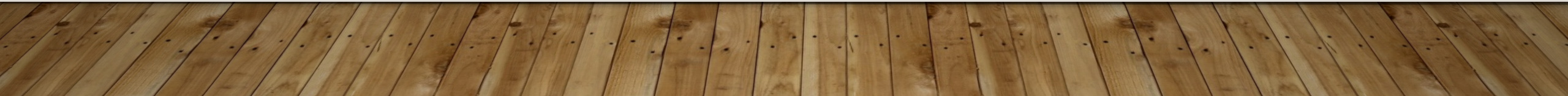


BUSINESS DATA MANAGEMENT CAPSTION PROJECT

**OPTIMIZING INVENTORY AT EFFICIENT LEVEL FOR SMALL KIRANA
STORE**

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ABOUT THE BUSINESS

- Ajay Kirana store is local convenience store located Near court, Block Road, Masaurhi (Patna).
- It serve the local communities with range of products like Snacks, groceries items and household items etc.



PROBLEM STATEMENT

- To maintain stock in inventory at right level so that customer's don't face stock out.
- To maintain the working capital invested in inventory to manage it well using better inventory planning techniques. So that the business can run efficiently.



Data Collection And Tools Used

The Sales data was collected over the period of the month by visiting the shopkeeper daily and asking him sales of each SKU's, and taking notes of that.

Total SKU's = 50

Time Frame = 1 Month from (01/03/2024 to 30/03/2024)

The Analysis and data cleaning was done using the excel Software.

No.	NAME	Price	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	गुजरी	5		10	8	10	7	8	7	4	2						
2	बिनी	5		8	5	9	8	8	6	4	3	3				6	5
3	Wood dary	10								2	2	4				1	2
4	मोतीमो	40		1-10				1	4	1	5	3				2	4
5	मोतीमो	5		6	8	5	6	7	4	4	5	3				2	4
6	मोतीमो	65		3		1				1						2	1
7	मोतीमो	10		2	4	3	3	4	2	2	3	1	3			3	6
8	मोतीमो	65								1							1
9	मोतीमो	20				1					1						2
10	मोतीमो	10		12	10	9	4	16	8	6	10	4	5			10	3
11	मोतीमो	10				1	2	2	1	8	2	1	3			2	1
12	मोतीमो	104				1 Pic				1 Pic							2
13	मोतीमो	7		1	2	4	3	5								5	2
14	मोतीमो	10															8
15	मोतीमो	27															3
16	मोतीमो	54															1
17	मोतीमो	37															
18	मोतीमो	10															
19	मोतीमो	10															
20	मोतीमो	10		1		2		3	2	2	6	1	2			3	
21	मोतीमो	5															6
22	मोतीमो	10		5	2	1	2	8	4	4						4	
23	मोतीमो	32															
24	मोतीमो	90															
25	मोतीमो	84															
26	मोतीमो	44		5	2	3	5	8	1	5	12	10	5	8		3	2
27	मोतीमो	12		4	15	7	3	6	7	3	2	8				4	10
28	मोतीमो	170															4
29	मोतीमो	104															
30	मोतीमो	50		2	1												5
31	मोतीमो	36															
32	मोतीमो	20		12	6	8	6	11	6	7	5	3	4			8	10
33	मोतीमो	20		4	3	3	2	4	2	4	2	3				4	2

