Analysis on Om Prakash and Sons Store

End-Term Submission for the BDM Capstone Project

Submitted by:

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1) EXECUTIVE SUMMARY AND TITLE

Title:

Optimizing Profitability and Revenue Management: A Data-Driven Analysis of SKU Performance

Executive Summary:

Om Prakash and Sons, a medium-sized kirana store located at Shop Number- 3B/12, Near Post Office, Ramesh Nagar, New Delhi, 110015, was established in 2010. It is owned by Om Prakash Arora. The store has been serving the community from last 14 years. Known for their excellent credit system, they have built a loyal customer base by providing convenient and reliable service.

This project was undertaken to address the pressing challenges faced by Om Prakash and Sons, a kirana store, in managing its sales, expenditures, and inventory for ten essential SKUs: Rice, Flour, Oil, Urad Dal, Almonds, Cashew, Raisins, Jaggery, Sugar, and Ice Cream. The store had been grappling with inefficiencies in tracking sales and managing inventory, which directly impacted its profitability and operational effectiveness. The objective is to analyse existing data, identify patterns and inefficiencies, and provide actionable insights that could help the store optimize its revenue, profit margins, and inventory management practices.

The primary objective of our capstone project is to enhance net profit by optimizing inventory management to determine the ideal purchase timing and streamline goods flow. To achieve this, the project will involve a comprehensive analysis of sales data, including fluctuations in purchase prices throughout the month. A crucial aspect of this project will be identifying gaps and areas for improvement in the current strategy. The report will provide an in-depth examination of sales data to uncover patterns and trends. This analysis will help us identify the highest and lowest performing SKUs, enabling us to develop marketing strategies that enhance net sales and ultimately boost net profit.

The project began with a thorough analysis of sales and expenditure data for each of the 10 SKUs. This involved calculating the total sales and purchase costs, allowing for a clear understanding of the store's financial performance in these categories. Following this, revenue and profit for each SKU were calculated and analysed using various data visualization tools in Excel, including bar charts and other graphical representations. These visualizations provided a clear picture of which SKUs were performing well and which were underperforming, thereby highlighting areas requiring attention.

In addition to the financial analysis, the project also examined inventory fluctuations for each SKU, identifying trends and potential issues in stock management. By understanding these fluctuations, the store could better plan its inventory levels, ensuring that high-demand items were always available while minimizing overstock situations. The project concluded with recommendations for optimizing revenue, profit, and inventory management for each SKU, offering specific strategies tailored to the store's unique needs. These recommendations are designed to help Om Prakash and

Sons enhance its overall operational efficiency, maximize profitability, and ensure sustainable growth in a competitive market.

To effectively analyze the sales data and support informed business decisions, various Excel tools such as pivot tables, bar graphs, and line charts will be employed. These tools offer valuable visual representations of the data, making it easier to identify trends, patterns, and key insights. By examining the performance of different products, particularly the high and low performers, we can derive actionable recommendations. These insights will inform our marketing strategies and data-driven decisions, aimed at optimizing revenue generation.

Additionally, we will explore advanced data analysis techniques to gain deeper insights into consumer behavior and sales dynamics. This will involve segmenting the market based on customer demographics, purchase history, and preferences to tailor our strategies more effectively. Predictive analytics will also be utilized to forecast future sales trends and adjust our inventory and marketing efforts accordingly. The ultimate goal is to create a robust, data-driven framework that supports sustained profitability and business growth.

By leveraging these analytical tools and methodologies, we aim to not only enhance current operational efficiencies but also build a foundation for long-term strategic improvements. This approach will ensure that the business remains competitive and responsive to market changes, driving continuous improvement in net profit.

2) DATA EXPLANATION OF ANALYSIS PROCESS/ METHOD

❖ Discussion on data collection and data selection

In the project conducted on Om Prakash and Sons, a kirana store, the data collection phase was meticulously designed to capture the essential financial metrics that would enable a thorough analysis of business performance. The focus was on ten key stock-keeping units (SKUs): rice, flour, oil, almonds, raisins, cashew, urad dal, sugar, ice cream, and jaggery. Data was collected daily throughout April, ensuring a comprehensive dataset that reflects the store's operations during a typical month.

The data collection process involved gathering sales and expenditure information for each SKU. This granular approach allowed for precise tracking of both revenue generation and cost incurrence associated with each product. The decision to collect data daily ensured that variations in sales patterns, potentially influenced by factors such as holidays, weather, or supply chain disruptions, were captured accurately.

In terms of data selection, the choice of SKUs was strategic. These products were selected based on their relevance to the store's inventory and their potential impact on overall profitability. The inclusion of both staple goods like rice and flour, and high-margin items like almonds and cashews, provided a balanced view of the store's product mix. This selection enabled the calculation of profit and revenue percentages, crucial for identifying which products contribute most significantly to the store's bottom line.

This approach to data collection and selection facilitated the creation of insightful visualizations, such as bar charts, which were used to analyse the data. The analysis informed recommendations aimed at optimizing both revenue and profit, thereby providing actionable insights to the store's management.

Now, with the help of data, we will start looking on different aspects of our analysis.

2.1 : Data analysis for Sales and Expenditure

As previously mentioned, I primarily used MS Excel for my analysis. Initially, sales data, along with the prices of each product from the store, was gathered in an unstructured format over a time span of 30 days.

The raw data is then entered into excel and basic data pre-processing tasks such as imputing, typing errors, sorting etc are done.

- The pre-processed sales data have a total of 21 columns where 10 columns depict each SKUs sales quantity and the other 10 represent each SKUs price on the given day. (1 column is for the dates)

