

BUSINESS DATA MANAGEMENT

A Mid-Term Report For The BDM Capstone Project



IIT MADRAS
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STORE BUSINESS MANAGEMENT THROUGH DATA ANALYSIS

SUBMITTED BY:

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1.Executive Summary:

Store business is very common in India, hence very competitive. From a business perspective it is very crucial to engage in proactive planning, strong customer-relation building and maintain a strategic mindset in order to establish a strong market position and earn profits.

As stated earlier in the project proposal Rakshit Stores, a medium-sized store in Kolkata, West Bengal 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 increase in competition around the area and online marketing has also posed challenges to the store hence leading to a decline in their profits. The BDM Capstone project is dedicated to addressing the challenges faced by the store, how to do proper inventory management and how to increase the profits. To achieve these the project aims to provide practical solutions using data analysis methods and techniques.

Tasks for Mid-Term Submission:

- To provide proof of originality (letter, images, video, etc.).
- To provide metadata used for data interpretation.
- To provide descriptive statistics about the metadata.
- To provide detailed explanation of analysis process/methods used on metadata.
- To provides results and findings on the metadata (graphs, charts, etc.).

2.Proof of Originality:

Store Details:

Name: Rakshit Stores

Owners: Mr. Samir Rakshit, Mr. Pamir Rakshit, Mr. Pradip Rakshit

Address: 122, Rajdanga Gold Park, Tribarna Sangha Club, Kolkata-700107, West Bengal

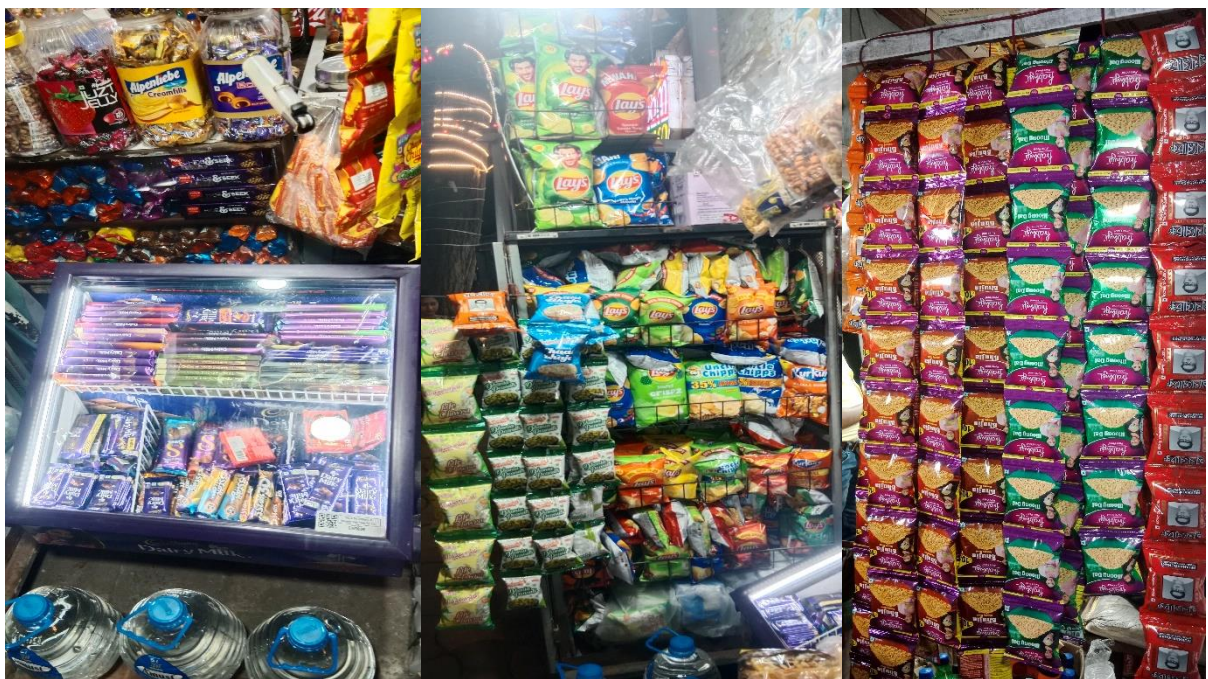
About:

Rakshit Stores is a medium-sized shop that specializes in the sale of packeted snacks, beverages, cigarettes, etc. The retail establishment was established in early 1998. Previously owned by Lt. Dwijahari Rakshit, the store is now owned by his three sons whose names are given above. It has been in the business ever since and earned its well-deserved reputation. The store spends on monthly stocks and store maintenance.

