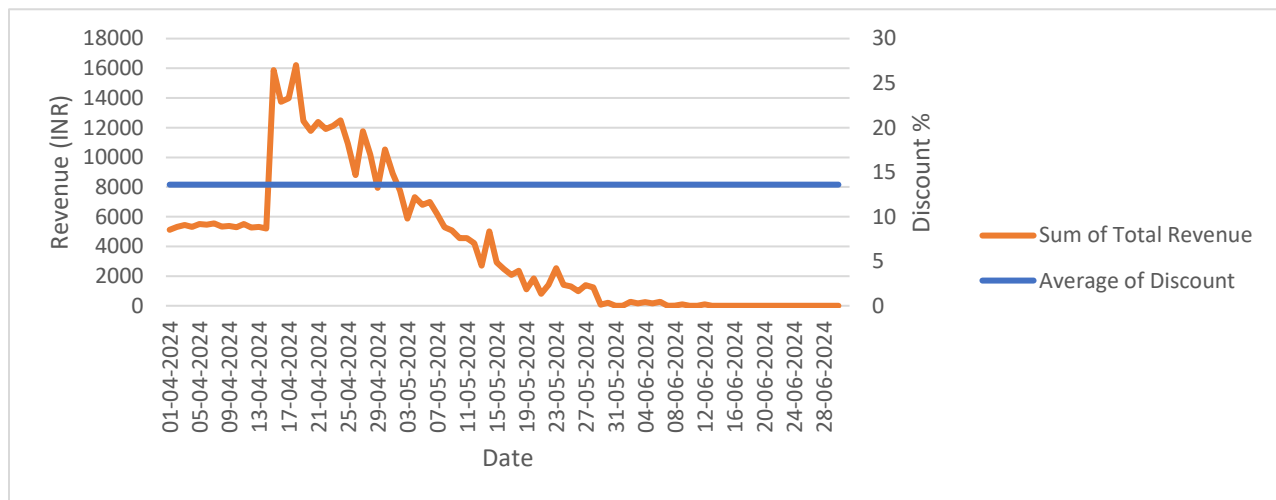
Product	Category	MRP	Quantity Sold	Discount	Selling Price	Total Revenue
Paracetamol	Pain Relief	10	15	15	8.5	127.5
Ibuprofen	Pain Relief	15	13	15	12.75	165.75
Aspirin	Pain Relief	12	12	15	10.2	122.4
Diclofenac	Pain Relief	20	11	15	17	187
Vicks VapoRub	Cold & Flu	30	13	12	26.4	343.2
Benadryl	Cold & Flu	25	13	12	22	286
Cetirizine	Cold & Flu	18	12	12	15.84	190.08
Sinarest	Cold & Flu	22	13	12	19.36	251.68
Vitamin C	Vitamins & Supplements	40	11	7	37.2	409.2
Multivitamin	Vitamins & Supplements	50	11	7	46.5	511.5
Calcium	Vitamins & Supplements	35	9	7	32.55	292.95
Fish Oil	Vitamins & Supplements	60	12	7	55.8	669.6
Band-Aid	First Aid	10	10	18	8.2	82
Antiseptic Cream	First Aid	20	15	18	16.4	246
Cotton Balls	First Aid	15	13	18	12.3	159.9
Gauze	First Aid	12	14	18	9.84	137.76
Antacids	Digestive Health	18	12	16	15.12	181.44
Digene	Digestive Health	25	12	16	21	252
Gelusil	Digestive Health	22	11	16	18.48	203.28
Isabgol	Digestive Health	30	12	16	25.2	302.4

Revenue for Apollo's Sales

Competitor Name	Product	Category	Discount Amount	Quantity Sold	Total Revenue
Competitor A	Sinarest	Cold & Flu	17	12	219
Competitor B	Digene	Digestive Health	22	14	273
Competitor A	Isabgol	Digestive Health	20	15	360
Competitor C	Cetirizine	Cold & Flu	20	14	201
Competitor A	Paracetamol	Pain Relief	17	15	125
Competitor B	Ibuprofen	Pain Relief	20	15	180
Competitor C	Aspirin	Pain Relief	24	14	128
Competitor B	Diclofenac	Pain Relief	21	13	205
Competitor A	Vicks VapoRub	Cold & Flu	16	15	378
Competitor A	Benadryl	Cold & Flu	16	15	315
Competitor A	Cetirizine	Cold & Flu	17	14	209
Competitor A	Sinarest	Cold & Flu	15	15	281
Competitor A	Vitamin C	Vitamins & Supplements	11	13	463
Competitor C	Multivitamin	Vitamins & Supplements	15	13	551
Competitor A	Calcium	Vitamins & Supplements	12	10	308
Competitor C	Fish Oil	Vitamins & Supplements	15	14	715
Competitor A	Band-Aid	First Aid	20	12	96
Competitor C	Antiseptic Cream	First Aid	28	15	216
Competitor A	Cotton Balls	First Aid	22	15	176
Competitor A	Gauze	First Aid	23	16	148
Competitor A	Antacids	Digestive Health	20	12	173

Revenue for Competitor A, B, C Sales

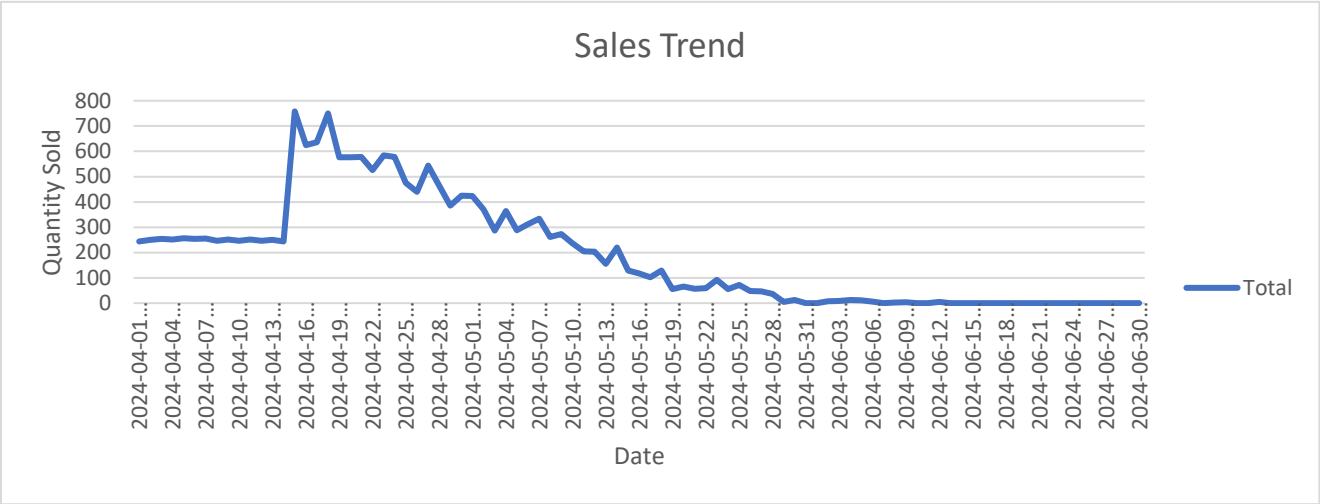
- While knowing the Revenue it was easy to find out the Revenue vs Discount trends which helped in analysing how the overall Revenue of the shop has been affected due to older discount strategies.