2.1.1: Revenue Calculation from the data of sales and selling price

	Sales										Selling Price									
Date	Rice	Flour	Urad Dal	Cashew	Raisins	Almonds	Oil	Sugar	Ice cream	Jaggery	Rice	Flour	Urad Dal	Cashew	Raisins	Almonds	Oil	Sugar	Ice cream	Jaggery
01-04-2024	145	135	40	5	4	7	16	26	5	7	43	42	110	1000	450	720	395	50	30	65
02-04-2024	110	100	44	4	3	6	10	20	2	4	43	42	110	1000	450	720	395	50	30	65
03-04-2024	115	105	45	5	4	7	21	31	7	9	43	42	110	1000	450	720	395	50	30	65
04-04-2024	90	80	35	3	2	5	14	24	6	8	43	42	110	1000	450	720	395	50	30	65
05-04-2024	95	85	31	2	1	4	15	25	3	5	43	42	110	1000	450	720	395	50	30	65
06-04-2024	120	110	40	3	2	5	17	27	9	11	43	42	110	1000	450	720	395	50	30	65
07-04-2024	95	85	30	2	1	4	20	30	11	13	43	42	110	1000	450	720	395	50	30	65
08-04-2024	85	75	28	4	3	6	16	26	5	7	43	42	110	1000	450	720	395	50	30	65
09-04-2024	80	70	31	2	1	4	8	18	2	4	43	42	110	1000	450	720	395	50	30	65
10-04-2024	115	105	36	2	1	4	9	19	6	8	43	42	110	1000	450	720	395	50	30	65
11-04-2024	130	120	40	1.5	0.5	3.5	15	25	7	9	43	42	110	1000	450	720	395	50	30	65
12-04-2024	120	110	37	4	3	6	6	16	5	7	43	42	110	1000	450	720	395	50	30	65
13-04-2024	110	100	35	2	1	4	13	23	6	8	43	42	110	1000	450	720	395	50	30	65
14-04-2024	115	105	34	2	1	4	12	22	2	4	43	42	110	1000	450	720	395	50	30	65
15-04-2024	100	90	32	1.5	0.5	3.5	10	20	9	11	43	42	110	1000	450	720	395	50	30	65
16-04-2024	95	85	28	3	2	5	11	21	6	8	43	42	110	1000	450	720	395	50	30	65
17-04-2024	120	110	42	2	1	4	6	16	5	7	43	42	110	1000	450	720	395	50	30	65
18-04-2024	85	75	35	3	2	5	4	14	3	5	43	42	110	1000	450	720	395	50	30	65
19-04-2024	75	65	34	1.4	0.4	3.4	7	17	9	11	43	42	110	1000	450	720	395	50	30	65
20-04-2024	120	110	50	5	4	7	11	21	4	6	43	42	110	1000	450	720	395	50	30	65
21-04-2024	115	105	42	3	2	5	5	15	2	4	43	42	110	1000	450	720	395	50	30	65
22-04-2024	100	90	34	2	1	4	12	22	2	4	43	42	110	1000	450	720	395	50	30	65
23-04-2024	95	85	30	2	1	4	16	26	0	2	43	42	110	1000	450	720	395	50	30	65
24-04-2024	110	100	34	1.5	0.5	3.5	15	25	4	6	43	42	110	1000	450	720	395	50	30	65
25-04-2024	85	75	38	3	2	5	11	21	2	4	43	42	110	1000	450	720	395	50	30	65
26-04-2024	80	70	25	5	4	7	12	22	3	5	43	42	110	1000	450	720	395	50	30	65
27-04-2024	110	100	31	4	3	6	10	20	6	8	43	42	110	1000	450	720	395	50	30	65
28-04-2024	130	120	36	5	4	7	5	15	2	4	43	42	110	1000	450	720	395	50	30	65
29-04-2024	140	130	35	2	1	4	20	30	4	6	43	42	110	1000	450	720	395	50	30	65
30-04-2024	140	130	45	4	3	6	22	32	2	4	43	42	110	1000	450	720	395	50	30	65

(2.1.1) Sales and Selling Price of each SKU over the month (of April)

- Using sales and selling price revenue for the day, average sales, selling price and total revenue can be calculated by the formula:

$$Revenue = Selling\ price * Sales$$

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

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

2.1.2: Expenditure calculation from the data of purchase and purchase price

- Similarly, purchase data has been collected for each SKU which consists of quantities purchased and purchase price, using which expenditure will be calculated.

	Purchase										Purchase Price									
Date	Rice	Flour	Urad Dal	Cashew	Raisins	Almonds	Oil	Sugar	Ice cream	Jaggery	Rice	Flour	Urad Dal	Cashew	Raisins	Almonds	Oil	Sugar	Ice cream	Jaggery
01-04-2024	155	145	40	5	4	8	16	26	18	12	38	40	95	940	360	680	296	47	25	50
02-04-2024	100	90	44	4	5	6	20	15	24	15	38	40	95	940	360	680	296	47	25	50
03-04-2024	115	105	55	5	3	10	25	25	7	12	38	40	95	940	360	680	296	47	25	50
04-04-2024	90	80	35	3	2	5	14	24	6	8	38	40	95	940	360	680	296	47	25	50
05-04-2024	95	80	31	2	1	4	18	14	12	14	38	40	95	940	360	680	296	47	25	50
06-04-2024	110	100	55	3	2	5	17	27	9	7	38	40	95	940	360	680	296	47	25	50
07-04-2024	95	85	30	2	1	6	20	30	11	15	38	40	95	940	360	680	296	47	25	50
08-04-2024	85	75	28	4	3	6	16	26	18	5	38	40	95	940	360	680	296	47	25	50
09-04-2024	80	70	31	2	1	4	19	25	11	7	38	40	95	940	360	680	296	47	25	50
10-04-2024	115	105	40	1	0	3	9	19	6	8	38	40	95	940	360	680	296	47	25	50
11-04-2024	145	145	48	2	1	5	18	28	15	3	38	40	95	940	360	680	296	47	25	50
12-04-2024	120	110	38	4	3	6	6	16	5	7	38	40	95	940	360	680	296	47	25	50
13-04-2024	110	100	35	2	3	4	13	15	6	6	38	40	95	940	360	680	296	47	25	50
14-04-2024	120	110	34	2	1	4	12	22	16	8	38	40	95	940	360	680	296	47	25	50
15-04-2024	100	90	32	3	2	2	23	33	9	11	38	40	95	940	360	680	296	47	25	50
16-04-2024	110	80	28	3	2	5	19	29	14	5	38	40	95	940	360	680	296	47	25	50
17-04-2024	130	120	45	2	1	4	6	16	5	4	38	40	95	940	360	680	296	47	25	50
18-04-2024	85	75	40	3	3	5	10	25	15	9	38	40	95	940	360	680	296	47	25	50
19-04-2024	75	65	34	2	1	4	17	27	9	11	38	40	95	940	360	680	296	47	25	50
20-04-2024	120	110	55	5	5	7	11	21	6	8	38	40	95	940	360	680	296	47	25	50
21-04-2024	115	105	42	3	2	5	18	28	7	9	38	40	95	940	360	680	296	47	25	50
22-04-2024	120	70	39	3	2	2	12	22	2	2	38	40	95	940	360	680	296	47	25	50
23-04-2024	90	80	30	2	1	4	16	19	20	12	38	40	95	940	360	680	296	47	25	50
24-04-2024	110	100	34	3	3	5	15	25	4	6	38	40	95	940	360	680	296	47	25	50
25-04-2024	85	75	40	3	2	5	11	21	2	4	38	40	95	940	360	680	296	47	25	50
26-04-2024	100	90	28	5	4	8	12	22	10	12	38	40	95	940	360	680	296	47	25	50
27-04-2024	110	95	43	4	3	6	10	18	6	5	38	40	95	940	360	680	296	47	25	50
28-04-2024	130	120	36	5	4	7	15	20	6	8	38	40	95	940	360	680	296	47	25	50
29-04-2024	140	140	35	2	2	4	20	30	13	7	38	40	95	940	360	680	296	47	25	50
30-04-2024	145	135	45	4	3	6	22	32	8	10	38	40	95	940	360	680	296	47	25	50