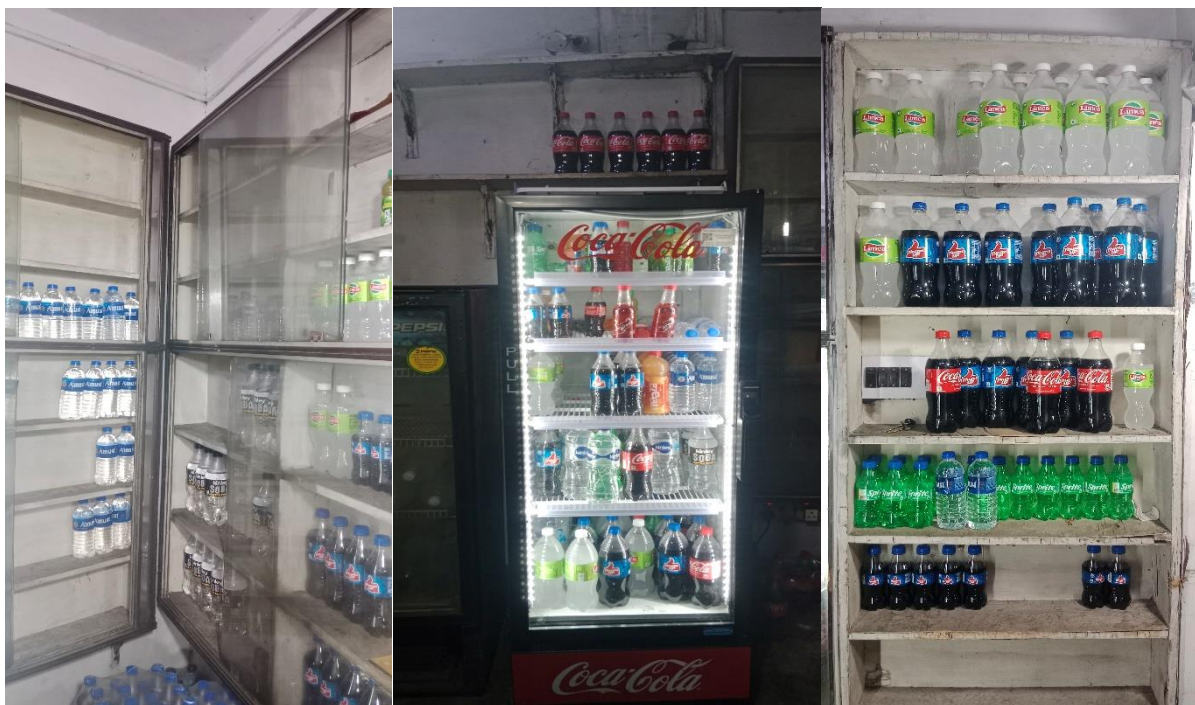
Images:



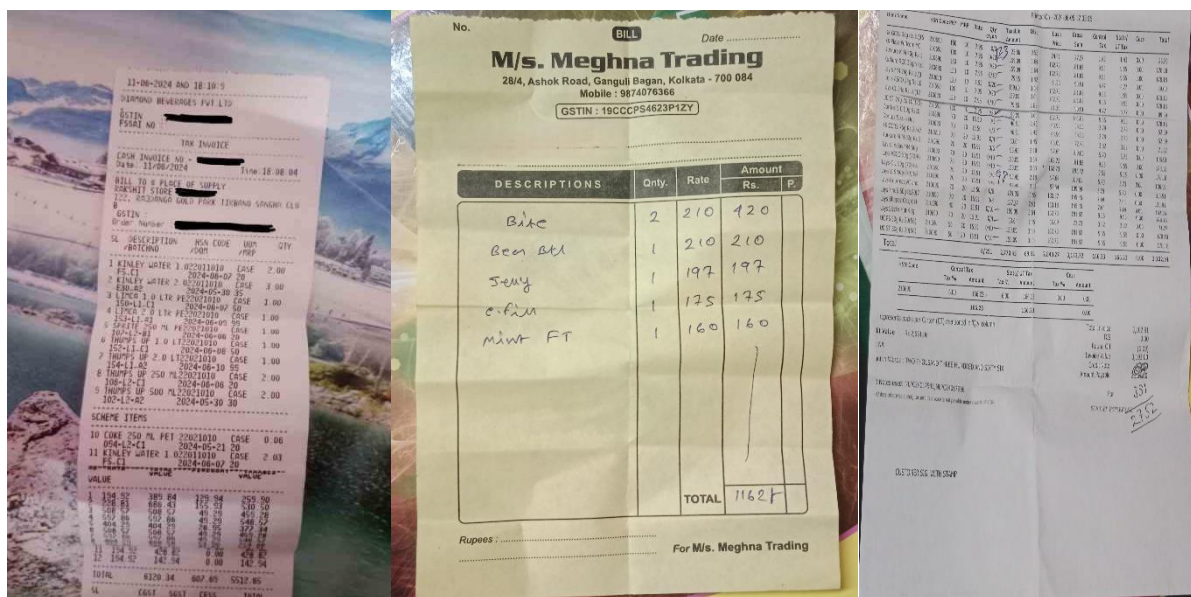
Image of The Store



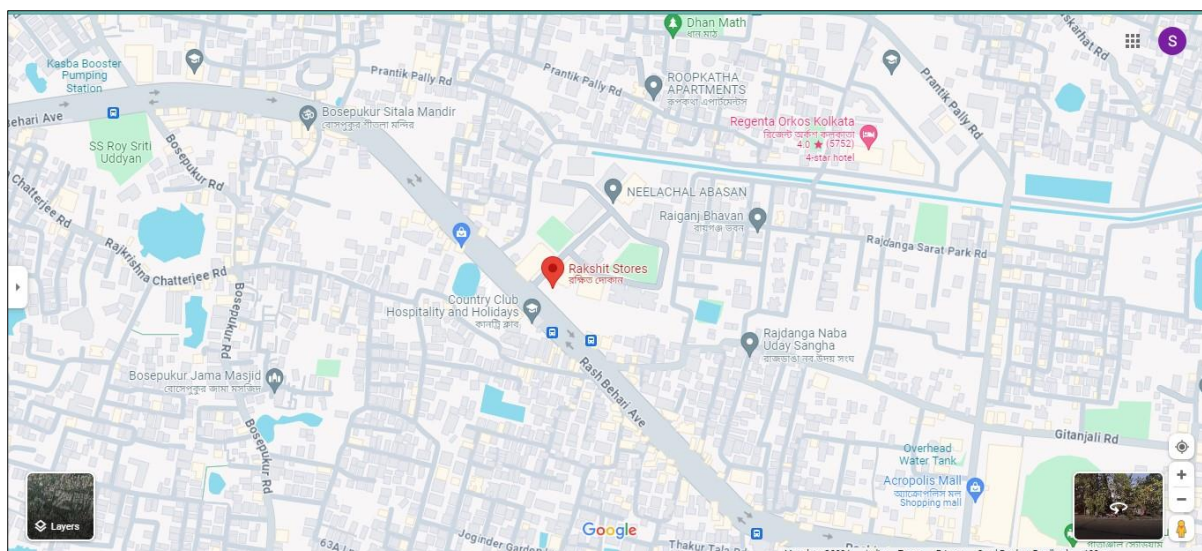
Images of Chips and Snacks, Chocolates, Toffees and Candies at the store



Images of Packaged Water, Cold Drinks and Beverages at the store



Some of the Bills of the Wholesalers from Whom the Store Purchases Products



Location of Store on Google Maps

3.Metadata:

The dataset was prepared and collected from 1st July 2024 to 31st July 2024. The data was written down roughly on different sheets which was collected by me. It was merged and cleaned properly in the following sheet for proper data analysis of the entire time span.

