Reducing Stock Wastage And Increasing Profitability Of A Sweets Shop

A mid-term report for the BDM Capstone Project

Submitted by:

Name: Dev Gupta

Roll No: 22f2000888

IITM Online BS Degree Program,

Indian Institute of Technology, Madras, Chennai

Tamil Nadu, India, 600036

Contents

1 Executive Summary

Aggarwal Sweets Corner is an Indian sweets business that manufactures and sells a variety of all-weather and seasonal sweets. It was started by Mr. Mukesh Aggarwal in August 2019. The business serves both individual customers and bulk orders for various occasions and events. Currently, they operate exclusively through their physical store, with no online presence. For more revenue, they also sell packaged sweets and snacks such as Rasgulla, Soan Papdi, Chocolates, etc offered by various well-established organisations, like Bikaji, Haldiram, etc. The business hires labourers on contract basis, and the number of labourers keep varying depending on the season and demand.

The challenges faced by Aggarwal Sweets Corner arise from the proprietor's lack of knowledge and experience in the confectionery domain. The business struggles to align production with their sales demand, resulting in the overproduction of sweets. Due to the perishable nature of Indian sweets, this excess production leads to stock expiration, and , consequently, financial losses. Furthermore, the absence of a dynamic pricing strategy based on sales and demand makes it difficult for the business to retain customers and cover manufacturing and other operating expenses.

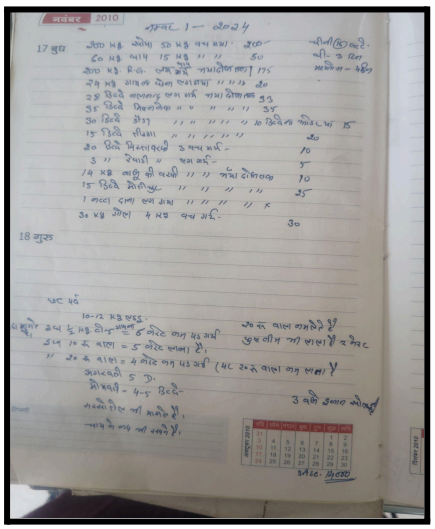
I am adopting a comprehensive analytical approach to address these challenges by analyzing the past year's production and sales data that the business has been maintaining in an unorganised manner. I have gathered their current product price list along with one of the competitor's prices of similar products to determine the appropriate price range in the region, and develop a more effective pricing strategy.

2 Proof of originality of the Data

Letter of Authorization: [Letter of Authorization]

Sweets

Shop



Data

Interaction with the Owner: Video

3 Metadata

I have 3 worksheets in the main workbook.

- Manufacturing-Sales Data: This sheet contains weekly records of production, sales, and expired quantities of sweets from January 1, 2024, to December 31, 2024. The quantity of sweets is measured in kilograms (Kgs).
- Production Cost Data: This sheet contains the manufacturing cost (in INR) information for the sweets.
- Price List: This sheet has the prices (n INR) of the sweets.

Manufacturing-Sales Data

Week	Month	Product	Manufactured Qty (in Kgs)	Sold Qty (in Kgs)	Expired Qty (in Kgs)

The Manufacturing-Sales data worksheet contains six columns:

- Week: The week number ranging from 1 to 48.
- Month: The month name. Each month has data of 4 weeks.
- Product: The name of sweets that the business sells in that particular month.
- Manufactured Qty (in Kgs): The quantity (in Kgs) of sweets manufactured by the business in a particular week.
- Sold Qty (in Kgs): The quantity (in Kgs) of sweets sold by the business in a particular week.
- Expired Qty (in Kgs): The unsold and expired sweets. It is Manufactured Qty - Sold Qty.

Production Cost Data

Direct Cost Heads	Barfi	Laddoo	Rasgulla	Gajar Halwa	Gulab Jamun	Gujiya	Ghewar

- Direct Cost Heads: This column includes costs associated with the production of sweets, such as raw materials, gas, etc.
- The next seven columns are the product names.

Indirect Cost Heads	Amount (in INR) per month

- Indirect Cost Heads: This column covers expenses like rent, electricity, licenses, etc.
- Amount per month: The amount of these cost heads per month (in INR).