(2.1.2)

Purchase and Purchase Price of each SKU over the month (of April)

- To add to this, total expenditure for the day is calculated using formula:

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

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

where E_i = Expenditure at i^{th} day

2.2 : Increase the overall profit of the business

2.2.1: Analysing revenue as well as profit (in percentage) for each SKU

- I had a deep conversation with the business owner and I got to know that with the increase in the demand of online shopping, their profits were not steady as they are not available through an online mode.
- Hence my primary step would be to calculate profit/loss for each day, for each SKU. For calculating profit, I used purchase and sales data by using the formula:

$$Profit = Sales - Purchase$$

$$Profit_{SKU}\ \% = (profit_{SKU} / T.profit)\ \%$$

Prooduct	Profit/Loss	Revenue	% of total profit	% of total revenue
Rice	₹ 13,275	₹ 1,38,675	32.64%	17.36%
Flour	₹ 4,850	₹ 1,22,850	11.93%	15.38%
Urad Dal	₹ 9,220	₹ 1,18,470	22.67%	14.83%
Cashew	₹ 1,580	₹ 88,900	3.89%	11.13%
Raisins	₹ 1,350	₹ 26,505	3.32%	3.32%
Almonds	₹ 2,600	₹ 1,07,208	6.39%	13.42%
Oil	₹ 9,990	₹ 1,45,755	24.57%	18.24%
Sugar	₹ 600	₹ 33,450	1.48%	4.19%
Ice cream	-₹ 3,300	₹ 4,170	-8.12%	0.52%
Jaggery	₹ 500	₹ 12,935	1.23%	1.62%
Total	₹ 40,665	₹ 7,98,918	100.00%	100.00%

(2.2.1) Percentage of total profit and total revenue of each SKU

2.2.2: Observing and analysing profit/loss on a daily basis

(2.2.2)

Profit/Loss over the month (of April)

Date	Total Sales	Total Expenditure	Profit/loss
01-04-2024	36370	22800	13570
02-04-2024	28710	20940	7770
03-04-2024	36785	39485	-2700
04-04-2024	26010	29350	-3340
05-04-2024	23985	52268	-28283
06-04-2024	30730	17610	13120
07-04-2024	26860	27275	-415
08-04-2024	27780	33474	-5694
09-04-2024	19500	12550	6950
10-04-2024	23850	22500	1350
11-04-2024	27245	16785	10460
12-04-2024	27295	25180	2115
13-04-2024	25095	12220	12875
14-04-2024	24585	35725	-11140
15-04-2024	21780	33456	-11676
16-04-2024	24330	18237	6093
17-04-2024	23505	25631	-2126
18-04-2024	20850	19975	875
19-04-2024	18323	29715	-11392
20-04-2024	33025	24043	8982
21-04-2024	24520	19766	4754
22-04-2024	23310	30775	-7465
23-04-2024	24035	14001	10034
24-04-2024	24600	16470	8130
25-04-2024	24200	46820	-22620
26-04-2024	27225	22297	4928
27-04-2024	27660	14041	13619
28-04-2024	29475	27820	1655
29-04-2024	30570	19505	11065
30-04-2024	36710	29016	7694

2.2.3: Cumulative profit(in percentage) was calculated in order to have a clear visualisation with the help of pareto chart

SKU	% profit	cumulative profit %
Rice	32.64%	32.64%
Oil	24.57%	57.21%
Urad Dal	22.67%	79.88%
Flour	11.93%	91.81%
Almonds	6.39%	98.20%
Cashew	3.89%	102.09%
Raisins	3.32%	105.41%
Sugar	1.48%	106.89%
Jaggery	1.23%	108.12%
Ice Cream	-8.12%	100.00%

(2.2.3) Percentage of Cumulative profit for each SKU

2.3: Optimizing Inventory

- Upon discussion with the owner, I got to know that inventory management was one of the main concerns for the owner as according to him, stock was piled up at the end of the month.
- Inventory data is calculated for each day, so that we can do a proper analysis for it.

2.3.1: Calculation of inventory for each SKU

- Inventory is calculated by:

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

	Inventory									
Date	Rice	Flour	Urad Dal	Cashew	Raisins	Almonds	Oil	Sugar	Ice Cream	Jaggery
01-04-2024	555	415	60	15	16	23	24	74	63	25
02-04-2024	545	365	51	11	13	27	24	69	85	36
03-04-2024	530	310	56	21	29	20	23	58	85	39
04-04-2024	590	380	61	28	27	15	19	54	85	39
05-04-2024	545	415	80	46	46	26	14	43	94	48
06-04-2024	535	385	85	43	44	21	12	36	94	44
07-04-2024	490	400	85	41	43	37	2	26	94	46
08-04-2024	555	425	107	37	40	31	46	12	107	44
09-04-2024	525	505	106	35	39	27	38	19	116	47
10-04-2024	570	450	90	38	38	33	29	10	116	47
11-04-2024	585	430	80	36.5	37.5	29.5	24	5	124	41
12-04-2024	515	520	93	32.5	34.5	23.5	48	14	124	41
13-04-2024	455	560	98	30.5	33.5	19.5	35	1	124	39
14-04-2024	480	515	89	43.5	32.5	20.5	43	9	138	43
15-04-2024	480	625	87	42	32	37	44	14	138	43
16-04-2024	435	640	109	39	30	32	52	22	146	40
17-04-2024	445	580	97	47	29	33	52	26	146	37
18-04-2024	510	555	92	49	27	28	58	32	158	41
19-04-2024	535	540	108	52.6	26.6	29.6	81	45	158	41
20-04-2024	515	480	88	47.6	42.6	27.6	81	45	160	43
21-04-2024	550	425	96	44.6	40.6	22.6	94	59	165	48
22-04-2024	500	485	87	45.6	39.6	33.6	102	67	165	46
23-04-2024	455	450	92	43.6	38.6	29.6	102	61	185	56
24-04-2024	455	400	103	42.1	38.1	26.1	102	61	185	56
25-04-2024	520	525	115	44.1	36.1	41.1	121	60	185	56
26-04-2024	540	605	120	39.1	42.1	34.1	121	73	192	63
27-04-2024	530	555	129	35.1	39.1	28.1	121	76	192	60
28-04-2024	530	485	143	30.1	35.1	36.1	131	81	196	64
29-04-2024	540	405	148	28.1	34.1	32.1	131	81	205	65
30-04-2024	575	375	133	24.1	31.1	36.1	131	81	211	71

(2.3.1) Inventory for each SKU over the month (of April)

