# BUSINESS DATA MANAGEMENT

A FINAL REPORT FOR THE BDM CAPSTONE PROJECT

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## STORE BUSINESS MANAGEMENT THROUGH DATA ANALYSIS

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# EXECUTIVE SUMMARY:

Rakshit Stores is a medium-sized retail business operating in central Kolkata, West Bengal, is facing significant challenges in profit margins and inventory management. They buy their products from wholesalers and then sell it according to the selling price in their areas of business. The prime areas of their business include the Rajdanga, Golpark and Prantik Pally. Since the store is situated on the main road of the E.M Byepass therefore these areas are easily accessible for the stores and customers do come for their shopping of various snacks and beverages.

The store deals with all kinds of packeted snacks, beverages including water bottles, cigarettes, chocolates, etc. They store their extra products in the godown of their shops located inside the shop premises so that they don't have to move around for extra supplies in case of emergencies. During non-festive days or during weekdays it is hard to sell products like snacks and beverages whereas on festive days and weekends it is easier to sell them. Although products like water bottles and cigarettes are a constant sale throughout, which sometimes causes the store owners some number of hardships such as keeping track of the quantity of the products which leads to loss or expiration and damage of products.

The BDM Capstone Project seeks to provide a data-driven solution to address these issues and improve business outcomes. Analytical techniques have been utilized such as time-series analysis, etc. to identify patterns in sales and inventory. These methods will allow in forecast demand, optimize inventory levels, and improve revenue streams. By examining historical sales data and conducting revenue trend analysis, the aim is to develop actionable strategies that will enhance inventory control and maximize profitability.

The sales data was collected by me manually from the store owner and cleaned for data analysis using charts and graphs from MS Excel. Charts like bar graph, pie chart, line graph, pareto chart, demand/supply graph, etc., were used to analyse sales, revenue, inventory, etc. These will help in better explanation of analysis process/method and help in proper derivation of expected results.

The expected results include better management of high-revenue items, optimized stock levels for underperforming products, and the ability to anticipate demand based on sales patterns. Additionally, the findings will assist in formulating business decisions to address competitive pressures and improve overall store performance. Key outcomes will likely include a 10-15% increase in profit and more efficient inventory practices, reducing wastage and stockouts. These results help me to interpret the issues and challenges faced by the store and providing good and proper recommendations for tackling these issues.

# EXPLANATION OF ANALYSIS PROCESS/METHOD:

Data which was previously recorded was cleaned and pre-processed accordingly.

## 1. Data analysis for sales and expenditure

As mentioned before MS Excel was the main tool that was used for the analysis. Firstly, sales data was collected in an unstructured format along with each category from Rakshit Stores over a period of 31 days (July 2024). Then the data was manually entered into an excel sheet for further analysis. Missing values and other such discrepancies were removed manually during the process of entering the data.

The pre-processed sales data has a total of 8 columns and 32 rows. There are 6 columns representing each SKUs selling price along with the date (1 column) and the total sales on each day (1 column).

| DATE | CHIPS & SNACKS | COLD DRINKS & BEVERAGES | CHOCOLATES | CIGARETTES | TOFFEES & CANDIES | 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 |

Using the selling price of each SKU on each day the total sales can be calculated:

$$\text{Total Sales on each day} = \sum (\text{Revenue generated by each SKU})$$

Using the Total Sales on each day the total revenue for the month was calculated and the total revenue generated by each SKU was also calculated:

Total Revenue generated by each SKU = ∑ (Total Revenue generated by each SKU per day)

Total Revenue for the month = ∑ (Total Sales on each day)

Here we can observe the categories that brought in the highest amount of revenue for the store and also the categories that didn't sell enough in context of the organization.

The pre-processed data containing the expenditure and profit values has a total of 5 columns and 8 rows. One for each – Category, Total Sales, Expenditures, Profit and Quantity.

| CATEGORY | TOTAL SALES | EXPENDITURES | PROFIT | QUANTITY |
|---|---|---|---|---|
| PACKAGED WATER | ₹11,100.00 | ₹6,250.00 | ₹4,850.00 | 50.00 |
| COLD DRINKS & BEVERAGES | ₹8,790.00 | ₹7,200.00 | ₹1,590.00 | 20.00 |
| CHIPS & SNACKS | ₹5,701.00 | ₹5,355.00 | ₹346.00 | 70.00 |
| CIGARETTES | ₹4,979.00 | ₹4,250.00 | ₹729.00 | 60.00 |
| CHOCOLATES | ₹4,440.00 | ₹3,240.00 | ₹1,200.00 | 15.00 |
| TOFFEES & CANDIES | ₹1,547.00 | ₹1,000.00 | ₹547.00 | 10.00 |
| ELECTRICITY & SHOP MAINTAINANCE | ₹0.00 | ₹2,000.00 | -₹2,000.00 | 0.00 |

Using the total sales of each category and the expenditures we can calculate the profit generated:

Profit = Total Sales – Expenditures

Here we can observe the categories that brought in most profit and which brought in the least. The Total Sales and Quantity column for the Electricity and Maintenance row is 0 as there is neither any sales or quantity for this category. Similarly, the column of Expenditures has a value of ₹2,000.00 and the column of Profit has a value of −₹2,000.00 as the store has to pay for it from their pockets and is a kind of loss from the total revenue generated.

## 2. Secondary Data Calculation

From the above data their mean, median, variance, standard deviation, cumulative sales, cumulative percentage. sales percentage, min, max and range were calculated in MS Excel for visualization of the data. The significance of these variables are as follows:

- **Mean:** Represents the average sales value, providing a benchmark for typical sales performance and helping to assess overall business health.
- **Median:** The middle sales value, useful for understanding the sales performance when there are extreme highs or lows that could skew the average.
- **Variance:** Measures the variability in total sales, helping to understand how consistent or fluctuating sales are across different periods or products.

- **Standard Deviation:** The average deviation of sales from the mean, indicating how much daily or periodic sales differ from the typical performance, thus showing stability or volatility in sales.
- **Cumulative Sales:** Tracks the running total of sales over time, providing insights into the store's growth trajectory and helping to assess whether sales are meeting targets.
- **Cumulative Percentage:** Shows the proportion of total sales accumulated over time, helping to identify trends, such as when most of the sales happen (e.g., end of the month, during a sale).
- **Sales Percentage:** The contribution of each period or product to total sales, helping to identify which periods or products are driving sales and which are underperforming.
- **Min (Minimum):** Indicates the lowest sales value, helping to identify the worst-performing periods or products in the store.
- **Max (Maximum):** Represents the highest sales value, helping to highlight peak performance periods or top-selling products.
- **Range:** The difference between the maximum and minimum sales, showing the extent of variability in sales performance and identifying the overall fluctuation in sales over time.