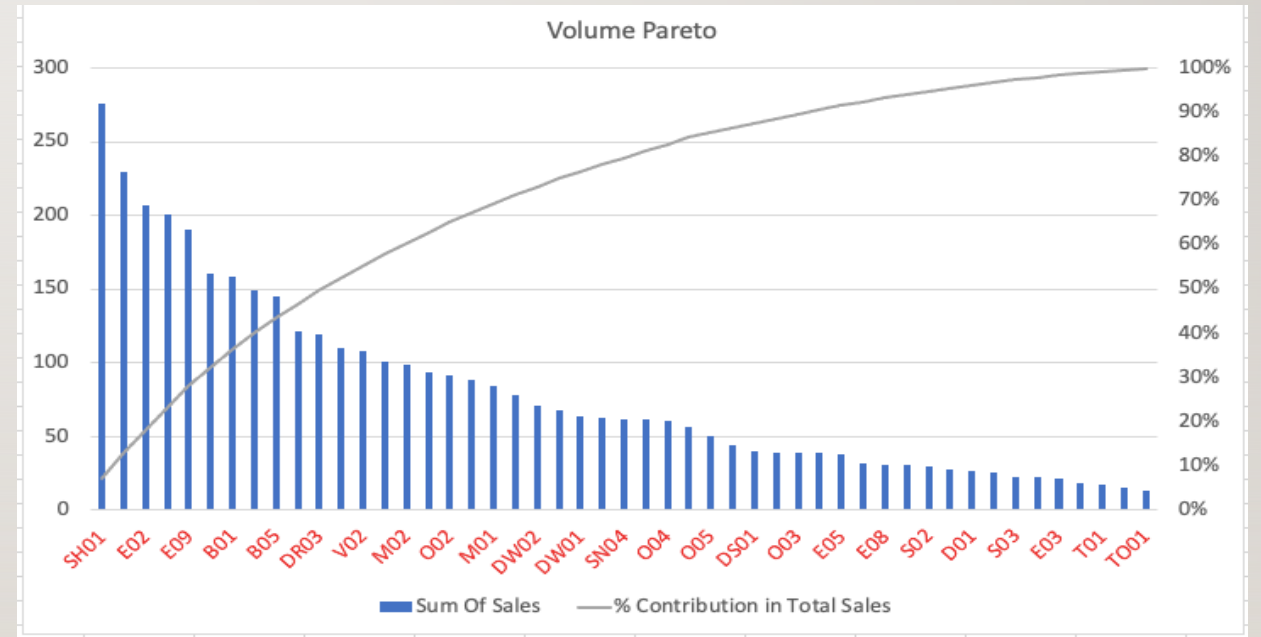
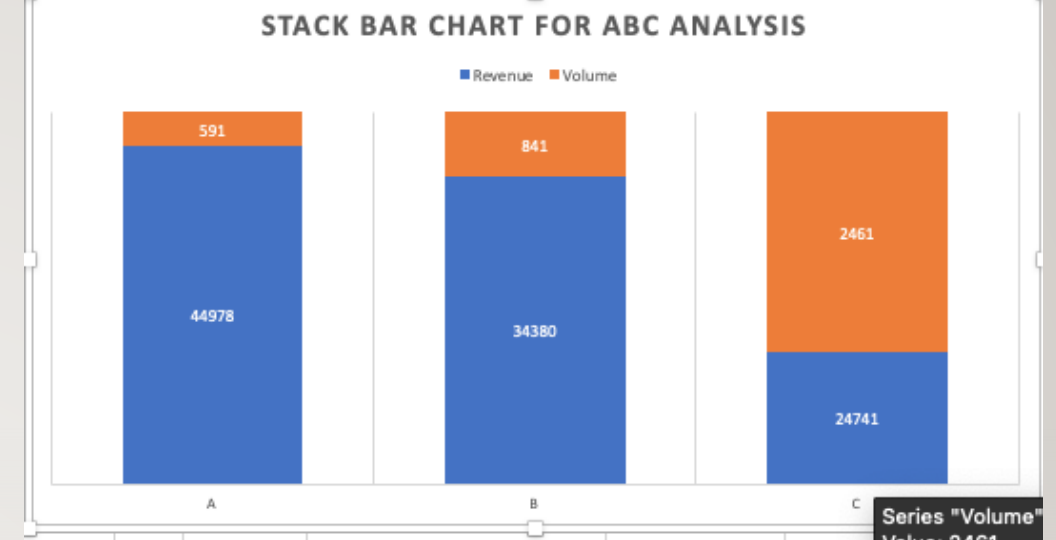
