

SUPERMARKET DATA ANALYSIS

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Links:  

AGENDA

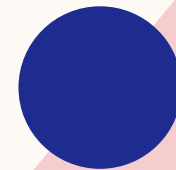
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INTRODUCTION

In this project, I will analyze data from a supermarket chain.

The data includes information on each sale during the first quarter of 2019.

The analysis, the queries, and the visualization will be performed by SQL and Power Bi in order to obtain business insights.

DATA SET

Our data set includes the following data:
Every sale has an Invoice ID, Branch, City, Customer type, Gender, Product line, Unit price, Quantity, Total, Date, Time, Payment type, Cogs, Gross income, and Rating.

[Link to the full data set](#)

METHODOLOGY

my analysis and examination focused on the following parameters:

1. Months.
2. Supermarket's Branches.
3. Product type.

I performed the analysis in order to understand which products are the most profitable and have high ratings from the customers in order to continue selling these products, and at the same time understand which products should be taken off the shelves.

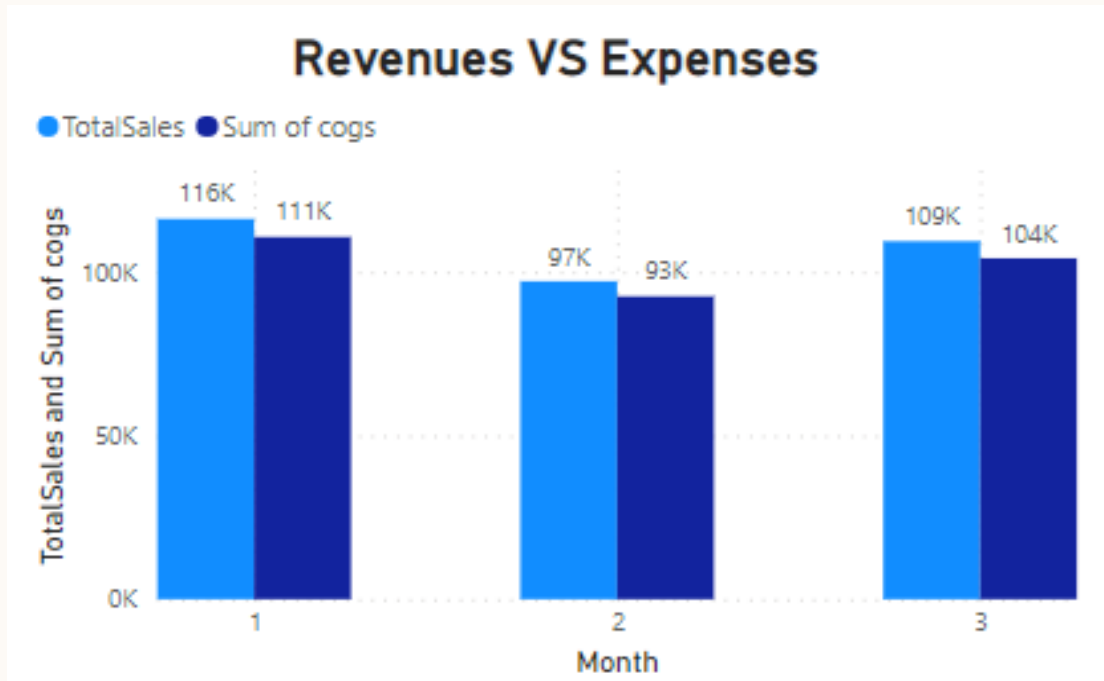
In addition, I tried to determine which branch is the most profitable and has a high rating, while in the branches with a low rating, we will invest effort in order to increase profitability and customer satisfaction.

Beyond that, I also analyzed the data by month to check if there is any trend and if customer satisfaction has increased or decreased and if the supermarket's profits have increased or decreased.

