MAXIMIZING THE SALES OF AN AUTOMOBILE STORE

A Mid-Term Report for the BDM capstone Project

Submitted by

Name: Anshika Tiwari

Roll number:22F1000493

Contents

1. Executive Summary and Title (200-250 Words)
2. Proof of originality of the Data
3. Metadata
4. Descriptive Statistics
5.Detailed Explanation of Analysis Process/Method
6.Results and Findings

Executive Summary and Title (200 Words)

This project is focused on the business data analysis of a local automobile store in Kanpur, named **M.V Motors**. It's a B2C business owned by **Mr. Shubham Nigam**. The business deals in automobile spare parts and electric scooters. They also provide automobile repairing services to customers.

The data was collected after 2-3 meetings with the owner. I also interacted with the workers there to know their perspective. According to them the customer return rate is very good but still there is no significant increase in the revenue generated solely through repairing services. The business employs 3 workers for repairing services. Another problem faced by the business is that the sales of EV scooters is not satisfactory.

After 2 meetings the data was collected. It was then organized and cleaned. After cleaning the Data, data analysis and visualization was performed using MS Excel. Various other statistical operations were also performed. The data collected is of 3 months i.e, from October 2023 to December 2023. The data provided by the business was following:

1.Sales Data: It contained the record of the sales of auto parts and EV scooters for the period of 3 months

2.Purchase Data: It contained the record of the total purchases made by the business for the period of 3 months.

Proof of Originality

PROOF OF ORIGINALITY	EXTERNAL LINKS
Letter From Owner	https://drive.google.com/file/d/1nJE1rStm0FNY6OZyyPZky_VDa6oVP3CN/view?usp=sharing
Picture Taken During Data Collection	https://drive.google.com/file/d/1nFT9cXltNqjwzjIZCDHmGXY4KpOceW0J/view?usp=drive_link

Picture Taken Outside The Store	https://drive.google.com/file/d/1nCAULKHoqMi8R767dy-01SiS9pRQFFnK/view?usp=drive_link
Pictures Taken Inside The Store	https://drive.google.com/file/d/1nDA7MyemsRJKZk8Xmx_9cMhGMiQeADFk/view?usp=drive_link
Inventory storage	https://drive.google.com/file/d/1nFUb-o3qdskDJkUwDKcSCe0i_GTxNRuA/view?usp=drive_link https://drive.google.com/file/d/1nECL0JyujkZAQi6bp4EVVK9c6uUMXn0n/view?usp=drive_link

Data Collection

The data provided by the business was time series data of 3 months, from October 2023 to December 2023. The data collected was following:

1. Sales Data: It contained the sales record of 3 months
2. Purchase Data: It contained the purchases made by the business from October 2023 to December 2023.

Meta Data

Sales Data:

1.Automobile spare parts:

- DATE : The date on which the product was sold
- CATEGORY: The category of the spare part sold.
- PRODUCT: Name of the spare part sold.
- QTY: Quantity sold
- SERVICING: If the servicing was done or not. ‘Yes’-Servicing done, ‘No’- Servicing not done
- SERVICING CHARGES: Charges of servicing if done

- AMT: Amount of the product sold
- CGST: CGST on the product sold.
- SGST: SGST on the product sold
- NET AMOUNT: the total of amount, tax, and servicing charges
- BILL STATUS: Paid or not Paid

2.EV Sales:

- DATE : The date on which the scooter was sold
- CATEGORY: The category of the scooter sold
- PRODUCT: Name of scooter
- QTY: Quantity sold
- AMT: Price of the scooter(without tax)
- CGST: CGST on the scooter
- SGST: SGST on the scooter
- NET AMOUNT: Total Price of scooter(including tax)
- BILL STATUS: Paid or not Paid

Purchase Data:

- Date: The date on which the purchase was made.
- Inv. No.: Invoice Number
- Ref. No.
- SUPPLIER NAME: Name of the supplier
- GSTIN No.: GST number
- Amount: Total Amount of purchased items(tax included)
- Amt.(TAX EXLUDED): Amount of purchased items(tax excluded)
- Tax: Total tax on purchased item.
- GST@5%: 5 percent tax on item purchased

- GST@12%: 12 percent tax on item purchased
- GST@18%: 18 percent tax on item purchased
- GST@28%: 28 percent tax on item purchased
- Cess: Cess Tax
- Return

Descriptive Statistics

Sales Data:

1.Automobile spare parts:

- Statistical Analysis of total revenue generated with respect to different categories of products being sold. Here, I have used pivot table to compute **sum, average, maximum, minimum and standard deviation** of the total revenue generated for specific categories of products.