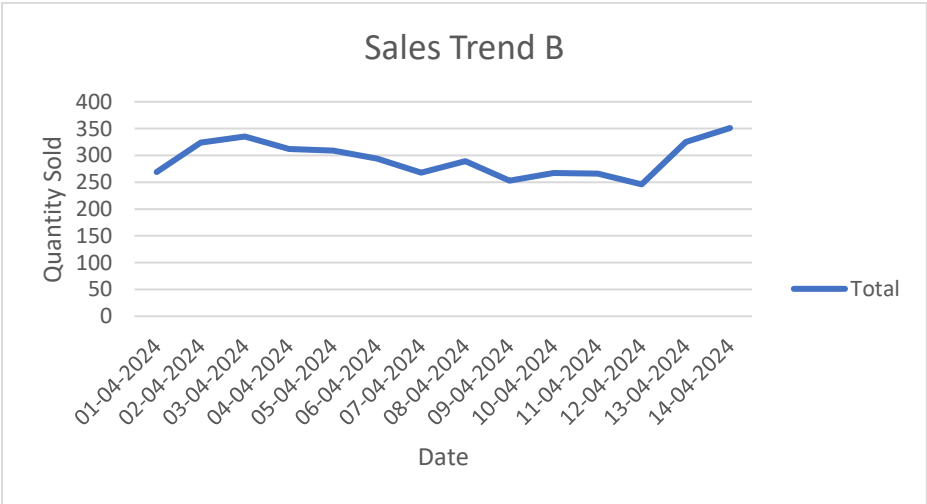
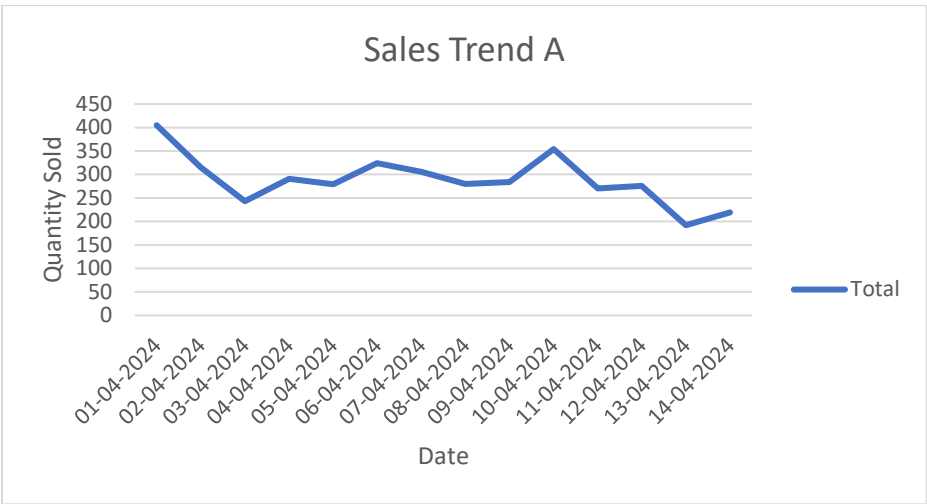
Apollo Revenue vs Discount

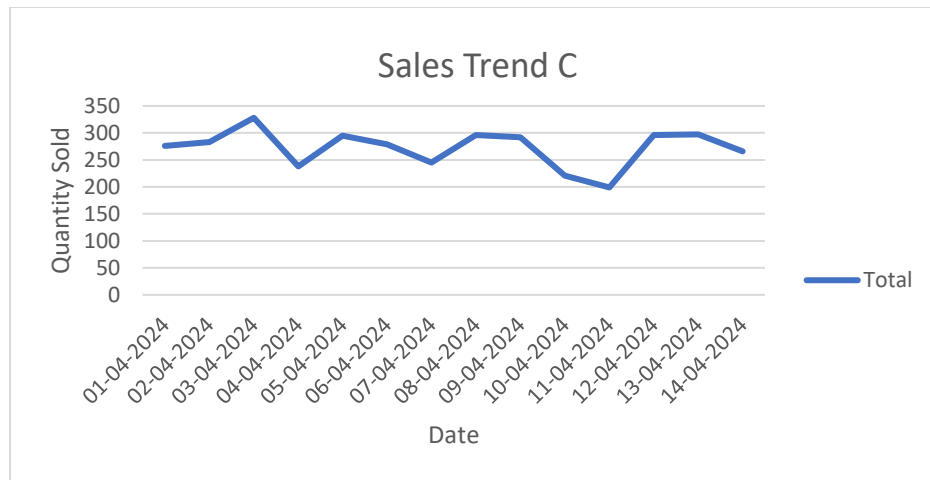
2.3 Analysis of Apollo's sales with its competitors:

- Firstly, I analysed the Sales Trend of each of the shops individually, which was done using the Line Chart. The Line Chart was made by creating a *Pivot Table* for each shop which included the Date and Quantity Sold, and this table was used to form a *Line Chart*.



Apollo's Sales Trend (3 months)





Competitor A, B & C's Sales Trend (14 days)

- Now, we can either directly combine these charts to see and compare the patterns of each of the Competitors with Apollo or what I did was, made a separate sheet which included combined 14 days Quantity Sold data (as only 14 days competitor data was available for comparison) of all the shops and then made a *Pivot Table* from it and then used it to form a *Line Chart*.