OBSERVATIONS

- Analysis by Months
- Analysis by Branches
- Analysis by Product Type
- Summary

ANALYSIS BY MONTHS

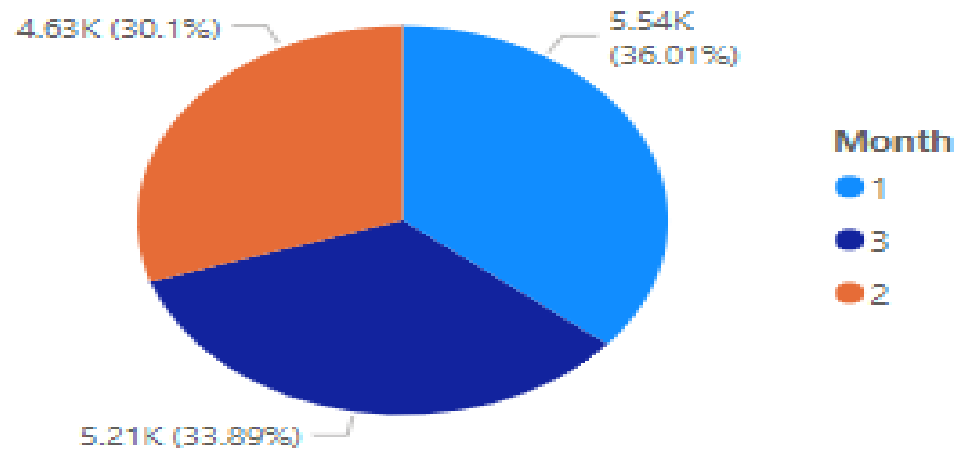


In this Clustered column chart, I separated the revenues and the expenses by each month of the first quarter.

We can see the difference between the Revenues and the Expenses in each month.

ANALYSIS BY MONTHS

Profit By Months



In this Pie Chart, we can see the profit has almost a uniform distribution by month.

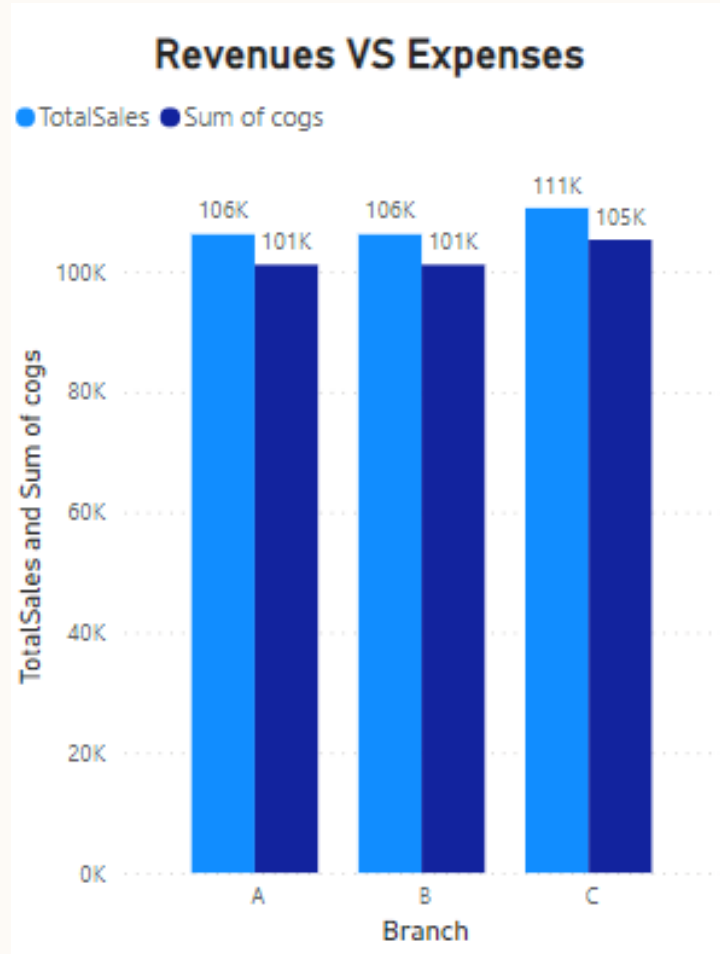
In addition, the profit in February is a little bit lower than the other month probably because this is a shorter month.