Total revenue = 477035.74
Average revenue w.r.t categories = 1741.00635
Minimum revenue w.r.t categories = 253.44
Maximum revenue w.r.t categories =15865

Categories	Sum of NET AMT	Average of NET AMT	Max of NET AMT	Min of NET AMT	Std Dev of NET AMT
ACCESSORIES	77854.32	1810.565581	2642.5	253.44	572.6455408
BATTERY	35464.72	1773.236	2130	1151.88	355.5710128
BRAKES	52786.62	1820.228276	2121.26	1304.22	229.4826187
CLUTCH	67958.13	1941.660857	2775	440.62	560.1362084
ELECTRICAL	39525.68	1796.621818	2249.22	525.32	441.4692866
ENGINE	28071.38	1871.425333	2114.36	1522.04	247.3512378
OTHERS	36476.88	3039.74	15865	1822.14	4039.250077
SERVICING	35000	686.2745098	1000	500	244.1471752
TYRES	103898.01	2210.595957	3950	1472.18	589.067825
Grand Total	**477035.74**	**1741.00635**	**15865**	**253.44**	**1084.629757**

- Statistical analysis of net revenue for different products. Here, I have computed sum, minimum, maximum and average of net revenue with respect to different products sold,

  Average revenue w.r.t products = 1741.00635

  Minimum revenue w.r.t products = 253.44

  Maximum revenue w.r.t products = 15865

Row Labels	Sum of NET AMT	Min of NET AMT	Max of NET AMT	Average of NET AMT
ENGINE SPARE PARTS	4228.72	2114.36	2114.36	2114.36
BACKREST	6307.5	1412.38	1632.72	1576.875
BAGS AND BOXES	8582.3	253.44	1448.36	1226.042857
BATTERY	23458.38	1778.44	2130	1954.865
BEARINGS	15865	15865	15865	15865
BIKE GUARDS	7294.02	305.94	2642.5	1458.804
BRAKE DRUMS EV	15948.8	1539.84	1656.24	1594.88
BRAKE DRUMS HERO	19241.3	1304.22	2121.26	1924.13
BRAKE DRUMS TVS	10265.6	2053.12	2053.12	2053.12
BRAKE DRUMS YAMAHA	3739.96	1869.98	1869.98	1869.98
CHARGERS	12006.34	1151.88	1983.38	1500.7925
CLUTCH ACCESSORIES	30769.96	440.62	2565.62	1809.997647
COVERS	4788.9	1493.5	1801.9	1596.3
DISC PLATES	3590.96	1653.46	1937.5	1795.48
ELECTRIC MOTOR	6358.5	2119.5	2119.5	2119.5
ENGINE OIL 3.5L	19026.54	1572.18	2080	1902.654
ENGINE OIL 900ML	4816.12	1522.04	1772.04	1605.373333
FUEL PUMP	1870.64	1870.64	1870.64	1870.64
GLOVES	1499.7	1499.7	1499.7	1499.7
HEADLIGHT	4756	2178	2578	2378
HELMET	30651.66	2182.82	2410.32	2357.82
LOCKS	3534.52	1742.26	1792.26	1767.26
MIRRORS	10439.72	1739.7	1741.22	1739.953333
OTHER ELECTRICALS	28824.26	525.32	2249.22	1801.51625
PLATES	5815	1643.44	2095.62	1938.333333
PULLEY	31373.17	1630.03	2775	2091.544667
RIMS	12365.44	1724.12	1817.5	1766.491429
SERVICING	35000	500	1000	686.2745098
SHOCK ABSORBER	3753.08	1876.54	1876.54	1876.54
SILENCER	18741.24	1822.14	1972.66	1874.124
SPEEDOMETER	589.84	589.84	589.84	589.84
TYRE T1	30206.98	2065.88	3950	2746.089091
TYRE T2	48123.36	1472.18	2668.76	2092.32
TYRE T3	13202.23	1799.6	2999.955	2200.371667
Grand Total	**477035.74**	**253.44**	**15865**	**1741.00635**

2.EV Sales:

- Statistical Analysis of net revenue generated through sales of EV scooters, over the period of 3 months. Here, I have computed sum, average, maximum and minimum of the net revenue for October, November and December 2023.

