

ANALYTICAL STUDY OF DURGA MEDICAL HALL

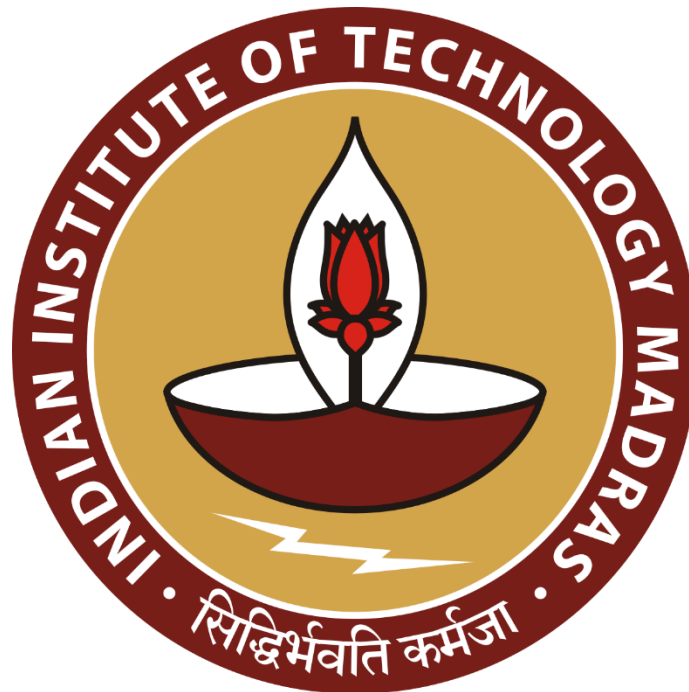
CAPSTONE PROJECT MID-TERM SUBMISSION

Submitted by

Name: SHRUTI KUMARI

Roll number: 22F3001953

Email :22f3001953@ds.study.iitm.ac.in



IITM Online BS Degree Program,
Indian Institute of Technology, Madras, Chennai
Tamil Nadu, India, 600036

Executive Summary :

Medical shops are essential businesses that provide various healthcare-related products, including prescription and over the counter medications, medical equipment, and health-related items. They serve as crucial points of access for individuals to obtain necessary healthcare products, offering a wide range of items to support health and wellness.

As started earlier in the proposal Durga medical hall , a english medical shop, is currently encountering challenges in terms of profit and inventory management which is having an indirect impact on the store's net profit and sales. Also the trend of online shopping challenges the modern world , but it also challenges offline shops like Durga medical hall, leading to a decline in their profit .This project is dedicated to addressing the unique business challenges faced by Durga medical hall. Our main focus is to understand the case flow and controlling inventory. And Through data analysis, we aim to provide practical solutions to overcome these issues and improve the store's overall performance.

Goal for mid term:

- To find Which SKU (or goods) contributes more to the net profit and is suitable for continuing in longer run sales
- To find Which SKU has highest price and difference of purchases and selling price
- To look into pareto Principle for SKU
- To examine and determine the revenue and purchase price trend in the market

Proof of originality of the Data :

Details:

Shop Name: Durga Medical Hall

Owner: Nageshwar Sharma

Address: Vidyapith chowk ,Lakhisarai(Bihar).

About:

Durga medical hall was established in 1987, it has both B2B and B2C and it maintains a regular basis. It provides medicines like decolic, zeet cough syrup, candid, orthotix ,etc. The shops best try to keep customers happy by

providing a good range of prices and cleanliness of the shop. And trying to stand in competitive markets.

Images:

To support my assertions, I've incorporated visual evidence consisting of images displaying the establishment and bill used by the shop to diligently document every transaction.



Pic for reference of name and location



Main shop area where all the transactions are done

Video for originality:- video for bdm.mp4

In the video first I am told my name and say about student's of IIT madras online degree programme and asked the owner's name and asked the owner he gave me data for project purposes.