- In order to resolve the problem of inventory, total daily inventory is also calculated for each day by using the formula:

$$Total\ Inventory = \sum_{i=0} I_i$$

where I_i = Inventory at i^{th} day

2.3.2: Total inventory on a daily basis

Date	Total Daily Inventory
01-04-2024	1270
02-04-2024	1226
03-04-2024	1171
04-04-2024	1298
05-04-2024	1357
06-04-2024	1299
07-04-2024	1264
08-04-2024	1404
09-04-2024	1457
10-04-2024	1421
11-04-2024	1392.5
12-04-2024	1445.5
13-04-2024	1395.5
14-04-2024	1413.5
15-04-2024	1542
16-04-2024	1545
17-04-2024	1492
18-04-2024	1550
19-04-2024	1616.8
20-04-2024	1529.8
21-04-2024	1544.8
22-04-2024	1570.8
23-04-2024	1512.8
24-04-2024	1468.3
25-04-2024	1703.3
26-04-2024	1829.3
27-04-2024	1765.3
28-04-2024	1731.3
29-04-2024	1669.3
30-04-2024	1668.3

(2.3.2) Total Daily Inventory over the month of April

2.4: Fixed Cost Analysis

- For the analysis of fixed cost (FC), transport, rent, furniture, electricity, accessories, loan were calculated for a period of 30 days along with depreciation rate.

	Fixed Cost (FC) Analysis		
	Cost	Rate of Depriciation	Depriciation
Furniture	200000	1%	₹ 2,000
Freezer	40000	2%	₹ 800
Containers	20000	1%	₹ 200
Delivery Vehicle	130000	2%	₹ 2,600
Petrol/Transport	3000	100%	₹ 3,000
Rent	15000	100%	₹ 15,000
Electricity	1000	100%	₹ 1,000
Carry Bags	2000	100%	₹ 2,000
EMI	10000	100%	₹ 10,000
Total FC	₹ 4,21,000	**Total Normalised FC**	₹ 36,600

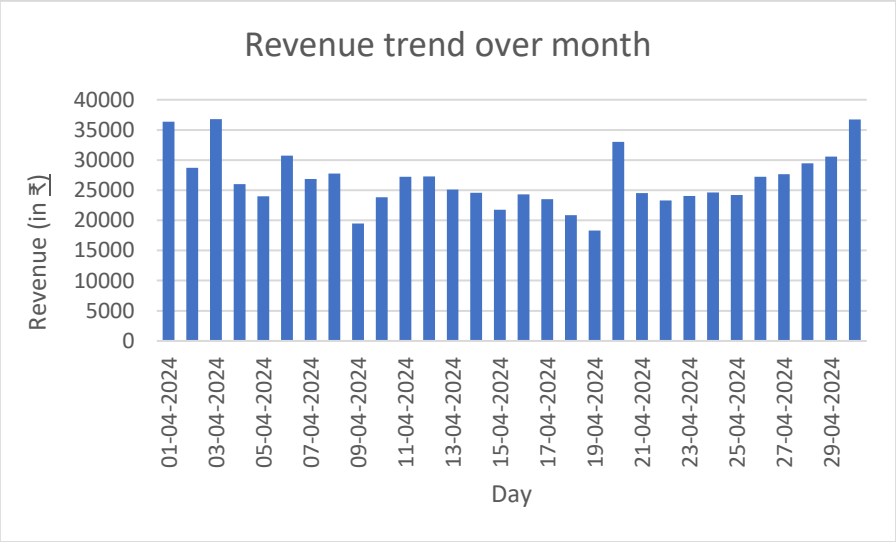
(2.4.1) Fixed Cost Analyses

3) Results and Findings

3.1: Revenue analysis (Sales, Purchase)

3.1.1: Observing revenue trend over the month (of April)

The below graph is generated for the revenue (sales) over the month

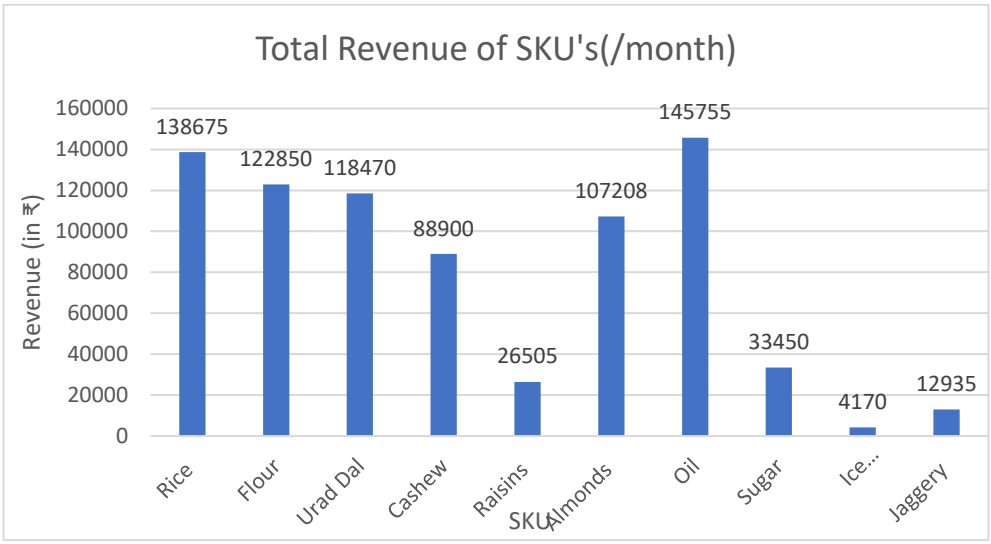


(3.1.1) Revenue trend over the month of April

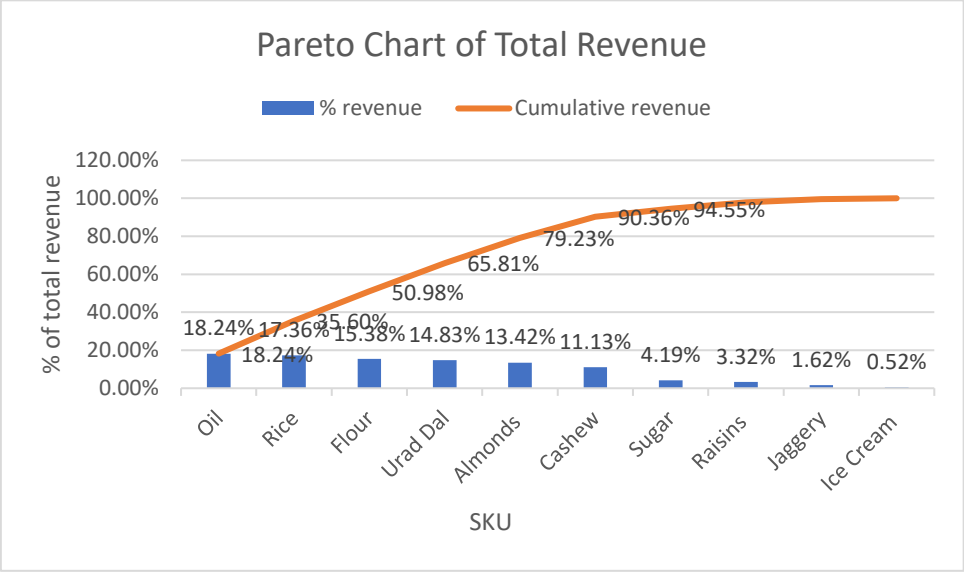
- Our analysis show that the start and end days for the month are the highest revenue generating days (can also be called as golden days for the business)
- It can also be seen that in the middle of the month, the business is somewhat struggling in some sense as it is not generating that much revenue as in the starting and the ending days for the month.
- The average daily revenue for the month stands at ₹ 26631, while the minimum revenue is ₹ 18323(19^{th} day) and the maximum is ₹ 36785 (3^{rd} day), hence giving us a range of ₹ 18462
  (Formula: Range = Max - Min)