These metrics help in tackling store challenges such as:

**1. Profitability:** By analysing **sales trends**, **cumulative sales**, **sales percentages**, and **variance**, we can identify which products and periods generate the most revenue, enabling the store to focus on high-margin items and avoid overstocking slow-moving products.

Understanding the **mean**, **median**, and **sales percentages** allows the store to **predict demand** and optimize pricing strategies, promotions, and markdowns to enhance profits.

**2. Inventory and Stock Management:** Measures like **mean**, **variance**, **standard deviation**, and **range** help identify products with **consistent demand** versus those with **fluctuating demand**, aiding in accurate forecasting and **stock replenishment**. **Min** and **max** sales help identify low and high-demand periods/products, allowing the store to manage stock levels effectively, avoiding stockouts or excess inventory.

**3. Storage Management: Cumulative sales** and **sales percentages** help determine which products contribute the most to sales, enabling the store to prioritize **storage space** for best-sellers while reducing the space allocated to low-performing items.

By analysing **maximum** and **minimum** sales values, the store can adjust the storage space allocated to seasonal or promotional products, ensuring optimal storage utilization.

## 3. Data Visualization

The corresponding data generated was plotted in different graphs using MS Excel. The graphs generated for visualizations are bar chart, pie chart, demand graph, etc. These offer clear, actionable insights into revenue trends, product performance, and category contributions, enabling better forecasting, inventory management, and

strategic decision-making. By simplifying complex data into understandable visuals, store managers can optimize stock levels, improve profitability, and quickly respond to sales patterns, making this approach more efficient and reliable than relying on raw data or intuition alone.

Other relevant descriptions were drawn from the recorded as well as generated data like the descriptive statistics. All the above derived and recorded data were analysed. After careful analysis of the data and further interpretation in contexts required, guided and informed decisions were made.

## RESULTS AND FINDINGS:

Here are some findings after careful analysis and evaluation of data:

### *Metadata:*

| VARIABLES | DATA TYPES | DESCRIPTION |
|---|---|---|
| Date | Date | Date for particular data. This variable helps in learning which day had how much number of sales and the revenue generated. |
| Total Sales | Float | B2C selling price. This variable helps in learning the prices at which the products were sold. |
| Expenditure | Float | Money spent by the organization. This variable helps in learning the total amount spend by the organization and deriving the profits. |
| Revenue | Float | Total sales of the organization in a given period of time. This variable helps in understanding the total |

| | | |
|---|---|---|
| | | revenue generated from product sales which will help in deriving the profits. |
| Profit | Float | Total profit generated by the store. This variable helps in understanding how much profit is being generated from the revenue and from which products |
| Quantity | Float | Number of items vended. This variable helps in understanding the number of items sold/bought to manage the storage of the products. |

## ***Descriptive Statistics:***

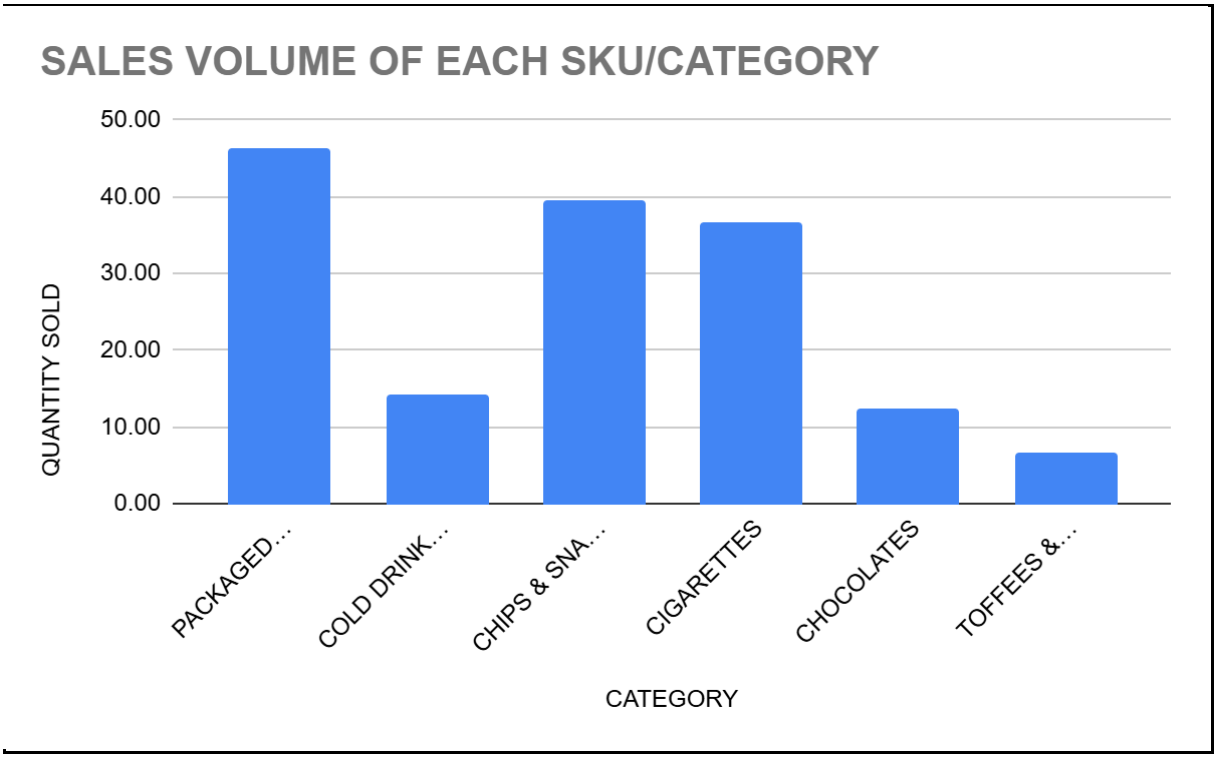
| STATS | RANGE | MIN | MAX | MEAN | MEDIAN | STD.DEV. | VARIANCE |
|---|---|---|---|---|---|---|---|
| REVENUE | ₹11,100.00 | ₹0.00 | ₹11,100.00 | ₹5,222.43 | ₹4,979.00 | 3,850.46 | 14,826,071.62 |
| EXPENDITURE | ₹6,200.00 | ₹1,000.00 | ₹7,200.00 | ₹4,185.00 | ₹4,250.00 | 2,256.07 | 5,089,841.67 |
| PROFIT | ₹6,850.00 | −₹2,000.00 | ₹4,850.00 | ₹1,037.43 | ₹729.00 | 2,037.45 | 4,151,193.29 |
| QUANTITY | 70.00 | 0.00 | 70.00 | 32.14 | 20.00 | 27.36 | 748.81 |

In the above table:

- The columns of **Mean**, **Standard Deviation** and **Variance** show the respective values for **Revenue, Expenditure, Profit and Quantity over the observed time span.**
- Highest revenue collected was **over 10 thousand**, while the lowest was **0** as the category for the cost of Electricity and Shop Maintenance was also considered. But since there is a big difference among the values, it tells us that **there is a lack of stability in the business strategy which was being followed during the recorded time.**
- **We observe that although revenue generated is quite high the profit earned is not substantial from all the items with respect to it. This shows that inventory management of items is crucial.**

- The minimum value for profit is in negative as there is an expenditure on Electricity and Shop Maintenance which has to be paid by the shop revenue. This needs to be considered as to accurately derive the maximum profit that can be generated at the end.