Metadata and Descriptive Statistics :

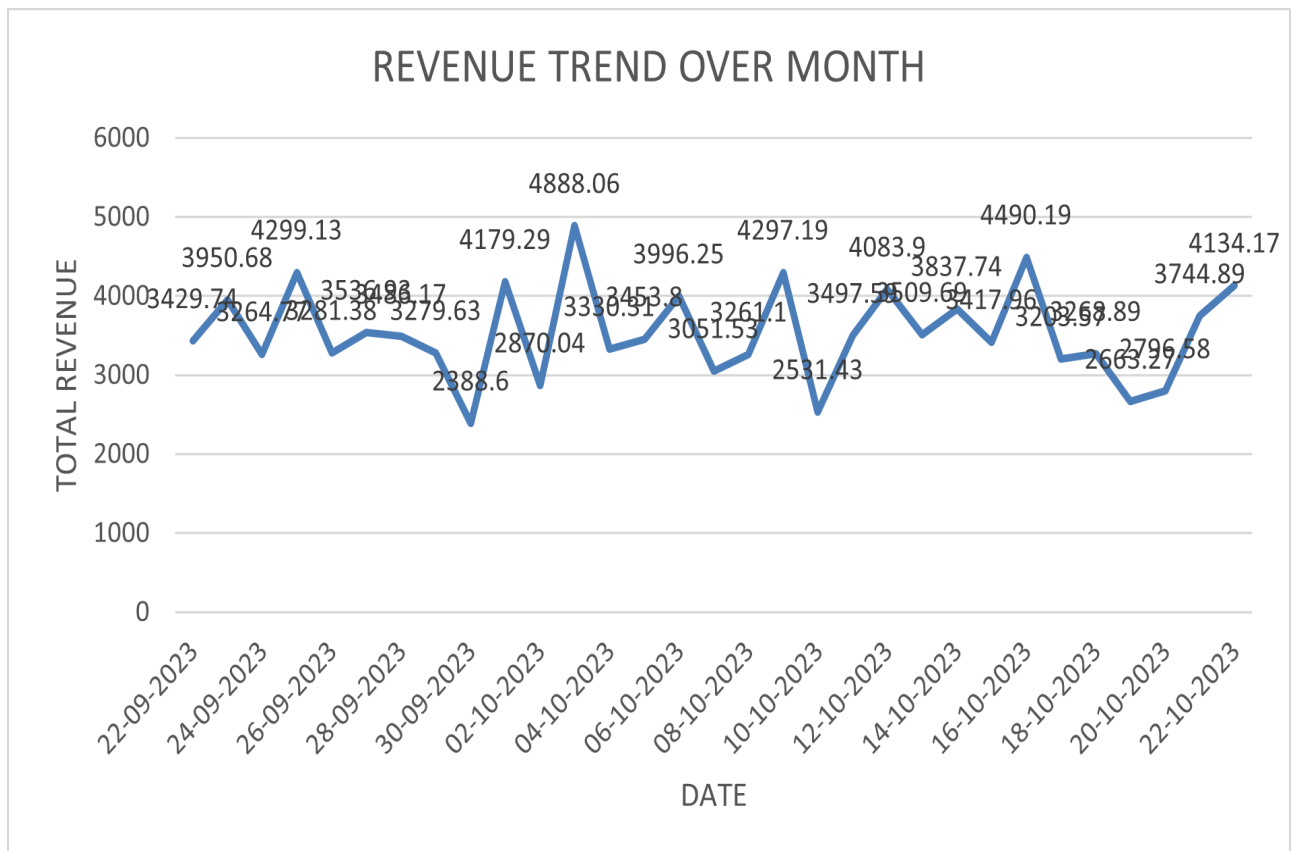
I carefully collected a lot of information for 31 days, starting from sept 22 to oct 22, 2023. During this time, I went to the shop every day and every other day at specific times to gather all the data I needed for the whole period.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	SALES											SELLING PRICE											
2		TABLET/CAPSULE		SYRUPS			OINTMENT		POWDER		OIL	TABLET/CAPSULE	SYRUPS		OINTMENT		POWDER		OIL	TABLET/CAPSULE			
3	DATE	Decolic Tab	Calpol Tab	Becosules syp	Zeet cough syrup	Betnovate®	Neosporin oint	Candid	Nebasulf	Orthotix	Gesicube	Decolic Tab	Calpol Tab	Becosules syp	Zeet cough syrup	Betnovate®	Neosporin oint	Candid	Nebasulf	Orthotix	Gesicube	Decolic Tab	Calpol Tab
4	22-09-2023	10	20	11	18	1	1	1	5	1	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	30
5	23-09-2023	9	23	9	12	11	4	2	5	1	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	34.5
6	24-09-2023	10	32	8	11	10	3	1	4	0	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	48
7	25-09-2023	10	20	7	11	18	6	3	3	0	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	30
8	26-09-2023	9	19	9	1	29	4	1	4	2	0	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	28.5
9	27-09-2023	8	20	6	10	21	3	1	3	1	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	82.64	30
10	28-09-2023	9	25	5	9	21	3	0	2	1	3	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	37.5
11	29-09-2023	9	26	9	12	9	3	0	2	2	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	39
12	30-09-2023	10	22	10	12	0	2	0	1	0	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	33
13	01-10-2023	10	22	11	11	19	2	2	4	3	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	33