2.4 Optimizing Inventory:

- To analyse the Inventory Problems (which was mainly Stockouts as I got to know from the shop owner), I used the Closing Stocks column I made using the formula:

$$\text{Closing Stock} = (\text{Opening Stock} + \text{Quantity Received}) - \text{Quantity Sold}$$

				Sum of No. of Stockouts	Column Labels				
					Apr	May	Jun	Grand Total	
Date	Product	Closing Stock	No. of Stockouts	Row Labels					
2024-04-01 00:00:00	Paracetamol	59	0	Antacids	25	1	0	26	
2024-04-01 00:00:00	Ibuprofen	71	0	Antiseptic Cream	7	0	0	7	
2024-04-01 00:00:00	Aspirin	64	0	Aspirin	10	5	0	15	
2024-04-01 00:00:00	Diclofenac	93	0	Band-Aid	8	0	0	8	
2024-04-01 00:00:00	Vicks VapoRub	58	0	Benadryl	13	4	0	17	
2024-04-01 00:00:00	Benadryl	91	0	Calcium	15	0	0	15	
2024-04-01 00:00:00	Cetirizine	77	0	Cetirizine	14	1	0	15	
2024-04-01 00:00:00	Sinarest	73	0	Cotton Balls	6	1	0	7	
2024-04-01 00:00:00	Vitamin C	67	0	Diclofenac	12	3	0	15	
2024-04-01 00:00:00	Multivitamin	51	0	Digene	11	0	0	11	
2024-04-01 00:00:00	Calcium	69	0	Fish Oil	26	4	0	30	
2024-04-01 00:00:00	Fish Oil	87	0	Gauze	13	3	0	16	
2024-04-01 00:00:00	Band-Aid	105	0	Gelusil	13	0	0	13	
2024-04-01 00:00:00	Antiseptic Cream	99	0	Ibuprofen	11	2	0	13	
2024-04-01 00:00:00	Cotton Balls	89	0	Isabgol	24	6	0	30	
2024-04-01 00:00:00	Gauze	106	0	Multivitamin	27	3	0	30	
2024-04-01 00:00:00	Antacids	61	0	Paracetamol	12	0	0	12	
2024-04-01 00:00:00	Digene	92	0	Sinarest	15	5	0	20	
2024-04-01 00:00:00	Gelusil	67	0	Vicks VapoRub	14	4	0	18	
2024-04-01 00:00:00	Isabgol	95	0	Vitamin C	27	5	0	32	
				Grand Total	303	47	0	350	

- Added Date, Product & Closing Stock into another sheet and created one more column named 'No. of Stockouts' which was the count of Closing Stock at ≤ 0 .
- Made a *Pivot Table* from this sheet to show the Product-wise stockouts in each month, which was further used to create a *Clustered-Column Chart*, for the visualization of stockouts of each product.

2.5 Advanced Analysis:

- Product Sales vs respective Discounts:

To gain the knowledge of how a particular Product Category is affected by its respective discount, a Category-wise Sales vs Discount analysis was done using Bar Chart.

Firstly, a *Pivot Chart* was made by using the data of (1) *Product Category and their respective Discount* with their total Sales in 3 months. Then, a *Bar Chart* was made using it.

Date	(All)
Row Labels	Sum of Quantity Sold
Cold & Flu	3545
12	3545
Digestive Health	3337
16	3337
First Aid	3623
18	3623
Pain Relief	3581
15	3581
Vitamins & Supplements	3408
7	3408
Grand Total	17494

(1)

Row Labels	Sum of Quantity Sold
7	3408
Calcium	710
Fish Oil	847
Multivitamin	928
Vitamin C	923
12	3545
Benadryl	947
Cetirizine	833
Sinarest	852
Vicks VapoRub	913
15	3581
Aspirin	861
Diclofenac	991
Ibuprofen	841
Paracetamol	888
16	3337
Antacids	916
Digene	834
Gelusil	750
Isabgol	837
18	3623
Antiseptic Cream	859
Band-Aid	826
Cotton Balls	892
Gauze	1046

(2)

Also, (2) *Product-wise Sales vs Discount* analysis was done to get more insight on how much attention in discount is required to a particular product.

This *Clustered Column Chart* was also created by using a *Pivot Chart* which included Product Sales and their respective Discount data of 3 months.

- ‘Sales vs Discount’ comparison with Competitors:

A detailed Sales vs Discount analysis was done to compare Apollo with each of its competitors.

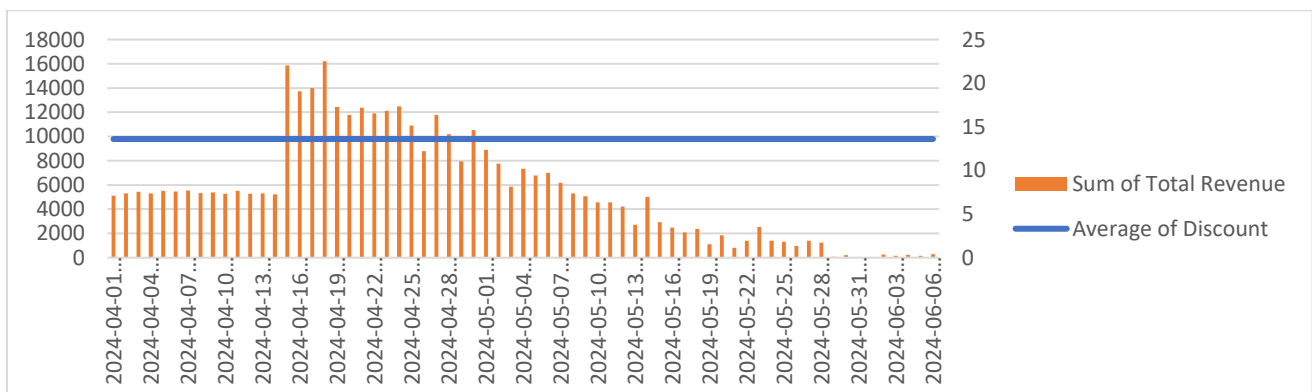
For this, a different sheet was made with the columns: Date, Category, Quantity Sold, Discount, & Seller. Further a *Pivot Table* was made using this set of data. Using this, a detailed analysis for the sales of different category products with respect to their discounts at different shops can be done.