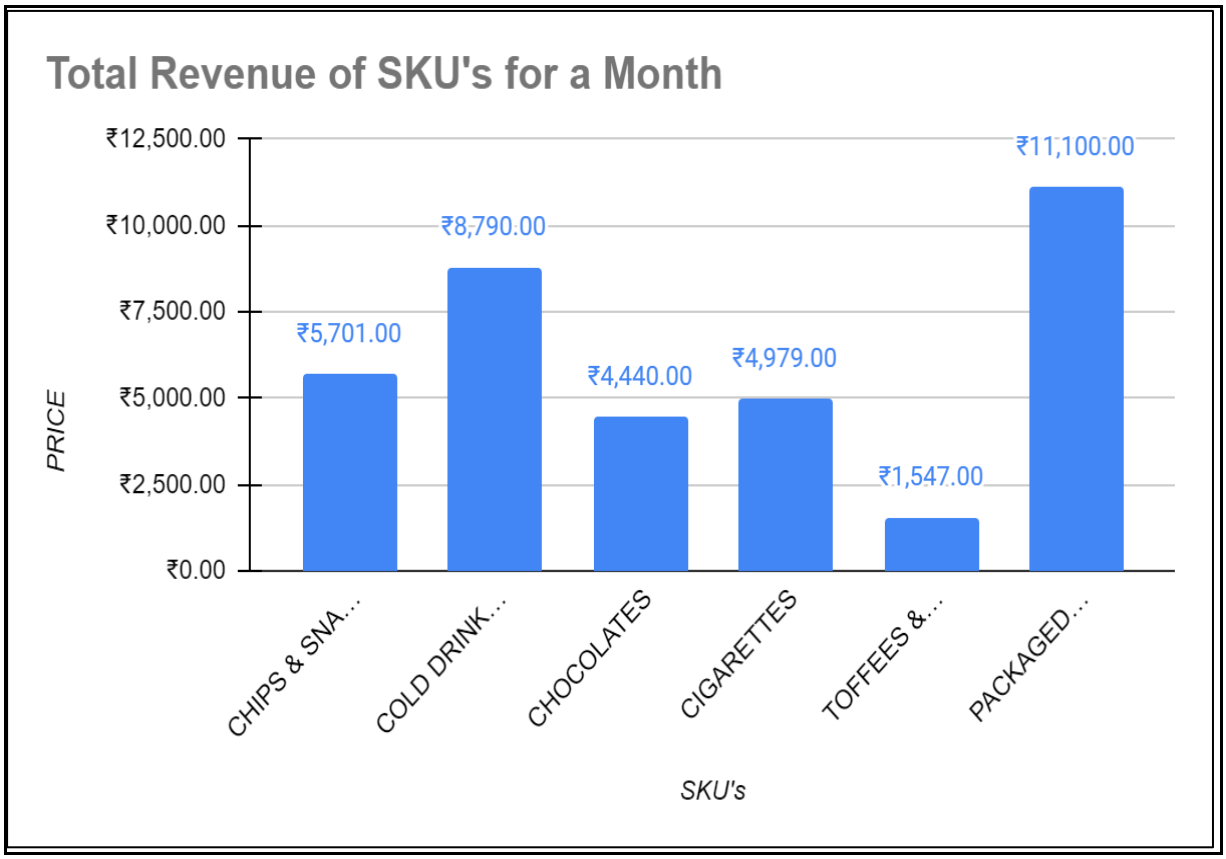
## ***Sales Volume Of Each SKU/Category:***




**GRAPH 01 – SALES VOLUME OF EACH SKU/CATEGORY**

- Using the secondary data, the above bar graph was plotted for the sales volume of each category for the observed period of time.
- X-axis represents the different types of categories while the Y-axis represents the quantity of categories sold from the bulk bought from the wholesalers.
- **We can observe that the category Packaged Water was predominantly sold higher than any other category, followed by Chips and Snacks and Cigarettes.**
- **Cold Drinks and Beverages, Chocolates and Toffees and Candies are the categories that were least in demand,** maybe due to some reason which can't be inferred from this graph alone.
- According to the owner, customers were looking for some more varieties of all the three least sold categories. He also said that almost 1 whole strip of chips packets and snacks were destroyed due to pest infestation due to improper storage of the items. In spite of that this category was second most in demand and sold.