3.1.2: Analysing Revenue for each SKU in detail

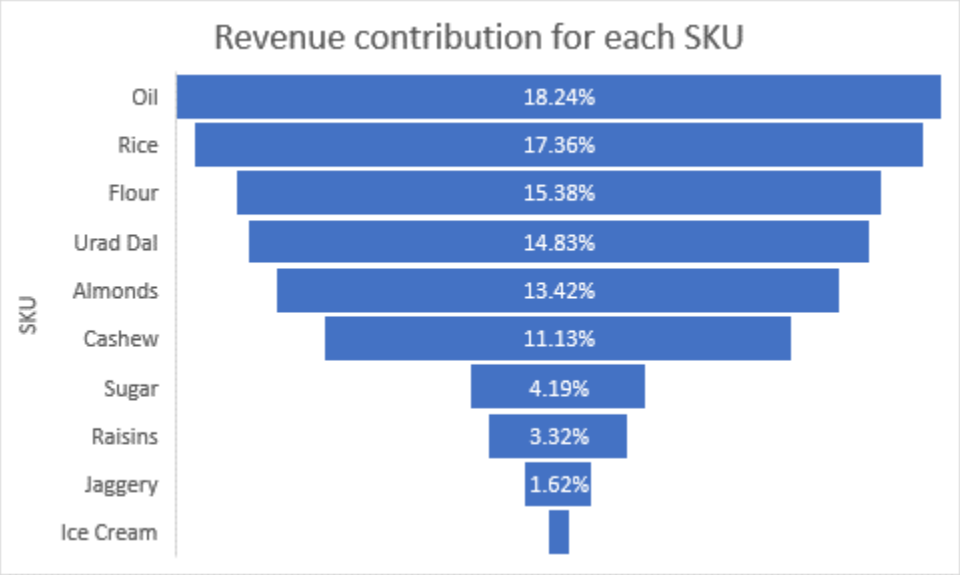
Now, in order to analyse revenue generated by each SKU, the following graphs are generated:



(3.1.2.1) Total revenue of each SKU in the month of April



(3.1.2.2) Pareto chart of total revenue for each SKU



(3.1.2.3)

Funnel chart to show revenue contribution for each SKU over the month

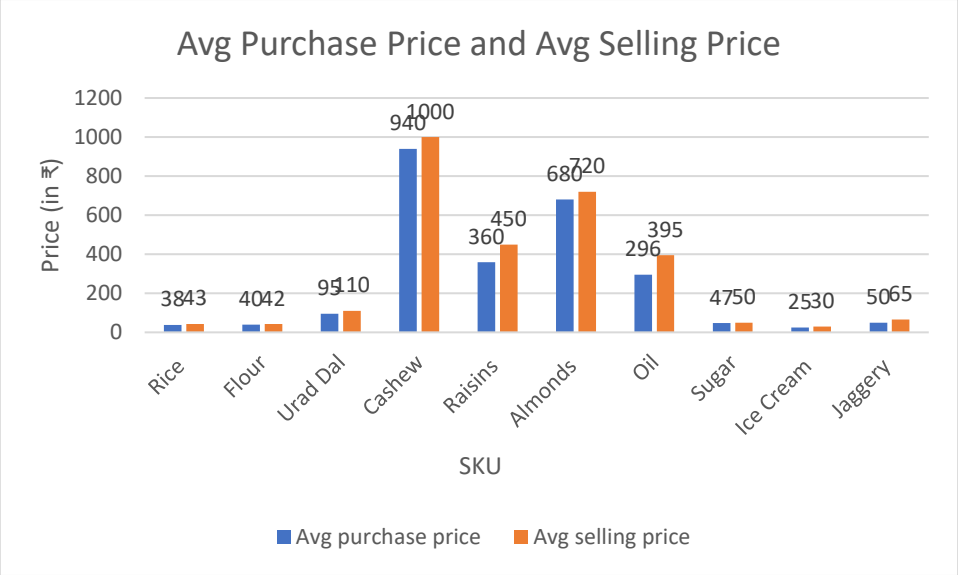
- **Top Revenue Generators**: Oil, Rice, and Flour are the highest revenue generators, contributing significantly to the total revenue. Oil leads with 18.24% of the total revenue, followed by Rice at 17.36%, and Flour at 15.38% of the total revenue.
- **Mid-Level Revenue Generators**: Ural Dal (14.83% of the total revenue), Almonds (13.42% of the total revenue) and Cashew (11.13% of total revenue) form the mid-level contributors.
- **Lower Revenue Generators**: Raisins, Sugar, Ice Cream, and Jaggery have the lowest revenue, with sugar being the highest among them contributing to 4.19% of the total revenue and Ice Cream the lowest contributing to just 0.52% of the total revenue.
- **80/20 Rule Application**: Clearly from the pareto chart, the 80/20 rule is evident here, as the top five SKUs (Oil, Rice, Flour, Ural Dal, and Almonds) account for approximately 79.23% of the total revenue.

All in all, all three charts consistently highlight Oil, Rice, Flour, and Ural Dal as the top revenue-generating SKUs.

The biggest message for us to take forward is that the Pareto chart emphasizes the significance of the 80/20 rule, showing that a small number of SKUs contribute to the majority of the revenue.