Months	Sum of NET AMT	Average of NET AMT	Max of NET AMT	Min of NET AMT
EV	**525000**	**75000**	**75000**	**75000**
Oct	150000	75000	75000	75000
Nov	225000	75000	75000	75000
Dec	150000	75000	75000	75000
Grand Total	**525000**	**75000**	**75000**	**75000**

Purchase Data:

- Statistical Analysis of total amount spent on purchasing inventory, by different suppliers for 3 months. Computations made here are sum, average, maximum and minimum amount spent with respect to different suppliers.

  Total purchase =394800

  Maximum purchase =40110

  Minimum purchase =1800

  Average purchase =15184.61538

Supplier	Sum of Amount	Average of Amount	Max of Amount	Min of Amount
AMAR MOTORS	44822	8964.4	11197	5833
DEEP AUTOMOBILES	35150	8787.5	15625	1800
K.K. ENTERPRISES	20138	20138	20138	20138
KAMADGIRI ENTERPRISES	211322	19211.09091	40110	4900
R.R.& SON'S	22504	22504	22504	22504
SAMAY SHATABDI POWER SOLUTIONS	60864	15216	20934	8280
Grand Total	**394800**	**15184.61538**	**40110**	**1800**

- Statistical Analysis of total amount spent on tax for the purchase made from diiferent suppliers for 3 months. I have used pivot table to compute sum, average, maximum and minimum amount spent on tax.

  Total tax =82046.04

  Average tax=3155.616923

  Maximum tax =8218.48

  Minimum tax=85.72

Supplier	Sum of Tax	Average of Tax	Max of Tax	Min of Tax
AMAR MOTORS	9805.04	1961.008	2449.44	1275.96
DEEP AUTOMOBILES	7021.68	1755.42	3417.98	85.72
K.K. ENTERPRISES	3071.84	3071.84	3071.84	3071.84
KAMADGIRI ENTERPRISES	45400.8	4127.345455	8218.48	1071.88
R.R.& SON'S	3432.78	3432.78	3432.78	3432.78
SAMAY SHATABDI POWER SOLUTIONS	13313.9	3328.475	4579.26	1811.24
Grand Total	**82046.04**	**3155.616923**	**8218.48**	**85.72**

Data Analysis Process

- ***MEETINGS WITH OWNER AND WORKERS:*** The data was collected after 2-3 in person interactions with the owner. I was successful in convincing him in letting me solve the problems his business was facing. During interaction he told me that the sales of the business were not satisfactory specially the sales of EV scooters.
  During the interaction with the staff, I got to know that the customer return rate is very high but still the revenue generated through the repairing services is not that high.

- ***DATA COLLECTION AND CLEANING:*** After 2-3 meetings the data was finally collected. The Data provided by the business was unstructured so firstly, I structured and organized it properly. After structuring the data, I found out that there were a few errors and many

missing values. There were missing values in ‘Date’ column, which I replaced with the date of previous row.

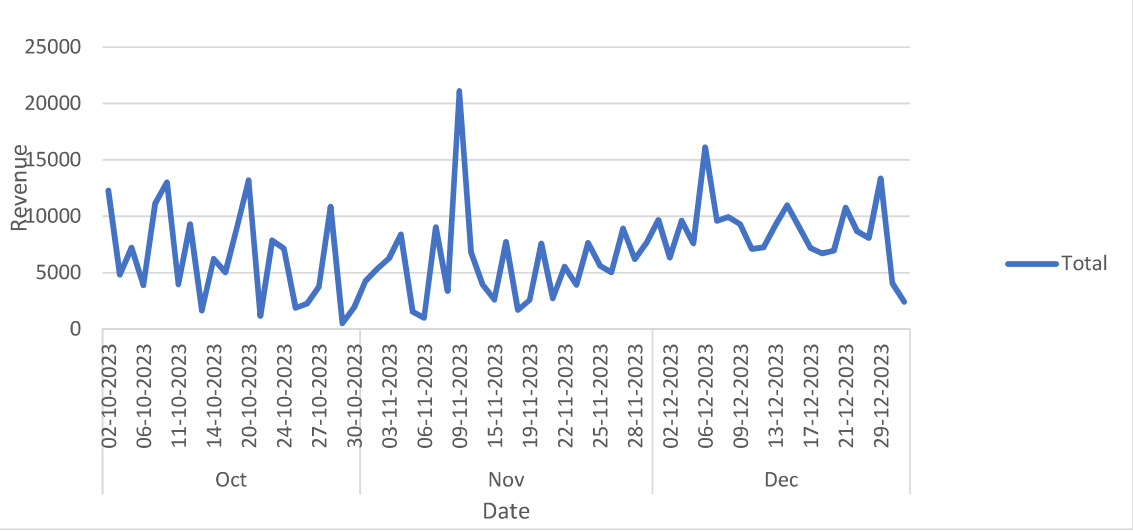
20-Oct-2023	SERVICING	SERVICING		YES
	ACCESSOR	HELMET	1	NO
20-Oct-2023	BRAKES	BRAKE DRI	2	YES
21-Oct-2023	BATTERY	CHARGERS	1	NO