## Revenue Generated Per SKU/Category For The Month:




**GRAPH 02 – REVENUE GENERATED PER SKU/CATEGORY**

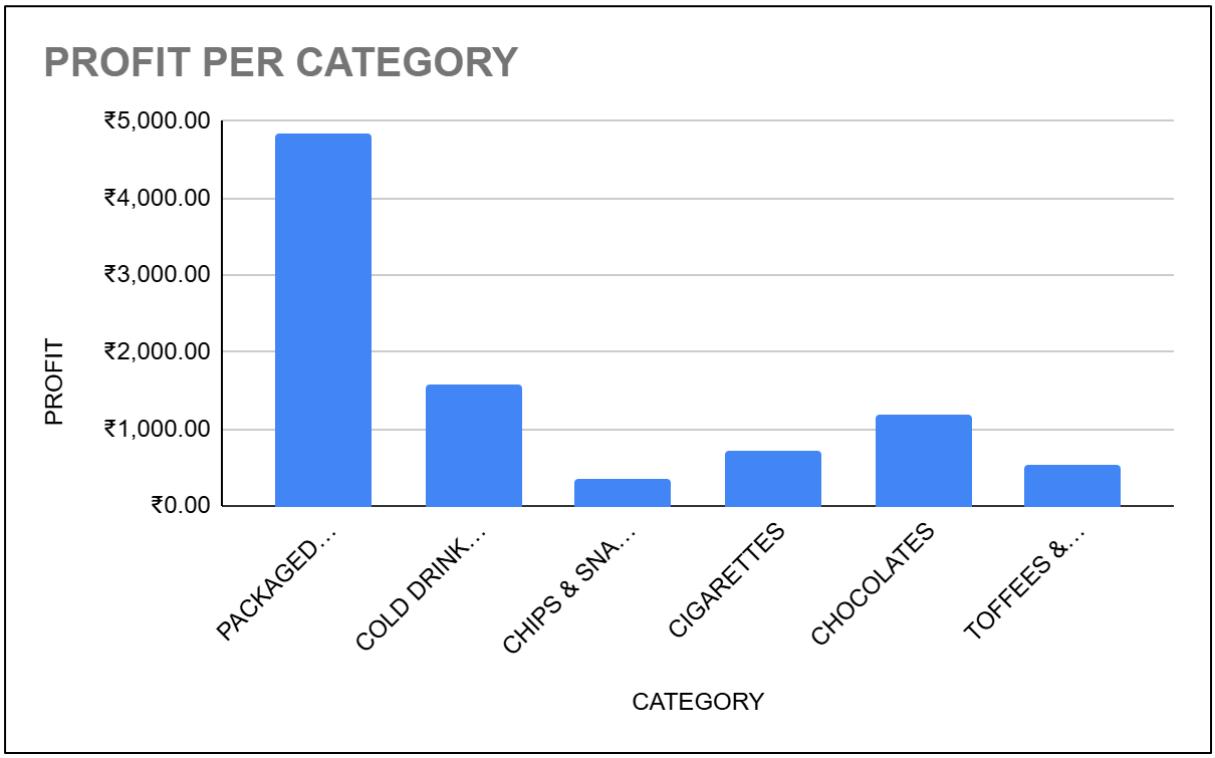
- Using primary data, the above bar graph was plotted for the revenue proportion of each category for the observed period of time.

- X-axis represents the different types of categories while the Y-axis represents the prices at which they are sold.

- **We can easily observe that most of the revenue generated by was from the categories Packaged Water and Cold Drinks and Beverages.**

- **The least part of the revenue was generated by the category Toffees and Candies.**

## *Profit Earned Per SKU/Category:*




**GRAPH 03 – PROFIT EARNED PER SKU/CATEGORY**

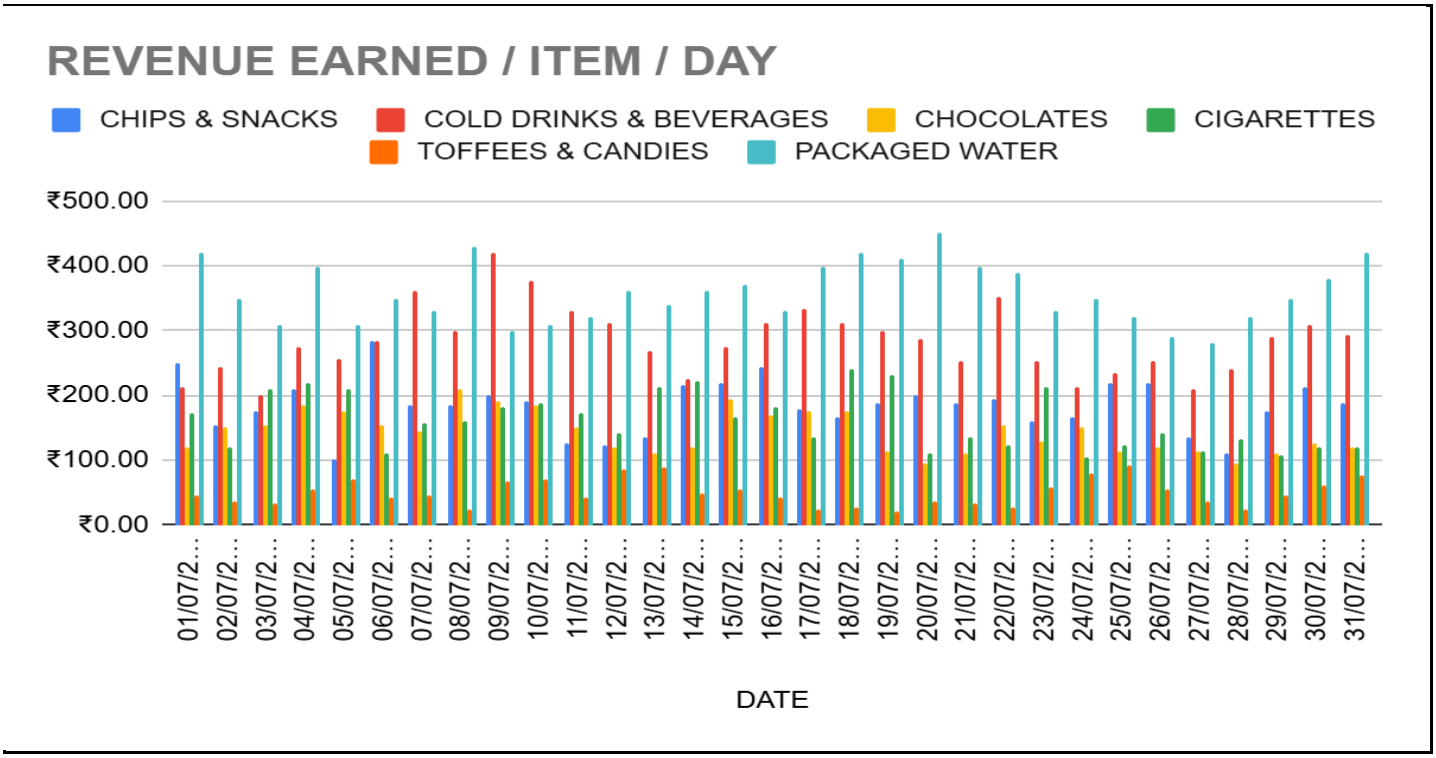
- Using secondary data, the above bar graph was plotted for the total profit generated by each of the categories for the observed period of time.

- The X-axis contains bars which represent individual categories under observation while the Y-axis represents the total profit generated by the corresponding category in the recorded period.