ANALYSIS BY MONTHS

Month	Sum of Income	Sum of cogs	Sum of Profit
1	116,291.87	110,754.16	5,537.71
2	97,219.37	92,589.88	4,629.49
3	109,455.51	104,243.34	5,212.17

In this table, we can see the sales summary for each month – the details for each month are more accurate.

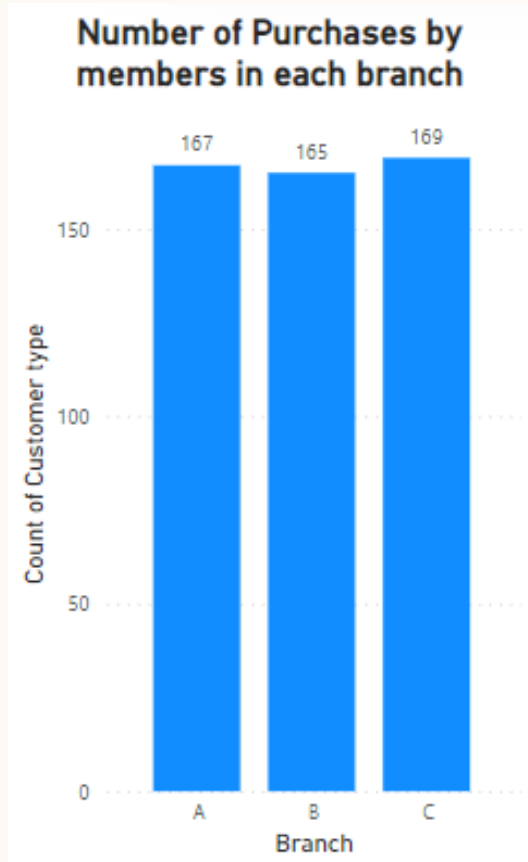
ANALYSIS BY BRANCHES



In this visualization, I separated the branches by revenues and expenses.

We can see the difference between them in each branch— to each branch is a profit.

ANALYSIS BY BRANCHES

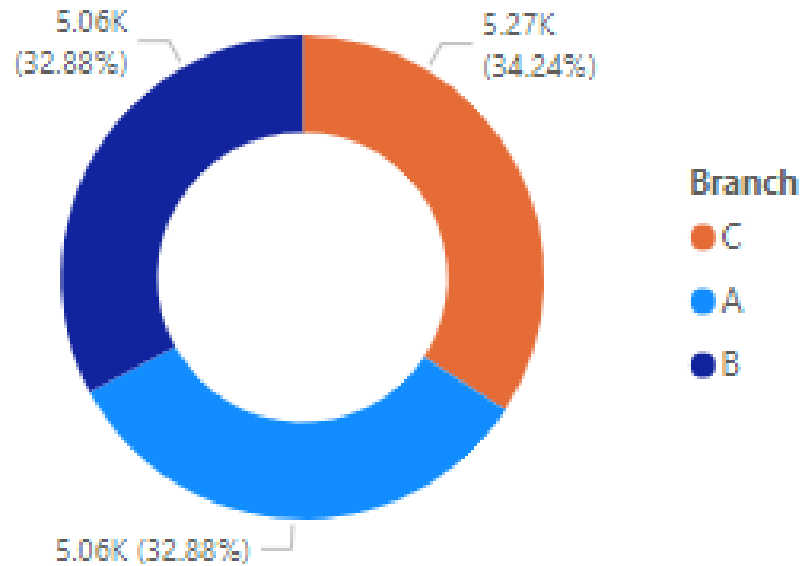


In this Column Chart, I separated the branches by the number of purchases.

We can see that number of purchases has almost a uniform distribution by branch – branch C has more purchases than branches A and B.

ANALYSIS BY BRANCHES

Sum of Profit by Branch



In this Donut Chart, we can see the profit of each branch.
As we can see branch C has more profit than the other branches – there is a direct proportion between the number of purchases and the profit.