Missing dates

20-Oct-2023	SERVICING	SERVICING	
20-Oct-2023	ACCESSOR	HELMET	1
20-Oct-2023	BRAKES	BRAKE DRI	2
21-Oct-2023	BATTERY	CHARGERS	1

Imputing missing dates

- ***DATA VISUALIZATION:*** For the purpose of data analysis and data visualization, I have used tools such as MS Excel and MS Power BI. I made various pivot tables and pivot charts in MS Excel to see the data trends over the period of 3 months. I tried visualizing the data using bar graphs, pie charts and line graphs.



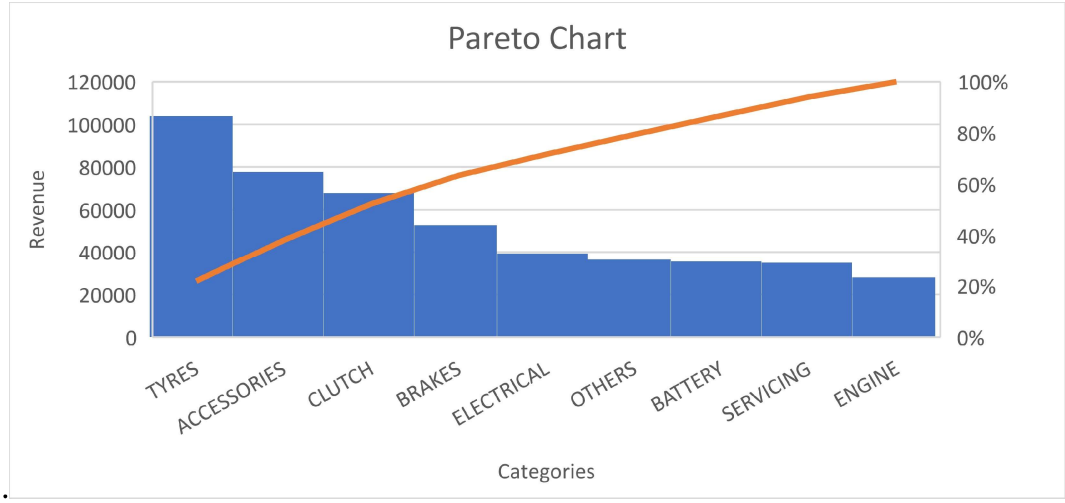
Time – Series graph

Category	Sum of QTY
ACCESSORIES	62
BATTERY	23
BRAKES	71
CLUTCH	45
ELECTRICAL	64
ENGINE	12
OTHERS	16
TYRES	59
Grand Total	**352**

Pivot Table and Pivot Chart

Results and Findings

- Total revenue generated through spare parts and repairing services, in the period of 3 months i.e; from October 2023 to December 2023 is **477035.74**. The most selling category of spare parts is **Tyres**. The total revenue generated from tyres is **103898.01.**
- From the Pareto analysis, it can be concluded that the categories that contribute the most to the revenue are: **Tyres, Accessories and Clutch**.



- The total revenue generated from servicing was **78000**, and maximum was in the month of October, which was **31700**, and it is continuously decreasing every month, although the count of services done is increasing.

Month	Sum of SERVICING CHARGES	Count of SERVICE DONE
Oct	31700	88
Nov	25950	84
Dec	20350	101
Grand Total	**78000**	**273**

- The total revenue generated through the sales of EV Scooters is 525000. The maximum revenue is of November, i.e; 225000.