3.2: Profit/Loss Analysis

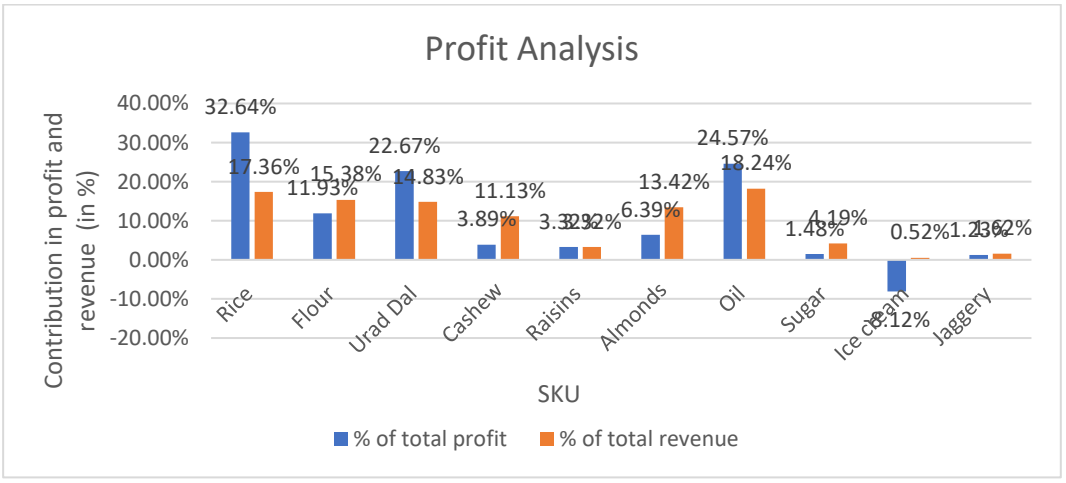
3.2.1: Comparison of average purchase price and average selling price for each SKU



(3.2.1) Comparison of average purchase and average selling price for each SKU

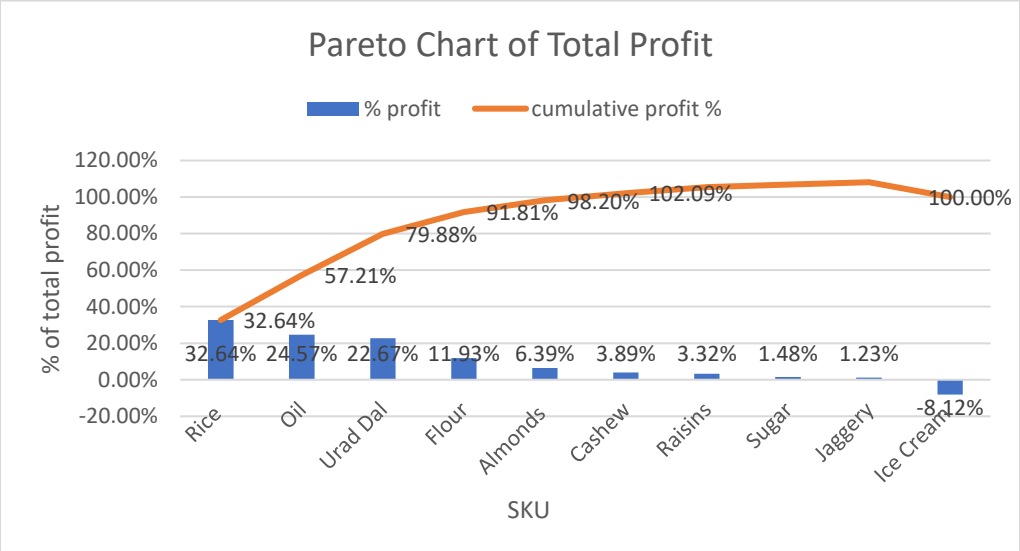
- Both Rice and Flour have negligible differences between purchase and selling prices, indicating very low margins.
- Cashew has a substantial margin, with a purchase price of 940 and a selling price of 1000. This shows a strong profit margin.
- Almonds show a significant margin with a purchase price of 680 and a selling price of 720, indicating good profitability.
- Both Ice Cream and Jaggery have minimal margins, suggesting these products are either loss leaders or need a price review to ensure profitability (which we will see later in detail)

3.2.2: Analysing Profit for each SKU in detail (we will use 3 graphs for analysing)



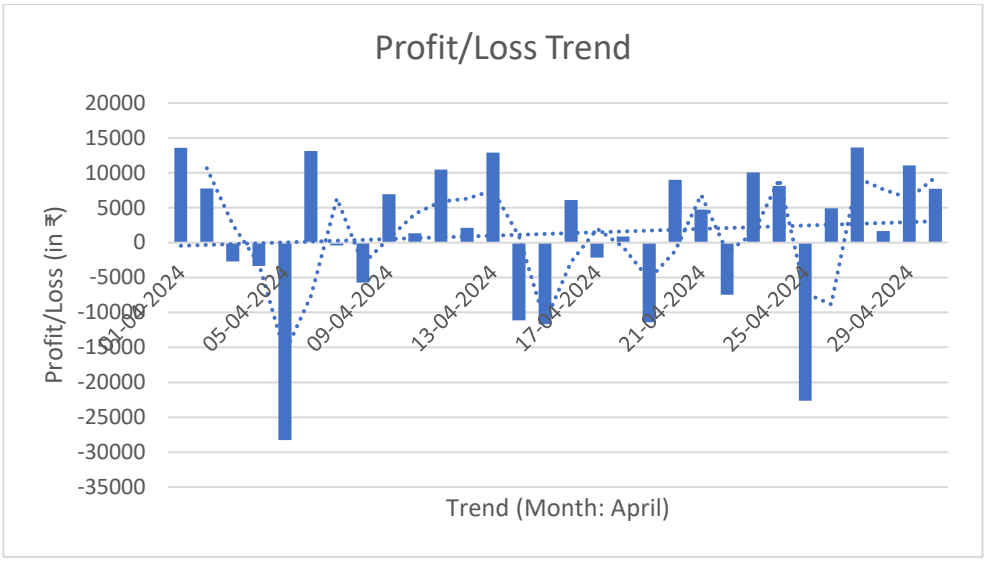
(3.2.2.1) Profit analysis for each SKU

- The highly profitable products are Rice, Urad Dal, Almonds, and Oil, as indicated by their higher percentage of total profit compared to their percentage of total revenue in the graph.
- The moderately profitable products are Flour and Sugar, which show a reasonable balance between their percentage of total profit and total revenue, though their profit percentages are somewhat higher than their revenue percentages.
- The low profitability products are Cashew, Raisins, and Jaggery, as shown in the graph where their percentage of total profit is either lower or just slightly higher than their percentage of total revenue.
- The loss-making product is Ice Cream, as evidenced by the graph where its percentage of total profit is negative despite having a small percentage of total revenue.



(3.2.2.2) Pareto chart of total profit

- The chart effectively demonstrates the Pareto principle, where a small number of products (Rice, Oil, Urad Dal, and Flour) account for the majority of the profit. Products like Ice Cream have a negative effect, highlighting areas that may require strategic changes or improvements.
- **Major Profit Contributors**: Rice, Oil, Urad Dal, and Flour contribute the most to the profit, making up over 90% of the cumulative profit.
- **Moderate Profit Contributors**: Almonds, Cashew, Raisins, Sugar, and Jaggery have lower profit contributions.
- **Loss-Making Product**: Ice Cream negatively impacts the profit, reducing the final cumulative profit.