14	02-10-2023	9	32	3	2	15	8	1	3	0	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	48
15	03-10-2023	9	28	6	20	17	5	2	2	2	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	42
16	04-10-2023	10	35	4	11	10	3	2	2	1	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	52.5
17	05-10-2023	8	34	4	19	6	6	0	1	1	0	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	82.64	51
18	06-10-2023	10	32	10	15	9	5	2	3	2	0	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	48
19	07-10-2023	9	33	9	12	0	5	1	4	1	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	49.5
20	08-10-2023	9	24	7	12	0	4	2	5	2	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	36
21	09-10-2023	10	23	6	11	21	3	6	0	2	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	34.5
22	10-10-2023	9	11	4	5	11	6	0	0	0	3	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	16.5
23	11-10-2023	9	20	8	2	23	8	0	4	0	3	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	30
24	12-10-2023	10	46	5	12	26	5	0	3	0	2	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	69
25	13-10-2023	8	37	10	12	17	3	1	0	1	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	82.64	55.5
26	14-10-2023	8	30	10	11	19	4	2	3	1	0	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	82.64	45
27	15-10-2023	9	36	11	11	10	4	1	4	2	0	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	92.97	54
28	16-10-2023	8	41	5	10	20	8	3	4	1	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	82.64	61.5
29	17-10-2023	10	40	8	9	21	1	2	0	0	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	60
30	18-10-2023	10	28	11	11	19	2	1	2	0	0	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	103.3	42
31	19-10-2023	8	29	7	7	15	4	0	0	1	1	10.33	1.5	36.89	105	53.3	108.85	201	65.7	139	170	82.64	43.5