Row Labels	Sum of Quantity Sold	Average of Discount
Cold & Flu	3981	14.01590476
A	1193	14.97989418
Apollo	598	12
B	1159	15.18979592
C	1031	14.25571429
Digestive Health	2530	18.069967
A	656	19.49078014
Apollo	560	16
B	687	18.56078431
C	627	18.57222222
First Aid	2666	20.20425939
A	656	21.26623377
Apollo	610	18
B	697	21.29251701
C	703	20.672
Pain Relief	2645	17.14335017
A	693	17.88715278
Apollo	611	15
B	680	17.7173913
C	661	18.35
Vitamins & Supplements	3077	9.209278711
A	840	9.908857143
Apollo	563	7
B	885	10.22959184
C	789	10

3) Results and Findings:

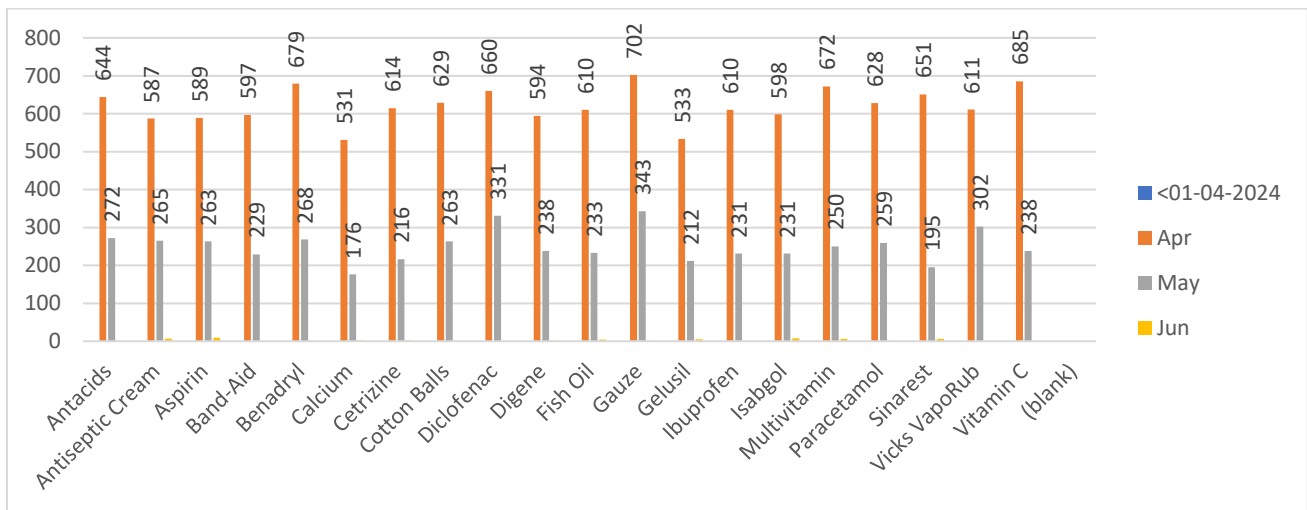
3.1 Sales vs Discounts

The below graph is generated for the Revenue (Sales) trend for the 3 months.

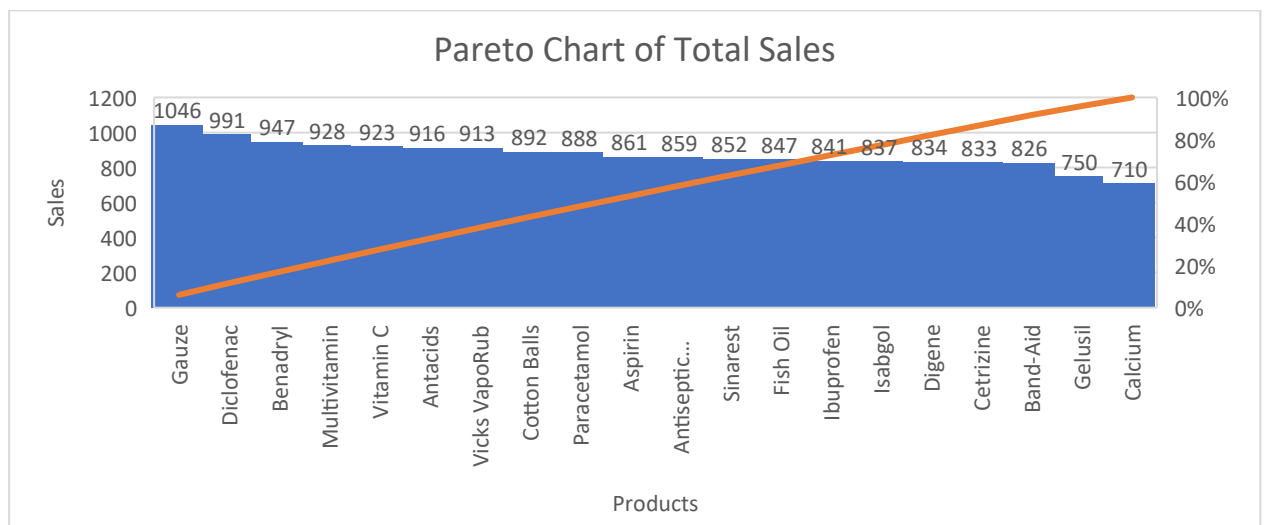


- The above analysis shows that until middle of the April the Revenue generated was decent and constant. Revenue suddenly increases from 15th of April for a few days (referring this as the Golden period) and then it gradually starts decreasing with time.
- While it can also be seen that after middle of May the business is struggling to generate revenue and further decreases until June. And there were no changes in Discount strategies.

To analyse revenue generated by each Product, the below graphs are generated:



1) Revenue generated by each Product in each of the 3 months

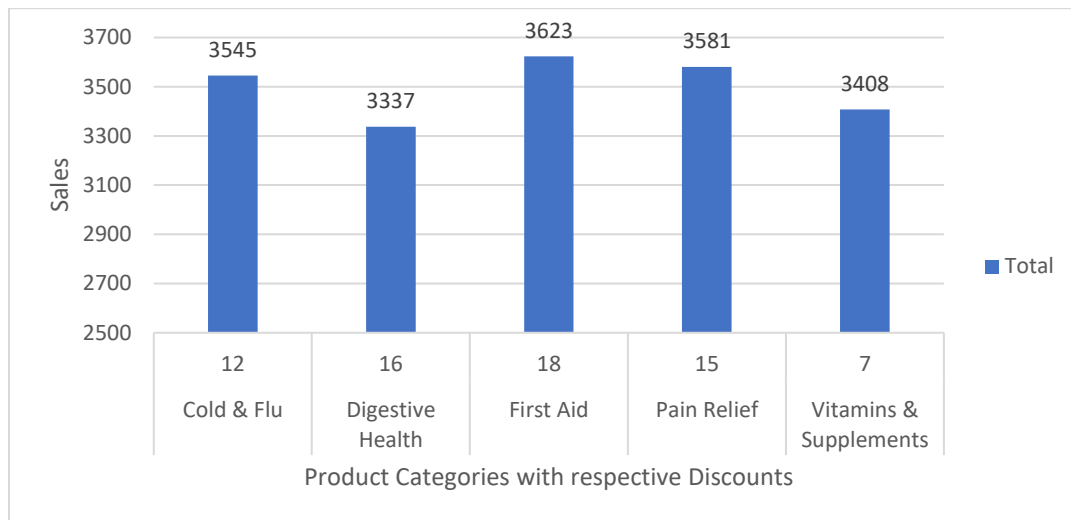


2) Pareto Chart with respect to the Total Revenue generated over a period of 3 months

3.2 Product Category-wise Sales trend vs Discounts

As Apollo Pharmacy has kept their Discounts respective to their Product Categories i.e., each Product of a single Category have same discounts on them and the discounts are different for all Categories.

So, it was important to analyse how different Categories performed with respect to their respective Discounts.



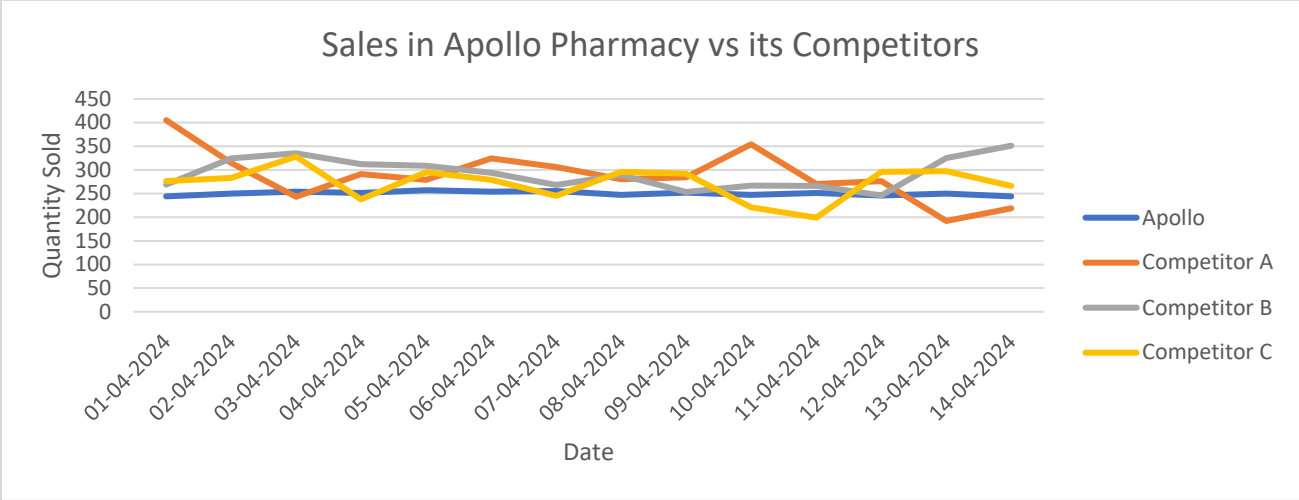
The above chart shows the Sales of each Product Category in 3 months.

- From here it can be clearly seen that how the Category with higher Discounts have more Sales as compared to those with lower Discounts. Just an exception is 'Digestive Health' Category which may be due to other reasons or much better deals at the Competitors shops.

3.3 Apollo vs its competitors

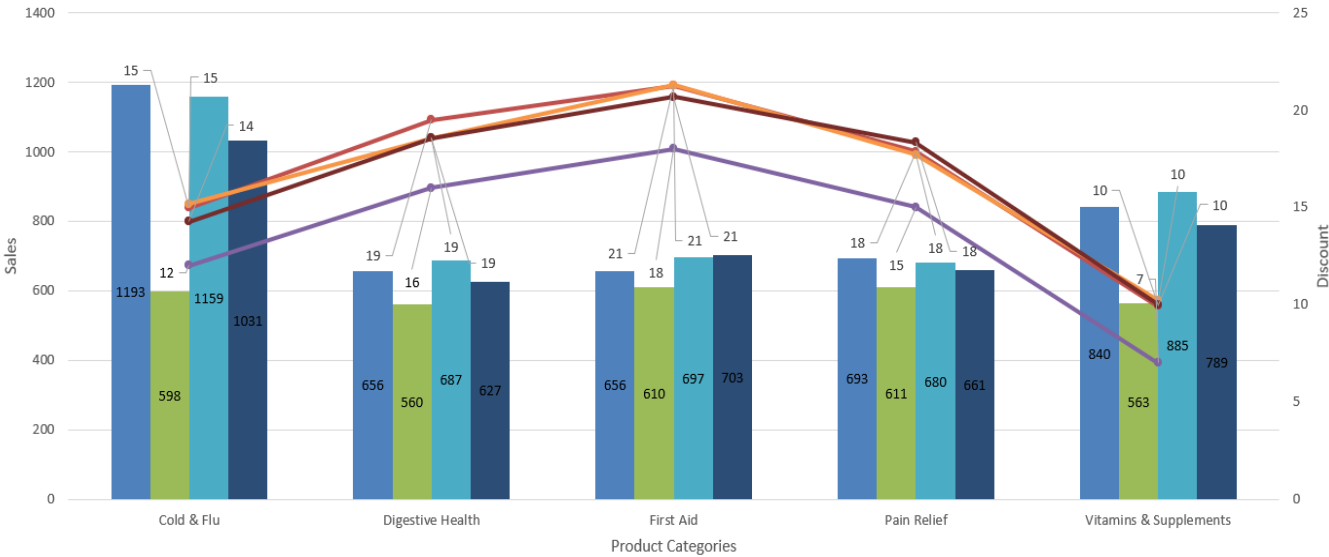
To actually know the reasons how Apollo's Sales have been affected I had to compare it with its nearby Competitors.