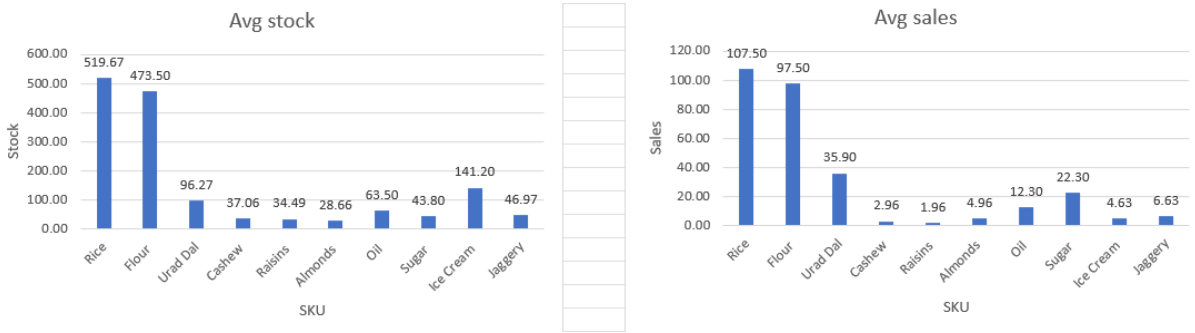


(3.2.2.3) Profit/Loss trend over the month

- There are substantial fluctuations in the profit/loss trend, indicating potential instability or seasonal effects. It can be concluded that wrong decisions made by the owner especially related to purchase of ice cream caused loss for the firm resulting in lower net profit.

3.3: Inventory Analysis

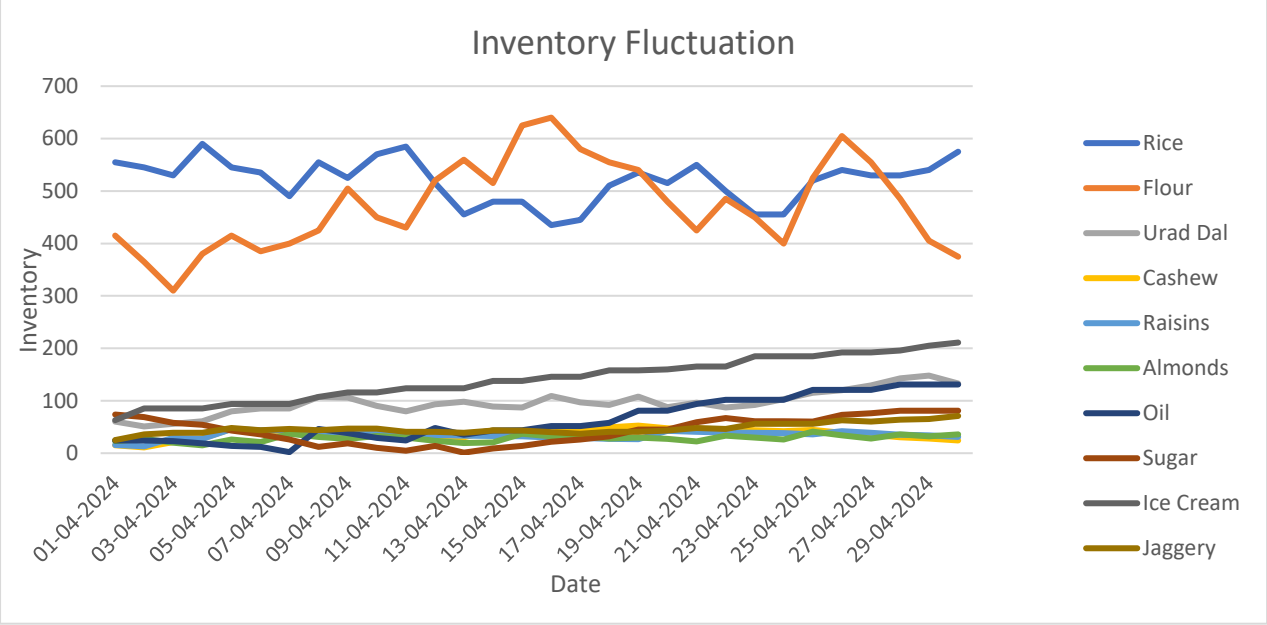
3.3.1: Comparison of average stock and average sales for each SKU



(3.3.1) Average stock and Average sales for each SKU over the month

- **Rice and Flour**: High stock and high sales, indicating they are essential items with a fast turnover.
- **Urad Dal**: Moderate stock and sales, suggesting steady demand.
- **Ice Cream**: High stock compared to sales, indicating either overstocking or lower demand.
- **Cashew, Raisins, Almonds**: Low stock and sales, possibly indicating these are niche items or less in demand.
- **Sugar and Oil**: Moderate stock with varying sales, with sugar selling more than oil relative to their stocks.
- **Jaggery**: Low stock and sales, similar to niche dry items.

3.3.2: Understanding Inventory Fluctuation in detail



(3.3.2) Inventory fluctuation for each SKU over the month

- **Rice and Flour**: Both items show significant fluctuations but remain within a high inventory range. The slight downward trend in flour inventory towards the end of the month suggests increasing sales or reduced restocking.
- **Urad Dal, Cashew, Raisins, Almonds**: These items have relatively low and stable inventories.
- **Oil and Sugar**: Both items have stable inventories with slight fluctuations. Regular restocking seems to be in place, matching the demand patterns.
- **Ice Cream**: Shows significant fluctuations, indicating variable demand or inconsistent restocking. Consider analysing sales patterns more closely to optimize inventory levels.
- **Jaggery**: Stable inventory suggests consistent demand and supply. No immediate changes needed.

3.4: Analysing Fixed Costs

(3.4.1) Pie chart and bar graph showing division of fixed cost

From the above bar graph and pie chart, it can be seen that rent and EMI's are the main contributors to the fixed cost due to them being a necessity for the shop there is not much reduction to do.

3.5: SWOT Analysis

3.5.1: Strengths (refer to section 3.1 and 3.2)

- **High-Profit SKUs**:
  Rice and Oil: These products have a significant contribution to total profit, with Rice at 32.64% and Oil at 24.57%. This indicates strong demand and efficient pricing for these items, making them critical for the store's profitability.

- **Revenue-Driving SKUs**:
  Flour and Rice: These products also contribute significantly to the revenue, following the Pareto principle, where a small number of products drive most of the revenue.

- I**nventory Stability**:
  For high-demand SKUs like Rice and Flour, inventory levels seem to be managed effectively, preventing stockouts and ensuring consistent availability.