ANALYSIS BY BRANCHES

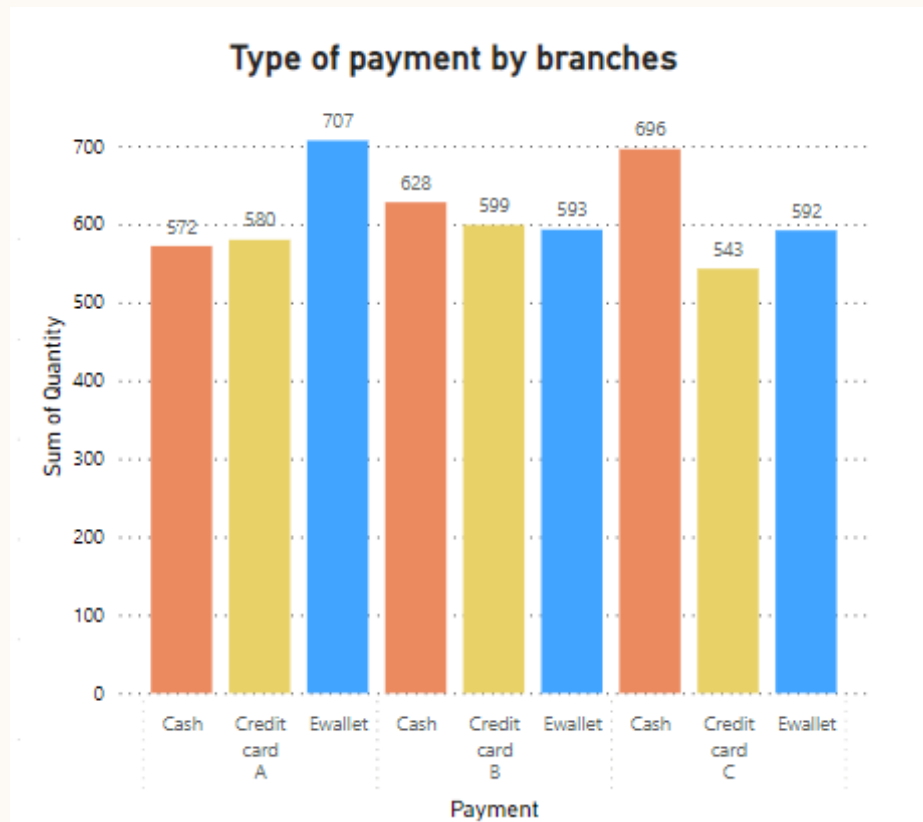
Branch RatingAverage

A	7.03
B	6.82
C	7.07

In this Table, we can see the Rating average of each branch.

As we can see branch C is the successful branch– there is a direct proportion between the number of purchases and the Rating average.