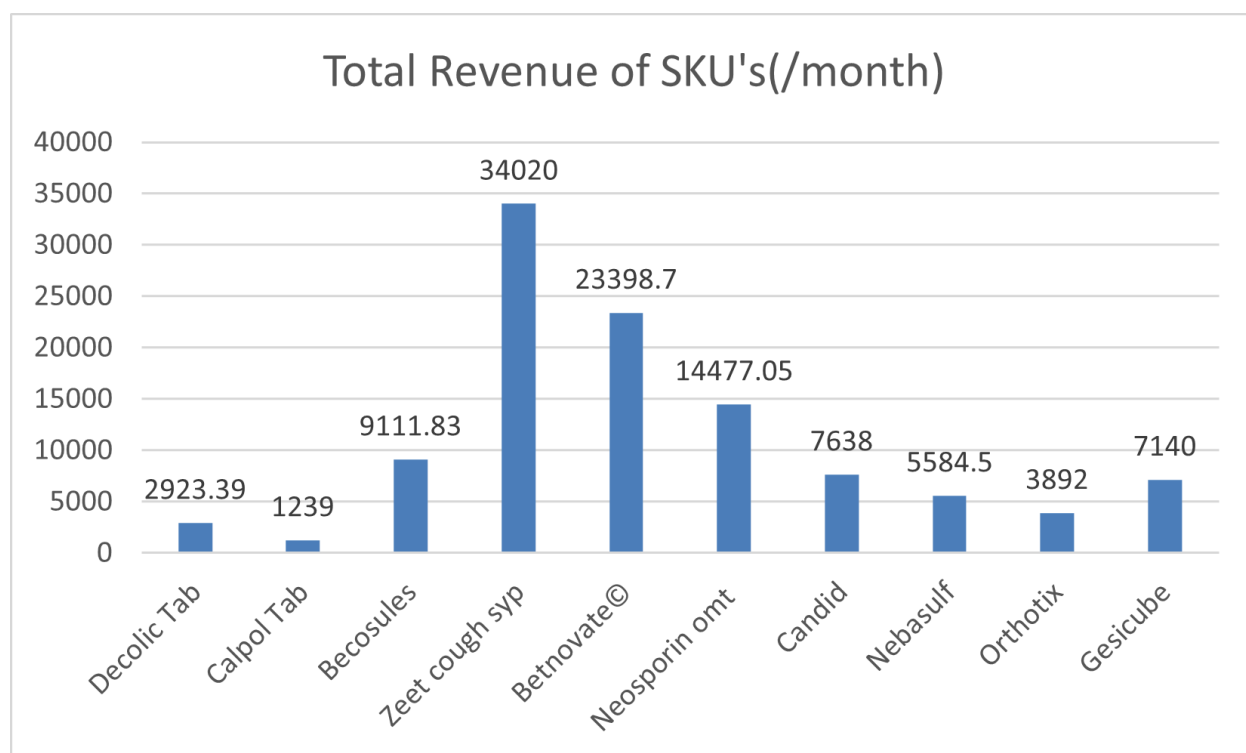
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD			
1	PURCHASE											PURCHASE PRICE											EXPENDITURE										
2	TABLET/CAPSULE	SYRUPS	OINTMENT	POWDER	OIL							TABLET/CAPSULE	SYRUPS	OINTMENT	POWDER	OIL						TABLET/CAPSULE	SYRUPS	OINTMENT	POWDER	OIL							
3	DATE	Decolic Ta	Calpol Tab	Becosules	Zeet cougl	Betnovate	Neosporin	Candid	Nebasulf	Orthotix	Gesicube	Decolic Ta	Calpol Tab	Becosules	Zeet cougl	Betnovate	Neosporin	Candid	Nebasulf	Orthotix	Gesicube	Decolic Ta	Calpol Tab	Becosules	Zeet cougl	Betnovate	Neosporin	Candid	Nebasulf	Orthotix	Gesicube		
4	22-09-2023	0	0	0	0	0	0	5	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	824.1	0	0	0		
5	23-09-2023	0	0	0	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	0	0	0		
6	24-09-2023	0	0	0	0	0	0	5	10	5	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	824.1	538.7	569.9	0		
7	25-09-2023	0	0	50	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	1512	0	0	0	0	0	0	0		
8	26-09-2023	0	0	0	0	0	50	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	4462.5	0	0	0		
9	27-09-2023	0	0	0	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	0	0	0		
10	28-09-2023	100	200	0	0	0	0	5	10	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	850	250	0	0	0	0	824.1	538.7	0	0		
11	29-09-2023	0	0	0	100	0	0	0	0	5	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	8610	0	0	0	0	569.9	0		
12	30-09-2023	0	0	0	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	0	0	0		
13	01-10-2023	0	0	0	0	0	0	0	10	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	0	538.7	0		
14	02-10-2023	0	0	0	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	0	0	0		
15	03-10-2023	0	0	0	0	0	5	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	824.1	0	0		
16	04-10-2023	0	0	50	0	0	0	0	10	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	1512	0	0	0	0	0	538.7	0		
17	05-10-2023	0	0	0	0	0	0	0	5	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	0	0	569.9		
18	06-10-2023	0	200	0	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	250	0	0	0	0	0	0	0	0		
19	07-10-2023	0	0	0	0	200	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	8740	0	0	0	0	0		
20	08-10-2023	0	0	0	0	0	5	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	824.1	0	0	0		
21	09-10-2023	0	0	0	0	0	0	10	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	538.7	0	0		
22	10-10-2023	100	0	0	100	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	850	0	0	0	8610	0	0	0	0	0		
23	11-10-2023	0	0	50	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	1512	0	0	0	0	0	0	0		
24	12-10-2023	0	0	0	0	0	50	0	0	5	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	4462.5	0	0	569.9		
25	13-10-2023	0	0	0	0	0	0	5	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	824.1	0	0	0		
26	14-10-2023	0	200	0	0	0	0	0	10	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	250	0	0	0	0	0	538.7	0	0		
27	15-10-2023	0	0	0	0	0	0	0	0	0	8	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	0	0	0		
28	16-10-2023	0	0	0	0	0	5	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	824.1	0	0	0		
29	17-10-2023	0	0	50	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	1512	0	0	0	0	0	538.7	0		
30	18-10-2023	0	0	0	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	0	0	0	0	0	0	0	0	0	0		
31	19-10-2023	60	0	0	0	0	0	0	0	0	0	8.5	1.25	30.24	86.1	43.7	89.25	164.82	53.87	113.98	139.4	*10	0	0	0	0	0	0	0	0	0		