DATE	CHIP & SNACK	COLD DRINK & BEVERAGE	CHOCOLATE	CIGARETTE	TOFFEE & CANDIE	PACKAGED WATER	TOTAL SALES
01/07/2024	₹250.00	₹212.00	₹120.00	₹172.00	₹45.00	₹420.00	₹1,219.00
02/07/2024	₹155.00	₹245.00	₹150.00	₹120.00	₹35.00	₹350.00	₹1,055.00
03/07/2024	₹175.00	₹200.00	₹155.00	₹210.00	₹33.00	₹310.00	₹1,083.00
04/07/2024	₹210.00	₹275.00	₹185.00	₹220.00	₹55.00	₹400.00	₹1,345.00
05/07/2024	₹100.00	₹255.00	₹175.00	₹210.00	₹69.00	₹310.00	₹1,119.00
06/07/2024	₹285.00	₹285.00	₹155.00	₹112.00	₹42.00	₹350.00	₹1,229.00
07/07/2024	₹185.00	₹362.00	₹145.00	₹156.00	₹44.00	₹330.00	₹1,222.00
08/07/2024	₹185.00	₹300.00	₹210.00	₹160.00	₹23.00	₹430.00	₹1,308.00
09/07/2024	₹200.00	₹420.00	₹190.00	₹182.00	₹66.00	₹300.00	₹1,358.00
10/07/2024	₹190.00	₹377.00	₹185.00	₹188.00	₹71.00	₹310.00	₹1,321.00
11/07/2024	₹125.00	₹332.00	₹150.00	₹172.00	₹43.00	₹320.00	₹1,142.00
12/07/2024	₹122.00	₹311.00	₹120.00	₹140.00	₹87.00	₹360.00	₹1,140.00
13/07/2024	₹136.00	₹270.00	₹110.00	₹212.00	₹88.00	₹340.00	₹1,156.00
14/07/2024	₹215.00	₹225.00	₹120.00	₹222.00	₹49.00	₹360.00	₹1,191.00
15/07/2024	₹220.00	₹276.00	₹195.00	₹166.00	₹56.00	₹370.00	₹1,283.00
16/07/2024	₹245.00	₹312.00	₹170.00	₹182.00	₹43.00	₹330.00	₹1,282.00
17/07/2024	₹180.00	₹335.00	₹175.00	₹136.00	₹23.00	₹400.00	₹1,249.00
18/07/2024	₹166.00	₹312.00	₹175.00	₹242.00	₹27.00	₹420.00	₹1,342.00
19/07/2024	₹187.00	₹300.00	₹115.00	₹230.00	₹21.00	₹410.00	₹1,263.00
20/07/2024	₹200.00	₹288.00	₹95.00	₹112.00	₹36.00	₹450.00	₹1,181.00
21/07/2024	₹188.00	₹253.00	₹110.00	₹135.00	₹32.00	₹400.00	₹1,118.00
22/07/2024	₹195.00	₹352.00	₹155.00	₹122.00	₹28.00	₹390.00	₹1,242.00
23/07/2024	₹160.00	₹252.00	₹130.00	₹213.00	₹59.00	₹330.00	₹1,144.00
24/07/2024	₹166.00	₹212.00	₹150.00	₹105.00	₹79.00	₹350.00	₹1,062.00
25/07/2024	₹218.00	₹233.00	₹115.00	₹122.00	₹92.00	₹320.00	₹1,100.00
26/07/2024	₹220.00	₹253.00	₹120.00	₹142.00	₹55.00	₹290.00	₹1,080.00
27/07/2024	₹135.00	₹211.00	₹115.00	₹115.00	₹37.00	₹280.00	₹893.00
28/07/2024	₹110.00	₹240.00	₹95.00	₹132.00	₹25.00	₹320.00	₹922.00
29/07/2024	₹176.00	₹290.00	₹110.00	₹108.00	₹46.00	₹350.00	₹1,080.00
30/07/2024	₹214.00	₹310.00	₹125.00	₹120.00	₹61.00	₹380.00	₹1,210.00
31/07/2024	₹188.00	₹292.00	₹120.00	₹121.00	₹77.00	₹420.00	₹1,218.00
TOTAL	₹5,701.00	₹8,790.00	₹4,440.00	₹4,979.00	₹1,547.00	₹11,100.00	₹36,557.00