- **One can easily infer that the profits earned by the category Packaged Water are off the charts. Then there were some profits earned by categories Cold Drinks and Beverages and Chocolates but they are not as high as Packaged Water.**

- **Categories Cigarettes, Toffees and Candies, Chips and Snacks earn miserably low profits, which is reasonable as their demands are also much lower relative to the other items under observation as seen previously.**

## Revenue Per SKU/Category Per Day:



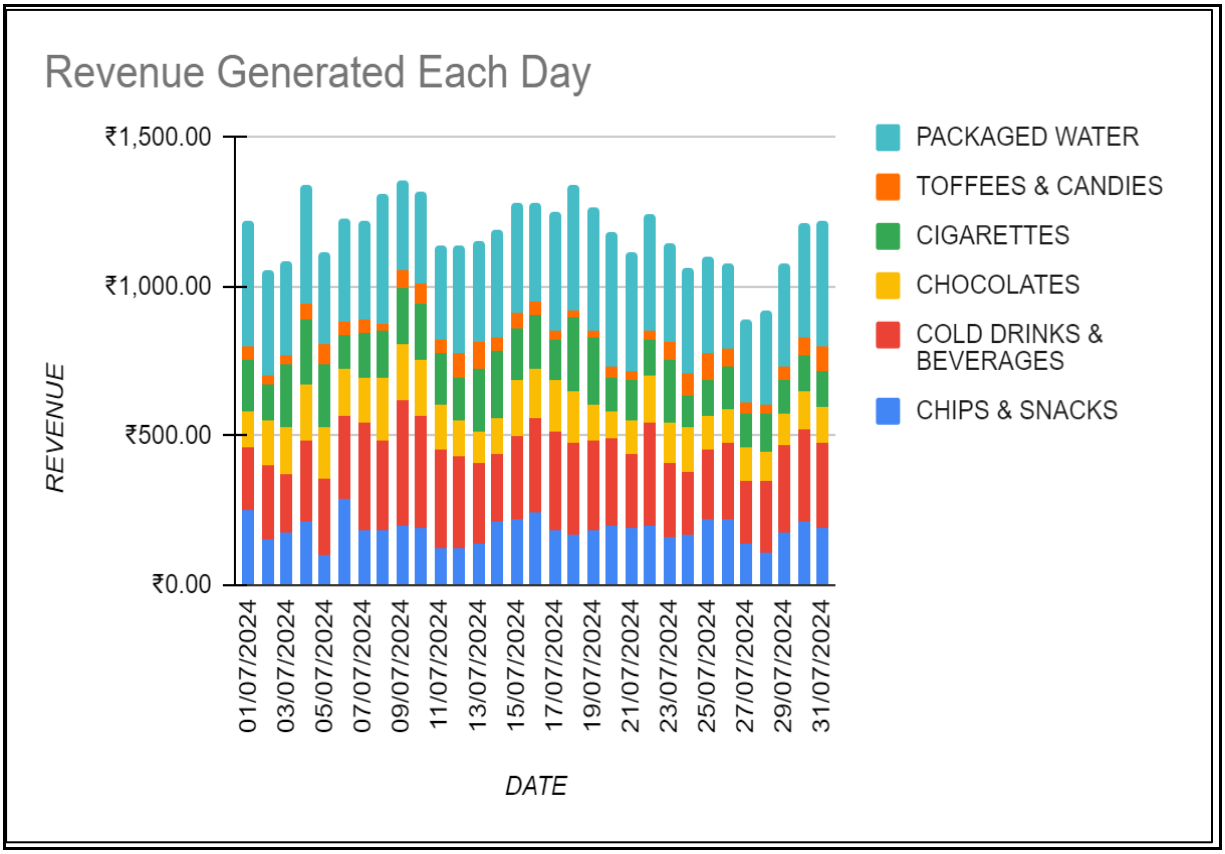

**GRAPH 04 – REVENUE EARNED PER SKU/CATEGORY PER DAY**

- Using secondary data, the above bar graph was plotted for the revenue earned by each category per day for the observed period of time.

- X-axis represents the different types of items sold each day while the Y-axis represents the revenue generated by the item.

- **It can be observed that revenue generated by Packaged Water, Cigarettes, Chocolates and Toffees and Candies is almost stable for each day. While the revenue for Cold Drinks and Beverages and Chips and Snacks spikes during weekends or during festivals and public holidays. An overall rise in revenue can be observed during weekends as well and during the beginning of the month.**

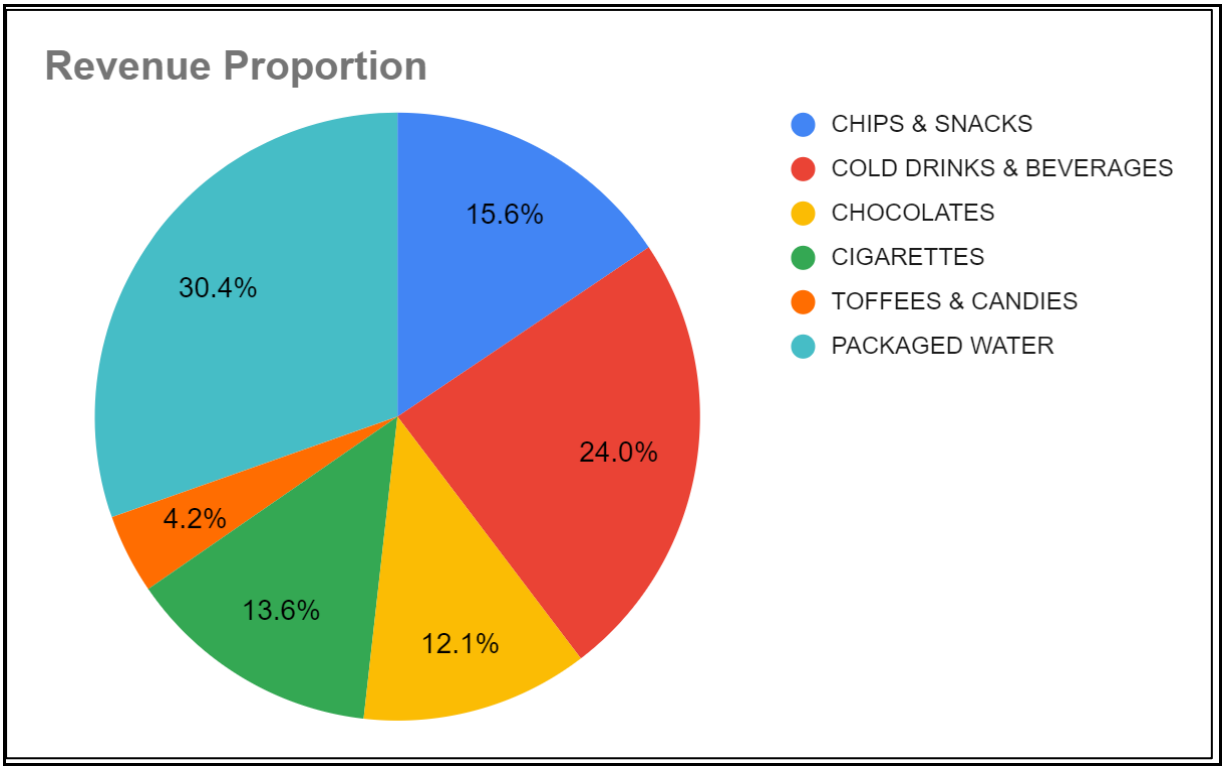
## Revenue Generated Per Day:




**GRAPH 05 – REVENUE GENERATED PER DAY**

- Using secondary data, the above bar graph was plotted for the part of the total revenue generated by each category every day for the observed period of time.
- The X-axis contains bars which represent individual days under observation while the Y-axis represents the total revenue generated by the corresponding item.
- Each bar shows the part of the revenue generated by each category every day which in turn leads to the total revenue.
- **One can observe a mild peak in the revenue generated on 17$^{th}$ July which was a holiday for Muharram.**
- **The highest revenue generated spiked during the beginning of the month whereas the lowest revenue generated can be seen almost during the end of the month.**

## Revenue Proportion:




**GRAPH 06 – REVENUE PROPORTION PER SKU/CATEGORY**

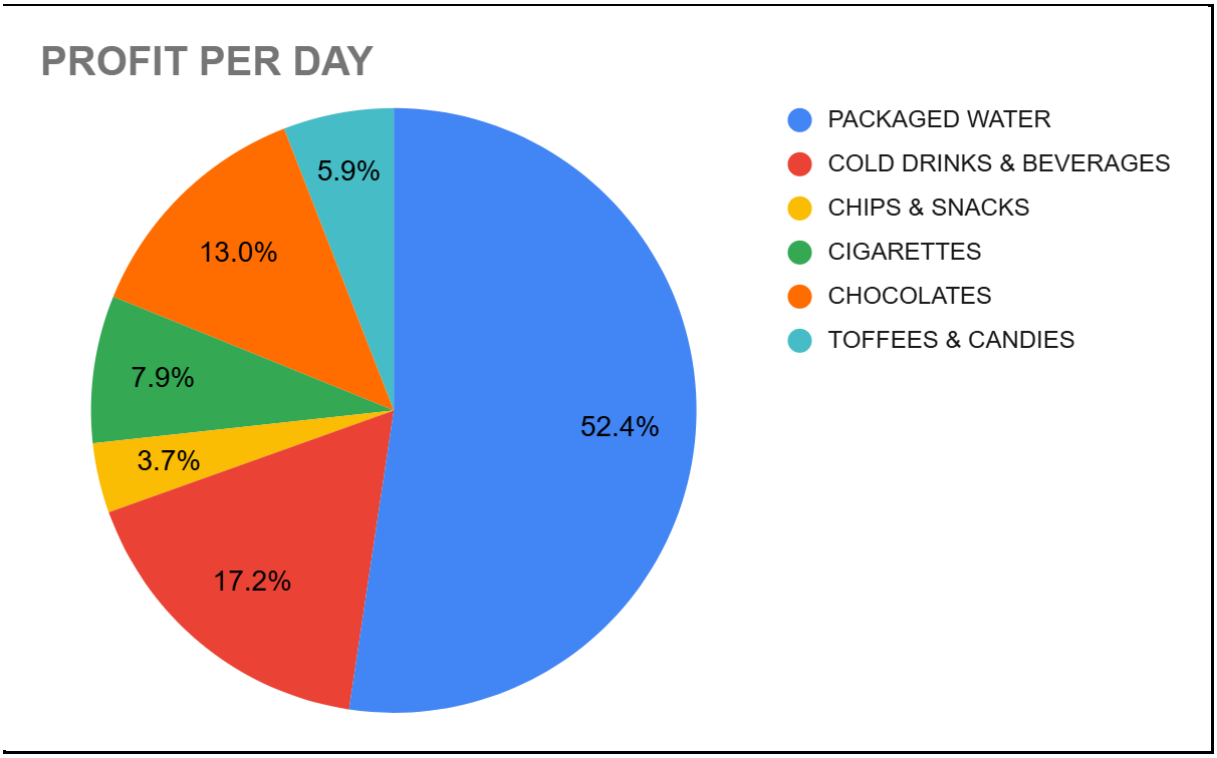
- Using primary data, the above pie chart was plotted for the revenue proportion of each category for the observed period of time.

- The above pie chart gives the revenue earned per category proportional to the area of the pie.

- **Dominant Categories include Packaged Water and Cold Drinks and Beverages although Cold Drinks and Beverages bring nominal profits.**

- **Minor revenue categories include Chocolates and Toffees and Candies.**

## *Profit Earned Per Day:*




**GRAPH 07 – PROFIT EARNED PER DAY**

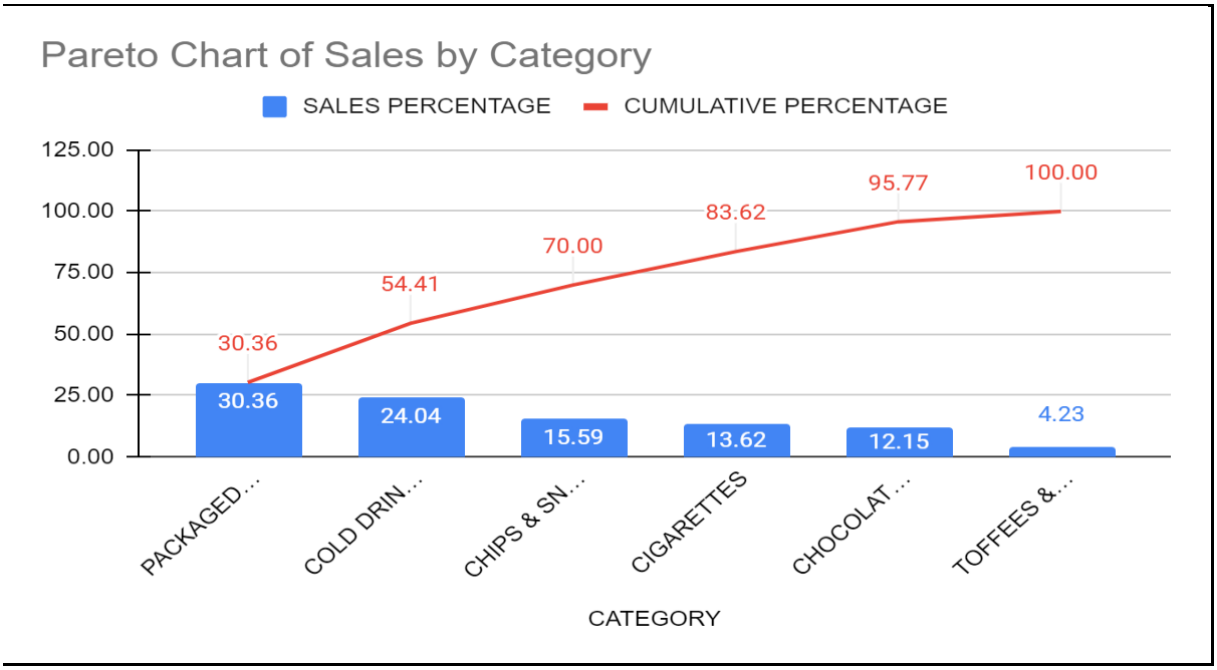
- Using secondary data, the above pie chart was plotted for the revenue earned by each of the categories per day for the observed period of time.