profit,stocks of product,sales of product ,etc. For finding revenue and expenditure i am using formula selling price *unit of sales and purchases price *unit of purchases respectively.similarly i am using many formulas for finding total expenditure ,total revenue,total inventory,avg of purchases price,avg of selling price, etc.

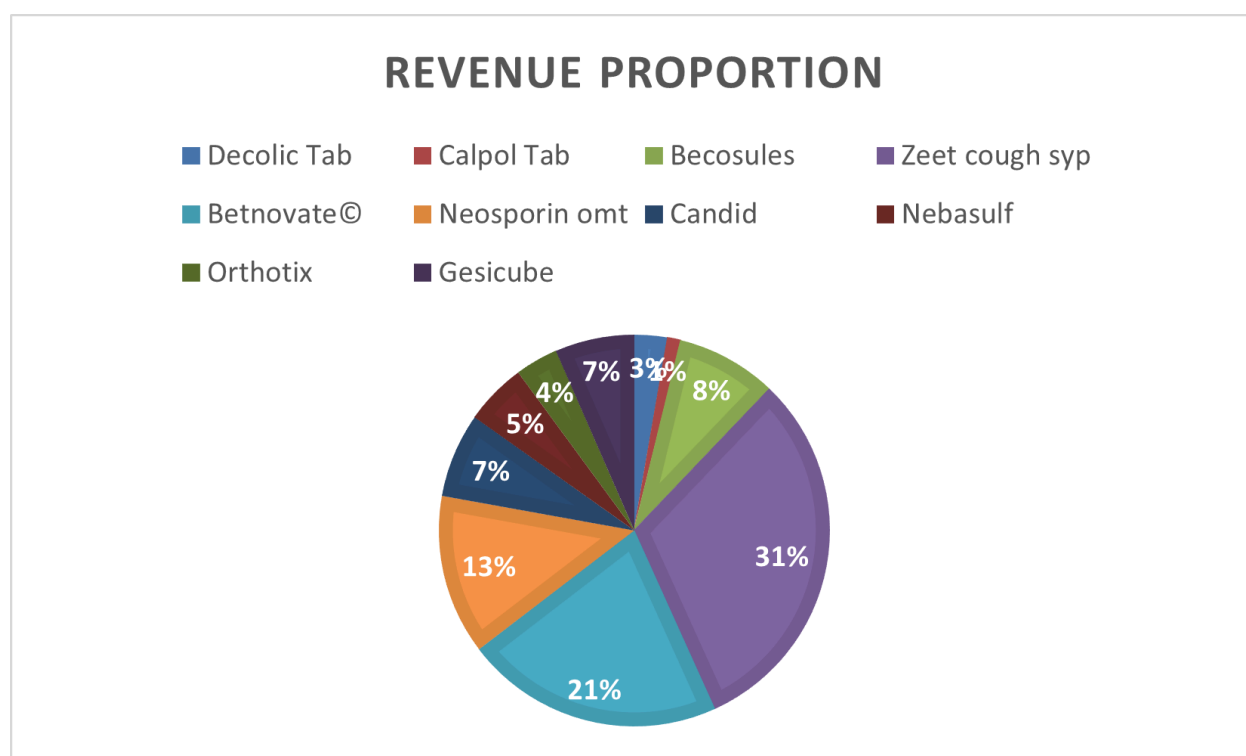
Here is the descriptive statistics analysis conducted based on the collected data.