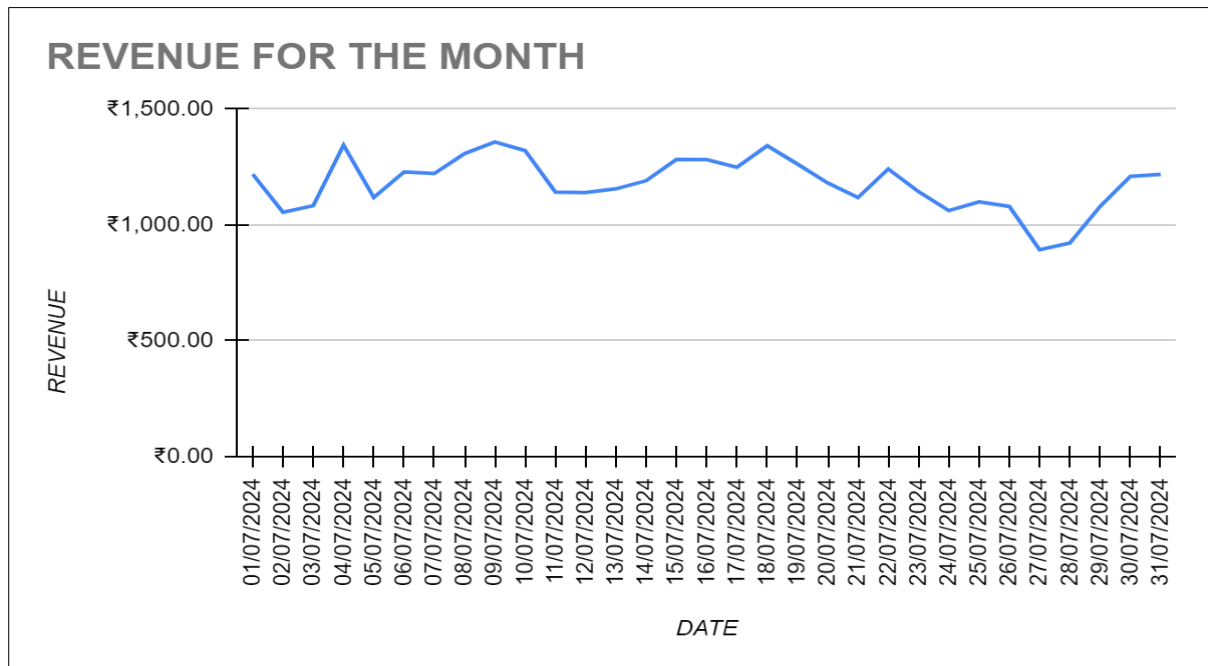
Image of Data

Google Sheet Link for the Dataset:

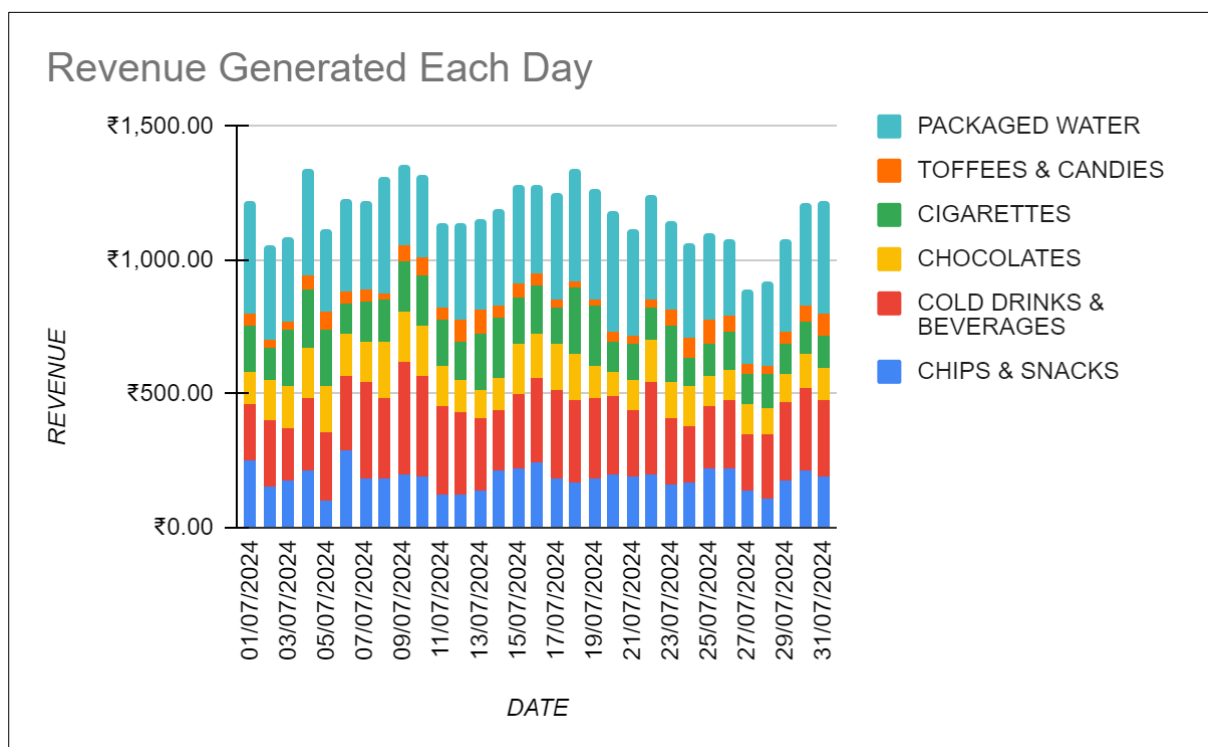
<https://docs.google.com/spreadsheets/d/1bk2B5lfhSv17zXSgltBFDbQ2LbI0BVm3tJgDT4fMMjk/edit?usp=sharing>