Price List

Product	Selling Price (in INR)

- Product: The name of sweets that the business sells.
- Selling Price (in INR): The selling price of the product. The price of a sweet is constant for the whole year.

Link of Project Data: [Business Data]

4 Descriptive Statistics

The descriptive statistics addressed fundamental questions, such as which product had the highest sales, which product had the highest expiration, and the contribution of each sweet to the total revenue generated from sales of sweets.

Product	MAX of Sold Qty (in Kgs)	SUM of Sold Qty (in Kgs)	AVERAGE of Sold Qty (in Kgs)
Barfi	80	661.5	13.78125
Gajar Halwa	25	121	13.44444444
Ghewar	23	58	14.5
Gujiya	35	58.5	14.625
Gulab Jamun	43	158	13.16666667
Laddoo	96	910.5	18.96875
Rasgulla	100	666	13.875

Table 1 shows maximum, total, and average quantity sold (per week) of the sweets

Product	MAX of Expired Qty (in Kgs)	SUM of Expired Qty (in Kgs)	AVERAGE of Expired Qty (in Kgs)
Barfi	8.50	119.50	2.49
Gajar Halwa	3.00	12.00	1.33
Ghewar	2.00	2.00	0.50
Gujiya	3.00	6.50	1.63
Gulab Jamun	7.00	32.00	2.67
Laddoo	7.00	104.50	2.18
Rasgulla	8.00	103.00	2.15

Table 2 shows maximum, total, and average quantity expired (per week) of the sweets

Product	SUM of Sold Qty (in Kgs)	Price (in INR)	Revenue (in INR)	Revenue Contribution
Barfi	661.5	480	317520	36.96%
Gajar Halwa	121	380	45980	5.35%
Ghewar	58	380	22040	2.57%
Gujiya	58.5	360	21060	2.45%
Gulab Jamun	158	300	47400	5.52%
Laddoo	910.5	240	218520	25.44%
Rasgulla	666	280	186480	21.71%

Table 3 shows revenue, and revenue contribution of each sweet.

I used the pivot table feature, along with basic calculations in Google sheets to develop these tables depicting various descriptive statistics, such as maximum sales, total sales, average sales per week, etc.

Insights:

- Laddoo has the highest total sales of 910.5 kgs with an average weekly sales of around 19 kgs.
- Rasgulla has the highest single-week sale of 100 kgs, followed by Laddoo.
- Ghewar, Gajar ka Halwa, and Gujiya had the lowest total sales as they are seasonal sweets, but showed similar average weekly sales as other sweets.
- Among seasonal sweets, Ghewar showed the lowest average expired quantity.
- Gulab Jamun has the highest average expired quantity. The owner mentioned that Gulab Jamuns are highly sensitive to weather conditions.

5 Detailed Explanation of Analysis Process and Methods

For the analysis of the data received from the business, I first manually entered the data into Google sheets as the business manages their data in an unorganised manner.

I utilized various google sheets formulas, such as UNIQUE, VLOOKUP, along with pivot tables and various types of charts to gain insights into descriptive statistics of the business. These statistics helped me in summarizing their sales, wastage, and revenue.