3.5.2: Weaknesses (refer to section 3.1 and 3.2)

- **Negative Profit SKU**:
  Ice Cream: The data indicates that Ice Cream has a negative profit margin (-8.12%). This could be due to high costs or low sales, suggesting it might be a drain on resources and requiring a review of its viability in the product lineup.

- **Low Revenue and Profit Contribution**:
  Cashew, Raisins, and Sugar: These SKUs have low contributions to both profit and revenue. This indicates that they are underperforming and may not be justifying their place in inventory.

- **Over-Dependence on a Few SKUs**:
  The Pareto principle observation suggests that the store relies heavily on a few key SKUs (like Rice and Flour) for the majority of its revenue and profit. This can be risky if demand for these products fluctuates.

3.5.3: Opportunities

- **Focus on High-Margin SKUs**:
  Rice and Oil: There's potential to further maximize profits by increasing stock, promotion, or sales of these high-margin SKUs.

- **Optimize or Replace Low-Performing SKUs**:
  Consider replacing or discontinuing low-profit or negative-margin SKUs like Ice Cream, or renegotiating supplier contracts to reduce costs.

- **Diversification**:
  Explore adding new products that could replicate the success of high-performing SKUs like Rice and Flour, potentially reducing the store's reliance on these few items.

3.5.4: Threats

- **Market Competition**:
  If competitors offer similar products at lower prices, especially for high-margin items like Rice and Oil, the store could see a decline in profit margins.

- **Seasonal Variability**:
  The store's reliance on specific SKUs might make it vulnerable to seasonal changes in demand, which could impact both sales and profit margins.

- **Supply Chain Disruptions**:
  Given the dependence on high-performing SKUs, any disruptions in the supply chain for these products could significantly affect the store's operations and profitability.

4) INTERPRETATION OF RESULTS AND FINDINGS

4.1: Recommendation 1: Focus on High-Performing Products

(refer figure number 3.2.2.1)

- **Rice and Oil**: Since rice and oil contribute significantly to both revenue (17.36% and 18.24% respectively) and profit (32.64% and 24.57% respectively), consider strategies to further boost their sales.
    - **Marketing Campaigns**: Promote these products through targeted marketing campaigns.
    - **Bundles and Discounts**: Offer bundled deals or discounts to encourage bulk purchases

4.2: Recommendation 2: Review low performers (especially ice cream)

(refer figure number 3.2.2.1)

The lower-performing SKUs like Ice Cream and Jaggery should be reviewed to understand the reasons behind their low sales as their revenue is just 0.52% and 1.23% respectively of the total revenue. To add to this, products like ice cream is incurring loss of 8.12% of the total profit while jaggery contributes to just 1.62% of the total profit.

- **Ice Cream**: Shows a negative profit percentage, indicating it's not covering costs.
    - **Cost Analysis**: Conduct a thorough cost analysis to identify the factors leading to losses.
    - **Pricing Strategy**: Reevaluate your pricing strategy to ensure it covers costs while remaining competitive.
    - **Product Review**: Consider if this product should be continued or replaced with a more profitable alternative.

4.3: Recommendation 3: Leverage High-Profit Margin Items:

- **Rice and Oil**: These items have high-profit margins
    - **Premium Versions**: Introduce premium versions or value-added variants to capitalize on their popularity.
    - **Branding and Packaging**: Enhance branding and packaging to differentiate and add perceived value.

4.4: Recommendation 4: Manage Slow-Moving Items:

(refer figure number 3.3.1)

- **Cashew and Raisins**: Show low average sales
    - **Review Stocking Strategy**: Assess whether these items need to be stocked in smaller quantities.
    - **Promotional Efforts**: Increase marketing efforts or bundle these items with more popular products to boost sales.

4.5: Recommendation 5: Analyse Inventory Fluctuations

(refer figure number 3.3.2)

Inventory Fluctuation Graph: Shows consistent trends for most items, with noticeable fluctuations in Flour and Rice.

- **Trend Analysis**: Conduct deeper analysis to understand the cause of these fluctuations and address underlying issues.
- **Adjust Ordering Practices**: Adjust ordering schedules and quantities to smooth out these fluctuations.

4.6: Recommendation 6: Additional Steps

Regular Inventory Reviews:

- Conduct weekly or bi-weekly inventory reviews focusing on high-fluctuation items to adjust stocking and ordering practices in real time.

S**upplier Collaboration**:

- Work closely with suppliers of high-demand items like Rice, Flour, and Oil to ensure a reliable supply chain and better negotiation terms.

Promotional Strategies:

- Develop targeted promotional strategies for slow-moving items to increase their turnover and free up storage space for more popular items.

Lean Inventory Practices:

- Apply lean inventory principles to minimize waste, reduce holding costs, and improve overall efficiency in inventory management.

5) CONCLUSION:

In conclusion, the analysis of all the data provided by Om Prakash and Sons store has provided valuable insights and recommendations for improving the shop's profitability and inventory management.

The analysis revealed that items like rice, oil and even flour have high profit margins and represent significant opportunities for increasing sales. By using marketing strategies such as seasonal promotions and partnerships with certain strategies, the shop can tap into the potential of these high-profit margins. To add to this, offering bulk sales and discounts will make the customers buy larger quantities, further boosting sales volume and overall profitability of the business.

The findings also underscored the importance of enhancing inventory management. By restocking inventory earlier during peak sales periods and improving planning and forecasting, the shop can ensure adequate stock levels without leading to excess inventory or shortages. This approach will help maintain customer satisfaction, reduce holding costs, and boost overall operational efficiency.

Additionally, the analysis highlighted the necessity of making well-informed purchasing decisions. The shop owner should carefully monitor price fluctuations and market trends to avoid buying items at inflated prices, as seen with flour. By taking a proactive purchasing approach, the shop can reduce losses and enhance profitability.
The analysis of fixed costs revealed areas that need attention, such as rent, electricity and containers. The shop owner should continuously assess and optimize these costs to improve cost efficiency and maximize profit margins.

Moreover, store can also improve their display and implement effective pricing strategies which can help to attract more customers and increase sales. Eye-catching displays, sample stations, and promotional pricing can create a positive shopping experience and encourage additional purchases, leading to higher revenue and profitability.

By adopting these recommendations, Om Prakash and Sons Store can enhance its financial performance, boost profitability, and secure a stronger market position. It is crucial for the shop owner to regularly monitor and evaluate the effectiveness of these strategies, making necessary adjustments to ensure long-term growth and sustainability.

Excel link
https://docs.google.com/spreadsheets/d/1Nxzs5yDnNuzNYPLJMPSWn5wM56zgtsz-/edit?usp=sharing&ouid=100193283815178925214&rtpof=true&sd=true

----------End----------