4.Descriptive Statistics:

Total Revenue:

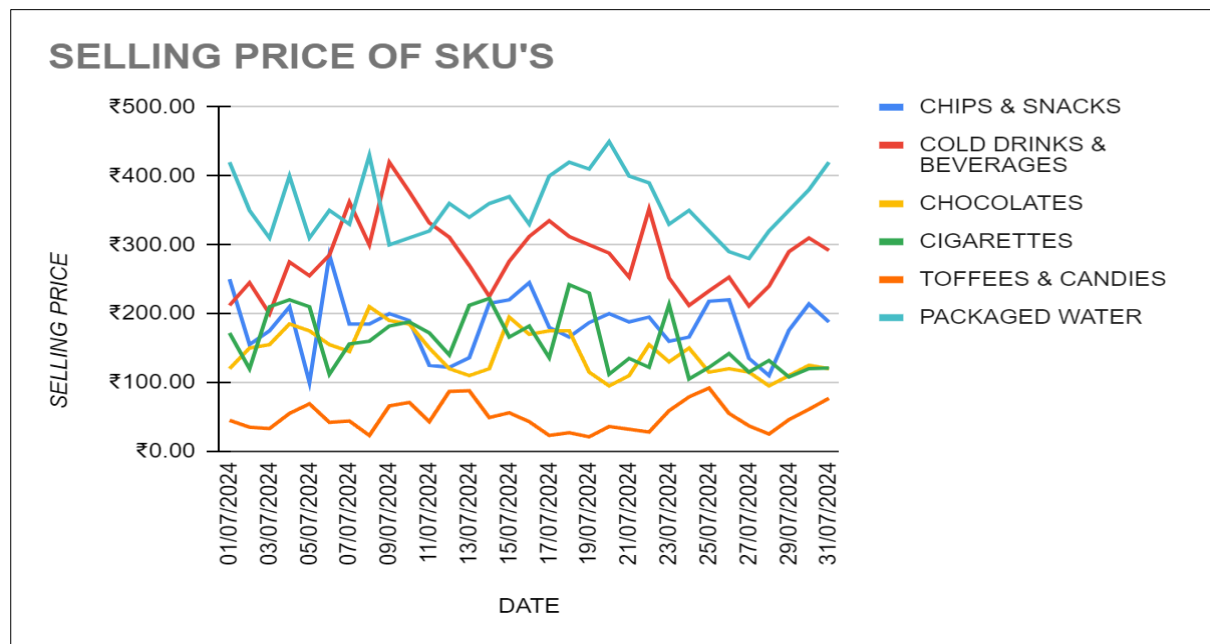


Total Revenue Trend for a Month