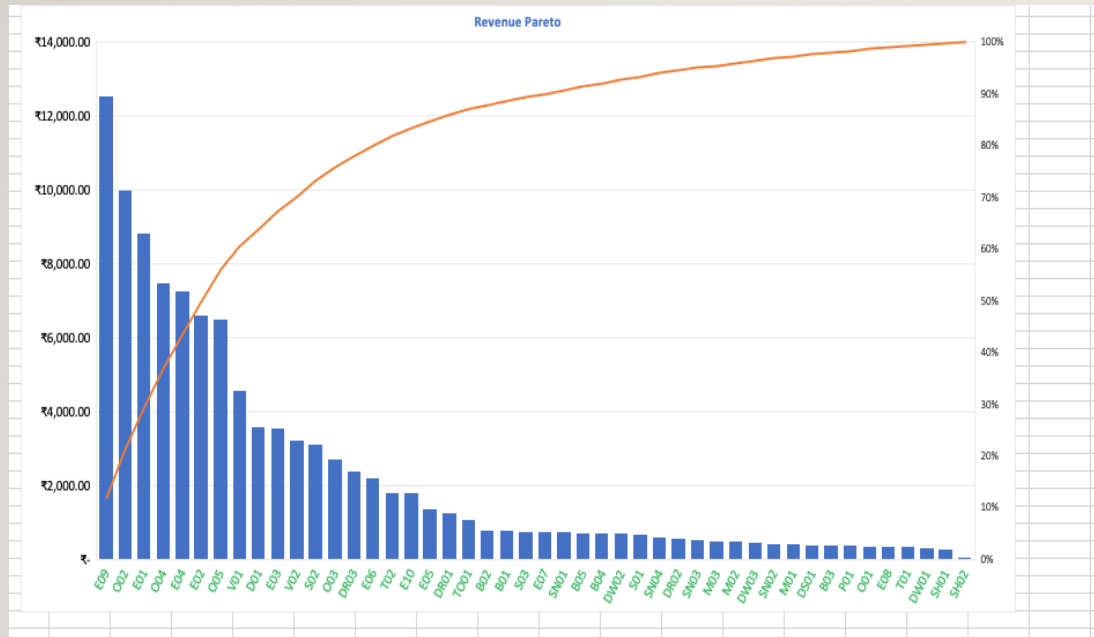
SKU's Dictionary :-