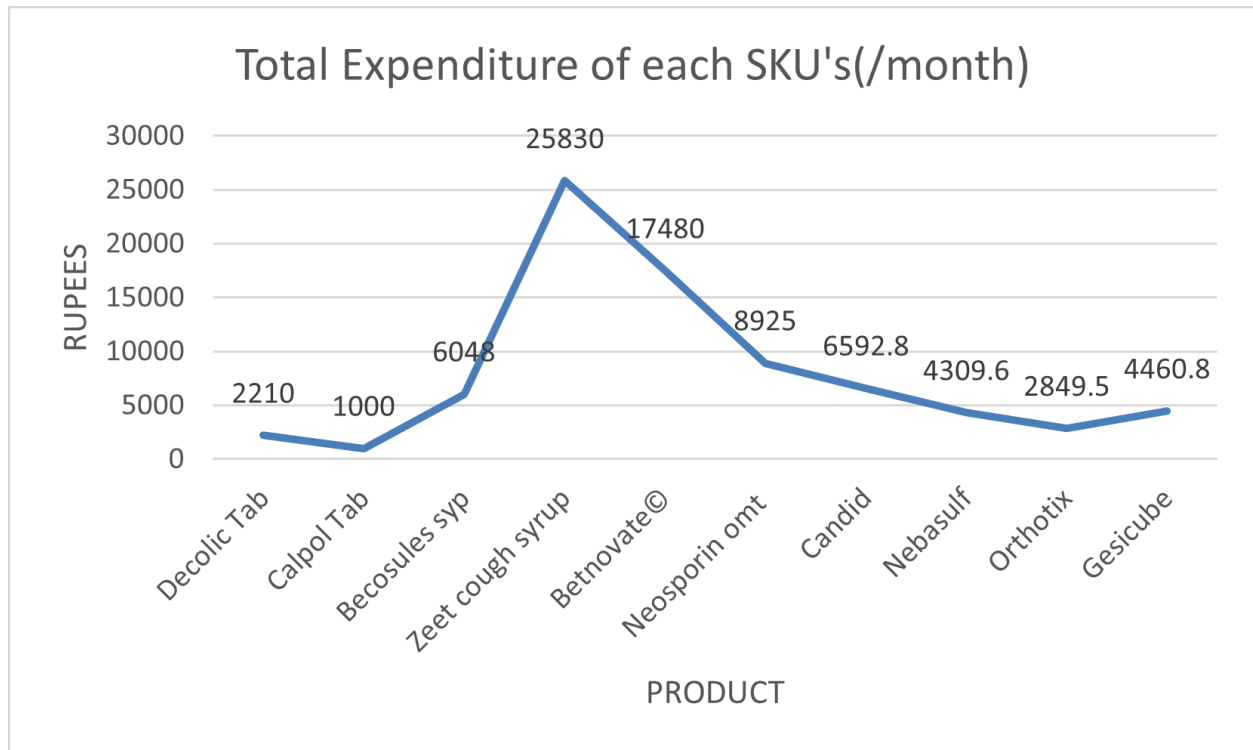
Total Revenue Trend observed over a month