- The above pie chart gives the profit earned per category proportional to the area of the pie.

- **Clearly Packaged Water earned the highest profit followed by Cold Drinks and Beverages.**

- **The categories of Chips and Snacks and Toffees and Candies tend to be the lowest profiting category for the store.**

## Sales By Category:




**GRAPH 08 – SALES BY SKU/CATEGORY**

- Using cumulative secondary data, the above pareto chart was plotted in which the X-axis represents the categories and Y-axis represents the sales percentage.

- **Packaged Water (30.36%)** and **Cold Drinks (24.04%)** contribute the highest percentage of total sales, collectively accounting for over **54%** of total revenue. These categories are critical revenue drivers and should be prioritized for stock management and promotional efforts.

- The chart confirms that **80% of the total sales** are generated by the top three categories: **Packaged Water, Cold Drinks, and Chips & Snacks (15.59%)**. This aligns with the Pareto Principle, indicating these categories should receive the most focus in business strategies.

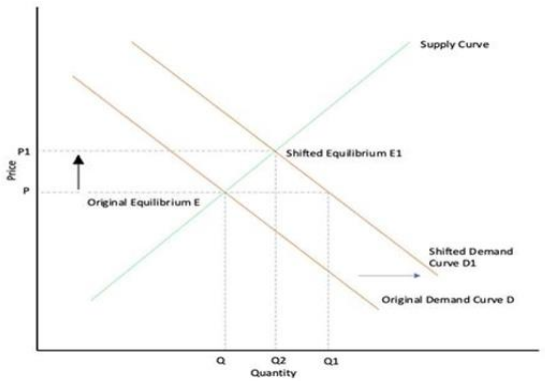
- **Toffees & Others (4.23%)** and **Chocolates (12.15%)** have a minimal contribution to sales. While they should not be ignored, efforts can be scaled back for these categories, and their inventory levels should be optimized to reduce storage costs and avoid overstocking.

- The cumulative percentage curve (red line) illustrates how quickly the top-performing categories add up to 80% of the sales, emphasizing the store's reliance on a small selection of high-performing categories.

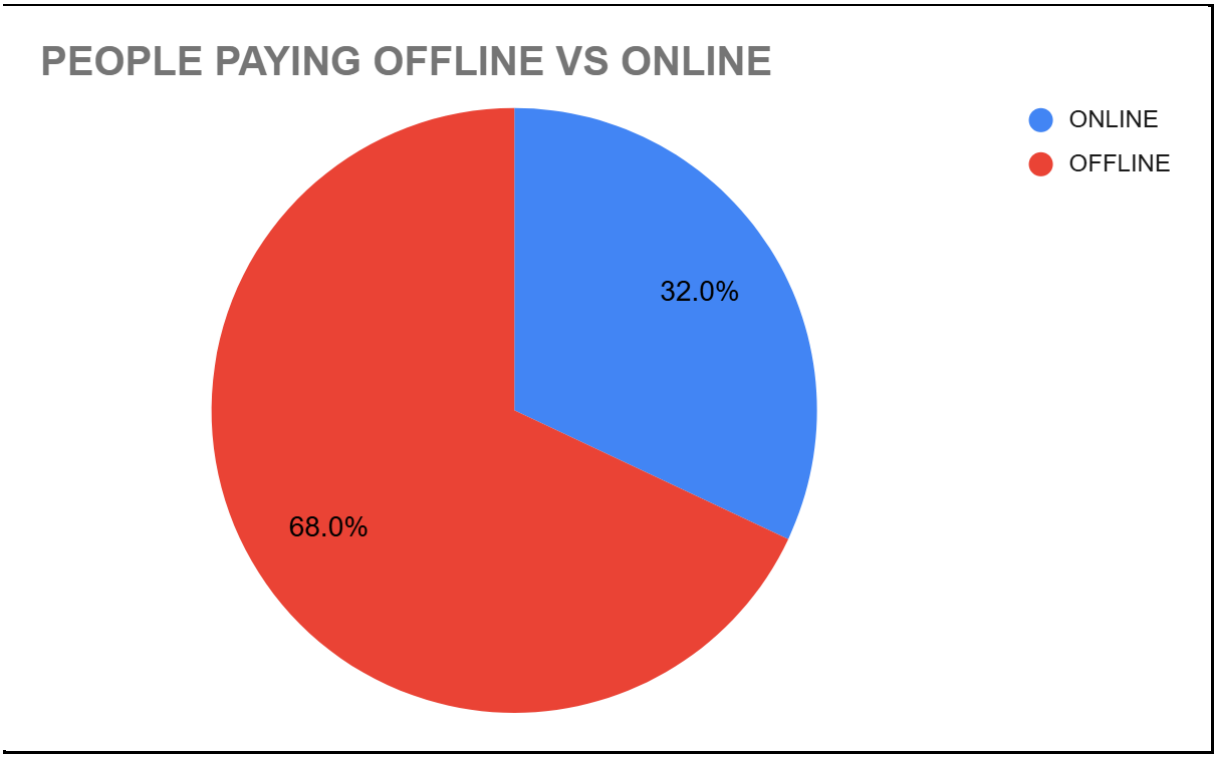
## Demand And Supply Trends:


**GRAPH 09 – DEMAND AND SUPPLY GRAPH**

- Using the metadata 2 sheet, the above graph was plotted to check for the demand of products from the purchased categories.
- X-axis represents the Price of the item and Y-axis represents the quantity or demand
- **Cross elasticity between Packaged Water and Cold Drinks and Beverages would be positive, since they are compliments to each other.**
- **Law of Demands:** As price increases demand decreases.
- **Law of Supply:** As supply increases price decreases.
- An example of demand vs supply graph is given below to better understand the graph above.