Categorized the SKU's among different categories given below -

1. Essentials (sugar, flour, Rice, Salt, Besan)
2. Edible Oils (mustard oil, Refine)
3. Vegetables. (Onion, Potato,)
4. Snacks (different type of mixtures, chips)
5. Detergent (different type of detergents)
6. Masala (Different type of masala)
7. Toothpaste (different type of toothpaste)
8. Dishwash (different type of dishwash)
9. Soap (different type of soap)
10. Drinks (different type of drinks)

Pareto Analysis

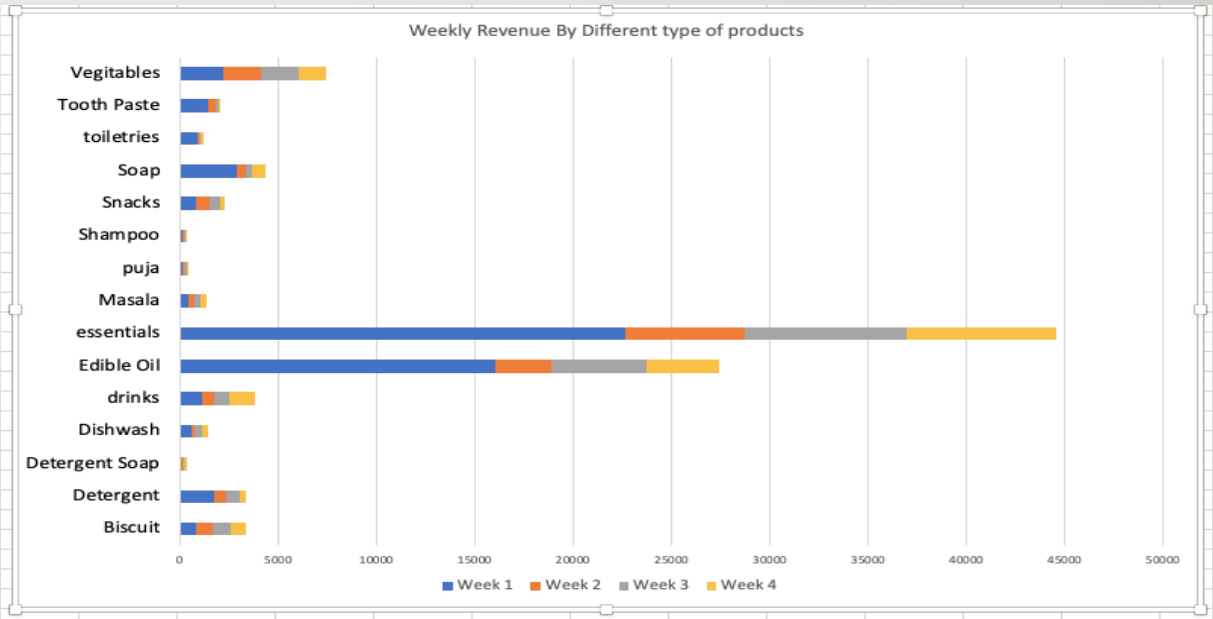
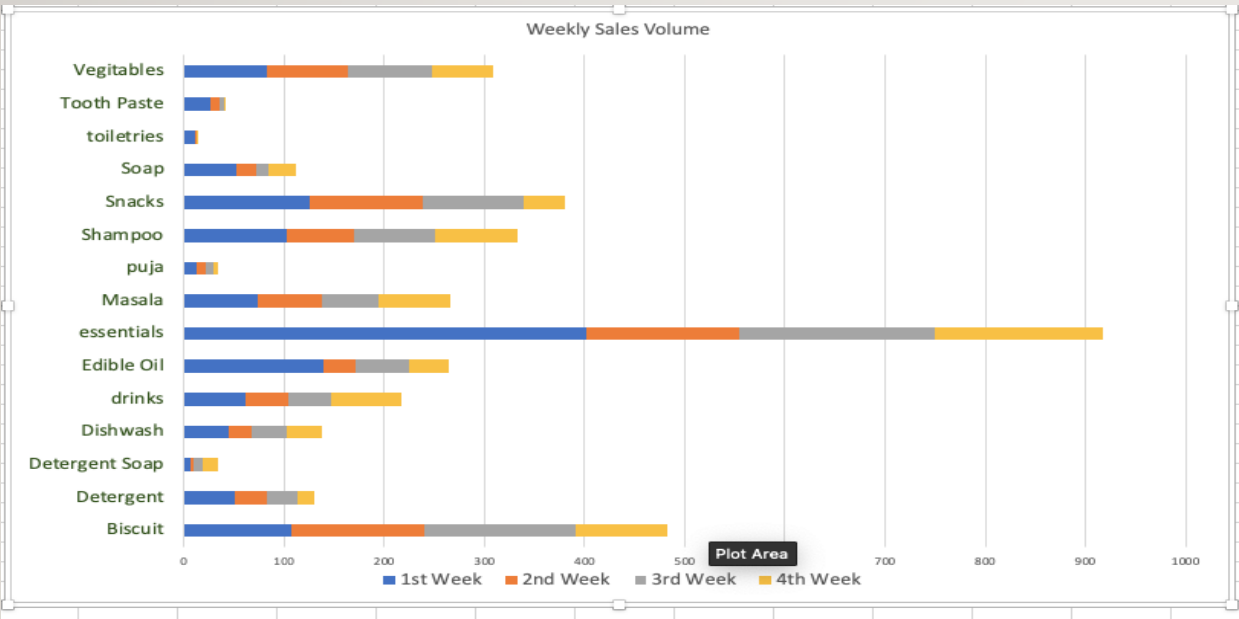
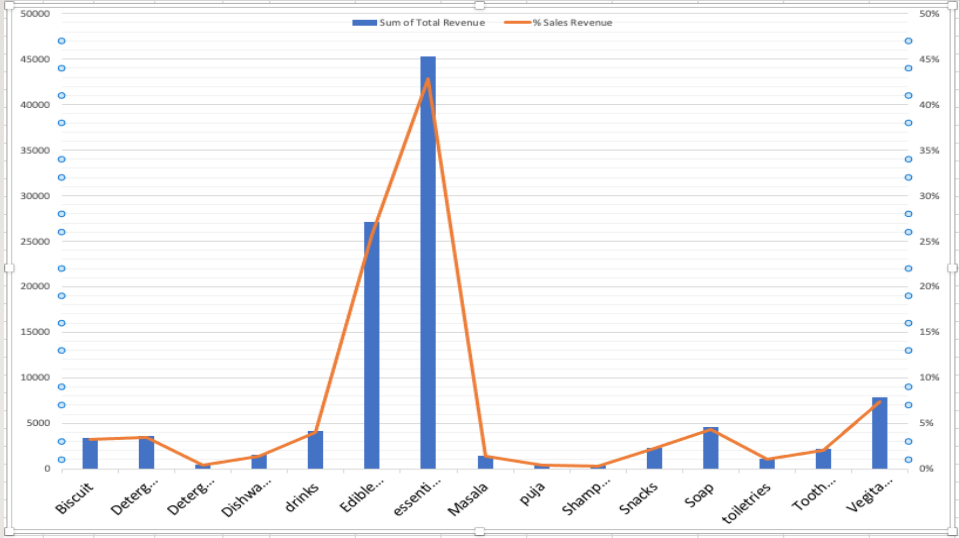
- Revenue Pareto to know the top performing SKU's in terms of Revenue.
- Volume Pareto to know the top performing SKU's in terms of Volume.
- Also done ABC analysis to focus more on the top performing SKU's.