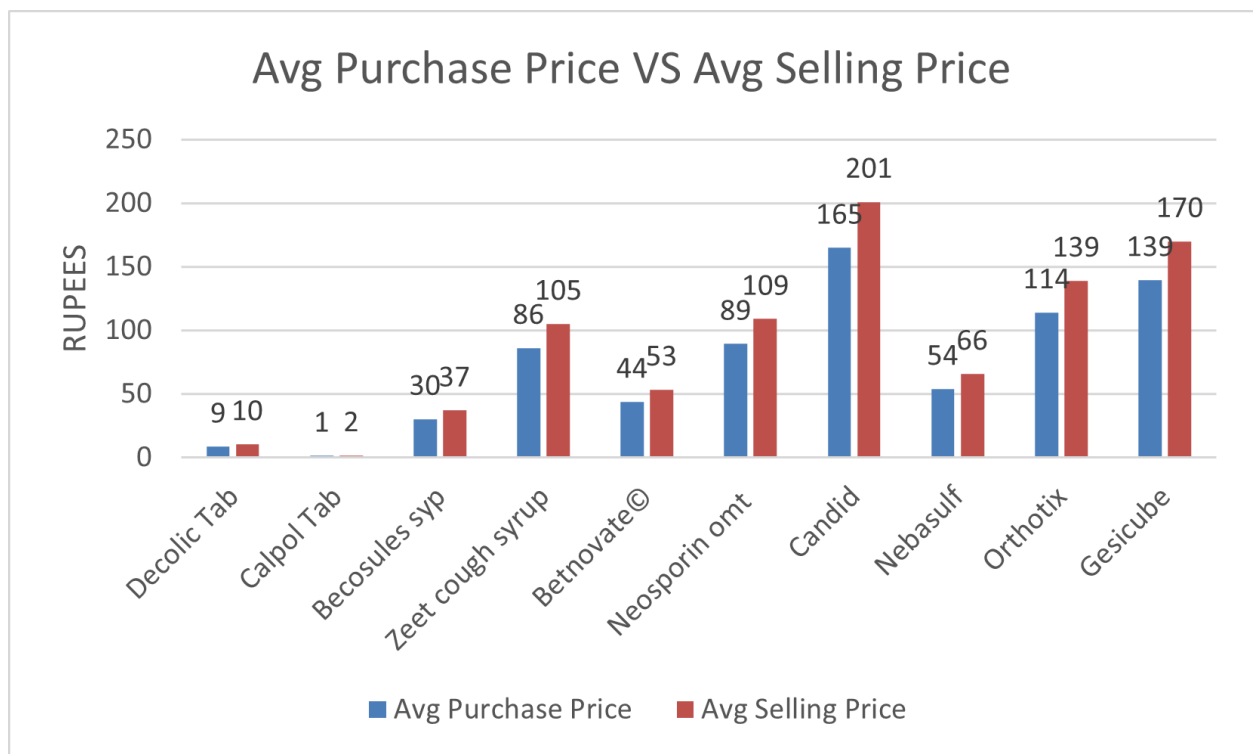
Total Revenue of all the SKU's over a month