The comparison mainly included their Sales Trends and Sales with respect to their Discount strategies



A 2-week Sales Trend of Apollo and its Competitors

- In this chart it can clearly be seen how Apollo’s Sales has been affected by its competitors. All of its competitors have higher sales than Apollo in this 2-week span.
- Even Apollo had a gradual decrease in Sales after mid-May (which was seen before in the Revenue chart), *here only 14 days data of other Competitor shops was available so, for Apollo also I had to take only 14 days Sales data from start of April which was constant at that time.*





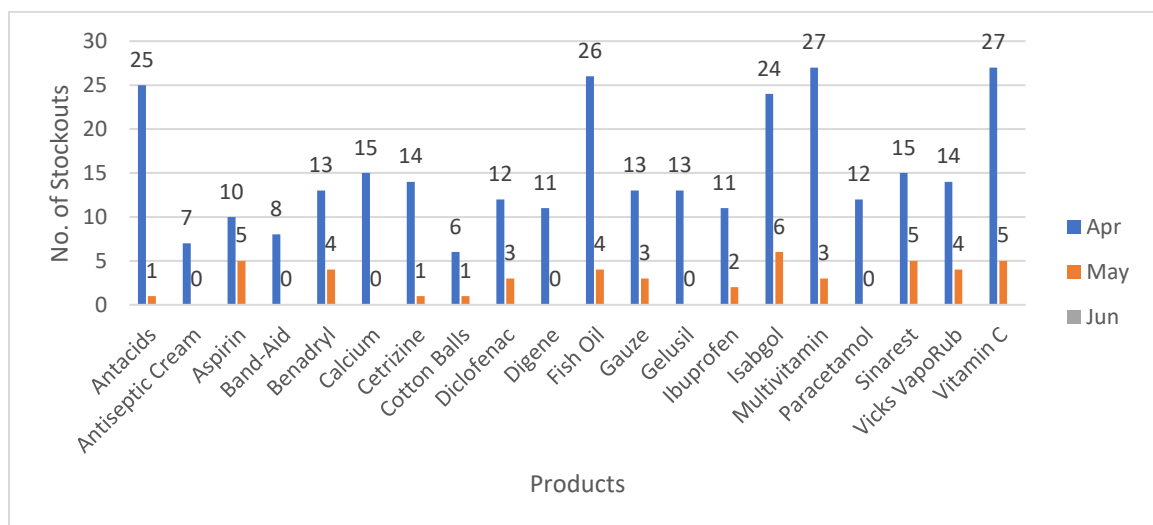
This chart here shows how different Categories of all 4 shops perform according to their Discount strategies.

- So, here it can be seen how Sales at Apollo are affected by its competitors. The Discounts for all Product Categories at Competitor A, B and C are higher as compared to that of Apollo's and hence, the Sales.
- In each of the Categories Apollo's Sales are less than its competitors'. But majorly the 'Cold & Flu' and 'Vitamins & Supplements' Categories have very less Sales compared to that of Competitors', even the 'Cold & Flu' Sales is even less than 50% to that of competitors.

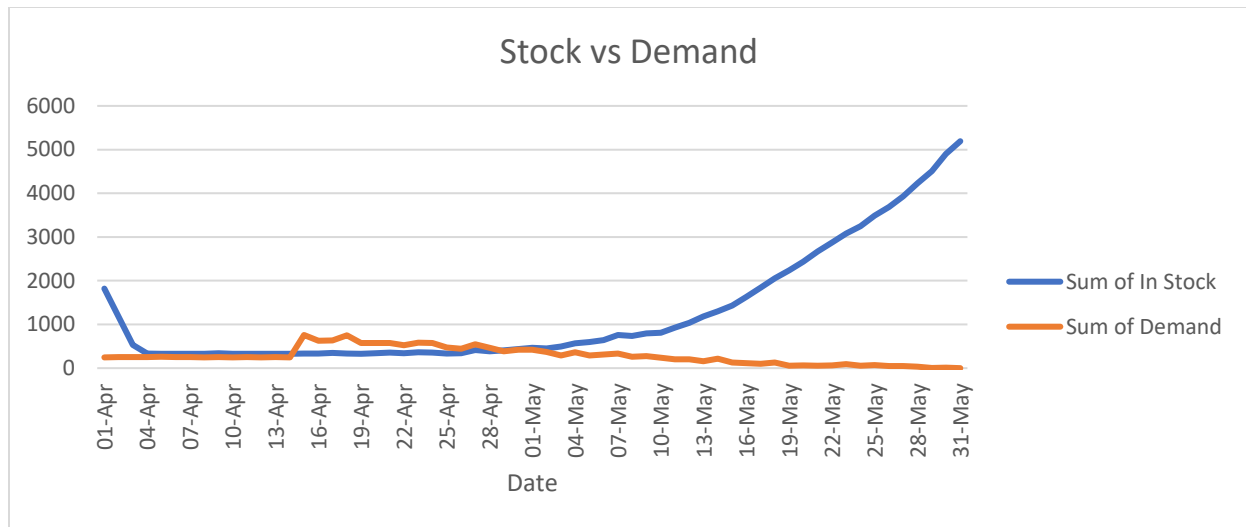
Hence, Apollo needs to work on its Discount strategies, mainly in the 'Cold & Flu' and 'Vitamins & Supplements' Categories.

3.4 Inventory Analysis

To start with Inventory Analysis, the below graphs show *Stockout Trend* and *Stock vs Demand Trend*.