Analysis on Different Categories

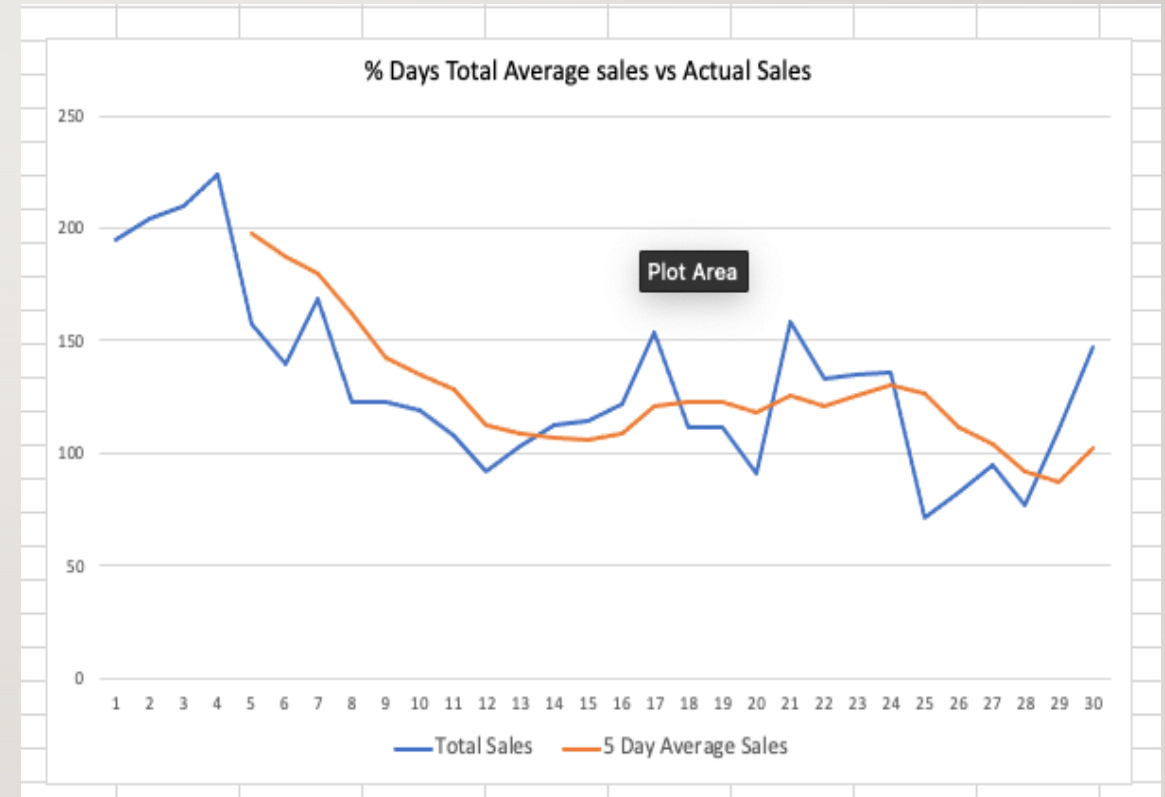
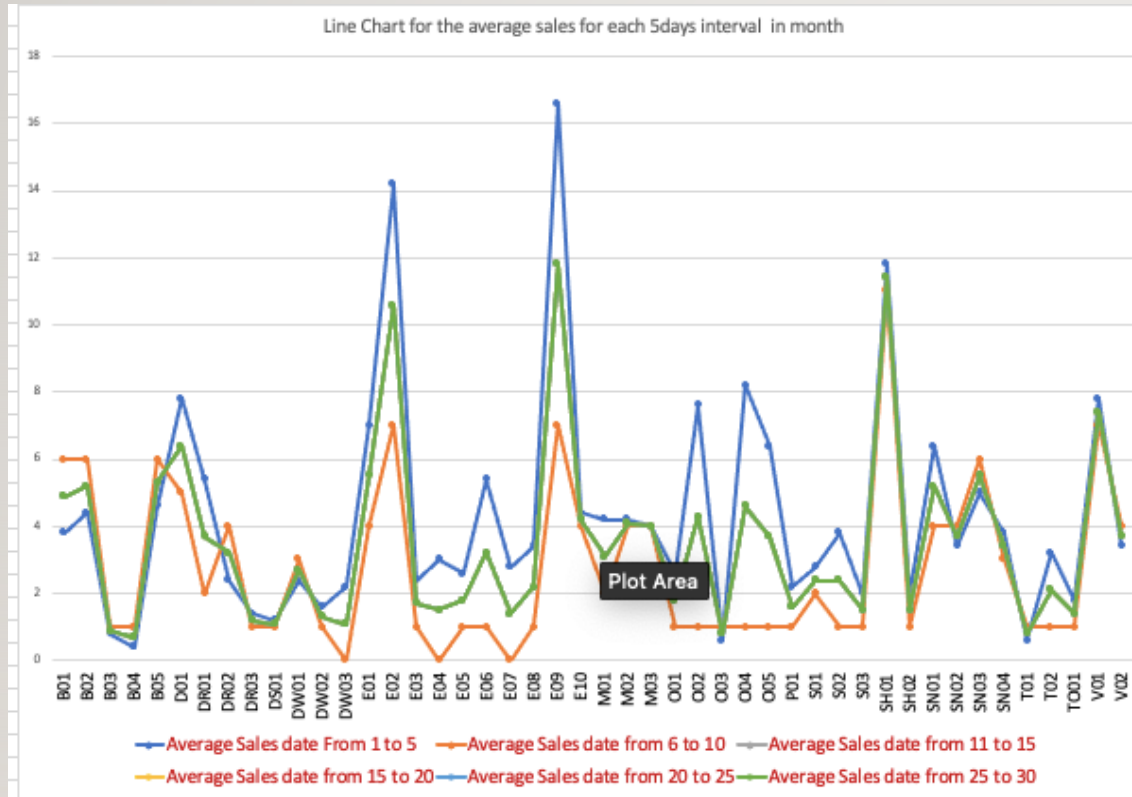
Here done analysis on different categories of SKU's in terms of Revenue and Volume of sales quantity.

Also done weekly sales analysis of the different categories of SKU's to know more about the sales distribution over different weeks over month.



Time Series Analysis -:

- Here I have Used 5 Days moving Average for demand Forecasting .
- Also calculated the average sales of each product over different week over month to know the best suits average.