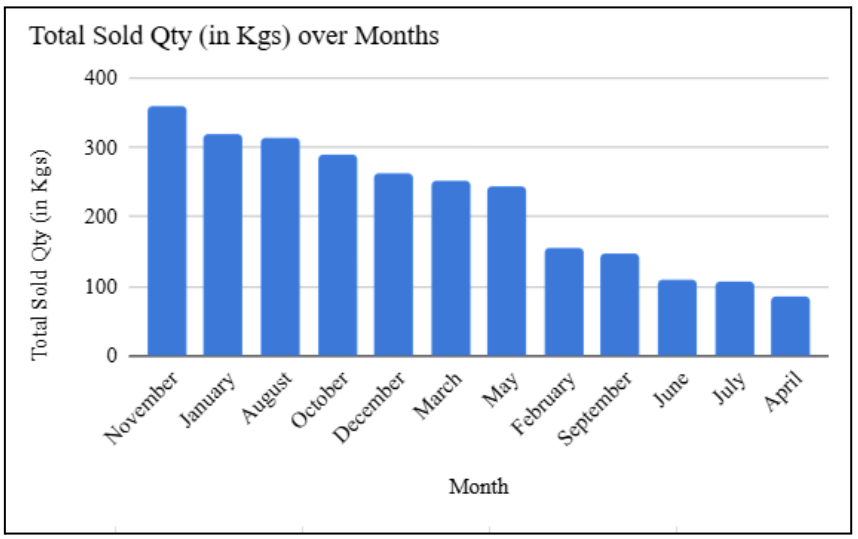
I used line charts to examine the weekly sales trends for different sweets. This enabled me to identify periods of high and low sales demand periods. This analysis will be beneficial for planning production accordingly and curate prices to attract more customers.

I engaged in discussion with the owner to understand about the local people who live in the region, the most celebrated occasions, etc. This was essential for identifying potential peak sales periods and rolling out offers and discounts for better inventory turnover and improving revenue.

This kind of mixed qualitative and quantitative method approach ensures that the recommendations are not only data-driven but also aligned with the practical realities of the business.

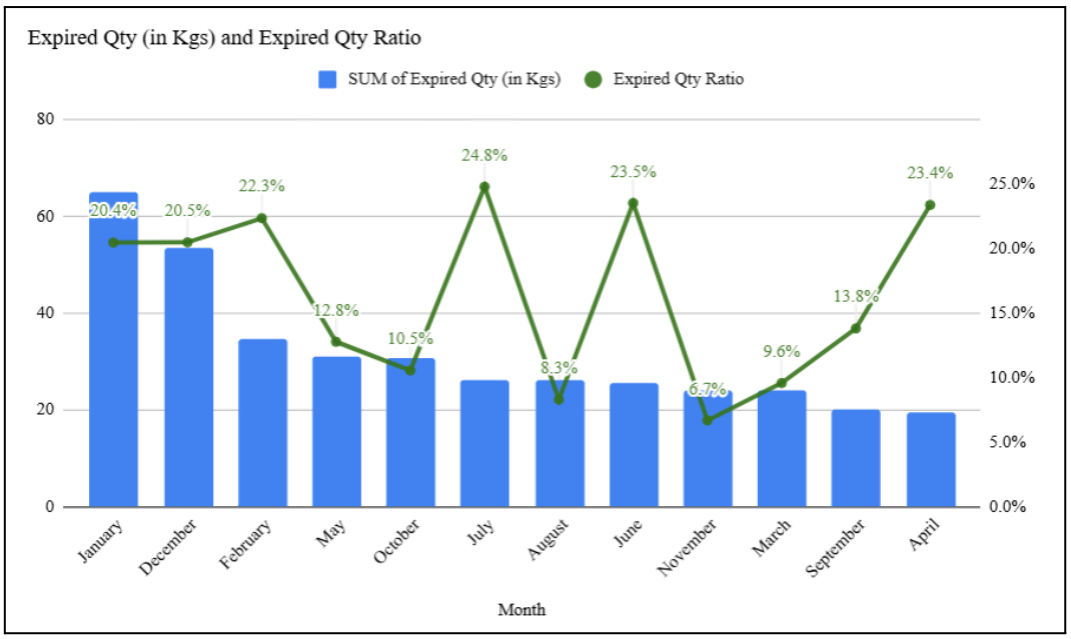
6 Results and Findings

I have analyzed the data and identified key insights and observations:



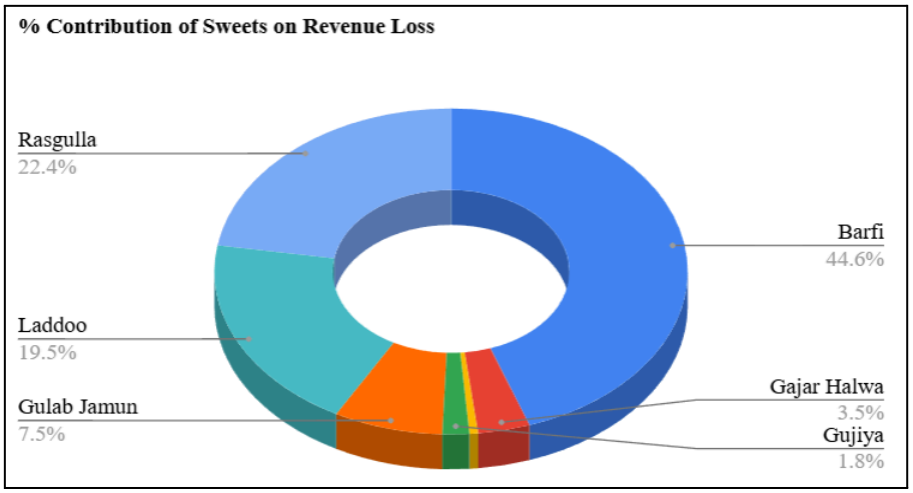
Graph 1 shows total quantity of sweets sold over months

- Sales of sweets were comparatively high in November, January, and August, while April, June, and July showed weaker sales.
- The increase in sales during November, January, and August can be attributed to major festivals such as Diwali, Bhai Dooj, Makar Sankranti, Raksha Bandhan, and Krishna Janmashtami, which drive high sales. On the other hand, April, June, and July saw lower sales due to the absence of any big occasions and the extreme heat in the region reduces consumer footfall and accelerates the expiration of sweets.



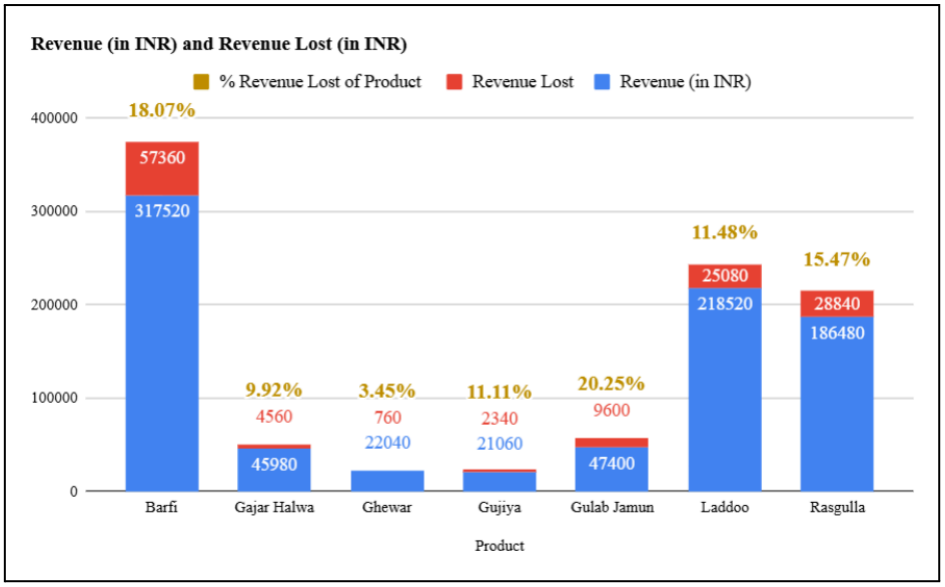
Graph 2 shows total expired quantity and expired-to-sold ratio over months

- November and August show the lowest expired-to-sold ratio, while July, June and April show the highest. In the months like January and December, that showed high sales, the expired-to-sold ratio is around 20%.



Graph 3 shows contribution of each sweet on revenue loss due to expiration

- Despite being strong revenue generators, Barfi and Rasgulla contributed the most in overall revenue loss due to expiration.



Graph 4 shows each product's percentage of revenue lost relative to the earned revenue

- At around 20.2%, Gulab Jamun's expiry loss represents the largest share of its earned revenue. The shorter shelf life might be the primary reason for this observation.
- At 3.4%, Ghewar's revenue loss due to expiry is minimal. After discussion with the owner, I learned that their competitor does not offer Ghewar, which may contribute to its better inventory turnover.