Stockout Trend

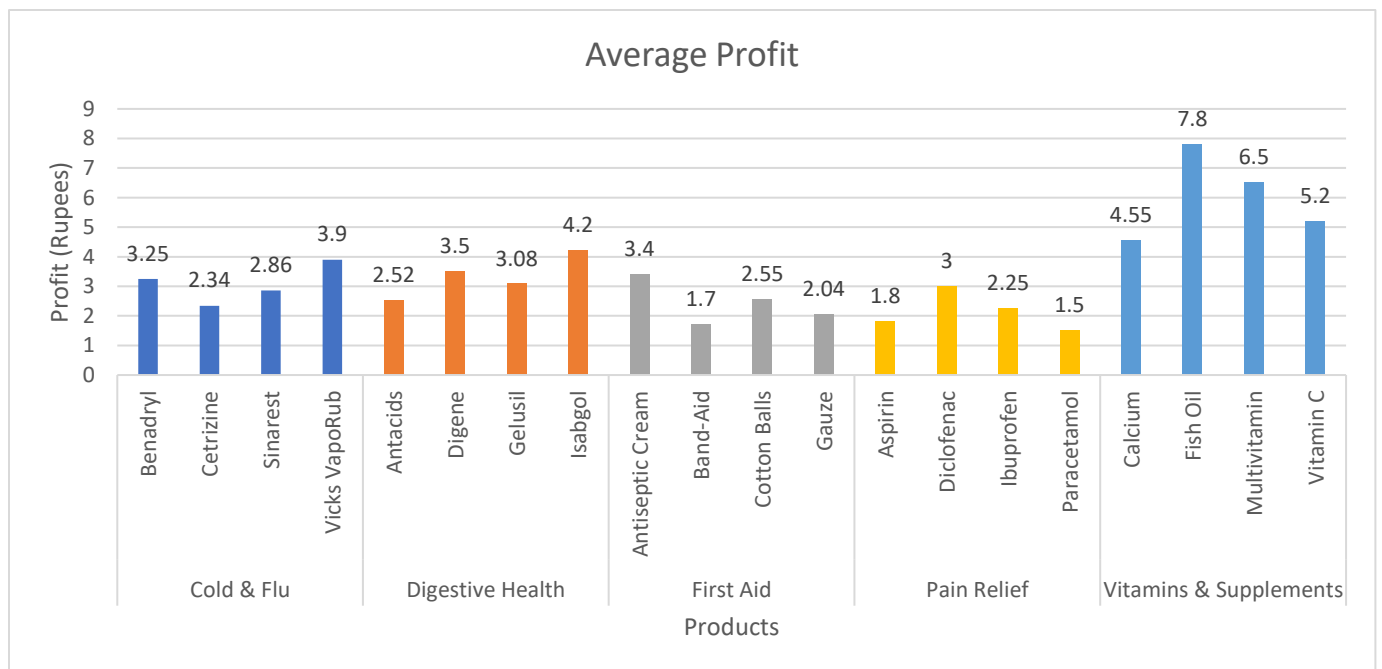
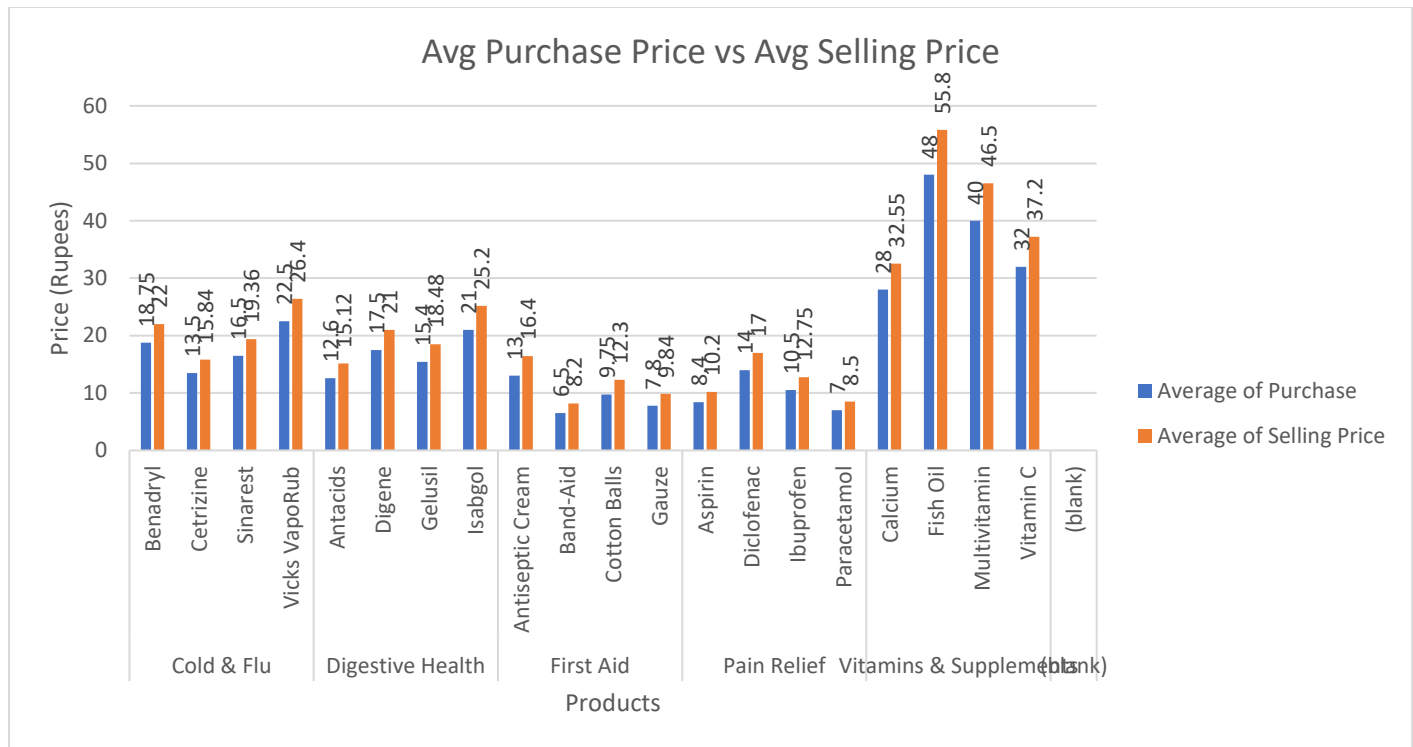


Stock vs Demand Graph

- From the above two graphs, the first one i.e. *Stockout Trend*, shows a large number of stockouts in the month of April, which shows how frequent stockouts were in April and then in May it frequent stockouts decreases and then no stockouts in June, which is mainly due to the reduced sales because of competitions.
- The second graph i.e., *Stock vs Demand Graph*, shows the trend on how the overall stocks meet the demands, here 2 months data was taken as the Sales had dropped after 15th May i.e. no demands. But, in these two months it can be seen that from mid-April to April end demands were higher than the available stocks.
- There are many Products that can be seen in the *Stockout Trend* graph with frequent stockouts in the month of April. Products such as Antacid, Benadryl, Calcium, Cetirizine, Diclofenac, Fish Oil, Gauze, Gelusil, Isabgol, Multivitamin, Sinarest, Vicks VapoRub and Vitamin C had frequent stockouts.

3.5 Profit Analysis

The below graph shows the comparison of Average Purchase Price to the Average Selling Price which can further be used to calculate Average Profit per item to analyse the areas/products which can be improved to increase net Profit.