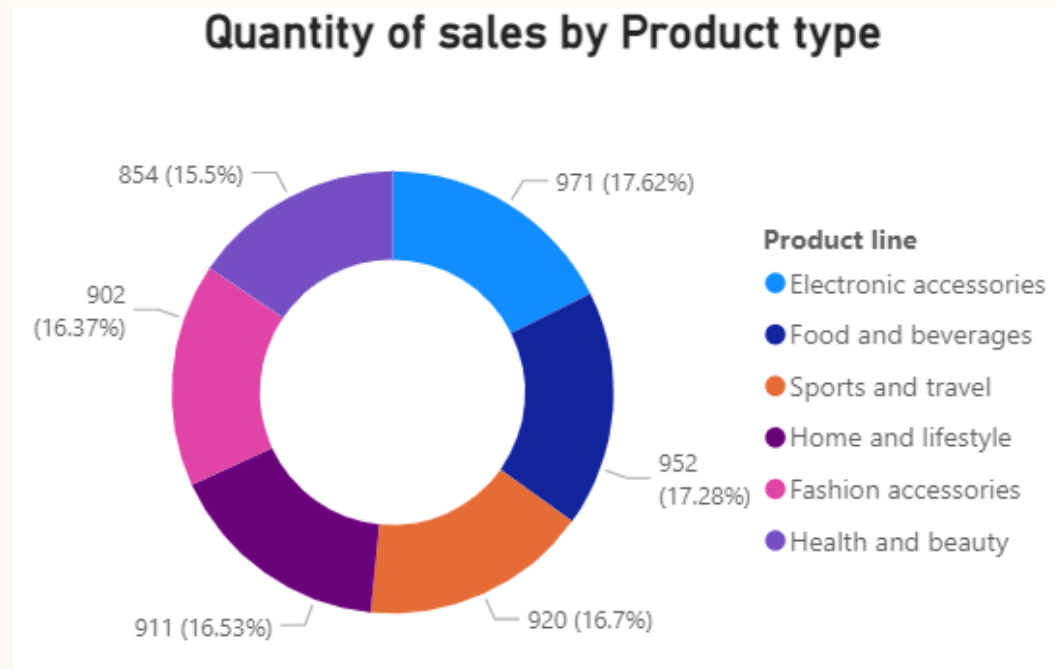
ANALYSIS BY BRANCHES



In this Cluster column chart, we can see the number of payment type by each branch.

As we can see in branch A The most purchases were made by Ewallet while in the other branches, most purchases were made by cash.

ANALYSIS BY PRODUCT TYPE



In this Donut chart, we can see the number of sales of each product type. As we can see the most popular product is Electronic accessories, while the least popular product is Health and beauty.

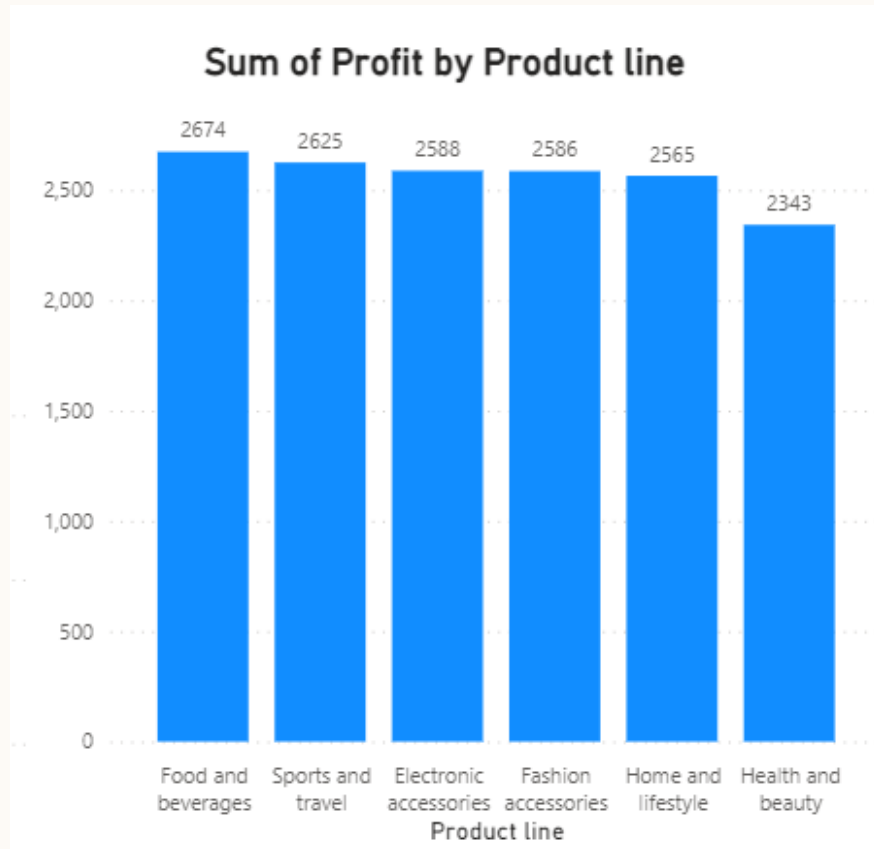
ANALYSIS BY PRODUCT TYPE

Product line	Average of Unit price ▼
Fashion accessories	57.15
Sports and travel	56.99
Food and beverages	56.01
Home and lifestyle	55.32
Health and beauty	54.85
Electronic accessories	53.55

In this Table, we can see the average unit price by Product type.

As we can see the cheapest average product type is Electronic Accessories and this is the reason why his quantity of sales is the highest, while the most expensive average product type is Fashion Accessories and this is the reason why his quantity of sales is almost the lowest.

ANALYSIS BY PRODUCT TYPE



In this Clustered column chart, we can see the profit by Product type.