## *Mode Of Payment:*




**GRAPH 10 – MODE OF PAYMENT**

- **This particular pie chart was fully made on an estimated value given by the store owner.**

- The above pie chart represents the percentage of people that want to pay by cash or by online payment.

- According to the owner some customers wanted to pay via online mode but could not do so due to unavailability of that service. Due to this some of the customers refused to purchase items as they did not have any free cash on them and looked to purchase products from other shops.

# INTERPRETATION OF RESULTS AND RECOMMENDATIONS:

## I. Interpretation Of Results:

### GRAPH 01 – SALES VOLUME OF EACH SKU/CATEGORY:

Supply of clean drinking water is really difficult in natural form in metro cities like Kolkata. So, the only alternative is to buy clean drinking water from stores like these thus ensuring high demand. Alternatives for refreshment are Cold Drinks and Beverages.

In cities like Kolkata, Cigarettes are a common buy among people during any time, also in high demand. Readymade snacks are also a great buy due to people having less time in their hands to prepare home-made snacks.

### GRAPH 02 – REVENUE GENERATED PER SKU/CATEGORY:

Focus should be placed on high-revenue categories such as Packaged Water and Cold Drinks to maintain steady income.

Efforts to improve the visibility or bundling of underperforming SKUs, such as Toffees & Candies, could be explored to drive incremental sales.

### GRAPH 03 – PROFIT EARNED PER SKU/CATEGORY:

Packaged Water being in demand every time brings in most of the profit. Although, categories like Cold Drinks and Beverages, Chips and Snacks, and Cigarettes bring in a lot of revenue, they bring minimal profit.

### GRAPH 04 – REVENUE EARNED PER SKU/CATEGORY PER DAY:

Packaged Water and Cigarettes being daily use items generate steady revenue. Packaged Water attracts explosive revenue due to high demand.

### GRAPH 05 – REVENUE GENERATED PER DAY:

The revenue during the middle of the month has a good average revenue. Weekends shows the highest revenue and also during the time of holidays and beginning of the month. Other days and during the end of the month have least revenue because of low demand.

### GRAPH 06 – REVENUE PROPORTION PER SKU/CATEGORY:

The business should prioritize Packaged Water and Cold Drinks, which together account for over 50% of revenue.

Experimenting with promotional strategies or cross-category bundling could potentially increase sales for underperforming categories such as Toffees & Candies.

### GRAPH 07 – PROFIT EARNED PER DAY:

As usual we can see that Packaged Water brings most of the profits due to most sales. In the same context we can see that Cold Drinks and Beverages, and Chips and Snacks brings a major part of the revenue but brings the least profit. In fact, it can be seen that Chips and Snacks brings in the least profit but is the third highest proportion of the revenue generated.

### GRAPH 08 – SALES BY SKU/CATEGORY:

Based on this analysis, Rakshit Stores can focus on maximizing sales of Packaged Water and Cold Drinks by ensuring adequate stock levels, competitive pricing, and targeted promotions. Additionally, they can experiment with strategies to improve the performance of low-selling categories, such as repositioning or bundling them with popular items.

### GRAPH 09 – DEMAND AND SUPPLY GRAPH:

With increase in the supply of the products the demand will decrease by some amount.

### GRAPH 10 – MODE OF PAYMENT:

This graph is an estimated graph made after speaking with the owner which shows that there are some customers who have no other options other than online payment. Due to this some customers refuse to buy products.

## II. Recommendations:

### INVENTORY:

On careful analysis it can be inferred that Packaged Water is a daily use commodity thus, if inventory can be increased then it can be easily sold which could increase profits.

Categories such as Cigarettes can also have an increase in inventory as they are also a daily use commodity.

Categories such as Cold Drinks and Beverages and Chips and Snacks can have a higher inventory during weekends and holidays.

Categories such as Chocolates and Toffees and Candies can have low inventory as compared to other categories.

All categories should have equal stocks during the beginning of the month and can be maintained as the days goes by.

Allocate prime shelf space to high demand and high profit categories to maximize visibility and sales. For slow moving items, use end of aisle or promotional displays to boost attention and sales.

**INTRODUCING NEWER ITEMS:**

Recently with the younger generation being the dominant consumer in the recent markets they do not like to stick to one variety of products and tend to try all varieties of products. Some like to try snacks with low carbs or drinks with low sugar content. Hence these variety of items are in demand and can bring higher profit margin to these categories.

Stay updated on market trends and introduce trending products to attract customers and differentiate from competitors.

**PROMOTIONAL STRATEGIES:**

High profit categories like Packaged Water and Cold Drinks and Beverages should be targeted more and high revenue days like weekends and holidays should be targeted more for marketing campaigns.

Bundling offers can be used to sell low demand categories alongside popular categories.

**PROFIT OPTIMIZATION:**

Focus on high profit categories should be increased along with negotiation with wholesalers and suppliers for better terms on low margin items.

**SUPPLIER COLLABORATION:**

Work closely with suppliers to optimize procurement, especially for high-demand items.

Negotiate bulk purchase discounts or flexible return policies for slow moving items to reduce holding costs.

**STORAGE AND PRODUCT PRESERVATION:**

Implement proper storage practices by organizing products based on their shelf life, vulnerability to pests, and storage requirements.

Use airtight containers or sealed packaging for items like snacks and candies to prevent pest infestation.

Regularly inspect inventory for damage or expiry and maintain a first-in, first-out (FIFO) system to minimize waste from expired products.

Additionally, ensure that the storage area is well ventilated, clean and pest-controlled.

**CUSTOMER INSIGHTS:**

Payment preferences should be monitored to refine customer experience. To cater to digital payment users, exclusive online discounts can be offered. This is one of the recommendations which was instantly fixed within a few days as shown below leading to fair amount of increase in customers.


THE QR CODE STAND FOR ONLINE PAYMENT AT THE SHOP

## III. CONCLUSION AND LINKS:

In conclusion, the project highlights data-driven strategies to optimize inventory, enhance profitability, and improve customer satisfaction, enabling Rakshit Stores to achieve sustainable growth and operational efficiency. All the links for the project are provided below:

- Google Docs for all the charts: https://docs.google.com/document/d/17Ie6KY-ljrr3KcKHtcJ1oH1qYzHod8VCIblPco4tO9Y/edit?usp=sharing
- Google Sheets for the datasets: https://docs.google.com/spreadsheets/d/1bk2B5IfhSv17zXSgItBFDbQ2LbI0BVm3tJgDT4fMMjk/edit?usp=sharing
- Google Slides for the presentation: https://docs.google.com/presentation/d/1mY0pbLLuXzbM74QbtYVRqEQtgHMzHHB_jFdpxBxWQrc/edit?usp=sharing

# END