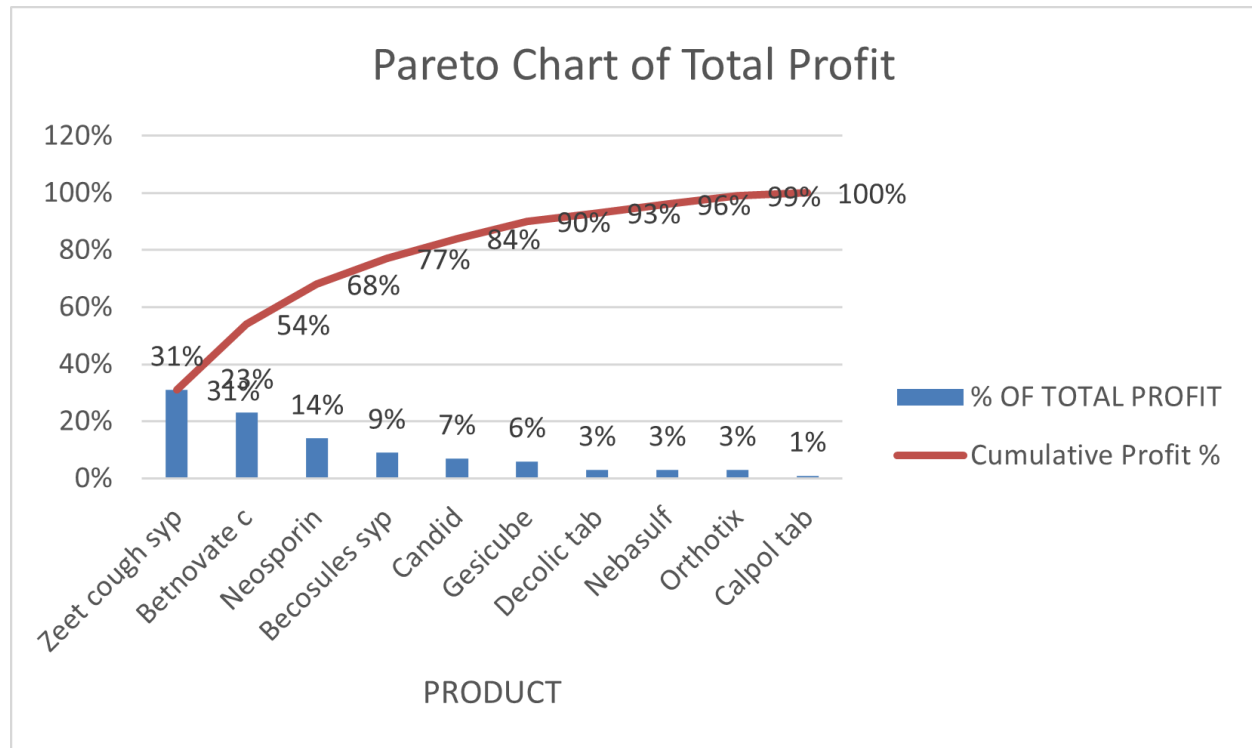
SKU's proportion to Total Revenue



Total Expenditure of all the SKU's over a month



Avg. Purchase Price vs Avg. Selling Price



Pareto Chart of Total Profit

Detailed Explanation of Analysis Process/Method :

I collected 31 days' worth of data in excel, which was then cleaned, organized, and analyzed.

Firstly, the data was carefully examined to ensure its structure and format were clean and organized for effective analysis. In this step, we checked for any inconsistencies, missing values, and extreme outliers that could have affected the results. Next, a variety of descriptive statistical techniques applied to summaries and explore the data. We conducted computations like mean, average, profit margins and inventory levels to understand the comprehensive operation of the store. Column, line, and pie chart were used to visually represent the revenue , total expenditure and revenue proportion. These charts provide a clear and brief way to understand the performances and level of various things within the business. They help understand the pattern, identify the trend and area of focus of decision making. By utilizing statistical analysis we can easily summaries the whole data and about the business. This analysis will help to make decisions for good performance and make the business profitable.

To show the pareto chart of total profit for all SKUs, a combined line and column chart is utilized. This combination allows for a clear and effective representation of the cumulative contribution of each SKU to the overall profit. The column chart component displays the individual profit values for each SKU, sorted in descending order from the highest to the lowest.

To show revenue trends over the month in a line graph. It fluctuates all over the month but we can easily see that it ranges between 2000 to 5000. Maximum total revenue of all SKUs in 03 oct 2023 and minimum total revenue of all SKUs in 30 sep 2023 in over a month.

The revenue proportion is represented in a pie chart which shows the proportion of all SKUs. Here we can see that the largest total revenue % is Zeet cough syrup and the smallest total revenue % is calpol tab.

Similarly We can see the graphs of avg purchases price and avg selling price and total revenue of SKUs. All these give an idea of trending the purchases and sales.

Results and Findings :

Based on the analysis conducted using the graphs and charts, several key findings have come out:

- Zeet cough Syrup has more revenue and expenditure in Durga medical shop it gives more profit for more sales
- Candid powder has highest price but this is not a base of profit
- Applying the pareto principle the data reveals the Zeet cough syrup, Betnovate c, Neosporin, Becosules syrup and candid powder contribute to approximately of 80% of the total profit
- From a month of data, purchases price has not fluctuation of the SKUs

In summary the Zeet cough syrup is the most profitable product, the high price of the product is candid powder and the significant contributions of select SKUs to overall the profit.