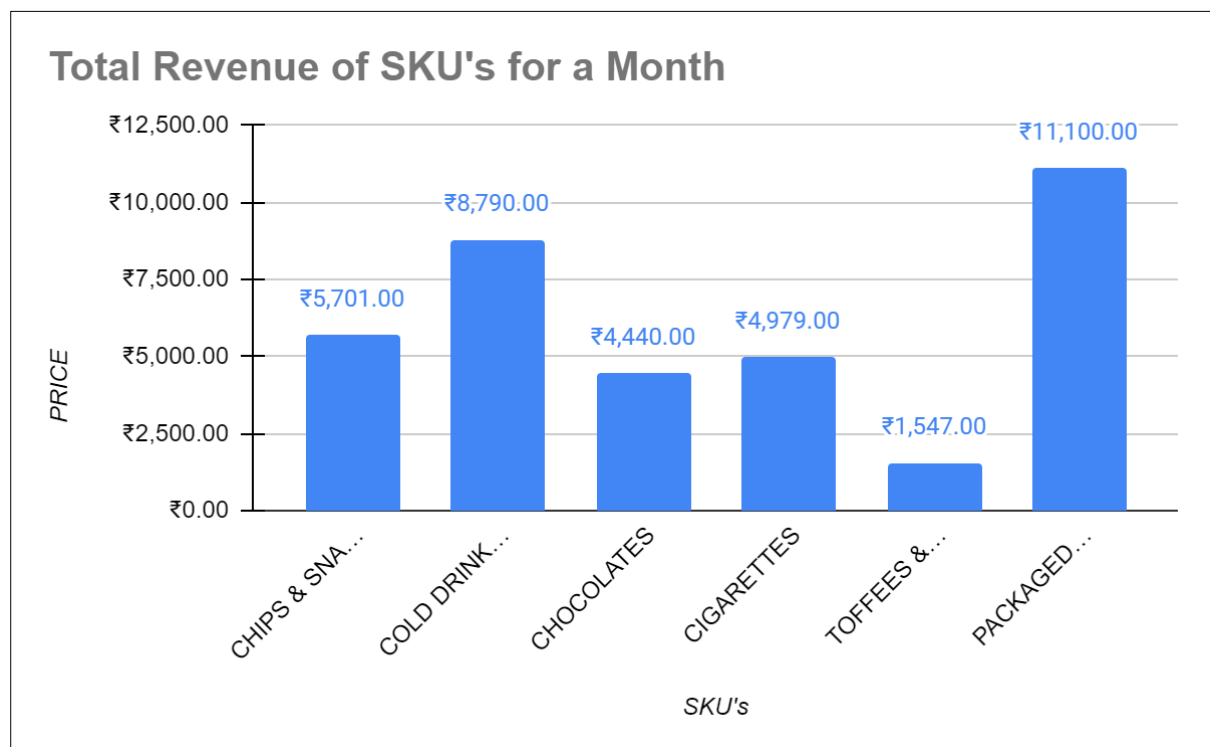


Revenue Generated Each Day Category wise

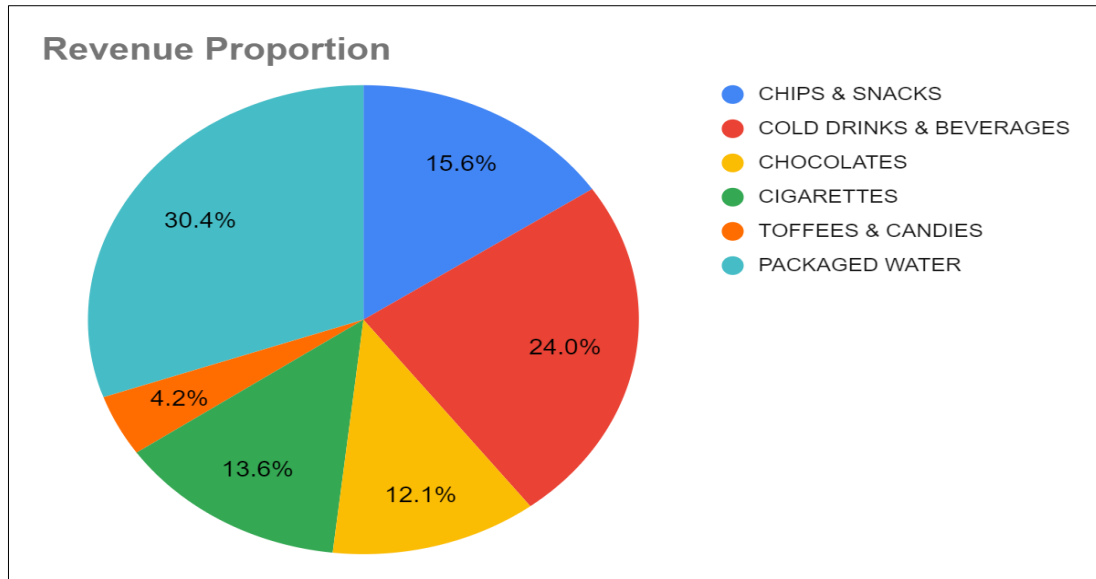
Individual Categories:



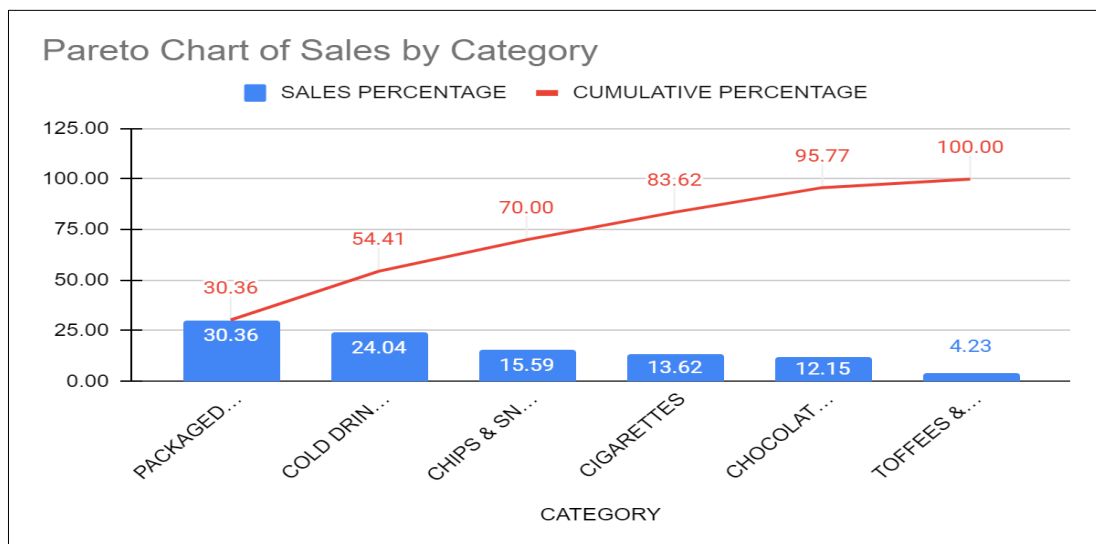
Selling Price of SKU'S for a Month



Total Revenue of SKU'S for a Month



Revenue Proportion of SKU'S for a Month



Pareto Chart of Total Revenue

Google Docs Link for Charts:

<https://docs.google.com/document/d/17le6KY-ljrr3KcKHtcJ1oH1qYzHod8VCblPco4tO9Y/edit?usp=sharing>

5.Detailed Explanation of Analysis Process/Method:

30 days' worth of data was collected from the store which was cleaned, organized and analysed. The data was carefully examined for inconsistencies, outliers and missing values to prevent incorrect results. A variety of descriptive statistical methods were applied to summarize and explore the data. Column, bar, line and pie charts were used to visually represent the data. These charts provide a clear and concise way to understand the revenue distribution in the business. They help identify the trends and patterns for decision making. This will help in making informed decisions to improve the profitability.

Explanation of the Charts:

1. The trend line graph shows the trend for revenue generated over the month of July. It was simply created in the google spreadsheet using the total sales data.
2. The stacked bar chart shows the revenue generated over the month of July by each category. It was simply created in the google spreadsheet using the collected data.
3. The line chart shows the comparison between the revenue generated by each category over the month of July. It was also created using the collected data in the google spreadsheet.
4. The column chart and the pie chart show the total revenue generated by each category separately over the month of July. It was created in the google spreadsheet by calculating the total revenue of each category over the month of July.
5. The pareto chart compares the cumulative sales percentage and the total sales percentage. This shows the cumulative contribution of each category/SKU in the revenue generated. This helps in identifying the significant contributors to the overall revenue. It was created in the google spreadsheet by calculating the sales percentage, cumulative sales and the cumulative sales percentage.

All the charts visually represent how each variable changes with time. These will further help in making informed decisions and optimize business strategies for improved performance and profitability.

6.Results and Findings:

Based on the analysis of the graphs and charts the following can be deduced:

- Packaged Water is the most sold category and hence generates most of the revenue. This makes it an essential component of the inventory.
- Cold Drinks and Beverages are the second most sold category which shows that proper utilization of storage and management of the category can generate better revenue than the current one.
- The pareto chart shows that more than 80% of the revenue earned is from categories Packaged Water, Cold Drinks and Beverages, Chips and Snacks and Cigarettes.
- The revenue trend line does not provide a proper pattern because of limited data collected but it shows that there are no fluctuations in category prices so far.

Conclusive Summary:

The analysis highlights the importance of the category packaged water which is the most profitable. The category Cold Drinks and Beverages can be properly utilized to generate better revenue. It also indicates that further data is required to identify revenue trends and improve the storage and management of all categories to improve the profitability.



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