Calculation of Safety Stock and Reorder point

SKU	Average Demand	Lead time	Std. Deviation	Service Level	Z-score	Safety Stock	Re-order Point
B01	4	1	0.70	95%	1.64	5	9
B02	4	1	0.51	95%	1.64	5	10
B03	1	1	0.06	95%	1.64	1	2
B04	0	1	0.19	95%	1.64	1	1
B05	5	1	0.44	95%	1.64	5	10
D01	8	1	0.89	95%	1.64	9	17
DR01	5	1	1.08	95%	1.64	7	13
DR02	2	1	0.51	95%	1.64	3	6
DR03	1	1	0.13	95%	1.64	2	3
DS01	1	1	0.06	95%	1.64	1	3
DW01	2	1	0.19	95%	1.64	3	5
DW02	2	1	0.19	95%	1.64	2	4
DW03	2	1	0.70	95%	1.64	3	6
E01	7	1	0.95	99%	2.33	9	16
E02	14	1	2.28	99%	2.33	19	34
E03	2	1	0.44	99%	2.33	3	6
E04	3	1	0.95	99%	2.33	5	8
E05	3	1	0.51	99%	2.33	4	6
E06	5	1	1.39	99%	2.33	9	14
E07	3	1	0.89	99%	2.33	5	8
E08	3	1	0.76	99%	2.33	5	9
E09	17	1	3.04	99%	2.33	24	40
E10	4	1	0.13	99%	2.33	5	9

M01	4	1	0.70	95%	1.64	5	10
M02	4	1	0.06	95%	1.64	4	9
M03	4	1	0.00	95%	1.64	4	8
O01	3	1	0.51	99%	2.33	4	6
O02	8	1	2.09	99%	2.33	12	20
O03	1	1	0.13	99%	2.33	1	1
O04	8	1	2.28	99%	2.33	13	22
O05	6	1	1.71	99%	2.33	10	17
P01	2	1	0.38	95%	1.64	3	5
S01	3	1	0.25	95%	1.64	3	6
S02	4	1	0.89	95%	1.64	5	9
S03	2	1	0.32	95%	1.64	3	5
SH01	12	1	0.25	95%	1.64	12	24
SH02	2	1	0.32	95%	1.64	3	5
SN01	6	1	0.76	95%	1.64	8	14
SN02	3	1	0.19	95%	1.64	4	7
SN03	5	1	0.32	95%	1.64	6	11
SN04	4	1	0.25	95%	1.64	4	8
T01	1	1	0.13	95%	1.64	1	1
T02	3	1	0.70	95%	1.64	4	8
TO01	2	1	0.25	95%	1.64	2	4
V01	8	1	0.25	95%	1.64	8	16
V02	3	1	0.19	95%	1.64	4	7

Recommendations

- He needs to focus more on the categories like essentials and edible oils as it is generating high revenue.
- He needs to maintain the re-order point and place order to stock up the inventory.
- He needs to remove all the stock of the items of having less demand. And also place economic order quantity.
- He needs to invest more on the seasonals items like water bottle, cold drinks as its demand is rising.
- If possible he can also invest money on the system to plan inventory efficiently as this models requires continuous evaluation of the demands, safety stock and reorder points and economic order quantity.

SKU	Re-order Point	Order placing Dates		
		30th of month	10th of month	20th of month
B01	9	38	49	44
B02	10	44	52	48
B03	2	8	9	9
B04	1	4	7	6
B05	10	46	53	50
D01	17	78	64	71
DR01	13	54	37	46
DR02	6	24	32	28
DR03	3	14	12	13
DS01	3	12	11	12
DW01	5	24	27	26
DW02	4	16	13	15
DW03	6	22	11	17
E01	16	70	55	63
E02	34	142	106	124
E03	6	24	17	21
E04	8	30	15	23
E05	6	26	18	22
E06	14	54	32	43
E07	8	28	14	21
E08	9	34	22	28
E09	40	166	118	142

E10	9	44	42	43
M01	10	42	31	37
M02	9	42	41	42
M03	8	40	40	40
O01	6	26	18	22
O02	20	76	43	60
O03	1	6	8	7
O04	22	82	46	64
O05	17	64	37	51
P01	5	22	16	19
S01	6	28	24	26
S02	9	38	24	31
S03	5	20	15	18
SH01	24	118	114	116
SH02	5	20	15	18
SN01	14	64	52	58
SN02	7	34	37	36
SN03	11	50	55	53
SN04	8	38	34	36
T01	1	6	8	7
T02	8	32	21	27
TO01	4	18	14	16
V01	16	78	74	76
V02	7	34	37	36

THANK YOU