As we can see the least profitable product type is Health and beauty and there is a direct proportion between it to the number of sales, and this is despite his lower average price.

In addition, Food and Beverages are the most profitable.

ANALYSIS BY PRODUCT TYPE

Product line	RatingAverage
Food and beverages	7.11
Fashion accessories	7.03
Health and beauty	7.00
Electronic accessories	6.92
Sports and travel	6.92
Home and lifestyle	6.84

In this Table, we can see the Rating average by Product type.

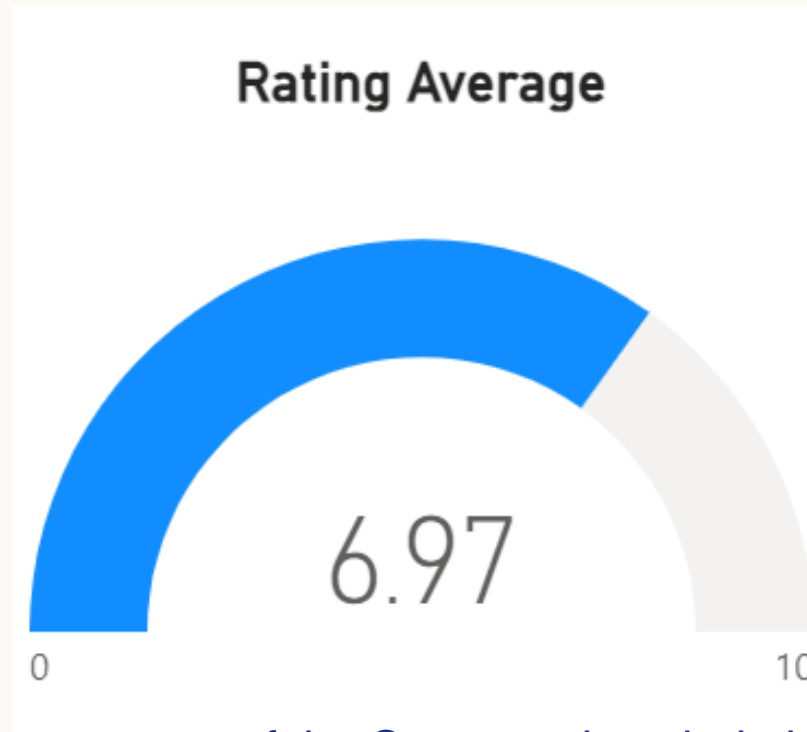
As we can see the highest Rating average is Food and Beverages, there is a direct proportion between it and profitable.

SUMMARY

Revenues	Expenses	Profit
322.97K	307.59K	15.38K

Here we can see the Revenues, Expenses, and Profit in the first quarter of 2019 in the supermarket.
In the bottom line – the first quarter is profitable.

SUMMARY



This is the Rating average of the Supermarket chain in the first quarter of 2019.



Insights & Recommendations

- In February, the income and profitability in the supermarket chain are the lowest, probably because February is the shortest month.
- The profitability and the number of sales in branch C are the highest, and so is the rating in branch C - which indicates the employees' attitude in the branch, the quality of the products, and the short wait at the cash desk. Therefore branches A and B can learn from branch C in terms of conduct. I recommend a tour of all the employees from branches A and B in branch C.
- The number of sales of Electronic Accessories is the highest, in addition, the average price per unit of Electronic Accessories is the lowest. We can learn from it that supermarket customers like to buy at the lowest price.

- The food products are the most profitable and have the highest ratings. In other words, customers are satisfied with them and the profit from them is the best. Therefore, I recommend increasing the number of products of this type in order to increase profits and maintain high customer satisfaction.
- Health and beauty products sell the least and bring the least profit. Recommend considering a change in these products and checking if the change brought positive results. If not, recommend stopping selling these products to save inventory costs on products that are not profitable enough.
- In branch A, most customers prefer to pay with Ewallet, in contrast to branches B and C, where customers prefer to pay with cash. I Recommend opening a self-service cash desk in branch A that allows payment via Ewallet and will lead to reducing queues at the cash desk.

THANK YOU

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