From the above graph it can be seen that Fish Oil, Multivitamin and Vitamin C are the Products that hold the maximum profit generating capacity. While comparing it with the Inventory Stockout Trend it can be seen that these three products have higher frequency of Stockouts.

4) Interpretation of Results and Recommendation:

The analysis of Apollo Pharmacy's sales, discount, and inventory data has revealed several key insights that can be leveraged to improve the pharmacy's performance and address the challenges it faces in the competitive retail market.

4.1 Recommendation 1: Optimize Discount Strategies

Based on the analysis of Sales and Discounts and comparing them with that of competitors we end up with the following strategies:

Category-Specific Discounts: The analysis indicates a strong correlation between discounts and sales, particularly evident in the 'Cold & Flu' and 'Vitamins & Supplements' categories. Apollo Pharmacy should consider implementing more aggressive discount strategies for these categories to boost sales and compete effectively with rivals.

For other categories also, Apollo should increase its Discounts up to the level of its Competitors' Discounts to compete with them.

Competitive Pricing: As the Vitamins & Supplements category holds the maximum profit generating capacity, Apollo can even give little more discounts in this category than its competitors, which will give a stiff competition to other stores and will help Apollo in becoming a market leader in this segment.

Category-wise Discount Rates should be changed as following:

- Pain Relief - from 15% to 20% (still there will be 10% margin)
- Cold & Flu - from 12% to 15-16% (9% margin)
- Digestive Health - from 16% to 19-20% (10% margin)
- First Aid - from 18% to 24% (11% margin)
- Vitamins & Supplements - from 7% to 11-12% (8% margin)

Apollo should also focus on providing Product specific discounts like giving more Discounts on least its selling products.

4.2 Recommendation 2: Address Competitor Challenges

Additionally, Apollo should focus on these points other than Discounts:

- **Competitive Pricing:** Conduct regular competitor price monitoring to ensure that Apollo Pharmacy's prices remain competitive. Consider adjusting prices strategically, especially for products with high price sensitivity.
- **Product Differentiation:** Explore opportunities to differentiate Apollo Pharmacy's offerings by providing value-added services, such as personalized consultations, health screenings, or loyalty programs. This can help attract and retain customers even in a competitive market.
- **Marketing and Promotion:** Invest in targeted marketing and promotional campaigns to increase brand awareness and highlight Apollo Pharmacy's unique value proposition. Utilize various channels, including digital marketing, social media, and in-store promotions, to reach a wider audience.

4.3 Recommendation 3: Enhance Inventory Management

As per the analysis Antacid, Benadryl, Calcium, Cetirizine, Diclofenac, Fish Oil, Gauze, Gelusil, Isabgol, Multivitamin, Sinarest, Vicks VapoRub and Vitamin C had frequent stockouts. Within these, Antacid, Fish Oil, Isabgol, Multivitamin and Vitamin C had very high frequency of stockouts.

Apollo should focus on maintaining the stocks of all these products by:

- Restocking inventory earlier than usual or during high sales periods.
- Restocking amounts for such products which are more vulnerable to stockouts i.e. most selling, must be increased.
- Predicting future sales will also help in getting the information on how much stock is required.

Products like Fish Oil, Multivitamin, and Vitamin C have higher profit potentials and have good demand but also have most frequent stockouts. Hence, Apollo should give special focus on these products by:

- Having extra stocks of these products as these are high demand products so no overstocking issues.

- Also, Discounts on these products can be increased from 7% to 15% which will then be higher than its competitors providing extraordinary presence in these products in the market.

Enhancing its inventory management will give Apollo a competitive edge at time of high demands like in pandemics.

4.4 Recommendation 4: Additional Recommendations

Cold & Flu Category: As per the analysis, this category has almost double Sales at competitors as compared to Apollo's Sales. Even product in this category have a frequent stockouts but not as much as 'Vitamins & Supplements'. Hence, Apollo should focus on its inventory management by increasing restock amounts and also increase discounts to little more than the competitors to have a competitive edge in this product category.

First Aid: After increasing discounts from older 18% to 24% to match the competitors, Apollo still have more than 10% margin on products in this category. Hence, Apollo can increase discounts in this category even more to get an advantage.

Customer Relationship Management: Carry out a customer relationship management (CRM) system to record customer preferences, and purchase history. This will allow Apollo Pharmacy to personalize its marketing techniques and build stronger relationships with its customers.

Employee Training: Provide training to employees on product knowledge, sales techniques and product knowledge. This will allow them to provide exceptional customer experiences and drive sales.

Technology Adoption: Explore the use of technology to consolidate operations, improve inventory management and the customer experience. This could include building an online ordering and delivery system with exclusive offers, utilizing point-of-sale (POS) data analytics, or adopting inventory management software.

5) Conclusion:

In conclusion, this project has provided valuable insights into Apollo Pharmacy's sales, discount strategies, and inventory management practices. The analysis has revealed a clear correlation between discounts and sales, showing the need for Apollo Pharmacy to optimize its discount strategies to remain competitive in the market. Additionally, the inventory analysis has identified potential areas for improvement in stock management to minimize stockouts and overstocking, leading to increased efficiency and customer satisfaction.

The findings of this project highlight the importance of data-driven decision-making in the retail pharmacy industry. By taking advantage of the insights collected from this analysis, Apollo Pharmacy can carry out targeted strategies to enhance its performance, improve customer satisfaction, and achieve viable growth on the top of increasing competition. The recommendations presented in this report, if implemented effectively, can entrust Apollo Pharmacy to optimize its operations, increase sales, and strengthen its position in the market.

Further research and analysis could delve deeper into customer categorization, demand forecasting, and competitor analysis to provide even more refined and targeted recommendations. Continuous research and evaluation of key performance indicators will be essential to ensure the ongoing success of Apollo Pharmacy's strategies and its ability to adapt to the continuously developing retail landscape.

6) Important Links:

EXCEL DATASET:

https://docs.google.com/spreadsheets/d/1ttmFdOmee49Sdd61HojBWt-vmE_jacgi/edit?usp=drive_link&oid=117819726251913050075&rtpof=true&sd=true

PRESENTATION: [https://docs.google.com/presentation/d/1-](https://docs.google.com/presentation/d/1-eOdabxEa83Yrc_DVm5YUTD3ZESM6NfE/edit?usp=sharing&oid=117819726251913050075&rtpof=true&sd=true)

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